

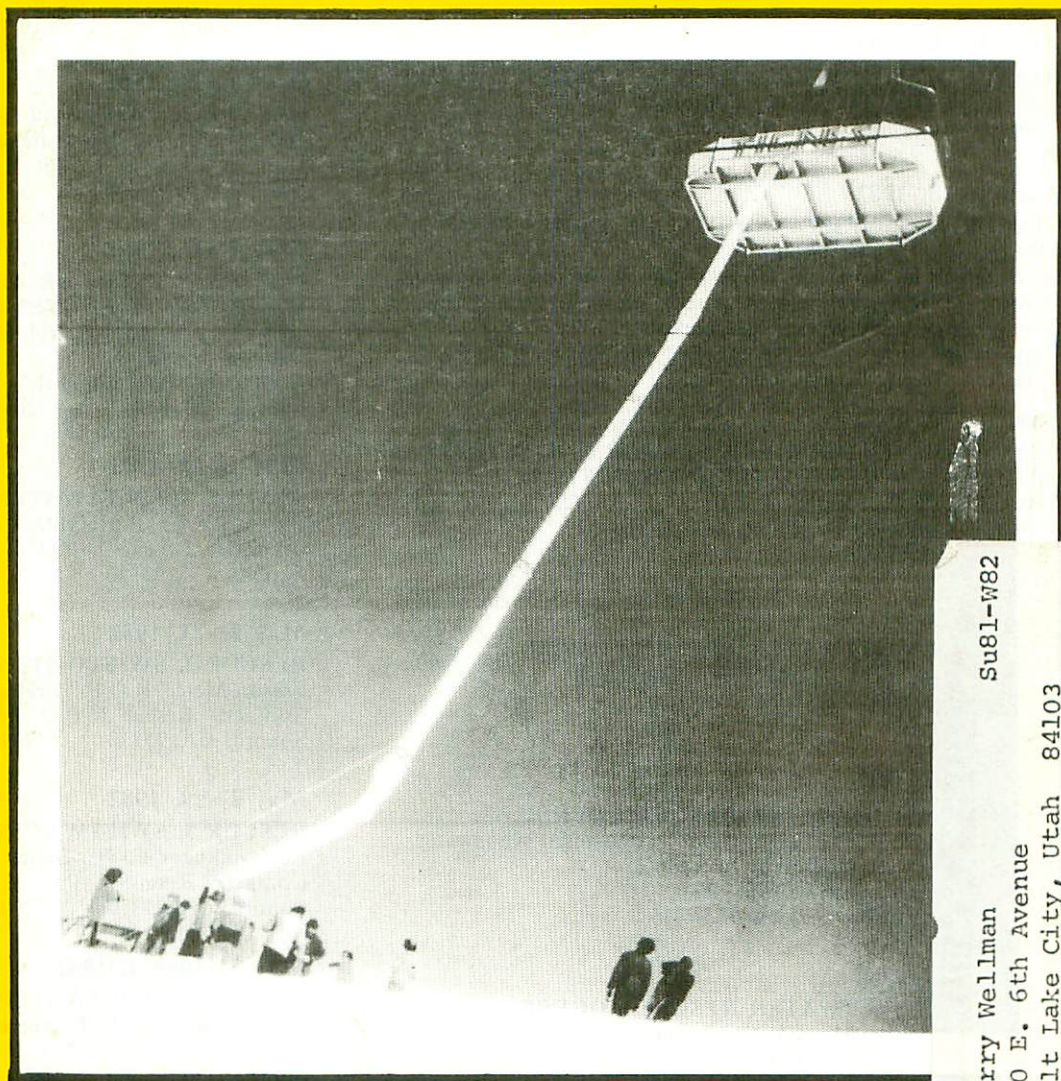
SPRING 1982

SEARCH & RESCUE

MAGAZINE

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Tignes, France.**

(See *GOING DOWN?*
- A Unique Emergency
Evacuation System
on Page 12)



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CALENDAR

April 5-9, 1982

RESCUE 3, SWIFTWATER RESCUE COURSE I & II

Sacto Area R.O.P., Sacramento, CA

Contact: Rescue 3, P.O. Box 4686,
Sonora, CA 95370 209/532-7915

April 12-16, 1982

COASTAL RESCUE BOAT TRAINING

Ventura, California

Conducted in cooperation with the National and California State Parks Services.

Contact: Larry Gibson, Los Guillucos Criminal Justice Training Center, 7501 Sonoma Hwy, Santa Rosa, CA 95405

April 16-18, 1982

RESCUE 3, SWIFTWATER RESCUE COURSE I

Los Guillucos CJTC, Chico, California

Contact: Rescue 3, P.O. Box 4686,
Sonora, CA 95370 209/532-7915

April 16-18, 1982

RESCUE 40, SWIFTWATER RESCUE TECHNICIAN TRAINING, Lisbon, Ohio

In conjunction with the Ohio Dept. of Natural Resources, Division of Watercraft and Rescue 3, training oriented toward fire and emergency services personnel.

Contact: Ron Wisbeth, Rescue 40/SAR Disaster Team, 6846 Law Street, Lisbon, OH 44432

April 16-18, 1982

BUTTE COUNTY SHERIFF'S SEARCH & RESCUE TEAM SWIFTWATER RESCUE TECHNICIAN TRAINING

in conjunction with Rescue 4 — training within the Feather River drainage. Contact: Dave Lee, 8941 Skyway, Paradise, CA 95969

April 19-21, 1982

RESCUE 3, SWIFTWATER RESCUE COURSE I

Los Guillucos CJTC, Santa Rosa, California

Contact: Rescue 3, P.O. Box 4686,
Sonora, CA 95370 209/532-7915

April 21-23, 1982

RESCUE 3, SWIFTWATER RESCUE COURSE

on the New River oriented towards professional whitewater guides and search and rescue personnel.

Contact: Rescue 3, P.O. Box 4686,
Sonora, CA 95370 209/532-7915

April 28-30, 1982

RESCUE 3, SWIFTWATER RESCUE COURSE I

Stanislaus R.O.P., Merced, California

Contact: Rescue 3, P.O. Box 4686,
Sonora, CA 95370 209/532-7915

April 19-30, 1982

CRASH SURVIVAL INVESTIGATION (AIR)

Arizona State University, College of Engineering and Applied Sciences, Tempe, Arizona

Contact: Robertson Research,
P.O. Box 968, Tempe, AZ 85281 602/966-6690

April 21-25, 1982

COLORADO SAR WORKSHOP

Four Seasons, Colorado Springs, Colorado

Contact: Stan Bush, 2415 East Maplewood Avenue
Littleton, CO 80121 303/794-2304

May 3-14, 1982

CRASH SURVIVAL INVESTIGATION (AIR)

Arizona State University, College of Engineering and Applied Sciences, Tempe, Arizona

Contact: Robertson Research,
P.O. Box 968, Tempe, AZ 85281 602/966-6690

May 3-7, 1982

RESCUE 3, SWIFTWATER RESCUE COURSE I & II

Sacto Area R.O.P., Sacramento, California

Contact: Rescue 3, P.O. Box 4686,
Sonora, CA 95370 209/532-7915

May 9-11, 1982

SWIFTWATER RESCUE TECHNICIAN COURSE

Presented by The Royal Life Saving Society of Canada and Rescue 3. Contact: Dale Bayley, RLSSC, 2205 Victoria Ave., Regina, Saskatchewan, Canada S4P 0S4 306/522-3651

May 12-16, 1982

RESCUE 3, SWIFTWATER RESCUE COURSE I & II

Bakersfield J.C., Bakersfield, California

Contact: Rescue 3, P.O. Box 4686,
Sonora, CA 95370 209/532-7915

May 14-16, 1982

NATIONAL JEEP SAR ASSN.

IDAHO STATE CONVENTION

Hosted by Salmon Search and Rescue

Salmon, Idaho

Contact: Everett Bogart, Natl. Com. Officer
Salmon, ID 83467 208/756-2957

May 18-20, 1982

RESCUE 3, SWIFTWATER RESCUE COURSE I & II

Porterville C., Porterville, California

Contact: Rescue 3, P.O. Box 4686,
Sonora, CA 95370 209/532-7915

May 21-23, 1982

RESCUE 3, SWIFTWATER RESCUE COURSE I

Fresno-Metro R.O.P., Fresno, California

Contact: Rescue 3, P.O. Box 4686,
Sonora, CA 95370 209/532-7915

May 27-29, 1982

RESCUE 3, SWIFTWATER RESCUE COURSE I

Los Guillucos CJTC, Santa Rosa, California

Contact: Rescue 3, P.O. Box 4686,
Sonora, CA 95370 209/532-7915

May 31-June 4, 1982

RESCUE 3, SWIFTWATER RESCUE COURSE I & II

Sacto Area R.O.P., Sacramento, California

Contact: Rescue 3, P.O. Box 4686,
Sonora, CA 95370 209/532-7915

June, 1982

NATL. JEEP SAR ASSN. NATIONAL CONVENTION

Salt Lake City, Utah

Hosted by Salt Lake Search and Rescue

Contact: Everett Bogart, Natl. Com. Officer
Salmon, ID 83467 208/756-2957

Continued on page 20

CORRECTION

Credits for the BRONX BLAST photos were incorrectly identified. The photographer's name was Harvy Eisner.

SEARCH & RESCUE

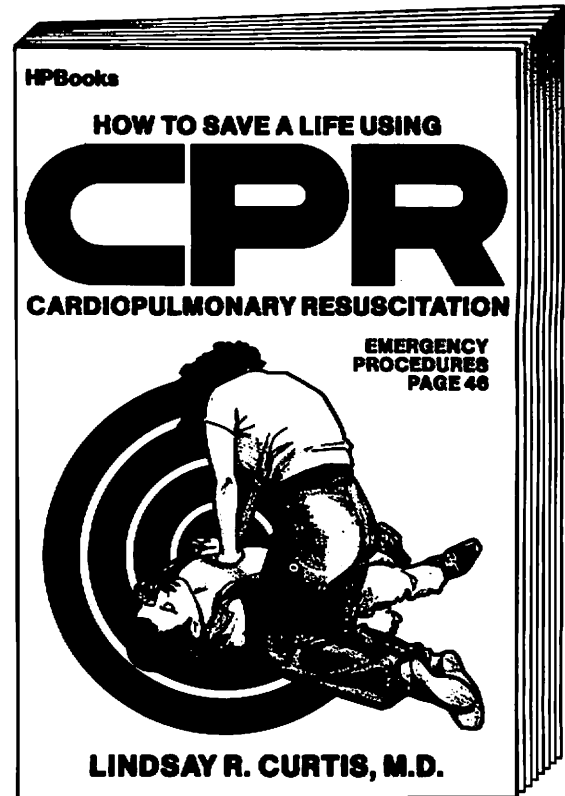
MAGAZINE

SPRING 1982

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For complete story on this lifesaving book see
Page 19 in our New Products Section

Editorial Offices:

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RADIO COMMUNICATION AND MOUNTAIN RESCUE / SEARCH

By **BILL MARCH**
184 Huntington Green NE,
Calgary, Alberta T2E 5A6, Canada
403 / 284-6471

Radio communication equipment fulfills three important functions in mountain search and rescue situations: 1) Carried as a safety precaution by climbers it facilitates rapid rescue call out in the event of an accident. 2) During rescue operations it permits communication between rescue team and base and between units of the team separated on technical cliff rescues. 3) In search operations it allows control of multi-teams and up to date monitoring of the search progress. Obviously there is a considerable difference in complexity between 1 and 3. In the first simple use, a specific daily time is all that is required, while in the last complex use, efficient radio-telephone procedure is essential. On a radio telephone channel the following limitations apply:

- (a) Only one conversation can take place at a time.
- (b) When a station is transmitting it is not normally possible for another to break in and stop it. In some radio networks all stations are required to pause for 2/3 seconds between transmissions to allow station with priority traffic to break in. If it is really urgent the operator wishing to break in may hold his transmitter on for a few seconds to indicate to other stations operating his intention to break in.
- (c) Each station must listen to all transmissions to be sure of receiving messages intended for it.
- (d) Although most sets on the mountain rescue frequency have a limited range, freak conditions and more powerful transmitters could cause confusion between one mountain area either during training or operations.

With these limitations there could easily be confusing delays in passing important messages, ambiguous conversations and a loss of time and undue wastage of battery life. The purpose of R.T. procedure is to avoid such situations; it lays down a simple code of rules and establishes a set message format and the use of procedure words so that the time of each transmission is kept to a minimum and the most effective use is made of 'air time.'

Each radio operator is allocated a call sign and one radio would be designated as the central station with the function of controlling the R.T. use and the discipline of the other channels. If there are good communications a collective call sign can be allocated to a number of stations on a channel. The stations will

always acknowledge with their own call signs in alphabetical or numerical order whatever is pre-arranged. The central station may under certain circumstances delegate the control function to another station normally to a portable high powered set in a good geographical position. There must always be a central station in the network.

Strict Radio procedure is necessary if radios are to be used effectively. The message format contains three essential elements.

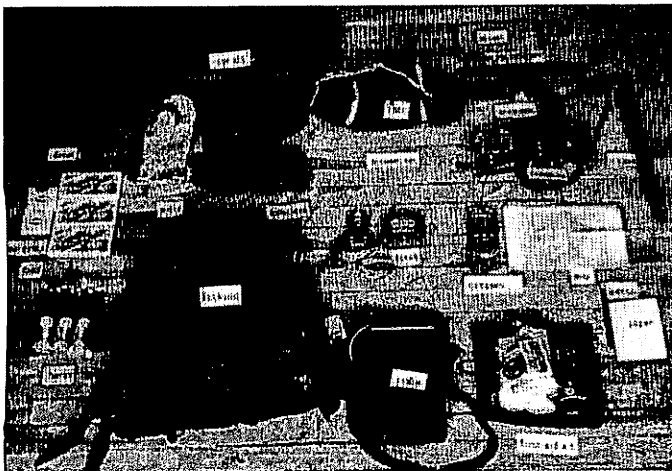
- i) **Heading.** Identifications of participating stations. ANGEL ONE THIS IS ANGEL CONTROL. The station called is always given first, so that he realizes the message is for him and listens intently.
- ii) **Text.** The intelligence to be passed. This should be kept as concise as possible and you may use accepted abbreviations — do not make up your own abbreviations. Know exactly what you are going to say before you start to speak, avoid mumbling through with hesitations. If you can write down your message and read it out this may be more effective.
- iii) **The Ending.** This is an indication that the transmission is complete, but with an implied instruction of the required response. Normally the ending will be one of the following.
 - (a) **OVER.** This is the end of my transmission to you, a reply is necessary, go ahead and transmit.
 - (b) **OUT.** This is the end of my transmission and no reply is required or expected.
 - (c) **WAIT.** I must pause for a few seconds.
WAIT OUT. I must pause for more than a few seconds. (implies a later call will be made).

There are many abbreviations or prowords in use — make sure you are familiar with the correct usage in your network. The majority of them are self-explanatory and a selection of the important ones with their specific definitions is given below:

ABBREVIATION	MEANING
RADIO/CHECK ON DO YOUR READ	What is my signal strength and reliability.
ROGER	I have received your last transmission.
WILCO	I have received your message, understand it and will comply with the instructions. (Do not use unless this message is understood).
SAY AGAIN	Repeat your last transmission.
I SAY AGAIN	I am repeating transmission or portion indicated.
CORRECTION	An error has been made in this transmission. The transmission will continue with the last word transmitted correctly.
MRA CODE:	<ol style="list-style-type: none"> 1 Victim found no assistance needed. 2 Victim found assistance needed. 3 Unforeseen emergency. 4 Victim found dead. 2-1 Return to base.

The readability of a signal may be given descriptively or in some instances numerically although this is not used in the British Mountain Rescue scene so much.

- | | |
|----------|--|
| Strength | 5 Loud & Clear |
| | 4 Signals readable, slight interference. |
| | 3 Signals Moderate, medium interference occasional words unreadable. |
| | 2 Signals Poor. Hearing interference, only part message readable. |
| | 1 Carrier Signal Only. Message totally unreadable. |



Basic equipment carried by instructors at National Outdoor Training Centre, Scotland. Note the back up flares and emergency equipment as well as radio.

The operator should always speak clear and distinctly with the voice pitched up and at a constant level. The microphone should be held 1"-2" from the mouth and the operator should speak across not into it since under cold conditions his breath can freeze the mouth piece. If communications are difficult because of weak signals, distortion or interference special care should be taken with diction. It may be necessary to repeat each word or phrase twice in order to get the message through. If you do not get a reply to your signal do not keep calling but check your set and try from a different position. Often just moving the set a few feet will improve reception and transmission. The common faults to check in a set are: loose microphone lead, loose aerial connection especially with whip aerials, flat battery, cold battery, poor contact in battery case. An indication of battery strength can be determined by listening to the squelch (static) and checking the volume control. If the squelch is loud when the batteries are still operating and you should transmit blind even if you are not receiving since there is a possibility your signal will be picked up. It's more common for a set to receive but to be unable to transmit because of low battery power. In this instant a carrier wave note from depressing the microphone switch may be heard and it is possible for the transmitting station to ascertain information by adopting a series of redundant questions which may be answered by depressing the switch. e.g. ANGEL BASE: Angel one if you are receiving me and cannot transmit depress your transmit button twice.: Angel One ROGER this is Angel Base if your position is on the porcupine ridge press transmit button twice. This is of course the antithesis of normal radio communication since it involves long winded communication.

The radio should be kept dry and the batteries should be protected from the cold to maintain power. Special care should be taken with the microphone transmit button. If it is depressed too soon it drains the battery and if it is too late not all the message is transmitted. It has also been known for people to panic and forget to release the transmit button so preventing a return signal! Other problems include accidental key depression occurring in a loaded rucksack or the key freezing in the depressed position and not releasing. In darkness and inclement weather the operator must be aware of these potential problems.

As with all mechanical devices radios have their limitations. They normally operate in line of sight and often require relay sets in mountain environments. They are subject to interference from atmospheric static and may suffer mechanical breakdown and loss of battery power. Another consideration is their effect on mission controls — the field team leader may be subordinated to a central control removed from the situation especially in a search situation. When the radio is carried by a group for their personal safety it may encourage them to undertake over ambitious trips. The radio should be looked upon as an aid to mountain search and rescue; like the helicopter it has greatly improved rescue capability. We should not forget, however, how to operate without it if necessary. The bottom line of any rescue depends ultimately on trained experienced personnel who are prepared to work under difficult and sometimes dangerous conditions with or without the benefit of radio communication.

PHONETIC ALPHABET

A ALFA	J JULIETT	S SIERRA
B BRAVO	K KILO	T TANGO
C CHARLIE	L LIMA	U UNIFORM
D DELTA	M MIKE	V VICTOR
E ECHO	N NOVEMBER	W WHISKEY
F FOXTROT	O OSCAR	X X-RAY
G GOLF	P PAPA	Y YANKEE
H HOTEL	Q QUEBEC	Z ZULU
I INDIA	R ROMEO	

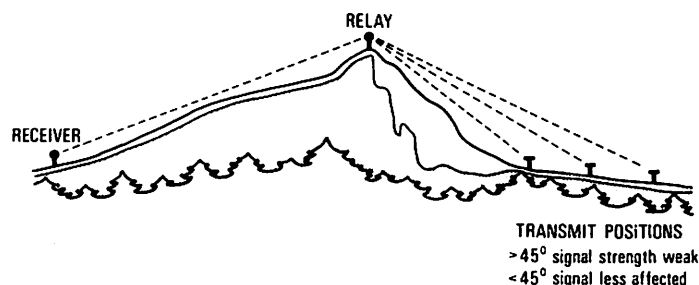
NUMBER

1 ZE-RO	4 FOW er	8 AIT
2 WUN	5 FIFE	9 NIN er
10 TOO	6 SIX	DECIMAL DAY-SEE-MAL
11 TREE	7 SEV-on	THOUSAND TOU-SAND

Pronunciation in difficult communications.

RADIO COMMUNICATION IN MOUNTAIN TERRAIN

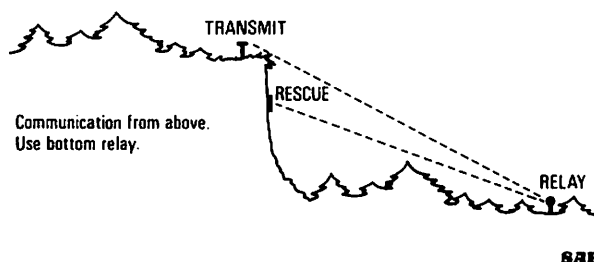
1. MOUNTAIN MASK



2. RAVINE MASK



3. CLIFF RESCUE



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Santa Barbara, CA 93111 Attn: SAR Dept.

LETTERS

TO THE EDITOR

Correspondence Secretary — ANNE BINGLE

October 14, 1981

Gentlemen:

As a new subscriber it is my privilege to report that the first two issues I have read have exceeded my furthest expectations. I enjoy the diversity and well thought out articles. Your "Calendar" and "March on SAR" sections are excellent ideas. I expect that in the future they will be a big help personally. When reading the summer issue I noticed two letters to the editor. They were written by Mr. James Schortmann of Springfield, Maine and Mr. Eric Hallwert of Houston, Texas. These gentlemen were asking for help in a very serious matter. I feel however, that there are many more people qualified or seeking training in SAR who are as directionless as I and these two gentlemen. I therefore put to you a multifold proposal. I suggest some of your input on the national level in the following manner. You could suggest that a board be formed comprising of expert SAR representatives from each section of the nation. This national SAR rep. board can more easily gather important pertinent information for many diverse programs and help the small local SAR group. The potential seems very large for this type of helpful expertise. Another function of this board could be to direct hopeful candidates in the SAR field to where they are most needed (either for volunteer or paid work). It seems that there is an acute overall lack of national statistical SAR information which can be pooled and used to maximum efficiency. Between coordinating training, new products, techniques, job information, and other tasks the board can be utilized to the maximum.

Another consideration for you to reflect on is a national SAR group and organization list. I don't think anyone really knows how many groups exist nationally and overseas. Nor do they know what specialty each is comprised around. The list (by regions) could contain: official org. names, locations, addresses, officers, telephone numbers, sizes, specializations and other capacities, paid or volunteer, and other pertinent data. In addition a separate section could be reserved for foreign countries.

I further appeal to you for consideration towards appealing to the East Coast SAR organizations to be more visible in your fine magazine. Come on East Coast! Where are you? The West Coast has consistently swamped the articles, calendar events, and reported activities sections. Someone isn't getting the word of your mags fine services!

You might also consider publishing particular techniques for gaining employment into the SAR field. This could encompass the Search and Rescue, EMT, Fire, Paramedic, Specialized Emergency Units, and Special Federal Emergency Agency Units, etc.

When I recently visited Southern Germany, I was introduced to both their firehouses and their emergency technical help stations called Technischer Hilfsverein or THW. This organization is trained for any and all rescue and disaster operations. In Germany it has been shown that at the very least a national cohesiveness and unit in emergency services can be achieved. *SEARCH & RESCUE MAGAZINE* can lead the way for similar units.

If you have any information in regards to my particular SAR job hunt please forward it to the covering address. If I can be of any further assistance please let me know! Thank you.

Sincerely,

Bruce T. Gilmour
Firefighter/EMT

To whom it may concern,

Could you please send me the addresses to the National Association for Search and Rescue, and the address to the Survival and Flight Equipment Association (SAFE)? Please send me information as soon as possible.

Thanks,
G.R.B.

Dear Reader:

The addresses you requested in your letter are:
NATIONAL ASSOCIATION FOR SEARCH AND RESCUE, P.O. Box 1849, La Jolla, CA 92038.
SURVIVAL AND FLIGHT EQUIPMENT ASSOCIATION
P.O. Box 631, Canoga Park, CA 91303.

I hope these addresses will encourage you to join these fine organizations.

Dear Dennis,

It is a long time since we corresponded but I have a new idea which may interest you if you like the idea of building up circulation.

I am planning a marine press scanning service for the benefit of subscribers, which would list articles, sources, etc. The only commitment on the part of the journals listed would be regular provision of the latest issue (one copy). Targets - companies, research establishments, etc.

Would this interest you?

Sincerely,
Robin Burton

December 8, 1981

Dear Mr. Kelley:

On December 5, I sent you my article on Bus Crash Safety Hazards, deliniating the difficulty S&R crews had during the simulated bus crash here in Noxon, Montana.

Today's *Missoulain* carried an AP story from Murray, Utah detailing a crash of a school bus carrying a load of students and instructors on a skiing expedition when the brakes failed. How similar it was to the test conducted here by the Disaster Unit.

I have enclosed a photocopy of that story for your perusal. I am certain that rescuers in that narrow canyon had the same sorts of problems to face as our S&R people did. It may lend credulity to our test.

Sincerely,
Jay Simons
Box 2 Hy.
Noxon, MT

MURRAY, UTAH (AP)— State investigators searched the wreckage of a school bus Monday in an effort to learn why its brakes failed, causing it to overturn in a mountain canyon in an accident that left two teen-agers dead and two seriously injured.

Salt Lake County Sheriff's Lt. Carl Evans said a team from the Utah Department of Transportation was expected to take several days to complete its investigation.

The bus, carrying 38 teen-age skiers and two adults from Kemmerer, Wyo., could not stop as it descended the steep Little Cottonwood Canyon road Sunday afternoon, the driver, Julie Ann Nishi, said.

Nishi, 25, said she tried to stop the runaway bus by running it against an embankment, but the bus tore apart and flipped. She said she had to pump the brakes hard when crossing railroad tracks earlier Sunday, but she did not know what caused them fail going down the canyon.

The bus was carrying members of the Kemmerer High School Ski Club and their adviser, Zem Hopkins, back from a weekend at the Alta Ski Resort, about 25 miles east of Salt Lake City.

SAR

BUSH ON SAR

STAN BUSH

c/o The Colorado Search & Rescue Board
2415 East Maplewood Avenue
Littleton, Colorado 80121

What's In a Name?

So the Mission Coordinator meets with a team leader at the plot board and shows him the area he wants searched. It is well defined with terrain features. The MC tells him to take his team and do a Zig Zag search through the area. Zig Zag?? Yep, it's listed in one of the search manuals available today.

On multi unit missions there are sometimes problems relating to just *what* IS meant by the 'definition' of a search pattern. This is an area that needs some study and research. NOT to get all teams to conform to one pattern, but to make sure that the terms routinely used by mission coordinators are understood.

In order to emphasize the problem, I have researched the literature I have available and found the search titles listed below. There is duplication, and there is confusion. Isn't it about time we took a hard look at just what we mean by a 'line' or a 'team' search?

1. **BINARY.** Sending teams across a defined area (generally at mid point) to try to locate clues that will halve the search area. Repeated.

2. **EYEBALL.** Get up on a high place and look around.

3. **SCRATCH.** Small team out to do a circle around the last seen point (LSP) to cut tracks.

4. **HASTY.** Small team out along a stream or trail to check for tracks.

5. **FIELD.** Random coverage of a particular area — a look and the meadow.

6. **TEAM.** 5 men. One following a trail and watching for tracks. Two watching the sides close in to the trail. Two watching the far distance. Highly structured.

7. **LINE.** Highly formal. Close interval (3 feet). "Stop the Line," "Move the Line," etc. Commanders behind the line. 40-50 people. Used often when all else fails.

8. **CUTTING TRACK.** No pattern. Looking for tracks from the LSP.

9. **SECTOR.** Assigning teams to sections or grids. Little structure.

10. **REVERSE.** Searching an area and then going back through it.

11. **CONTAINMENT.** Getting a perimeter covered and patrolling it.

12. **STAGGERED LINE.** Every other man is about six feet behind the front line.

13. **GRID.** Wide spacing through an assigned area.

14. **REVERSE GRID.** Through the area with wide spacing and then back through it.

15. **DIAGONAL.** Searchers anchor on the lead man and each searcher in the line is about six feet behind the man to the right (or left) who is leading.

16. **TRIANGULAR.** Three man teams in a triangle with sides of about 8-10 feet with teams about 100 feet apart.

17. **YO-YO.** Two anchor men — on fixed areas such as a ridge and a valley with one or more persons moving at random back and forth between them.

18. **TRAIL.** Following a known trail, drainage, stream, ridge, etc. for very quick area coverage.

19. **BLOCK.** House-to-house in-town searching with teams assigned each block.

20. **RIGHT ANGLE.** Grid through an area and then search it at right angles.

21. **ROCK.** Using technical personnel to search through a boulder field, etc.

22. **CLIFF PENDULUM.** Belayer lowers searcher to point where he can see cliff. He anchors and belayer moves right or left. Searcher pendulums to check new area of cliff. Repeated.

23. **RAPPEL SEARCH.** Down the cliffs in certain areas to check ledge, etc.

24. **RIVER BANK.** Walking and checking along river. Close-in probing.

25. **WATER.** Surface searching with boat or kayak.

26. **SURFACE SEARCH.** Also water where searchers are belayed from shore.

27. **UNDERWATER SEARCH.** A separate category in itself with different techniques.

28. **AIR SEARCH.** A separate category with a different series of techniques.

29. **RADIALS.** Primarily air (VOR, DME, etc. See CAP manual). Also sending teams out on direct compass readings from the LSP.

30. **HORSESHOE.** For moving or hiding man. Five teams. U Shape. Side teams moving quietly and center team making noise.

31. **WHEEL.** Man at center pivots. Searchers walk in a circle. (Impossible? The MC DID one of these with 100 searchers near Blackhawk one time - total chaos!)

32. **PIVOT.** Like the wheel, but small group moving around various fixed points to cut track.

33. **CONFINED CLUE.** Mark off ground with string and search along string lines. (Each searcher with about a three foot wide search area. Hands and knees.)

34. **OPEN CLUE.** Moving fast - looking for dropped pack, etc.

35. **POLICE CLUE.** Similar to 33 although area is gridded in 1 yard squares and searching is done with shovels, knives, etc. All removed debris sifted.

36. **ZIG ZAG.** Same as 17, but with more formal patterning of persons between the two anchor men.

37. **MULTIPLE SWEEP.** Researching the same area.

38. **VISUAL CONTACT SWEEP.** Line where next searcher is barely visible.

39. **NIGHT.** Obvious. Using any technique, but generally close interval line.

Continued on page 10



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Emergency Snakebite Treatment Outlined

ELAINE RICE

c/o Maryland EMS News, Maryland Institute
for Emergency Medical Services Systems
22 S. Greene Street, Baltimore, MD 21201

Two types of poisonous snakes inhabit Maryland, the copperhead and the timber rattlesnake. Although snakebites do not seem to be a serious problem in Maryland in terms of numbers (only 78 snakebite-related calls were recorded by the Poison Information Center in 1980), they should be taken seriously in terms of treatment.

Snake venom acts immediately on the nervous system and on body tissue; by destroying protein on contact, it breaks down body tissue, causing it to rot away. Antivenin can prevent death and can counteract some of the venom's effects with a "diluting" action, but it cannot prevent damage or loss of a limb, nor can it restore tissue that has been damaged.

According to standard EMT operating procedures, treatment in the field for snakebite, regardless of type or severity, is the same:

1. Assume it is a serious bite which will produce a life-threatening condition;
2. Apply a constricting band above the wound site;
3. Briefly apply ice directly to the wound to relieve pain, if necessary;
4. Keep patient warm and treat for shock;
5. DO NOT cut, use suction, cool, or freeze extremities.
6. Transport patient to a hospital as quickly as possible;
7. If possible without time delay, identify the snake or bring the snake's body to the hospital for identification.

At the hospital, a physician will determine the type and severity of snakebite and will decide what treatment needs to be implemented; often a physician's course is one of waiting and observation for symptoms. Unfortunately, symptoms do not always appear immediately, so that the poison may already have been active for some time before antivenin is administered.

To aid doctors in identifying, evaluating, and treating snakebites, Dr. Harry Froelich, pharmacologist at the Biomedical Laboratory at the Aberdeen Proving Grounds and a lecturer on snakebites in the NIEMSS nursing workshop on summer emergencies has established the following checklist:

1. Identify the snake by noting the patient's symptoms or by calling the Poison Information Center in Baltimore to avoid giving unnecessary treatment for a non-venomous bite.
2. Evaluate the seriousness of bite:

Grade 0 — erythema surrounding fang punctures, but no other symptoms (25-30 percent of bites from venomous snakes are "dry" bites — that is, no venom is injected).

Grade 1 — 5 to 6 inches of edema, pain, slight discoloration, no systemic effects. (This is the most common grade for copperhead bites.)

Grade 1½ — 6 to 12 inches of edema, pain, and ecchymosis. (This is the gray area between grades 1 and 2 when you should start to consider antivenin.)

Grade 2 — 10 to 15 inches of edema, ecchymosis, petechiae, nausea, vomiting, oozing from fang punctures. (The key is the onset of systemic envenomation. Antivenin is a MUST; do not waste time calculating amount to be given; if the patient is not antivenin-sensitive, be aggressive and continue antivenin until symptoms begin to decrease.)

Grade 3 — similar to grade 2 with symptoms appearing rapidly, within one hour. (Antivenin must be started as soon as possible; this is a rare degree for a copperhead bite but common for a rattlesnake bite.)

NEWS & RUMORS

FLUKE CB SIGNAL SAVES CANADIAN'S LIFE

A fluke CB radio signal that traveled 1,000 miles from the wilds of western Canada enabled a Colorado man to play the key role in rescuing a Canadian sportsman snowbound with his broken-down vehicle for 10 days.

"My wife and I take it as a work of God," says the rescuer, Roger Culp, 28, who lives near Craig.

"Give him (Culp) my heartfelt thanks," says the rescued, Harold de Weyer, 33, safe in his home Wednesday night at Richmond, British Columbia.

DeWeyer was close to desperation last Friday when he tried once more to reach someone with his citizens band radio. At that moment, Culp, who was sick at home, decided to radio his wife, who was driving to town. Culp picked up de Weyer's 1,000-mile message and relayed the stranded man's location to authorities. The next day, Royal Canadian Mounted Police in a helicopter spotted de Weyer and brought him out. De Weyer was in good shape but not prepared to hold out much longer.

De Weyer left Richmond, a suburb of Vancouver, Dec. 6 in his four-wheel-drive vehicle and planned to spend six or seven days hiking and fishing in the rugged back country near Mount Currie, in the Coast Mountains about 100 miles north of Vancouver. On about the third day, 2½ feet of snow fell overnight, and de Weyer decided "I had better get out of there because I didn't know how long it was going to last. I got 4 or 5 miles and started sliding off the road. I had to winch myself back on the road twice on a hill. Then my steering knuckle broke." With the steering mechanism out, de Weyer, a mechanic, could drive only a short distance backward. He backed the vehicle about 100 yards and into a fairly sheltered area and settled down to operate his CB radio and await rescue, not scared at all because of the survival gear he had brought along. A smart back-country traveler, he had a good supply of food — which was almost gone when he was rescued — a sleeping bag, warm clothing and a camp stove. For company, he had his dog, Toby, an English sheepdog-shepherd mix.

He set out trying to raise someone on the CB, someone to relay to the Mounties that he was stranded and needed help getting out. Because of the mountains, though, he couldn't get through to any

Continued on Page 21

Grade 4 — severe envenomation; rapid edema progressing to ipsilateral trunk, bleb formation, weakness, vertigo, vomiting, hematemesis, facial tingling, fasciculations, cramping, yellow vision, blindness, convulsions, and shock. (This is rare in Maryland; it calls for the most aggressive antivenin therapy; have 30 to 50 vials on hand.)

3. Determine treatment:

Fasciotomies — These are rarely necessary in Maryland because no venom will be retrieved from tissues 30 minutes post-bite and should be considered only in cases of high-grade envenomations (rattlesnake) or if edema is complicating distal circulation.

Antivenin — Administer IV only; serum sickness is manageable — venom sickness is not! Reserve antivenin for serious (grade 2) envenomations.

Steroids — Reserve steroids to treat serum sickness, not venom sickness; they may have a tendency to interfere with antibody-antigen responses.

Antihistamines — Antihistamines tend to increase venom activity by adding to phospholipase burden.

Antibiotics — Starr broad spectrum antibiotic when patient is under control.

Antitetanus — Use for any snakebite.

Blood work — Obtain blood type cross-match, and general work-up upon admittance even if a transfusion is not necessary since venom action may affect these results at a later stage.

Sedation — Use meperidine (Demerol) to control pain.

DO NOT USE CRYOTHERAPY on snakebites.

Vital signs — Take vital signs and measure edema progression at a specified point every 15 minutes during the critical period.

RADIO MESSAGEFORM

JERRY E. WELLMAN

840 E. 6th Avenue,
Salt Lake City, Utah 84103
801/533-3749

It was a long night in the radio shack.

First there were the amateur radio messages, then the Navy MARS relays and a few Civil Air Patrol messages. Then there were a few miscellaneous messages.

It's great being a communicator and volunteering time in addition to having the desire to do a good job. But, there was this problem: PAPERWORK.

Each service (CAP, amateur, MARS, REACT, etc.) had their own message format necessitating a means to keep forms both handy and separate.

Why? I asked. There must be a way to combine service formats into one that could be used at a communications station or center. It would also have to be "just right" for search and rescue and perhaps fit into the county or state EOC system.

So I laid each form out on the floor and studied them one by one (including the reams of instructions for each). What slowly developed was a convenient form - easy to use, clean and fitting with any particular message format.

I debated whether or not to make it a full page size or half page and decided on the latter feeling if a message is longer than a half page, it's too long for one message anyway.

The form heading said simply "RADIO MESSAGE" (that made sense) and the rest of the form was functional. There was little wasted space and enough room for the message, which is the most important part.

Since I have a "time clock" to log in and out messages, I made little spaces in the top left and right for "received" and "sent" es.

On the next line were boxes to check for incoming or outgoing, a place for precedence, a box to enter the word (group) count and a place to put handling instructions (HX) (which often appear on amateur messages but are IDEALLY suited to many SAR message applications) and the date-time-group and finally a message number.

One unique feature was the "system" space. Here in smaller type size were the various services listed. A circle around any one will identify from where it came, i.e. what system. Obviously I couldn't include them all so I put the all-encompassing "other" at the bottom with space to write in your own.

At the very bottom were "communicator notes" to make it quicker in the sending or receiving department. Here station call signs could be entered for the receiving station, frequency, time and operator can be logged for future reference.

(How many times was the log wrong and a station needed to be recalled for a quick correction?)

Also a space for "message prepared by" initials and also initials of the authorizing official. Some places have a message center and there's a place for that number if needed for added control on long search missions.

Lastly I had it run in the "no carbon required" (NCR) paper in three copies. I get three clear copies with the original in white and the copies in distinctive pink and yellow.

On a search mission, I recommend the originator (or receiving communicator) keep the last copy (pink) and send the other two (still attached) to the radio room in the case of originator or addressee in the case of communicator.

Thus, the "action person" gets two copies. The communicator can record time sent, station, frequency and even a reply. The addressee can make a note, reply or whatever.

Should further action be required (like getting a reply) the ginal white copy can be returned, the pink destroyed and the yellow kept in the station or mission file.

I might add that some prior forms had five copies, but the added two really got in the way and *only on one* VERY LARGE mission could five copies be used to advantage. Most of the time three copies are adequate.

Received		RADIO MESSAGE				Sent	
<input type="radio"/> INCOMING <input type="radio"/> OUTGOING	Precedence	Groups	HX	Date Time Group	Message		
FROM		P - PRIORITY R - ROUTINE		Number		SYSTEM	
TO						Amateur MARS CAP REACT SAR CB CHRS Marine EOC ARES RACES Phone Other	
INFO							
MESSAGE SHOULD BE LIMITED TO 25 GROUPS OR LESS							
RECEIVED	OUTGOING	STATION	FREQ	TIME	OPERATOR	REMARKS	
MSG PREPARED BY							MESSAGE CENTER NO
MSG AUTHORIZED BY							

(Ed. Note: Due to lack of space in this issue the above form had to be reduced. If this copy is taken to a local printer and enlarged to 230% it will fit on a 5½x8½ sheet.)

This message form is NOT designed for field use. It is a communications station designed item, thus you'll have trouble using it in a car, on a mountain (portable) or even flying. But it does speed things along in the radio room. And that's the purpose.

Best of all, the format is free. Although I'd love to make a million copies in three-part and send them, I simply cannot.

But I can do the next best thing and that's tell you the format is yours (the SAR community). So all you have to do is take TWO good (white) copies of the message form, paste them one above the other forming an 8½ by 11 sheet, and have your local job printer run you off a bunch.

Your job printer can make them in "no carbon" duplicate, triplicate and even more. Or you can just print them singly. Remember that after you order 500, your printer will cut that large sheet in half and give you 1,000 half-size message forms.

And, if you really are having troubles, drop me a line and I'll see about running them locally and you can pay for them at printer cost.

The idea here is not to make money at all. Just to get a format out that will speed along the communication process.

SAR

SKI YOU CAN DO IT

EQUIPMENT FITTING

The following tips will help you purchase properly fitting equipment for a more enjoyable skiing experience.

Insuring that you have the correct length pole is a simple matter. Poles should be long enough to fit comfortably under the arm when it is stretched horizontally outwards.

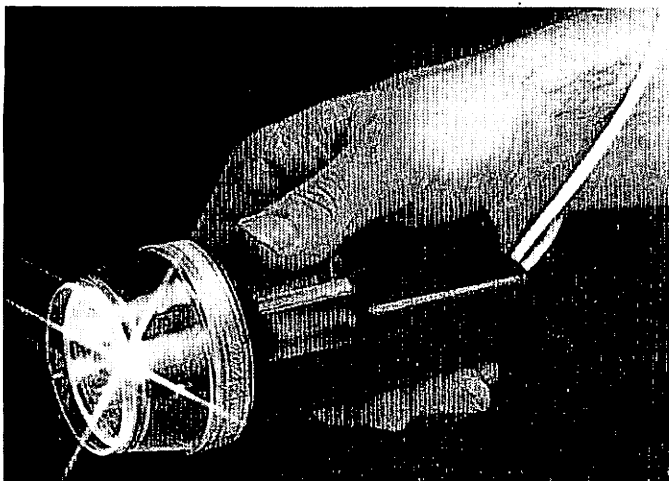
Boots must be tried on in order to get the proper size. They should fit comfortably and be snug with a little room in the toe area, say a finger's width of space. Be sure to try your boots on with the type of sock you will be wearing when skiing. Most cross country boots are sized in European sizes from 28-48. The following chart gives you some idea of the equivalent American sizes.

Technical assistance provided by Eastern Professional Ski Touring Instructors

Children		Ladies		Men	
Eur.	American	Eur.	American	Eur.	American
28	— 9 or 10	35	— 5	37	— 5
29	— 11	36	— 6	38	— 6
30	— 12	37	— 6½	39	— 6½
31	— 13	38	— 7	40	— 7
32	— 1	39	— 8	41	— 8
33	— 2	40	— 9	42	— 9
34	— 3	41	— 9½	43	— 9½
35	— 4	42	— 10	44	— 10
36	— 4½			45	— 11
				46	— 12
				47	— 13
				48	— 13½

NEW PRODUCTS

NEW — THE BL-1000 BOTTOM LIGHT™



Princeton Tectonics, Trenton, N.J., recently announced the production of a new water-proof light known as the BL-1000 Bottom Light™. The BL-1000 was primarily designed to be used by divers underwater, but as Bill Stephens, the president of Princeton Tectonics, States, "The BL-1000 has many features which make it specially suited for firefighters. Unlike ordinary weather-proof lights our BL-1000 works as well under the water as out of the water."

The BL-1000 has an outer case made of ultra-violet resistant, high impact Lexan®, pressure tested to 300 ft. The light is small enough (6" in length) to fit in a pocket or a glove compartment and has a lanyard hole for tying to wrist or belt. The shape has been human-engineered for comfort, with the grip remaining firm in even the thickest gloves.

A unique feature of the BL-1000 is its use of a magnetic sliding switch to eliminate any penetration of the case. The external switch locks into either the on or off position and actuates the internal mercury wetted switch through a magnet. This system is used on space probes and rockets because of its extreme reliability and safety through thousands of switchings. The light is powered by four standard alkaline C-cell batteries (not included) which allow 5 hours of continuous use or approximately 10 hours of intermittent use. The bulb is standard, high intensity PR13 lantern bulb, with a spare bulb conveniently mounted beneath the reflector.

For more information on this high performance, economical light, stop at your local marine, outdoor or sporting goods dealer. Or write for a data sheet from Princeton Tectonics, P.O. Box 8057, Trenton, NJ 08650. (609) 448-2726.

★ ★ ★ ★ ★ ★ ★ ★

MULTIPLIER INTRODUCES NEW LINE OF ALKALINE & MERCURY BATTERY PACKS

Multiplier Industries Corp., a leading manufacturer of batteries for use in the communications industry has introduced alkaline and mercury battery packs for the Slimline and Omni models of the Motorola HT200, HT220, and MT500 transceivers.

These moderately priced batteries are direct replacements for use with Motorola, Regency Radios, R.F. Communications, Aerotron, Sonar Radios, Leacom, Public Systems, Multitone, Cook and other transceivers.

Alkaline and Mercury batteries are engineered to deliver extended capacity and can be stored for long periods with little loss of rated capacity.

Batteries are in stock and can be shipped next day.

Complete information can be obtained by calling Multiplier Industries Corp., at 914-699-0990, or writing: Multiplier Industries Corp., P.O. Box 29, Mount Vernon, NY 10550.

Continued on Page 18

BUSH ON SAR Continued

40. **ENTRAPMENT.** Placing person in area to wait quietly prior to searching area or leaving searcher in area after sweep. Someone hiding or running.

41. **DRAINAGE.** Obvious - follow it.

42. **AVALANCHE.** Standard techniques.

43. **RECONNAISSANCE.** To look for the person but primarily orient to the area.

44. **GENERAL SEARCH.** (England) Following terrain features.

45. **TERRAIN SEARCH.** Same - different term - topographic features.

46. **CONTACT SEARCH.** In sight of the next man.

47. **CLOSE SEARCH.** Small team of searchers looking in a confined area - stream bed.

48. **STAKE OUT.** Same as Entrapment.

49. **CONFINEMENT.** Same as Containment.

50. **PARTY SEARCH.** Apparently the same as the Team or Trail search.

51. **LEAP FROG.** Searchers move out and stop and look. Second set moves the same way through them and stops about 20 feet ahead. Repeat.

52. **SATURATION.** Everybody wanders around through the area searching independently!

53. **SURVEY.** Could be Reconnaissance. Any other ideas?

54. **SPIRAL.** Small team starting from LSP and spiraling out looking for tracks.

55. **CIRCLE.** Around the LSP but out at varying distances checking for tracks.

56. **SWING.** Arcs from LSP.

57. **STRAIGHT LINE.** Same as Line.

58. **CLOVERLEAF.** 4 teams go out from LSP - North, South, East and West. Go 100 yards, turn right. Walk in an arc 90° and return to base. Trying to cut track.

59. **PIE SEARCH.** Out from LSP and go certain number of degrees at right angles and return.

60. **ARC.** Anchor on point and teams go off at different distances along a line from this point and then all teams search same degree reading.

61. **CONTOUR.** Same as terrain.

62. **CREeping.** Out fixed distance, right angle a fixed distance, left angle fixed distance, right angle a fixed distance, keep repeating.

63. **EXPANDING SQUARES.** Do square around LSP. Move out and do it again.

64. **PARALLEL TRACK.** Same as many others only using compass lines with searchers 1/2 mile or more apart.

WELL, they are all listed. Others? If you know of others, let me know and I'll add them to the list. **AND**, shouldn't we look for some commonality of titles OR should we just describe in detail what the field team should do?? Or what?

SAR

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Please PRINT all information or use a typewriter

<input type="checkbox"/> Home Address <input type="checkbox"/> Business Address	Title/Rank	Last Name	First Name	Middle Name/Initial	Spouse's Name
	Home Address	No. & Street	City	State	Zip Code
	Home Telephone Number	Area Code	Number	Birth Date Mo/Dy/Yr	Citizenship

=====

Company, Organization or Agency			Division or Department		
Job Title			Business Telephone Number Area Code Number		
Mailing Address	No. & Street	City	State	Zip Code	Mail Code

State highest academic degree(s) held and academic major(s)		
Degree(s)	Major(s)	College(s) or University(s)
Professional Interests (list only three interest areas in priorities of 1, 2, and 3; use short word descriptors—please)		
1. 2. 3.		
Endorsement required of a SAFE member Name (print) _____ Signature _____ Date _____		Applicant Signature: <i>If accepted into the SAFE ASSOCIATION as an Individual Member I will fully support the objectives of the Association, and will strive to promote the Association and professionalism in the fields of safety and survival.</i>
For Office Use Only		Signature _____ Date _____

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SAFE ASSOCIATION is a non-profit corporation in the state of California under the category of scientific and educational organization. As such, membership dues and conference/symposia fees are tax deductible. SAFE ASSOCIATION is an association of professionals.

Going Down? . . .

A UNIQUE EMERGENCY EVACUATION SYSTEM

OTTO P. KRAMER
156 Grand Blvd.
Massapequa Park, NY 11762
516/541-3409

At the winter resorts of Tignes and Montgenevre in the French Alps, a unique evacuation system is now standard equipment aboard the cable cars that carry skiers up the mountains.

The program consists of a practical life-saving slide device that was originally designed for evacuating people from high-rise buildings under fire conditions, but which has now also been installed as an escape system for evacuating people from a variety of situations, including cable cars at ski resorts. When recently put to the test at the ski resort in Tignes, France, a fully loaded cable car with a capacity of 92 passengers, was evacuated without any difficulty, when the slide was deployed from a height of 75 feet with the car halfway up the mountain.

The system consists of three concentric elastic-fibre sleeves:

Sleeve 1: An internal lining sleeve which resists tensile forces, and is the one in which people slide down.

Sleeve 2: An elastic braking sleeve, which covers sleeve 1 and enables the evacuee to control his own falling speed.

Sleeve 3: An outer, non-flammable protective sleeve whose sole purpose is to protect the other two sleeves.

Besides being used in ski areas, employees in office buildings, students in schools, and even patients in hospitals have slid down the sleeve without mishap or friction burns, and people have carried babies and small children down in their arms with no trouble. A procedure also permits the handling of unconscious people and stretcher patients.

HOW THE SYSTEM WORKS:

The three sleeve unit, when slack, has a circumference slightly less than that of an average human body. When an evacuee enters the system and begins to slide, the elastic braking sleeve expands radially, and exerts an elastic pressure, which permits the person to control his falling speed simply by spreading elbows and knees. A total stop at any time is also easily attainable in this manner.

The escape system was originated in 1968 by a French inventor, Gerard Zephinie. Several years later, he and the engineers of the Otis Elevator Company in France, undertook a research and development program that refined production and application methods, and since then, over 500 of the systems have been sold throughout France and Spain alone, for use in removing people from high places in emergency situations.

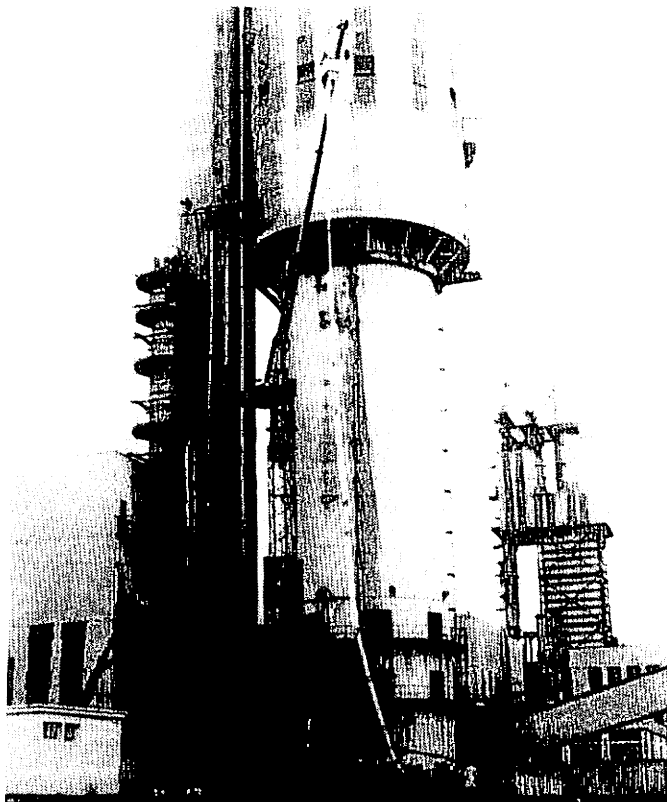
Unlike other forms of emergency evacuation, which require vertical ladders, harnesses, trampoline fall devices, or corkscrew slides, the sleeve evacuation system eliminates the problems usually associated with these methods, such as:

- 1). Dizziness or vertigo in high places, caused by open surroundings.
- 2). Lack of courage to jump into open space, and the ability to aim oneself towards nets, etc.
- 3). Uncontrolled chute speed which often results in the danger of burns.
- 4). Low evacuating capacity and slow turn-around time for movable equipment.
- 5). Equipment which is unusable at night without search-lights.
- 6). Facilities which are usable only by able-bodied persons, and adults.
- 7). Equipment which requires an impracticable amount of operating space.

The evacuating sleeve, on the other hand, eliminates the questions of which buttons to push, what precautions to take, how to attach safety belts, and other complicated instructions. The system works by itself, instantly — even if one hasn't followed the right procedures. Childishly simple to use, with gadgetry, instantly useable without any setup, and controlled by the user, it offers a number of advantages over traditional escape methods.

While the system is presently available only in Europe, rescue and emergency personnel now have a new tool to look forward to, in their search for new and improved methods in rescue techniques.

Additional data can be found in the box accompanying this article.



Rescue of Crane Worker who became trapped high above the ground.



Evacuation from high rise building.

MARCH ON S.A.R.

BILL MARCH

184 Huntington Green NE,
Calgary, Alberta T2E 5A6, Canada
403/284-6471

NEW EQUIPMENT

High West Adventure Company in Calgary have developed a new lightweight snow shovel 'The Assiniboine Snow Tool' which weighs only 750 grams (26 oz.) and is 73.5 cm. (29") long. It has a shovel surface of 741 square centimeters and includes the following features:

- Aluminum blade and shaft with a wooden core for greater strength.
- De-mountable into two pieces blade/shaft to permit easier packing.
- High impact plastic handle non conductive to keep the hands warmer.
- Removable shaft can be used as tent anchor.
- Blade can be used as stove base or as an emergency deadman anchor.

This appears to be a very useful piece of equipment for the winter outdoorsman and with a retail price of \$20.00 Canadian is a good buy.

Available from High West Adventure Company, Box 7243 Station E, Calgary, Alberta.

HEAD INJURIES AND HELMETS IN THE U.K.

The recent statistics from the English mountain rescue committee indicates an increase in accidents involving head injuries. Many of these accidents involve short falls on relatively easy routes by relatively inexperienced climbers all of whom were not wearing helmets. The modern trend has been away from the wearing of helmets probably because of the 'image' of well known face climbers who do not wear helmets. The matter is causing the British Mountaineering Council some concern and they are recommending the wearing of helmets whilst rock climbing.

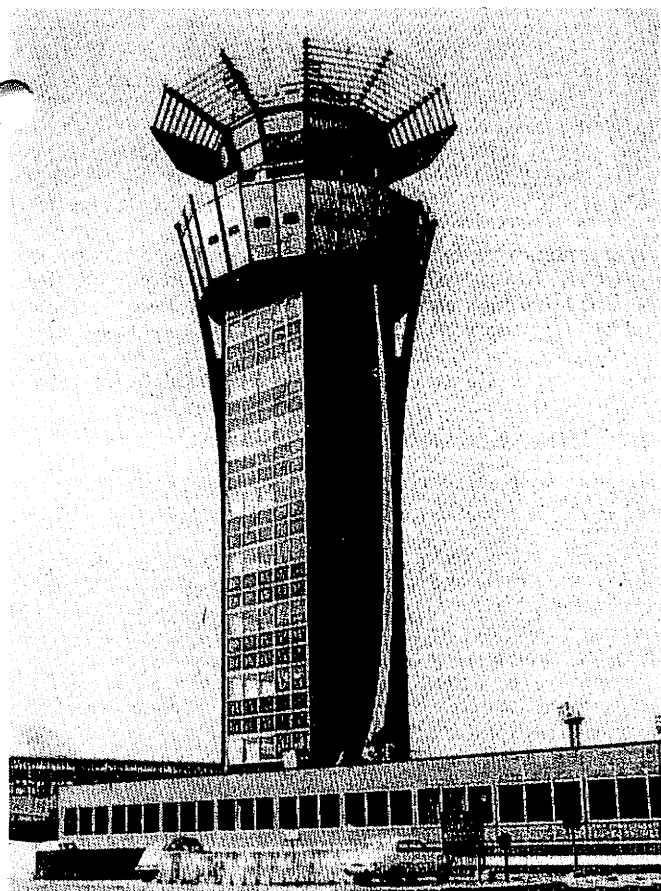
This year the U.I.A.A. have just established a new international standard for climbing helmets which is similar to the British standard. It is interesting to note that helmets were first used in alpine climbing where they offered protection against rockfall. Their adoption into rock climbing was to protect the head in the event of a fall by the climber. This second requirement necessitates a stronger helmet with a very secure fastening system. The last six months of 1980 in the U.K., there were 10 accidents involving head injuries to climbers not wearing helmets — 3 were fatal; 3 sustained serious injury; 4 involved simple fractures and concussion. The B.M.C. made five points concerning the case of helmets: 1) Never drop a helmet, sit on it or compress it. 2) Be aware that some helmet materials are affected by paint and adhesives. 3) Check helmets frequently for damage — cracks and dents. 4) Always ensure the helmet fits and is properly adjusted and fastened. 5) Remember a hard knock may affect the future strength of the helmet.

ASSOCIATION OF BRITISH MOUNTAIN GUIDES

The A.B.M.G. have now produced a handbook listing the British Guides at home and abroad available for constructs. A copy of this is available from the B.M.C. Office, Crawford House, Precinct Centre, Boath Street East, Manchester, M13 9RZ.

MEXICO

There is now a new climbing and exploration magazine produced in Mexico — Montanismo de Exploracion which is published bi-monthly. It is published in Spanish and is available from Zamora 61-2 Mexico 11 D.F. Mexico. This should provide a focal point for Mexican mountaineering and, in the future, be a useful source of information for visitors to Mexico.



Evacuation of Tower Personnel using Otis System

TECHNICAL DATA

STORAGE CONTAINER:

The sleeves are furnished and installed folded inside a protective container of rigid thermosetting plastic. The tapered bottom automatically disengages, the moment downward pressure is exerted. The sleeve is protected against humidity, sea air, and chemical agents by a PVC film 25/100 mm thick.

WIND RESISTANCE:

Even in the least favorable circumstances, the resistance of the sleeve to wind comes to about 1 square meter per linear meter, with supports taking the strain. With an empty sleeve, the wind effects are less, reducing wind resistance to about 1/3 of its theoretical value. When one or more persons are using it, wind effect becomes negligible.

TENSILE STRENGTH:

The load is determined by the number of persons who may be simultaneously inside the sleeve, which amounts to a maximum of 50 kg per linear meter. Hence, a sleeve 30 meters long has a load of 1500 kg for an ultimate strength of 15 tons. This gives a safety factor of 10 to 1 for the ultimate breaking strength.

SLEEVE MATERIAL USED:

The Titus computer of the French Textile Institute, in collaboration with a team of British engineers determined the optimum composition of the fibres to be used. The inner, or carrying sleeve, is made of Kevlar, which was developed by Dupont de Nemours; it has an ultimate tensile strength of 15 metric tons, the equivalent of a fully laden truck. The parachute technique has been used to assemble the units, using zigzag seams with special polyester yarn. The second, or braking sleeve, is made of Spanzelle, which resists temperatures of up to 100 centigrade. The outer sleeve is made of non-combustible glass fibre, which resists temperatures up to 800 C. and is positioned to form a considerable air pocket between the brake sleeve and itself.

SAR

SAR

VEHICLES FOR SEARCH & RESCUE

NEIL LEWBEL
81-30 88th Street
Glendale, NY 11227

Transportation of people and equipment is an essential part of most search and rescue operations. Many types of vehicles are available and may be used in SAR work. Often people involved in rescue operations are only familiar with the vehicles most commonly used in their particular specialty. When a number of different groups become involved (or are available if help is required) a variety of vehicles enter the operation or become available. At this point a basic knowledge of each vehicle becomes very useful. For the operation coordinator this enables the most efficient utilization of people and vehicles. Personnel in the field may find themselves in a situation where they must use or operate out of vehicles other than their own.

Although it would take many volumes to completely explain all of the available vehicles, this article will describe and create a basic awareness of some vehicles which SAR personnel may encounter.

FIRE DEPARTMENT VEHICLES

Aerial ladder trucks and aerial platforms have a variety of applications including rescue from upper floors and roof, as an

elevated observation point and for working and reaching under and around various structures, such as elevated trains, towers and power lines. The actual aerial ladder or platform is usually mounted on a large turntable on the back of a truck.

Aerial ladders (see fig. 1) range in length up to about 100'. The ladder often consists of several sections which telescope out to the ladder's full length. Most of these ladders may be operated at less than full length, also. The ladder may be manually, hydraulically or electrically powered. Typically the ladder truck normally carries a number of conventional ladders, also.

Aerial platforms, in addition to the uses mentioned before, may be used as an external elevator for moving personnel to upper floors or other high areas. The platform, depending on size, may hold several people at one time. The platform is located on the end of a telescopic or articulated boom, which is usually hydraulically powered. Controls for motion of the platform may be located on the platform, on the truck, or both.

Both aerial platforms and ladders have a variety of ratings for safe operation which should not be exceeded. These include the maximum weight capacity, operating angles for the boom and distance from the truck to the desired working position of the platform.

Typically these trucks have a set of outriggers or jacks which stabilize the truck and compensate for the changes in weight distribution when the aerial apparatus is extended. These are very important and must be set up properly to prevent the truck from tilting or tipping over.

When using aerial platforms and ladders as well as conventional ladders and equipment with extended reach and movement capabilities, always be careful not to get the apparatus or personnel into a hazardous situation. These situations include contact with power lines (including power lines on the sides of buildings, around railroad tracks and antenna lead-in wires) and leaning against structures which cannot support the apparatus.

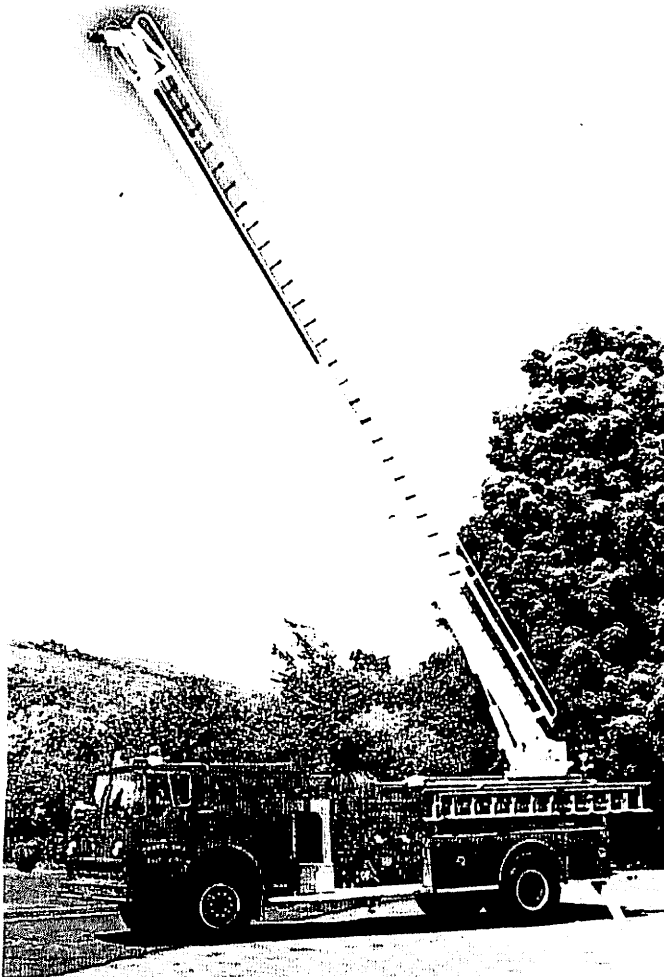


Fig. 1. Shown is an extended 50 foot aerial ladder.

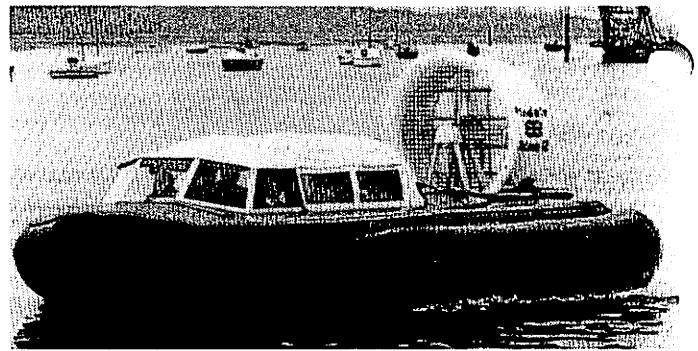


Fig. 2 This hovercraft holds 12 passengers and travels at up to 30 knots.

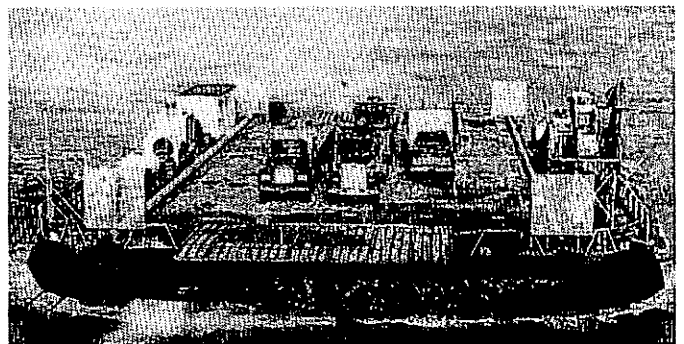


Fig. 3 Large hovercraft platform carries payloads up to 160 tons.

WATER VEHICLES

HOVERCRAFT

With the continued increase in use of shoreline and off-shore areas one vehicle which should find its way into SAR work is the hovercraft. The hovercraft shown (see fig. 2) carries 12 passengers or a ton of equipment at speeds up to 30 knots over snow, ice, water or land. This hovercraft has two fans; one which propels it



Fig. 4 A kayak may be used to cross rapids and other waterways

and one that lifts it. It is powered by a V8 engine. These craft have been suggested for use as crash rescue units and ambulances.

Larger hovercraft (sometimes called hover platforms) have been built (see fig. 3) which can carry payloads up to several hundred tons. These could be of great value in floods where a large amount of equipment or many people must be moved.

SMALL BOATS

Many types of small craft are available. These come in a wide variety of styles and sizes. Usually they do not hold more than a few people, however, these craft can provide a fast and simple means for getting one or two people and equipment to some locations. In addition it may be the only way to reach some areas such as islands on lakes, river rapids, and across a river or lake.

Although most of these craft are easy to use, in most instances, SAR personnel should have some training and/or experience before using the craft in a real rescue. Basic safety precautions should always be taken. Precautions include wearing life jackets and protective clothing, such as helmets, when required. People in these boats should stay as low as possible, always sitting or kneeling. Standing up in a small boat often results in falling overboard and can capsize the boat.

Rowboats tend to be the most stable and are easy to work with. They hold up to five or six people and/or quite a bit of equipment. Rowboats are not considered capable of rapid movement and are not suitable for some areas such as river rapids. Rowboats may be used to tow people or equipment. Swimmers who get into trouble can hold onto the stern of a rowboat and be towed to shore.

Canoes and kayaks (see fig. 4) are capable of higher speeds than rowboats and can be effectively used to get through difficult waterways such as rapids or rivers with strong or fast currents. These boats tip over easily so proper training is very important. Equipment carrier in canoes should be tied to the boat. Equipment which must stay dry should be wrapped in one or more watertight containers.

Inflatable rafts require very little storage space making it possible to keep one in emergency vehicles such as ambulances, rescue vans, aircraft and cars. Some rafts use air cartridges for quick and easy inflation. Others must be inflated with hand or foot pumps or lung power in an emergency. Typically these rafts will hold one to three people and only a small amount of equipment. They are easy to maneuver around obstacles and through narrow waterways. Inflatable rafts may get caught on or ripped by rocks or debris. Most better quality rafts have two or more separate inflated sections providing a small margin in the event of rips or holes.

An interesting small craft is the folding boat. The one shown (see fig. 5) folds down to a four inch wide board. This boat, which takes only a few minutes to set up, is ten feet long and carries up to four people. It may be paddled or powered by a small outboard motor. Weighing only 49 pounds, this boat will fit in or on top of most cars, trucks and vans.

AMBULANCE AND RESCUE VEHICLES

Ambulance and rescue vehicles vary greatly in size and capability, however, they all carry medical and/or rescue equipment and personnel and are specifically designed for rescue or first aid work, or both. A basic requirement for these vehicles is sufficient room for at least one person to work on one or more patients and storage space for supplies. Although these are typically land vehicles, aircraft and boats also serve this purpose.

As a rule two or more personnel are required on these vehicles — a driver or pilot and EMTs or rescue specialists. Also at the scene two or more people are required to operate some of the larger equipment carried on these vehicles. This equipment includes stretchers, extrication equipment, power tools, etc.

HELICOPTERS

Helicopters have developed a reputation for doing rescue work. Their unique abilities include high speed travel, ability to land on or near inaccessible or hard to reach areas and its hovering capability. Helicopters provide an excellent vantage point for observation and search over large or difficult to travel areas.

In areas hit by disasters such as floods (see fig. 6) or snow, helicopters may be the most effective (and sometimes the only) vehicle for rescue and evacuation or delivery of required supplies.

When using helicopters the landing and take off area should be as level as possible. It should be free of overhead obstructions, which may be difficult for the pilot to see, such as tall trees, towers, and overhead power lines.

When approaching a helicopter avoid both the main rotor and the tail rotor. Also beware of equipment such as walkie-talkie antennas or folded stretchers which extend far enough to get caught by a moving rotor blade.

It is often recommended that if a line is dropped, from a hovering helicopter, ground personnel should not touch it until it has touched the ground to avoid the possibility of receiving a static electric shock.

Continued

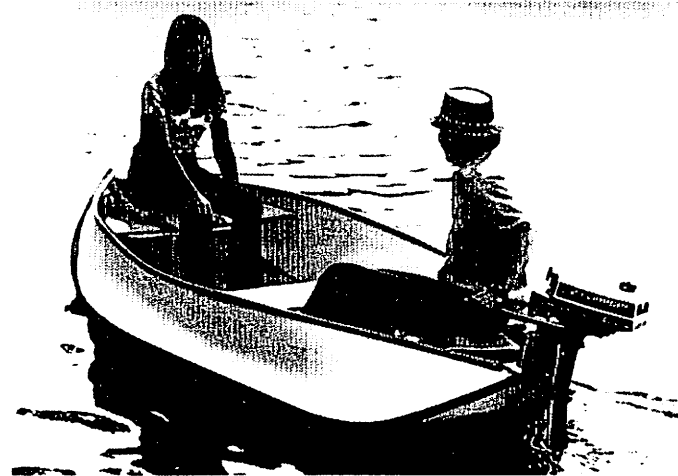


Fig. 5 This folding boat weighs only 49 pounds and folds down to a 4 inch wide board.

SEARCH & RESCUE VEHICLES **Cont.**



Fig. 6 Helicopters are effective for rescue from flooded areas.

AMBULANCE BOATS

Although there are not too many ambulance boats, some do exist. One which was put into operation, on Long Island Sound, in 1976 is described here. The basic boat is a 31 foot Uniflite constructed of fire retardant fiberglass. It is powered by twin 225 HP fresh-water cooled Chrysler engines. The boat has a wide range of first aid equipment including oxygen, resuscitator, electrocardiograph equipment, defibrillator, stretchers and back-board. Other equipment on board includes UHF, VHF and CB radios, electric siren, searchlight and radar.

AMBULANCES

The ambulance (fig. 7) is a vehicle that all SAR people should be familiar with. It is readily available in most areas and often may be one of the first vehicles to arrive at the scene. Typically an ambulance is equipped with a wide range of equipment. Besides a large supply of first aid equipment, including oxygen, stretchers, sheets, bandages etc., ambulances usually have other supplies which may be utilized by SAR personnel in an emergency. A small assortment of hand tools and light rescue and extrication tools are often carried on ambulances. Many ambulances have outlets which can provide 110 volt AC electricity. Having a radio it may also be utilized at the scene as a communications center. The siren and lights may be used to gain the attention of people in the field who do not have radios. An ambulance may also carry fire extinguisher, light vehicle repair gear such as jumper cables, jack and crowbar, and auxiliary lighting and communication equipment.



Fig. 7 The ambulance is a vehicle that all SAR personnel should be familiar with.

In an emergency an ambulance may also be used to bring SAR and medical personnel to the site. The modern ambulance is capable of traveling at high speeds, however, this capability should be used with great caution and only when absolutely necessary. Occasionally SAR personnel may come across specialized ambulances such as mobile coronary care units, vehicles for transporting premature infants and mobile operating rooms. These are highly specialized units and not usually used in SAR work. At major disaster sites, such as large plane crashes, mobile operating rooms may be encountered.

RESCUE VANS

Rescue Vans come in many sizes and types varying from a simple panel truck to a large specialized vehicle. A simple, light rescue van may carry little more than a first aid kit, extrication kit, rope and fire extinguisher. A large fully equipped van carries a wide range of equipment including: Stokes litters, ladders, powered winch, fire axes, Halligan tool, pry bars, heavy-duty jacks, ropes, shovels, chain saw, portable generators, electric lines, lights, oxygen, Scott packs, helmets, and climbing equipment. Just as there is a wide range of equipment on rescue vans there is also a wide range in crews. Crews vary in size from two to eight people. Their training also varies from very basic to advanced including paramedic level first aid training, fire department and/or military rescue training and instruction in climbing, scuba diving and other areas.

CONCLUSION

This article will not make you an expert on any one vehicle, only first hand training and experience will do that, but you now have a basic awareness of the variety and capabilities of some of the vehicles used in SAR work.

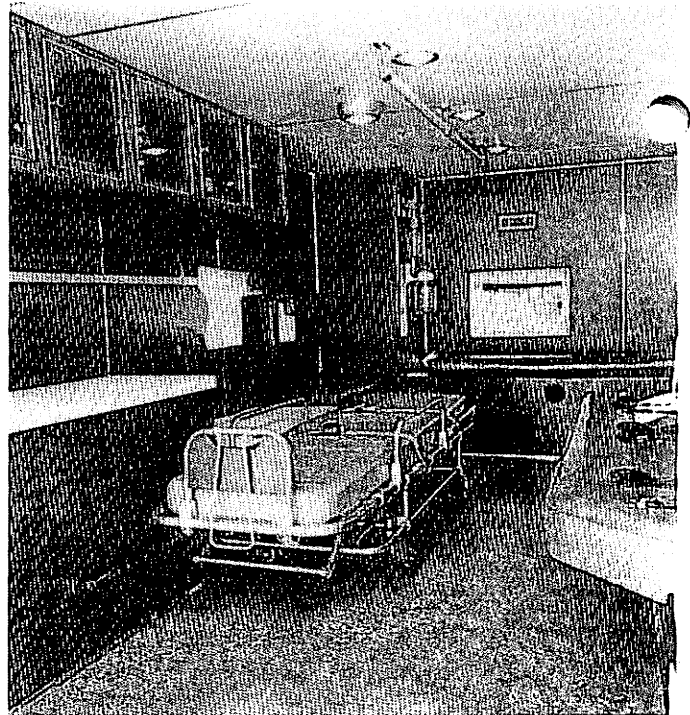


Fig. 8 A number of victims will be accommodated in an ambulance, utilizing the stretcher on the left and the benches on the right and front of patient areas. Hooks on the roof, in some ambulances, enable more stretchers to be suspended from the roof.

PHOTO CREDITS:

Fig. 1 - American LaFrance, Fig. 2 - Pindair Ltd., Fig. 3 - Mackace Hover Systems, Fig. 4 - Hans Klepper Corp., Fig. 5 - K Enterprises, Fig. 6 - Sikorsky Aircraft, Figs. 7 & 8 - Grumman Emergency Vehicles.

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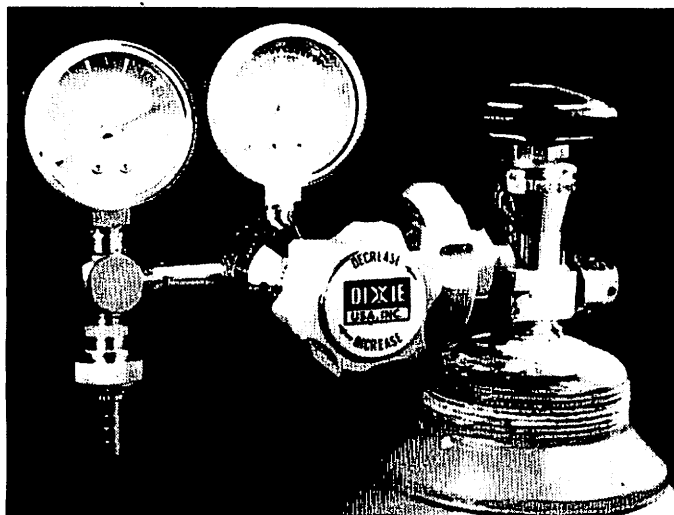
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"CHOKING CPR MANIKIN"

SIMULAIDS, INC., has developed and is now marketing a Choking CPR Manikin to practice abdominal thrust, chest thrust and back blow procedures to clear a blocked airway.

The Choking Manikin is a completely realistic life-size head and upper torso with a simulated rib cage, xiphoid process and jugular notch to provide anatomic reference points. An easily accessible disposable lung gives a realistic "feel" when the rescuer does mouth to mouth breathing.

When clearing procedures are performed, the manikin will expel the object causing the obstruction. Large beans which are provided with the manikin make excellent obstructions.

When training with the manikin, the obstructing object is inserted into the manikin's mouth which is a deep oral cavity. If back blows, abdominal thrusts or chest thrusts are administered, the increased pressure of the air in the chest will impel the object via the mouth.

The manikin is an attractive replica of a human. It has been made with a specially selected, durable vinyl to create tactile realism.

The manikin, which comes in a deluxe, heavy-duty carrying case, sells for \$195.00.

"Treating someone with a blocked airway is one case where practicing with a manikin has advantages over training with a human," said Simulaids' president Kevin Sweeney, "unless it is a person who is actually choking. Experimenting with a non-choking human cannot create the experience of having the obstruction expelled. And in actuality, most training today is done with non-choking humans."

Further details and literature may be obtained by calling toll-free 800-431-4310 (N.Y. State calls 914-679-2475 collect) or by writing Simulaids, P.O. Box 807, 271 Tinker Street, Woodstock, N.Y. 12498.

EMERGENCY CHILDBIRTHING OB MANIKINS

SIMULAIDS, INC., reports a marked increase of interest the part of first aid squads and hospital in-house training directors in its Emergency Childbirthing OB Manikins.

The manikin is a life-size female lower torso section and it comes with a completely realistic fetus that can be delivered through the birth canal in vertex, face, or breech presentations.

When training to perform an emergency delivery, a plastic umbilical cord is attached to the fetus and mother. The birth canal is fitted with ducts to permit the introduction of artificial blood and amniotic fluid.

"The only way to have more realistic training for an emergency delivery is to be on the spot at a most unusual time and practice on a human," said Stimulaids president Kevin Sweeney. "But this is hardly possible. The value of having some preparatory training for this kind of emergency which is traumatic for the mother as well as the inexperienced first aid worker is clearly obvious."

The Emergency Childbirthing Manikin comes in a nine-piece kit. In addition to the parts mentioned above, it includes: two plastic reservoirs for the introduction of the artificial amniotic fluid and blood, a placenta with fetal and maternal sides, a replaceable soft outer skin, a uterine pad, a dozen umbilical cords, disposable cord clamps, chemicals to make the artificial blood and amniotic fluid, and a sturdy, unbreakable pressed fiberboard storage and carrying case fitted with a strong handle and web straps.

The entire set costs \$495.00. Purchasers who are not completely satisfied after trying the set, are guaranteed a complete refund. Hospitals are invited to take the set for a 30-day trial period at no charge.

Simulaids also manufactures I.V. injection training arms, CPR training manikins, disaster drill kits, simulated wound moulages, and inflatable splints.

Further details and literature may be obtained by calling: 800-431-4310 (N.Y. State calls 914-679-2475 collect) or by writing Simulaids, 271 Tinker St., Woodstock, N.Y. 12498.

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New Book Announcement

CPR — How To Save A Life Using Cardiopulmonary Resuscitation

by Lindsay R. Curtis, M.D.

Someone clutches at his chest and slowly sinks to the floor. What should you do?

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This comprehensive manual covers CPR in detail. Describes the difference between clinical death and biological death and the proper emergency procedures which can literally "bring someone back to life."

CPR discusses three factors which are essential to basic life support — airway, breathing and circulation. Learn how to identify crisis situations and cope with emergencies in each area.

Step-by-step illustrations show what to do in the case of an obstructed airway, how to determine unconsciousness, position the victim, check for a pulse and perform mouth-to-mouth rescue breathing. Clear and concise instructions help you act quickly and efficiently.

Special section offers precise directions for chest compression. Simple illustrations show how to locate the "landmark position" on the sternum or breastbone. Proper placement of hands. Tells how one rescuer can serve as both chest compressor and rescue breather. Or how to synchronize efforts when two rescuers are involved. Gives special instructions for performing CPR on infants and children, too.

Also offers excellent emergency procedures for a "cave coronary" or what to do when an adult or child chokes on food. Discusses chest thrust, abdominal thrust, finger sweep and back blow plus special techniques for aiding obese persons and pregnant women.

Over 50 drawings demonstrate procedures exactly. For quick reference, a special 4-page section illustrates emergency tactics at a glance. Plus a handy clip out wallet card allows you to carry basic CPR methods in your pocket or purse.

This 64-page paperback is a real life-saver. Look for *CPR* wherever fine paperbacks are sold. Or send check or money order for \$3.95, plus \$1.00 postage and handling, to: HPBooks, Box 5367, Tucson, AZ 85703.

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PRACTICAL SURVIVAL GUIDE EMPHASIZES DO-IT-YOURSELF TECHNIQUES

For the pure survivalist, building a personal survival program can be an expensive proposition. The investment involved in caching a year's supply of expensive dried food, and purchasing a tract of land for a retreat, an arsenal of exotic weapons and other special equipment and supplies can run into thousands of dollars.

One survival products company in California offers a one-year supply of food for one person at a cost of \$1,630 or more than \$9,500 for a family of four. Combined with other survival gear, such as a stove, compass, cache tubes, flashlights, heaters, total cost for being prepared could run from \$5,000 to \$20,000.

Such elaborate and costly preparations are really not necessary practical in a survival situation, according to well-known survival writer, Ragnar Benson. In his latest book *Live Off the Land in the City and Country*, (Paladin Press, February 1982), Benson scoffs at purists who believe that down sleeping bags, nylon packs and tents, special high-tech tools, fancy freeze-dried food and other costly products are standard survival gear.

Instead, Benson provides do-it-yourself methods and practical advice for living off the land in any environment. "Be assured that I have personally used the methods and devices covered in this book," says Benson. "For the past forty years, they have allowed me to live comfortably and cheaply, away from the bureaucrats and social misfits that are ruining the quality of life in this country."

Many of his tips on trapping, foraging, food preserving, tanning, domesticating animals and survival gardening come directly from the American Indians, who survived in all types of terrain without the conveniences of modern-day survival products.

Benson suggests that *Live Off the Land* readers take lessons from Indian tribes, who depended on ingenuity and improvisation to adapt and survive all types of environment.

"My strong recommendation to you is, as part of your survival preparation, to get out and research the Indian tribes that formerly lived off the land in your area, or the area of your retreat," writes Benson. "Find out how they lived, what they ate, and if possible, how they collected their staple food products."

Though Benson shuns modern survival equipment and techniques, he believes survival does not mean doing without certain luxuries currently enjoyed by most Americans. He devotes an entire chapter to homespun, low-cost formulas for making snowshoe dressing, pastry shortening, boot dressing, dye, deodorant and perfume, soap and other everyday products.

Because a realistic, practical survival program virtually dictates the need for some electrical energy, Benson also describes an economical generator package. A useful, practical generator can be built with a small diesel engine, used tricycle wheels and other easily obtained parts totalling no more than fifty dollars. Benson chooses diesel instead of gasoline for a number of reasons. "They burn from a third to a half less fuel, the engines last far longer than a gas version, are easier to maintain, use a variety of fuels, and the fuel is storable."

For city dwellers, Benson gives workable ideas for caching, water collecting and finding game in the city. In fact, he feels cities will provide much available clothing, parts for cars and trucks, and shelter to survivors of a major disaster. "People in the country may be short of living space, if the exodus from the cities is as great as I think it will be," says Benson. "Food may not be as large a problem as it will be in the cities, but this will require planning and hard work on the part of the country dwellers. Obtaining fuel in small towns might also present a big problem."

In other chapters, Benson covers survival gardening, beekeeping, preserving food, equipping, and caching. One chapter gives complete, easy-to-follow instructions for constructing a \$10,000 A-frame house, which "is ideally suited to the use of rough, raw materials with irregular dimensions," according to Benson. "It is also a simple house to build and is ready to live in as soon as the walls are raised. . . . Also, not to be forgotten, an A-frame is heat efficient, an important attribute."

Throughout his book, Benson urges the reader to prepare and plan for survival, physically as well as mentally. "The will to live, to make it, must be there, both to provide the impetus needed to prepare now, and to handle the tremendous amount of work one will have to accomplish to survive in style during a long-term disaster."

Live Off the Land in the City and Country (\$14.95) can be ordered through your local bookstore or by writing directly to the publisher: Paladin Press, P.O. Box 1307, Boulder, Colorado 80306.

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CALENDAR Continued

June 3-5, 1982

SWIFTWATER RESCUE TECHNICIAN TRAINING **Carson City, Nevada**

Conducted by Sierra Search and Rescue Team in conjunction with Rescue 3. Contact: Bob Creon, Sierra SAR, P.O. Box 1192, Carson City, NV 89702

June 7-11, 1982

TUNNELLING '82 - 3rd INTERNATIONAL SYMPOSIUM **Brighton, England**

Contact: The Institution for Mining & Metallurgy, 44 Portland Pl., London W1N 4BR, England

June 7-11, 1982

8th ANNUAL MEETING OF THE INTERNATIONAL TUNNELLING ASSOCIATION

Cedex, France

Contact: Sec.-General, ITA/AITES, 109 Av. Salvador Allende, 69672 Bron CEDEX, France
TELEX 37008 Cetelyon

June 6-11, 1982

ORIENTATION TO SEARCH AND RESCUE COURSE, Los Guillucos Criminal Justice Training Center, Santa Rosa, California

Contact: Mr. Jerry Warren, L.G.C.J.T.C., 7501 Sonoma Hwy, Santa Rosa, CA 95405

June 8-12, 1982

SWIFTWATER RESCUE TECHNICIAN COURSE **Salt Lake City, Utah**

University of Utah and Rescue 3
Contact: Dr. Ralph Brown, U of U, Division of Health Sciences, Salt Lake City, UT 84112

June 16-20, 1982

SWIFTWATER RESCUE TECHNICIAN COURSE **Scottsdale, Arizona**

Arizona Public Safety Dept., Pima County Sheriff's Search and Rescue in conjunction with Rescue 3
Contact: Chuck McHugh, Pima County S.O., P.O. Box 910, Tucson, AZ 85702 and/or Marty Caldwell, Arizona Hwy Patrol, P.O. Box 2365, Bullhead City, AZ 96430

June 19-26, 1982

NATIONAL CAVE RESCUE SEMINAR

Columbia College, Columbia, California

Contact: A. Peri Frantz, NCRC Seminal Chairman
16345 Englewood Ave., Los Gatos, CA 95030 408/356-8506

June 21-25, 1982

RESCUE 3, SWIFTWATER RESCUE COURSE I & II

Los Guillucos CJTC, Redding, California

Contact: Rescue 3, P.O. Box 4686, Sonora, CA 95370 209/532-7915

June 24-28, 1982

SWIFTWATER RESCUE TECHNICIAN COURSE **Austin, Texas**

City of Austin Fire Dept. in conjunction with Rescue 3
Contact: Capt. Charles Wall or Lt. Don Smith, Austin City F.D., Training Division, Box 1088, Austin, TX 78767

June 28-30, 1982

RESCUE 3, SWIFTWATER RESCUE COURSE I & II

Rogue Comm. Coll., Grants Pass, Oregon

Contact: Rescue 3, P.O. Box 4686, Sonora, CA 95370 209/532-7915

July 5-9, 1982

RESCUE 3, SWIFTWATER RESCUE COURSE I & II

Sacto Area R.O.P., Sacramento, California

Contact: Rescue 3, P.O. Box 4686, Sonora, CA 95370 209/532-7915

July 26-30, 1982

RESCUE 3, SWIFTWATER RESCUE COURSE I & II

Bakersfield Junior College, Bakersfield, California

Contact: Mr. Jackie Fisher, Bakersfield Junior College, Fire Tech Coordinator, 1801 Panorama Drive, Bakersfield, CA 93305

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PG	ARTICLE	VERY GOOD GOOD FAIR POOR			
4	RADIO COMMUNICATION & MOUNTAIN SEARCH & RESCUE by Bill March	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	BUSH ON SAR by Stan Bush	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	EMERGENCY SNAKEBITE TREATMENT by Elaine Rice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	RADIO MESSAGE FORM by Jerry E. Wellman	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	GOING DOWN? A UNIQUE EMERGENCY EVACUATION SYSTEM by Otto P. Kramer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	MARCH ON SAR by Bill March	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	VEHICLES FOR SAR by Neil Lewbel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NEWS AND RUMORS *Continued*

CB operator in the area. The day after he was marooned, he got through to Fort Worth, Texas, "and told them I was in no immediate danger but wanted the RCMP to know so they could look for me. There was a bit of a mixup. They had the wrong name." On Dec. 14 or 15 — de Weyer can't remember which date for sure — he got through to Oklahoma and Nebraska within half an hour, but his signal was so weak or broken his message didn't get through with enough information to help him.

Sgt. Jim Tucker of the Mountie station at Pemberton, which is about 30 miles northwest of where de Weyer was stranded, said the CB operator in Oklahoma got the message Dec. 15. All the person heard, though, was that de Weyer was near Mount Currie. The sergeant said the Mounties searched the area extensively but didn't find de Weyer.

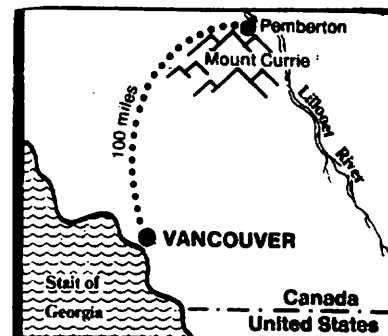
On Dec. 13 or 14, he ran out of dog food for Toby and began feeding him Granola — "he loved it" — and porridge. On Dec. 17, de Weyer was "starting to get a little perturbed, and I tried to walk out." He got about 5 miles and found he wasn't in good enough condition to make it through the deep snow. He had to spend the night in the open with a sleeping bag and poncho in freezing rain,

then turned back in the morning. "As soon as I got back, I tried once again on the radio, and I heard him (Culp) talking with a lady. I started calling, 'Mayday. Mayday.' He answered back."

Culp, at his remote home at Great Divide, 29 miles northwest of Craig, had just turned on his CB base-station set about 11 a.m. Friday. He was taking the day off from his job as an assistant scrubber supervisor at the Colorado-Ute Electric Association power plant in Craig.

The message from de Weyer "was as clear as if he was sitting in the room with me" at times, but it faded out at other times, Culp said.

Culp used his CB to call the Colorado State Patrol in Craig, which relayed the information to Colorado Bureau of Investigation headquarters in Denver.



The Denver Post / Fred O'Dorisio

Continued

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LOST SNOWBILERS' PLIGHT WORSE THAN FIRST TOLD

Laramie, Wyo. (AP)— Three snowbilers from Kimball, Neb., who lost their way in a snowstorm were rescued the next day after spending a cold night in the Snowy Range west of Laramie, officials said. According to information received from one of the trio's rescuers, the situation was more critical than initial reports indicated. Nebraska State Trooper Larry Brower of Kimball, who with three other Kimball men set out from Kimball to find Doug Gunderson, Steve Stahla and John Burback, said the three had spent the night outside "dancing around" trying to keep warm.

First reports from Albany County Sheriff Don Fritzen said the trio spent the night inside a cabin. Fritzen also said the men were found the next morning by State Game and Fish Warden Bob Sexton near Brooklyn Lake, about 40 miles west of Laramie. Brower said the men actually were first found by himself, off-duty Nebraska Trooper Steven Evans, Ron Spicer and Lee Rasmussen all of Kimball. Browers said he and the other rescuers took the three to a cabin, warmed them up for a while and then called authorities. Two of them were taken to the Laramie hospital for treatment of frostbite. Stahla, 21, and Burback, 19, suffered frostbitten hands, wrists and feet, but otherwise were in good condition, and the 22-year-old Gunderson was not injured.

Fritzen said the three ran into trouble Sunday night after darkness and high winds prevented them from getting back to the Snowy Range Highway and their vehicle. After spending the night outside, they tried again Monday morning, but two of their three snowmobiles failed. Burback was on his way to get help when located by the Kimball rescuers. Brower said.

Sheriff Fritzen said he discouraged volunteers from helping because strong winds and blowing snow threatened to endanger searchers. A helicopter was available, but was not used because of weather conditions, he said.

Reprinted from *Omaha World-Herald*, January 2, 1981

SEARCH AND RESCUE: THE DRAMA

High Drama: Mountain Rescue Stories from Four Continents, by Hamish MacInnes, The Mountaineers, 1981. \$12.95, cloth.

Most search and rescue books are how-to manuals on climbing and rescuing, but Hamish MacInnes' book is different; it's a collection of tales told "by rescuers, the rescued and by rescuers who themselves became the rescued." It truly is high drama. MacInnes has climbed on five continents and has acquired a reputation as an authority on rescues. He has collected these stories over 30 years, and what he considers thrilling is certainly hair-raising to people more protective of their mortality. Not everyone makes it back alive in this book of true stories that ought to keep any reader, mountaineer or simple adventure-lover, on the edge of the seat. A sample:

"Everything went quiet for a bit. The rope stopped, then paid out again. Suddenly, from high above I heard him yell 'Stones!' Instinctively, I dodged and kept close to the rock and at the same time I heard my name sharp and clear and I looked up and Barry was falling backwards through the air. He went hurtling past me, the two top pitons pulled out. He crashed onto the ice about a hundred feet below. For a moment I just stood there staring at the ring piton, not believing that it could have held, and then I looked down at him. He was upside down on the ice. He wasn't moving. I stayed there for a minute, and then I put a piton in and tied the rope to it and unroped, climbed up to the ring piton and hit it back in. Then I climbed down to Barry; he was very badly injured and unconscious. From the position of his body I came to the conclusion that his back was broken.

"I formed a harness in the rope, took all the weight off his chest and hung him in the sling . . . Then I took my crash helmet off and put it on him . . . and then tried to form a barrier between him and the upward slope. It was late in the afternoon by then and everything looked . . . everything was lost. It wasn't a question of just one of being injured. This was the Eiger and it was both of us, you see."

CRASH SURVIVORS RESCUED BY 'MOUNTAIN MANIACS'

Talkeetna, Alaska (UPI)— Pilot Ed Hommer thought he was hallucinating when rescuers climbed over the icy ridge to save and another survivor of a plane crash and four days on blizzards on Mount McKinley. Their two companions died.

"It was a nightmare. Reality in a super-heavy dose," said rescue climber Keith Niytray in describing the crash scene.

"Ed (Hommer) looked at me and said, 'By God it's good to see you.' He thought at first he was hallucinating," Niytray said.

The rescue ended an ordeal which began last Tuesday when Hommer's Cessna 185 encountered turbulence and crashed against a glacial wall atop North America's highest peak.

Word spread quickly Sunday around Talkeetna that Hommer, 26, a pilot for Hudson Flying Service of Talkeetna, and Mike Klauser, 30, of Darlington, Ind., had been rescued by the "Mountain Maniacs," a hometown climbing team.

But the four-day effort to get to the wreckage came too late for Hommer's brother-in-law, Dan Hartman, 30, of Talkeetna, who died hours after the crash, and a fourth passenger, Pat Scanlon, 25, of the Anchorage area, who died on the mountain of unknown causes.

Hommer and Klauser were carried up a 300-foot ridge from the north side of Kahitan Glacier and lowered down the steep south side, where helicopters took them to Providence Hospital in Anchorage. Dr. Bill Mills said both men suffered severe frostbite of the feet; he described their overall condition as "very good."

The bodies of the two dead men were also carried down to the helicopter base camp and flown to Talkeetna.

Niytray, George Ortman and Arthur Mannix of the "Mountain Maniacs" were first to reach the crash site.

Hommer related the story of the four-day ordeal to Niytray, saying he lost control of his plane when a "sheer wind" blew the Cessna belly-first into the side of the glacier, tearing off one wing and a door and breaking the windows.

The impact knocked the four men unconscious. It was dark and blizzards with subzero temperatures. According to Hommer's account, Hartman died of internal injuries the first night. Scanlon crawled to the back of the wreckage the next day and died of unknown causes.

The Mountain Maniacs climbed for three days through bitter cold, donning miner's lamps to ascend in darkness to reach the plane. The weather cleared Saturday, allowing them to climb over the ridge and descend down the steep slope to the north side to reach the survivors.

LIFEGUARDS, COPTER SAVE SWIMMER

A 33-year-old swimmer in distress was plucked from the churning water of Lake Michigan by Park District lifeguards and a Fire Department helicopter crew. One lifeguard was treated in Edgewater Hospital for a cut foot and three others were treated in the hospital for exposure. The swimmer, Omar Camacho, was treated for shock and exposure. He had been swimming about 200 yards offshore when a bystander noticed that he appeared to be in distress and called police. They notified Park District lifeguards.

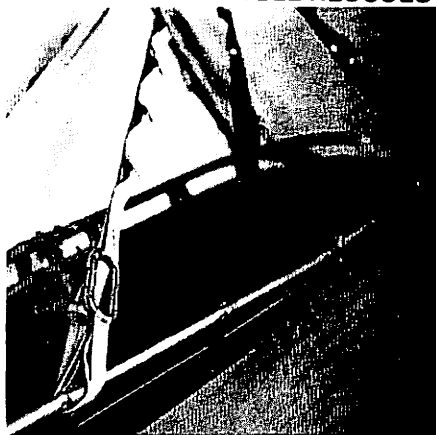
Rob O'Connor, captain of lifeguards at nearby Hartigan Beach, and three other lifeguards swam through waves as high as 10 feet toward Camacho, who was clinging to a buoy. The lifeguards took with them a "torpedo" buoy — so called because of its shape — that Camacho could hold.

A helicopter, meanwhile, was dispatched from Meigs Field with fire Capt. Jerry Hanlon, pilot Michael Bauer, and diver Ken Protolopyic aboard. Protolopyic, in a wet suit, dropped to the water with a raft and put a harness on Camacho, who was hauled aboard the helicopter and taken to Thorndale Beach, where he was put in a Fire Department ambulance for the ride to hospital. The four lifeguards and Protolopyic, holding the raft, worked their way to shore at Thorndale Beach. O'Connor said Camacho would be ticketed for swimming in an unpatrolled area.

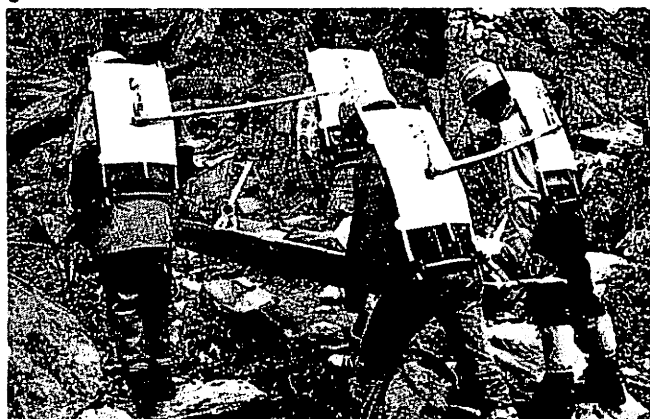
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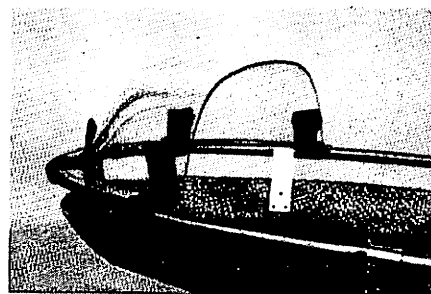
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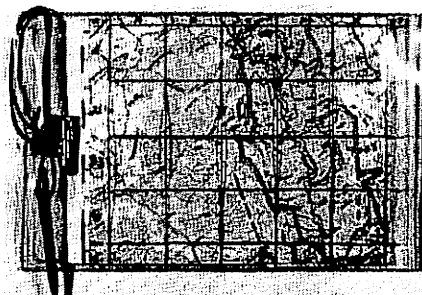
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