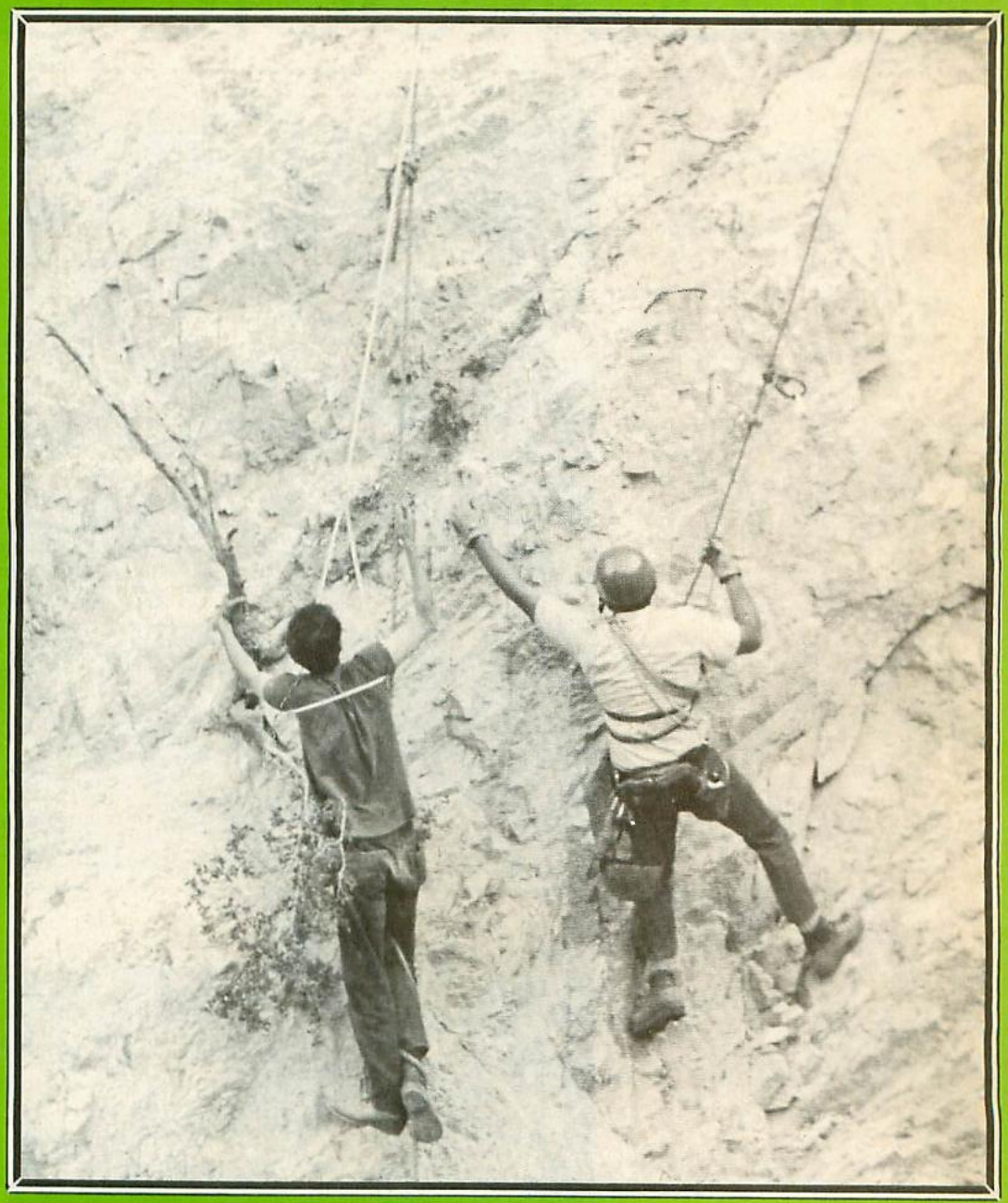
FALL 1978

Search & Rescue MAGAZINE

THE OFFICIAL PUBLICATION OF THE NATIONAL ASSOCIATION FOR SEARCH AND RESCUE

THE SOPHISTICATION OF MOUNTAIN RESCUE — FOR BETTER OR WORSE!



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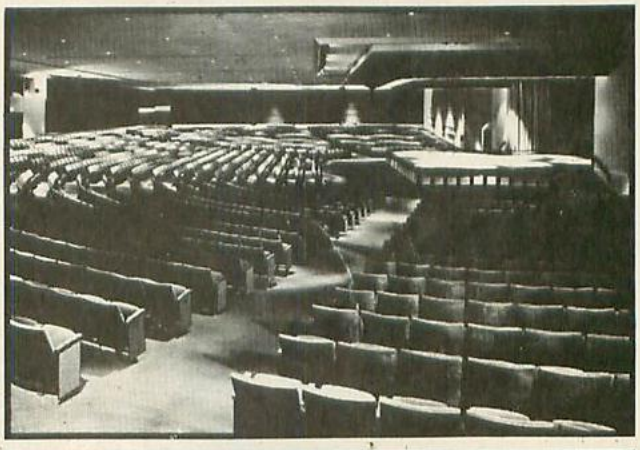

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Search & Rescue MAGAZINE

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MANUSCRIPTS SUBMITTED FOR **WINTER 1978 ISSUE MUST** BE RECEIVED BY THE EDITOR *NO LATER THAN* **OCTOBER 1, 1978**

COVER: This is ten-year old photo of Montrose Search and Rescue team member **Roger Bates** on a vertical of decomposed granite approaching victim. Has mountain rescue changed? **Photo by Gordon Balbach.**

*The NATIONAL ASSOCIATION FOR SEARCH AND RESCUE (NASAR) is a national organization, non-profit and non-political, dedicated to the support and assistance of the national SAR community.

Mt. Watkins and accident site.

RESCUE ON MT. WATKINS

Article and Photos
by Tim J. Setnicka
Yosemite National
Park SAR Ranger

The mortally injured Locke and rescuer above.

I had just completed half of my course and was running along the shoulder of the roadway near Curry Village in Yosemite Valley when the Night Shift Supervisor's car pulled in front of me forcing me to stop. Before I could say a word, Rick Smith, Supervisory Park Ranger, stepped quickly out of the vehicle and said "you'd better get in. . .we've got a real problem." He didn't wait for my response but quickly re-entered the car. As I hastily climbed into the back seat, I was greeted by Chris Flakenstein whom I had known casually for the past two or three years as an excellent Yosemite rock climber and a summer guide for the Yosemite Mountaineering School. John Dill, Park Technician, was seated in the front seat next to Rick who was driving.

The three began to fill me in on the details of the situation as Rick sped towards the Park's headquarters.

Chris said he and his climbing partner, Bob Locke, had been climbing on a well known route on the south face of Mt. Watkins which is located in the eastern end of Yosemite Valley near the start of Tenaya Canyon. The climb is rated as a Grade VI, 5.10, A-3, and takes about two or three days to complete. The two had started by walking to the start of the climb on October 13. The next day they climbed two pitches, left their ropes in place, and returned to the ground to spend the night. On October 15 they reclimbed (jumared) their ropes and continued up the face. At about noon, Locke was leading the eighth pitch with Falkenstein belaying from a sloping ledge approximately ten feet by twenty feet long. Locke had climbed up approximately 30 feet from the ledge and clipped his rope into an existing piece of climbing protection that had been left by a previous climber and considered to be "fixed" on the route. He then climbed an additional 30 feet or so past this point and placed two climbing nuts of his own. He continued to climb and was about two feet past his last protection when he fell while attempting a hard move. Chris said he fell in a pendulum fashion and quckly pulled out the two nuts he had just placed. He continued to fall across the rock face, almost hitting Falkenstein who ducked as he flew past. The force of the fall pulled the belay rope through Chris' hands so strongly that his left hand was burned severely.

Locke crashed into a rock corner to the left of and slightly above Chris; he hit with great force and hung limp, barely conscious. It all had happened in an instant but Falkenstein noticed a severe fray in the rope between himself and Locke. He quickly lowered Locke the remaining few feet to the ledge, but just as he was about to grab Locke, the remaining two strands of the rope core broke and Bob fell again.

What kept him from falling the additional 1500 feet to the ground was a second rope called a haul line. This rope is used to pull up sacks containing food and clothing climbers need on multi-day climbs and is not used as a safety rope. However, this time it miraculously acted as one, although it was severely abraded in the process.

The rope stopped Bob 160 feet below Chris' ledge.

Chris quickly "down jumared" this rope to a point about 30 feet above Bob, where he could place anchors. Chris then continued down to Bob who was hanging, still conscious, on the end of the rope. Chris quickly tied Bob to him and slowly jumared up 40 feet to a small ledge barely big enough for Bob to lie on. After securing Bob, Chris jumared the remaining 120 feet of rope back to the belay ledge, collected food and clothing, and returned to Bob and placed him in a sleeping bag. After making him as comfortable as possible, Chris collected some gear and made a series of harrowing rappels using a portion of the broken rope tied onto the damaged haul rope.

Once on the ground Chris ran from the base of the climb to the Mirror Lake area of Yosemite Valley covering the three miles in record time. At Mirror Lake he called the Park Dispatcher from the pay phone. The Dispatcher logged his call in at exactly 5 p.m. as she notified Smith and Dill who immediately drove out to meet Chris picking me up on their way back.

Chris described Bob's injuries as a severe cut on the head, his legs appeared to be paralyzed, and he had difficulty moving his arms. He had also complained of pain in his shoulder and back, but was conscious and in reasonably good spirits.

It would be dark in less than two hours and we began to discuss the rescue plan in the car. Mt. Watkins is one of the more inaccessible climbing areas in the Valley because there are no roads close to it. The mountain itself looks like a large scoop of vanilla ice cream with a sheer south face, the upper 1000 feet of which is overhanging. There is no place to land a helicopter near the base and the start of the climb involves climbing up steep rock slopes for a long distance. The top of Mt. Watkins is an intermittent forest cover with sloping broken granite slabs. We could land a helicopter on the top reasonably near the face.

We also needed to know Bob's exact location on the wall, the estimated vertical distance from him to the top, and an accurate lowering point from the top of Watkins. Fortunately, the Park's contract fire helicopter (a Bell B-1) was still in the Park and John was to fly an immediate aerial recon of the Watkins area. Smith was to contact

the Rescue Coordination Center at Scott Air Force Base in Illinois and request military helicopter assistance from LeMoore Naval Air Station located approximately 170 miles south of the Park and I was to begin to gather equipment and personpower at the main rescue cache. As Smith pulled into his parking space at Park Headquarters at 5:15 p.m. I quickly began our tasks.

Fifteen minutes later John was airborne in the contract helicopter, and soon radioed that the pilot was unable to get close enough to the wall to locate Bob but that they were able to spot the party's haul bag. John also reconfirmed that based on the terrain, time of day, and Bob's probable location, the fastest way to reach him would be to lower rescuers from the summit of Watkins.

At approximately 5:45 p.m. we were notifed that the military helicoper would be unable to assist us because of impending darkness. This meant we would have to use the contract helicopter to move people and supplies to the summit in many short flights. By this time Dill was back on the ground and we evaluated our facts and speculated on possible unknowns. The contract helicopter was the only way to get the necessary personnel and equipment to the top of Watkins. We held a quick conference with the pilot, Jim Daugherty. The weather was cool, with very little wind, the moon would be full, and no bad weather was predicted. We still had enough light to establish a safe night helispot. Daugherty, an ex-Vietnam military pilot, thought for a minute as he looked up toward the side of Watkins and replied, "let's go for it. I can fly it safely." This was a crucial decision; without the helcopter we could not have reached the summit until the next day.

Spotlights were rounded up and along with truck headlights they were used to set up a helispot in the Valley. Shuttles to the top began immediately, and, with portable spotlights, a heliport was quickly secured on Mt. Watkins, about a half a mile from what would prove to be the rescue site. The B-1 made a round trip in 20-25 minutes and could carry a payload of 225-250 pounds on each trip. It took approximately five hours to fly eleven rescue personnel and their equipment to the top. Over half the rescuers were local climbers, guides, or members of the National Park Service rescue team located in Sunnyside Campground. The last rescuer was off-loaded on Watkins at 11:30 p.m.

During this time, another request was placed through Scott Air Force Base for an HC-130 flare ship for night lighting. It was declined because of fire danger. After more telephone calls, however, the staff at Scott AFB located another light source. It was a nine million candle power spotlight called a "Carolina Moon" and was mounted in a U.S. Coast Guard HC-130 based in San Francisco. The Coast Guard was happy to assist and at 10:15 p.m., while rescuers were still being helicoptered in, the HC-130 arrived and began orbiting in the Watkins area at 9,000 feet. An added bonus was that the crew could talk directly to us at the rescue site on our Park Service radio frequency, eliminating some potentially large communication problems. The HC-130 could orbit until dawn, but the "Carolina Moon" has a limit of about two hours because it runs off a separate jet fuel source. It also takes 10-15 minutes for the light to warm up and be turned on. We decided to keep the light off until we actually began the lowering operation.

At 12:15 a.m., all rescue personnel and equipment were at the top of Watkins above Locke's estimated location. Our plan was for two people to be lowered to him, one being an E.M.T., evaluate his condition, and we would then decide to raise him immediately or wait until morning. Before anyone could be lowered, we needed to locate the point directly above him because once over the edge much lateral movement is impossible due to the weight of the ropes and rescuer and the possibility of damaging the lowering ropes.

One of the local Yosemite climbers, Dale Bard, rappelled about 100 feet down slabs to the edge of the wall and looked over to see if he was directly over Locke. As Dale peered down into the darkness we radioed to the HC-130 to turn on the "Moon" and direct it along the wall. The wall would then be illuminated for 30-45 seconds as the HC-130 passed overhead. Different positions and distances were tried by the plane's pilot to maximize the length of time and brightness of the light that was on the wall. This system worked well.

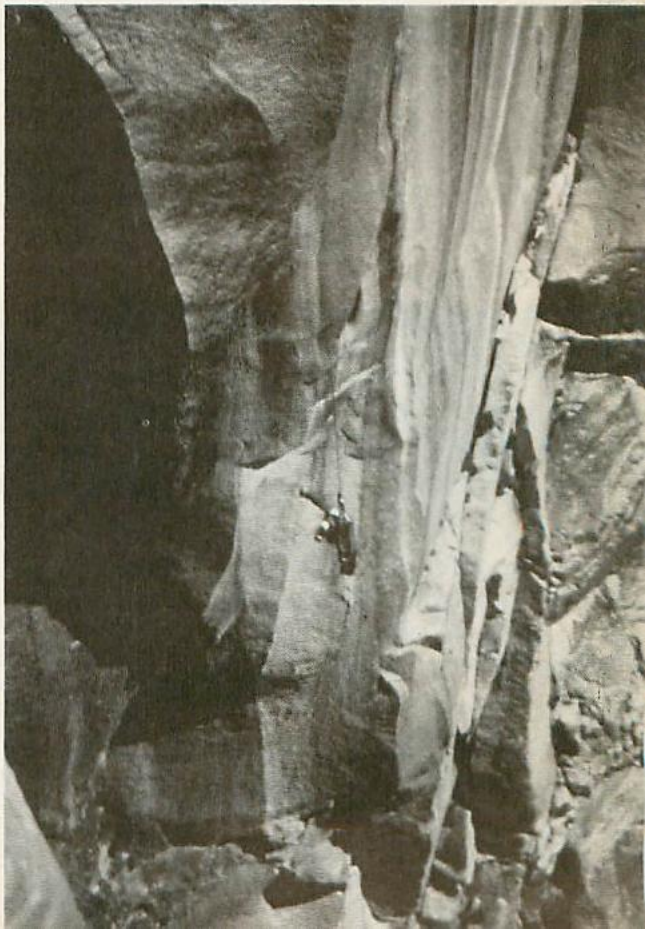
From this first position Bard estimated he was 200 feet too far west. A second observer was sent down in a new position as Bard jumared back up the rope. From this second point, we were still 50 feet too far west. The tird time was the charm and Dale reported he was directly over Locke. Without the additional lighting we would not have been able to see into the dark canyon and the rescue would have stopped.

At 1 a.m., Bard was lowered over the edge on a two rope system. He was to establish anchors on a large ledge known as Sheraton-Watkins ledge, about 220 feet above where Locke was located. The descent involved being lowered 1300 feet and for most of this Dale hung

Continued

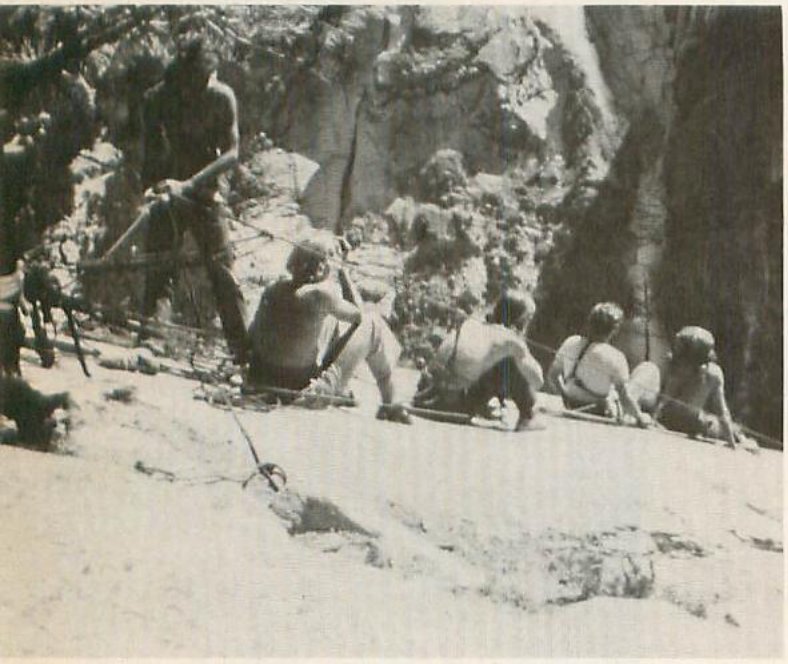
Rigging the litter, Butch Farabee and friend.

Note awesome free swing of the litter in an 1000 foot overhang.



Carolina Moon night-light and C-130 aircraft.

Manpower waiting to start the haul.



Rope management

completely free from the wall. The HC-130 continued to orbit overhead and intermittently illuminated the face. Dale reached the Sheraton-Watkins ledge and quickly put in a directional anchor to slightly correct his line of descent and continued the remaining distance to Locke. At 2:48 a.m., after being lowered for one hour and fifteen minutes, Dale radioed simply "he's dead." On top everyone was silent. Someone eventually broke the silence; "damn it." Dale jumared to the larger ledge where he was to spend the night.

Dale had been lowered on a two rope system. Each rope was fed through a carabiner brake system, backed up by prusik safeties, one rope taking the load, and the other acting as a belay. Dale had a radio so slack and tension in the belay line was worked out easily. To reach Locke, each rope consisted of a 1200 foot rope and a 600 foot rope tied together.

Another rescuer, Rick Accomazzo, was sent down to spend the night with Dale, carrying extra food and clothing for the two, as well as equipment necessary to help retrieve Bob's body the next day. When Rick reached Dale it was 4:40 a.m. The HC-130 and its "Carolina Moon" departed for San Francisco. It had proved to be invaluable for the rescue attempt.

From 5-6 a.m. one hour of sleep for all.

We were awakened by the familiar sound of Angel 3, a UH-1N Helicopter from LeMoore Naval Air Station, arriving on schedule to bring three more people, food, and equipment to the summit, and the actual recovery of Locke's body was started. A solid Stokes litter was rigged on top with the capacity for either horizontal or vertical raising. One 1200 foot rope was pulled up and the litter was attached to it and lowered in a vertical position, guided by the second rope, in a vertical tyrolean system, directly to Sheraton-Watkins ledge. An additional plan of lowering a person from the top to assist the litter if it hung up on descent was formed although it was not needed in this case.

After reaching Sheraton-Watkins ledge the guide rope was attached directly to the litter so both long ropes could be used to raise and/or lower the litter. The litter was next lowered to Locke's ledge and Bard rappelled down separately using 165 foot ropes and independent anchors he had placed on Sheraton-Watkins ledge. Bard was able to get Locke's body into the litter in a horizontal position by himself and he re-rigged the litter to be raised in a vertical position.

After the body was safely secured, Dale jumared up to Sheraton-Watkins ledge where he and Rick were safe from falling rock.

We had decided to raise the litter rather than lower it to the l[illegible] because from Locke's position to the summit wall was overhang[illegible] The litter would not require an attendant until very near the top, which would make raising much safer and less complicated. If the litter were bowed, it would have been over ledges covered with loose rock and an attendant would be required which would have more exposed him to the rock fall dangers, and once down on the ground it would be a much more hazardous and longer carryout requiring additional people.

The raising was accomplished by using a simple 3:1 pulley system with 7 to 7 people pulling, and a range of approximately 50 feet each pull. One rope was used as the haul rope.

The second rope, the belay rope, was pulled up by 6 to 7 people using jumars in time with the haul rope ascent. Both systems used prusiks and/or jumar safeties and the belay rope had a belayer using a friction system in case of problems. When the litter reached the summit slabs, the haul rope became wedged in a crack. This combined with the friction on the slabs, increased the drag to the point that a rescuer had to rappel 200 feet to the litter and jumar beside it helping it along.

The litter raising, about 1500 feet, was begun at approximately 12 p.m., and completed at 2:30 p.m. After the litter was past Sheraton-Watkins ledge, Bard and Accomazzo started rapelling to the ground. The litter was immediately started toward the helispot with six litter bearers while the remainder stayed behind to pull ropes, tear down the system, and clean up the area. All personnel started toward the Watkins heliport by 3 p.m. and the Lemoore Naval Air Station helicopter arrived on schedule at 4:15 p.m., according to prior arrangement, and began transporting people back to Yosemite Valley. Five round trips were necessary to pick up all gear and personnel, including Bard and Accomazzo, who had meanwhile reached a one skid landing zone in Tenaya Canyon. The operation, the longest raising we have done in Yosemite, was concluded at 6:30 p.m., October 6, 1976.

The question of whether or not a "Pandora's Box" was opened with this night operation is one which we have been constantly asked. The decision to attempt this rescue was not an easy one but was evaluate[illegible] openly and as honestly as we could. All of the known variables scrutinized and we speculated about as many unknowns as possible. This operation, with the increased dangers and hazards, was attempted only because all the conditions were on our side at the start. I do feel however, that it will be a long time before conditions arise that allow us to do again such an operation at night.

BELAYING — A REVIEW OF CURRENT METHODS

by: Bill March, University of Calgary, Canada

One of the fundamental skills of the mountaineer which has seen considerable development over the past few years has been the practice of belaying. This article is an attempt to examine critically the present situation and evaluate the pros and cons of different methods. The experienced climber requires a repertoire of technical expertise and knowledge to draw upon: he needs to be conversant with different methods so that in the event of an emergency he can improvise with the minimum of equipment whatever the situation. For the purpose of this article belaying is defined as the safeguarding of one climber by another using the rope in order to arrest a fall.

TYPES AND METHODS

An examination of belaying techniques indicates that it varies from country to country and with the type of mountaineering encountered. Basically the types of belay may be divided into DIRECT and INDIRECT and the method of belaying into STATIC and DYNAMIC. The direct belay is where the rope is used directly around a spike or tree; the indirect belay is where the belayer is anchored and is holding the rope around his body to provide additional security and control of friction. The static belay is one which arrests a fall without allowing any rope movement and is only really applicable when a leader is belaying the second man from ABOVE. The dynamic belay requires the rope to slide under friction thereby absorbing some of the energy from the fall and reducing the force on the belayer and on the falling climber. A dynamic belay should always be used when the second man is belaying the leader.

RELATIVE SIMPLICITY

The direct static belay is a technique often used when climbers are roped up and moving together along a ridge where natural rock spikes provide a purchase for the rope. Moving together can be made more secure by flicking the rope in and out and over the spikes and pinnacles on ridges, by placing running belays and by the party members keeping as much as possible to different sides of the ridge. It is used on movement across snow and ice: in the snow the ice axe shaft is thrust into the snow surface and the rope paid out around the head; in ice the pick of the ice axe is driven into the ice surface and the rope paid out over the top of the axe head. The great advantages of the direct static belay are the speed and relative simplicity with which it can be brought into operation. However, it is not efficient in holding leader falls and its use is best limited to safeguarding people climbing directly below the belayer.

BELAYING THE LEADER

The advent of mechanical belay devices and belay friction hitches which give a dynamic belay allow the direct belay to be used for belaying the leader. It is important to remember that with the direct belay the load comes directly onto the anchor point and it is consequently subjected to a greater loading then a properly executed indirect belay. When using the direct dynamic belay the belayer should be secured to a separate anchor point unless speed is important and the party is moving together (he may stop occasionally to give his partner a quick direct dynamic belay across a short difficult section). The belay friction hitch used as a direct dynamic belay with the belayer anchored separately has the advantage of effectively separating the belayer from the belay system. In the event of a little strain comes onto the belayer and he is able to tie off and secure the second man and remove himself from the system. See diagram. In order to tie off the load rope a 5 mm or 7 mm sling can be attached to it using a prusik knot and the free end can be clipped into a separate anchor point. This can only be released by lifting the load to slacken the knot or

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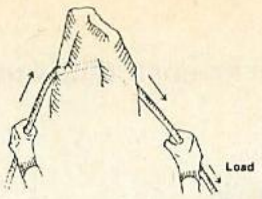
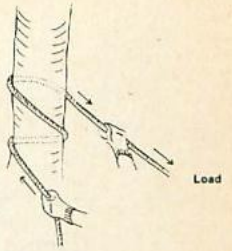
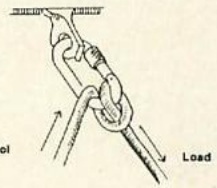
1.



Direct Spike Belay — Static N.B. will come with upward pull.

Direct Simple Twist Around a Tree Static/Dynamic.





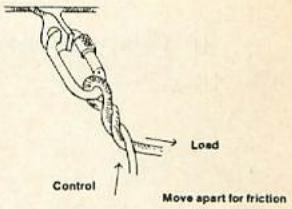
Italian or Munter Hitch

(i) Not suitable for use on Hawser laid rope.
(ii) Should only be used on anchor points which will withstand multi-directional forces.

Saxon Cross

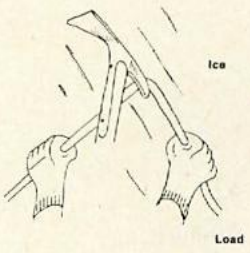
This can be used on rock and ice pitons and around the shaft of an ice axe.

(i) Cannot be used on a flexible attachment point. i.e. sling or wire chock as the twists will transfer from the rope to the attachment point!
(ii) Should only be used on anchor points which will withstand multi-directional forces.

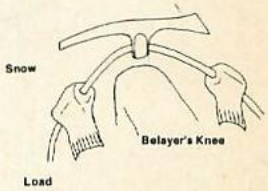


Move apart for friction

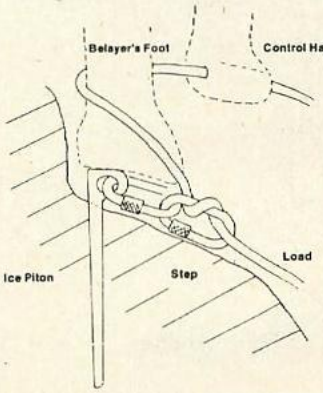
2. DIRECT BELAYS ON SNOW AND ICE



Ice Pick Belay (Direct)



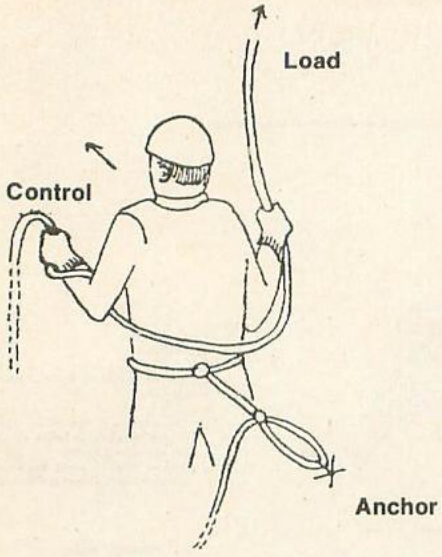
Ice Axe Shaft Belay (Direct)



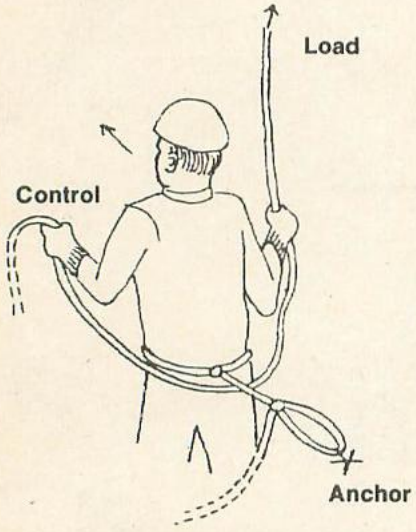
Ice Piton Foot Brake (Direct/Dynamic) Body position similar to Ice Axe foot brake illustration.

Ice Axe Foot Brake (Direct/Dynamic).

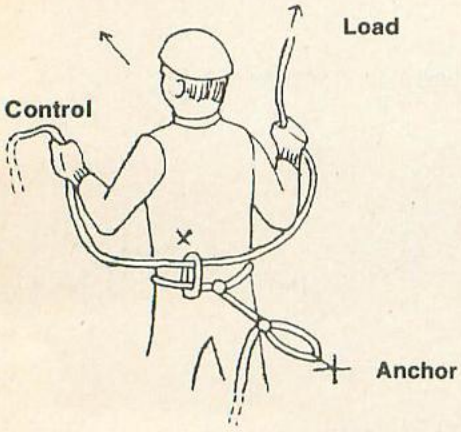
5. WAIST BELAY—DIFFERENT ROPE TECHNIQUES



(i) Belaying Rope Above Anchor Rope

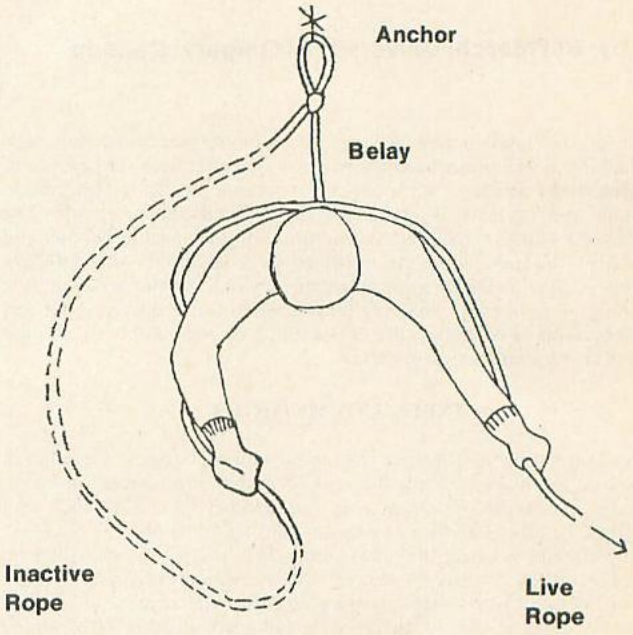


(ii) Belaying Rope Below Anchor Rope

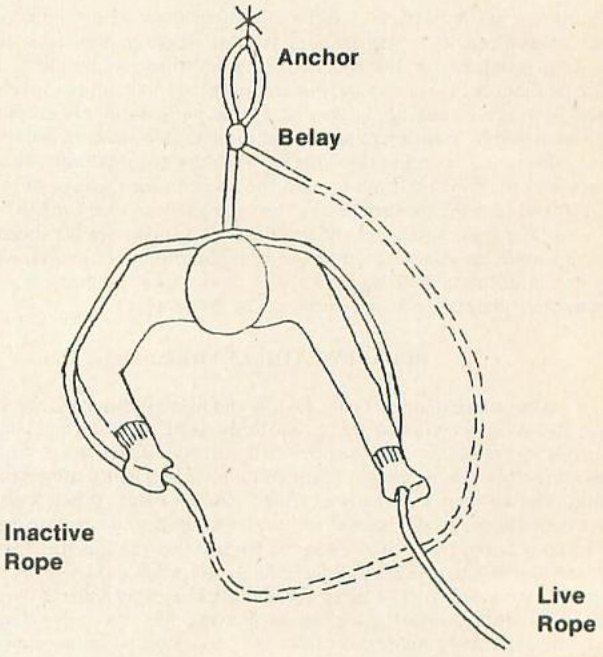


(iii) Belaying Rope Clipped Into Carabiner X To Prevent Dislocation

Correct



Incorrect — Belaying in the Bight



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by cutting the sling. A solution to this problem is to tie the end of the prusik sling onto the anchor carabiner with a mariner knot (diagram 3) which can be released under load. The direct dynamic belay can be used on snow using the ice axe foot brake and on ice using the ice piton foot brake. Both of these methods require considerable skill and practice to execute effectively and in both cases the belayer is in an unstable position in the event of anchor failure. Probably a better belaying technique is to use a Saxon cross knot on the ice axe shaft or ice piton, as this eliminates the need of a boot for friction. The belayer faces into the snow slope with one hand braced on the head of the inserted ice axe and the other controlling the rope which normally has a minimum of 3 twists. This "tripod position" has the advantage of being more stable than the boot axe position.

As a general rule on snow and ice the safest procedure would be to use indirect dynamic belays with multiple anchor points whenever possible. It is important also to have a secure stance so that as much load as possible can be taken off the anchor points.

HOIST A CLIENT UP

The indirect belay involves the introduction of the climber into the belay chain between the anchor point and the moving climber. The indirect body belay can be divided into (i) the shoulder (ii) Waist/Hip belay. The shoulder belay (diagram 4) is widely used by continental guides to safeguard their clients. These belays are static belays with the rope kept tight as the client climbs. The guide may or may not be anchored depending on the time factor and the situation. An experienced belayer can give considerable assistance to a struggling second: indeed I have seen a guide literally hoist a client up over a hard move. This method of belaying is easier to arrange than the waist belay if the belayer is wearing a rucksack. It is important not to lean forward when ying, otherwise the rope will be pulled over the head and off of the shoulder. This danger is decreased if the belayer is wearing a chest harness and is secured to a high anchor point. The directional loading of the belaying rope should be directly down *not* outwards as this is unstable. The body position should be:

1. Feet apart for stability.
2. Knee on load side locked and the foot firmly braced.
3. Shoulder braced against the rock face.
4. Both hands on the rope.

The shoulder belay is not suitable for a dynamic belay because:

i) there is not enough friction between the rope and the belayer's body.
ii) the point of loading is too high on the belayer.
iii) it is inefficient when subjected to an upward pull.

The waist/hip belay is widely used as the standard indirect dynamic belay with minor technical differences in different places. The belaying rope may run over the top of the anchor rope in which case it is more difficult to arrest on upward pull arising from a leader fall with running belays. It is, however, effective on downward pulls. An alternative is to run the belaying rope under the anchor rope so that an upward fall can more easily be arrested. In this case if no runners are in place or if runner failure occurs the rope is in an extremely difficult position to hold. A possible solution to this dilemma is to clip the belaying rope through a carabiner attached to the waist line thus securing it from a pull in either direction. This is awkward and time-consuming to arrange and may reduce the friction of the body belay. The position of the belaying hand on the rope may also vary according to the degree of friction required. In the United Kingdom it is standard practice to have a twist of rope around the belay arm on the inactive side thus ensuring more body/rope contact and consequently more friction. It has a disadvantage, however, in that a full rope length fall may result in the belayer's arm being pulled around and trapped behind his back. This actually happened to a climber and he had to be rescued from this helpless position. The alternative method without a twist provides less friction but removes this danger.

The use of the waist/hip belay has important ramifications in the method of belaying attachment to the anchor and the following points should be noted. (Diagrams 6)

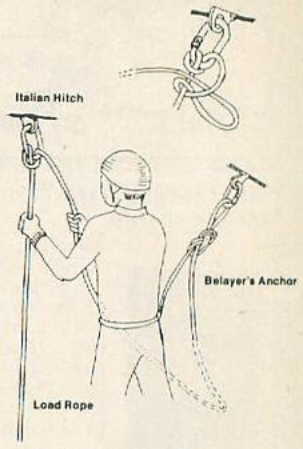
The introduction of a climbing belt or harness into the waist belay system solves some problems and creates others. The use of a canvas-sleeved climbing belt fastened by a safety buckle solves the problem of nylon running over nylon and the resulting danger of friction melting. The belayer can, in addition, remove himself from the system by undoing the belt as long as the tie back of the belay is to the carabiner and not directly into the belt. It is important when using the dynamic waist belay that the rope linking the anchor and the belayer be attached to the back or side of the body. The normal tie in to the end of the rope or to the waist belt can easily be swivelled round to the back for the correct belay attachment position. When a harness with a fixed front attachment point is used a

Continued

3.

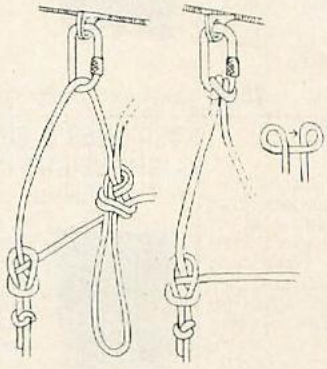
Tieing off load with prusik sling fastened by a Mariner Knot (releases under load)

Direct belay using an Italina Hitch Belayer on separ... anchor.
An inset. Tieing off an Italian Hitch with Half Hitch on Bight (releases under load)



4. Classic Shoulder Belay

5. ANCHORING—DIFFERENT METHODS OF ATTACHMENT

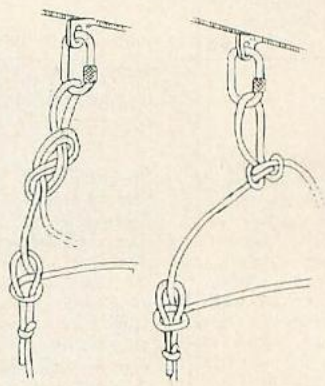


1. BELAY THROUGH THE WAISE LOOP TIED WITH FIGURE OF 8 ON BIGHT
PROS: i) Belayer attached by doubled rope. ii) Belay easily adjustable.

CONS: i) Belayer tied into system more difficult to escape. ii) Strain on waist tie bowline which must be locked off. iii) Strain on figure of 8 on bight by climbing rope if it is fully extended. iv) Nylon running on nylon during belaying.

2. BELAY TIED WITH CLOVE HITCH ONTO ANCHOR CARABINER
PROS: i) Quick and simple to tie. ii) Easily adjusted. iii) Belayer not tied into system.

CONS: i) Clove hitch weaker knot then figure of 8. ii) Only one rope attaching belayer to anchor. iii) Nylon on nylon. iv) Clove hitch can ride up onto gate — Screw Sleeve desirable.



3. BELAY FIGURE OF 8 BIGHT CLIPPED INTO ANCHOR CARABINER
PROS: i) Quick to tie. ii) Stronger then clove hitch. iii) Belayer not tied into system.

CONS: i) Not quick to adjust. ii) Only one rope attaching belayer to anchor. iii) Strain on figure of 8 across the knot on full extension of climbing rope. iv) Nylon on nylon.

4. BELAY TIED WITH ALPINE BUTTERFLY ONTO ANCHOR CARABINER
PROS: i) Knot designed for 3 way loading without distorting.

CONS: i) Not quickly adjustable. ii) Quite complex to tie. iii) Only one rope attaching belayer to anchor. iv) Nylon on nylon.

bight of the rope must be taken, tied off and clipped into a back waist loop. See diagram 7. This modification is not necessary if belaying direct onto separate anchor using an Italian hitch. In this instance the climber can belay standing sideways tieing into a separate anchor. Another solution is to belay an Italian hitch on a carabiner attached to the belayers harness. This would be an indirect dynamic belay.

AUTO-BELAYER

It is evident that there are many variables to consider when using the waist belay and it is hardly surprising that considerable attention has been given to the development of an auto-belayer. The sticht belay plate is a simple lightweight device which has been developed to give an effective and controlled dynamic belay. The standard model consists of an aluminum plate with two slots, one for 11 mm rope and one for 9 mm rope. A bight of rope is looped through the slot and clipped into a screw gate carabiner. The carabiner may be attached either to the belayers anchor (direct belay) or to his harness (indirect belay) if he is anchored. The rope is fed through the carabiner and plate with gloved hands and a fall is arrested by moving the control rope away from the carabiner, causing the rope to run in an S shape through the system. It is important for the belayer to position himself in relation to the rock face so that the movement of his braking arm is not obstructed. The belay plate stayd 3"-6" in front of the locking carabiner and has a small hole in the side, through which it is laced to the harness by a cord giving 6"-8" of travel. I have found it more convenient to attach a 6" swaged wire loop on the plate and clip this back to the screw gate carabiner. Nylon cord cannot be used for this because of the danger of friction melting. Later models of the Sticht plate have been fitted with a spring which prevents the blocking of the rope by holding the plate away from the carabiner except during braking. The spring attachment makes the plate easier to use for beginners but has a tendancy to catch and tangle in slings and rope when not in use. The sticht plate with a single rope and one carabiner has a dynamic braking effect of between 460-490 lbs. i.e. It will slide at this load factor. It is important to remember that the dynamic component is inherent in the design of the sticht plate and when using this method one should brake as an instinctive reaction. i.e. as firmly as possible and NOT with a gradual increase in pressure.

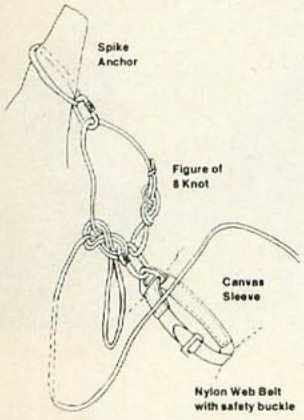
When using the sticht plate as a direct belay on a separate anchor always ensure you are close enough to the plate to execute the full braking maneouver, giving a complete S shape in the rope.

REVERSING ROLES

So far all the methods of belaying described have been operated by the belayer and the main concern has been absorbing the energy generated in a fall. The MSR autho belayer is a device which is designed to absorb energy at the other end of the climbing chain — the leader. It is simply a lightweight aluminum plate with five holes drilled which will take on 11 mm rope. The plate is clipped into the leader's waistline caraliner and the climbing rope is threaded in a spiral through 3 of the holes. About 7 feet of rope is pulled through and attached to the leader's waistline caraliner with a figure of 8 knot on the bight. The spare 6 feet of rope is tucked away into a pocket. The degree of friction restraint exerted by the plate is controlled by screw adjustment which tightens on the rope where it passes through the first hole. The pull-through force is normally set at 800 pounds.

There is little doubt that the development of improved belaying techniques in conjunction with improved methods of protection, has greatly increased the standard of free climbing. Altitudes also appeared to have changed — taking a fall is no longer regarded as such a serious event because of the high safety factor which has been built into the modern rock climbing system. In the early days of rock climbing with direct belays and hemp ropes a fall often involved serious consequences. It may be that the fundamental nature of the sport is changing and the degree of risk decreasing as no attempt to push technical standards higher in comparative safety will equal the degree of commitment accepted and practiced by the pioneers. e

7.



Anchoring using a bight of rope tied back to the waistline crab.

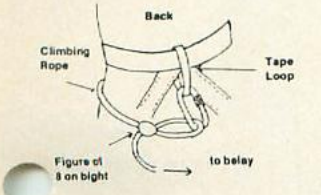
PROS

1. Belayer attached by double rope.
2. Easily adjustable when tied.
3. Rope runs over canvas sleeve not nylon on nylon.
4. Belayer can remove him/her self from the system by undoing belt whatever method of tieing is used incorporating the waistline carabiner.

CONS

1. Strain on figure of 8 knot on bight by climbing rope if it is fully extended.

Belayed on with Figure of 8 tied on bight back to waistline crab.



Method of anchoring when using a harness with a front attachment point.

PROS

1. Anchor attachment at rear.
2. Belayer can remove himself from the system by untieing front attachment.

CONS

1. Awkward to arrange.
2. Slow.

ASCENDERS IN RESCUE

by Eric Fuller, Vice President,
Montrose Search and Rescue Team

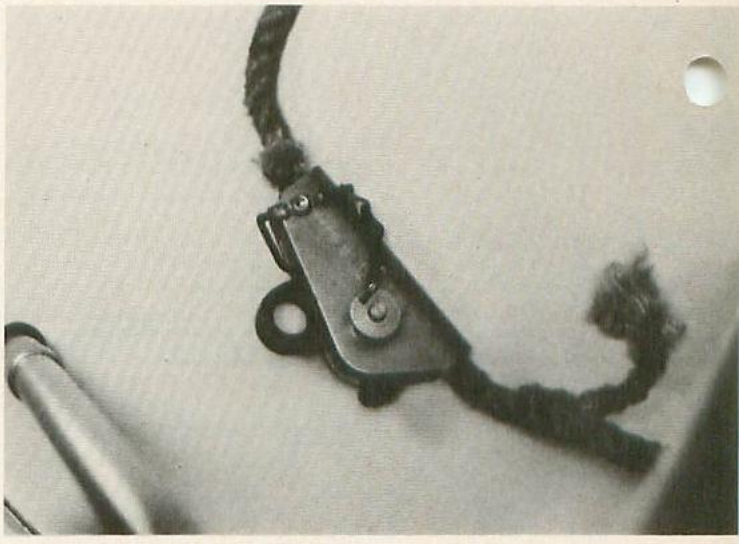
The Author, Eric Fuller

These are the test results of various ascending devices (mechanical vs. rope) to determine if mechanical devices are safe for rescue work. The test was a slow pull of about 15-20 inches per minute. The pressure reading was multiplied x 5.9 to get the pounds of force on the device. The rope used was 7/16 nylon goldline in a used condition and in about the same average condition of most of the rope used by the Montrose Search and Rescue Team. A new section of rope was used with each test. The devices were all pulled to the same test pressures with the exception of the Clog. I rated the rope damage in percentage by a visual check with the device removed.

MECHANICAL DEVICES

TEST No.	DEVICE	POUNDS-PRESSURE	REMARKS
1	CLOG (old style)	1000	There is fraying 15% damage to rope, no visual damage to device.
2	CLOG (old style)	1100	Rope was cut through, 2 of 3 lays
3	GIBBS (old style)	1500	Some fraying, 15% rope damage, device - no visual damage to cam, and minor elongation to frame at pin hole.
4	GIBBS (old style)	1800	Rope cut through 2 of 3 lays, no additional visual damage device.
5	GIBBS (old frame, new style cam)	1500	Minor fraying, 15% rope damage, no visual cam damage.
6	GIBBS (old frame, new style cam)	2050	Rope cut through 2 of 3 lays, minor device damage (still good).
7	NEW GIBBS (cam new w/ polished teeth made from 2024-T4 Aluminum)	1500	Almost no fraying, rope damage 10%
8	NEW GIBBS (cam new w/ polished teeth made from 2024-T4 Aluminum)	2300	Rope cut through 2 of 3 lays, minor frame damage, hole elongated at pin, approximately .015 device still good.

The GIBBS

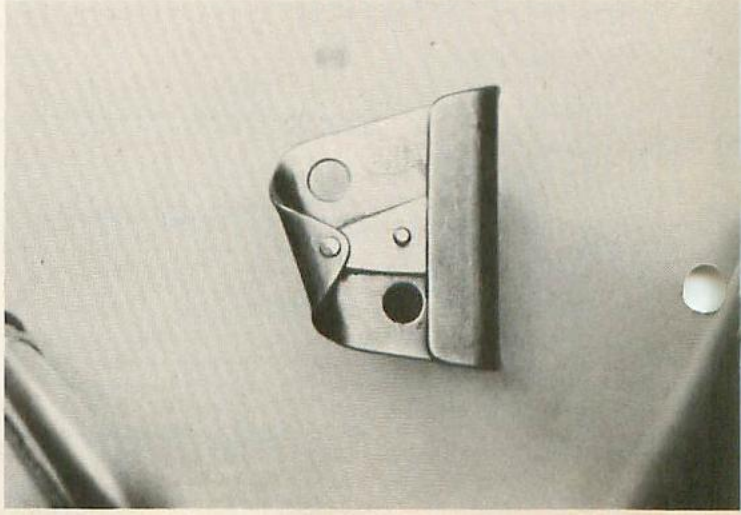


The Clog

ROPE DEVICES

#1 rope used — new 3/8 goldline on same used 7/16 goldline

TEST No.	DEVICE	POUNDS-PRESSURE	REMARKS
9	3 wrap prussic super soft goldline	1050	Knot slipped, no visible damage to 7/16 rope.
10	3 wrap prussic goldline mountain lay new	2080	Knot slipped, 20% damage to 7/16, skin of rope melted from friction and compression to bottle shape
11	3/8 goldline 3 wrap bachman	590	Knot slipped, no visible damage.
12	4 wrap bachman same rope	1200	Knot slipped, 10% rope damage due to friction and compression, damage was visible.



In test #2 the old style CLOG at 1100 pounds pressure cut through 2 of 3 lays of 7/16 inch Goldline.

RECOMMENDATIONS OF MECHANICAL ASCENDERS

a. The Clog ascender shouldn't be used for rescues with high pressure loads.

b. The old style Gibbs shouldn't be used for rescues with the old style cam, but a new style cam can be purchased from Gibbs.

c. The new Gibbs has been shown as fairly safe for rescue work, but one small modification of the existing cam would improve it. (Explanation in a.)

d. The handmade cam proved superior to Gibbs cam, but isn't necessary. The existing cam should be cleaned up and polished on the teeth that grip the rope. During the test of the handmade cam the greater strength gain was because of less friction of polished teeth. The Gibbs cam casting showed to be strong enough.

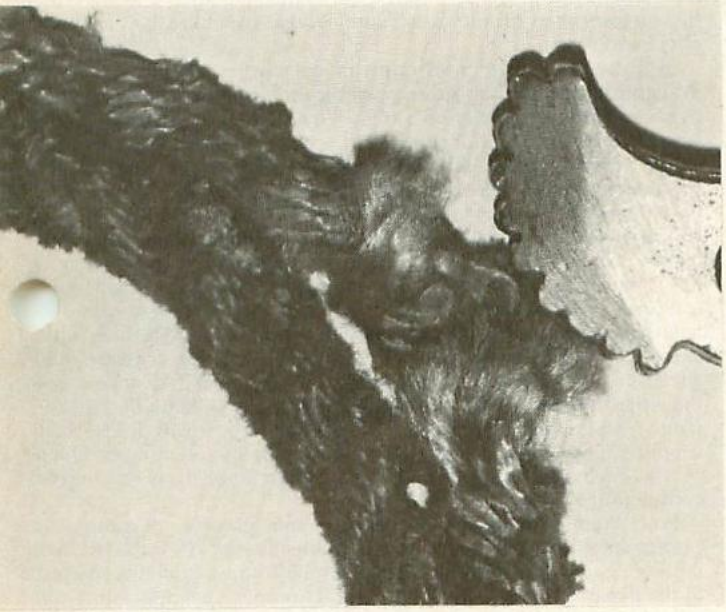
e. The Jumars have already been shown unsafe for rescue work.

NOTES:

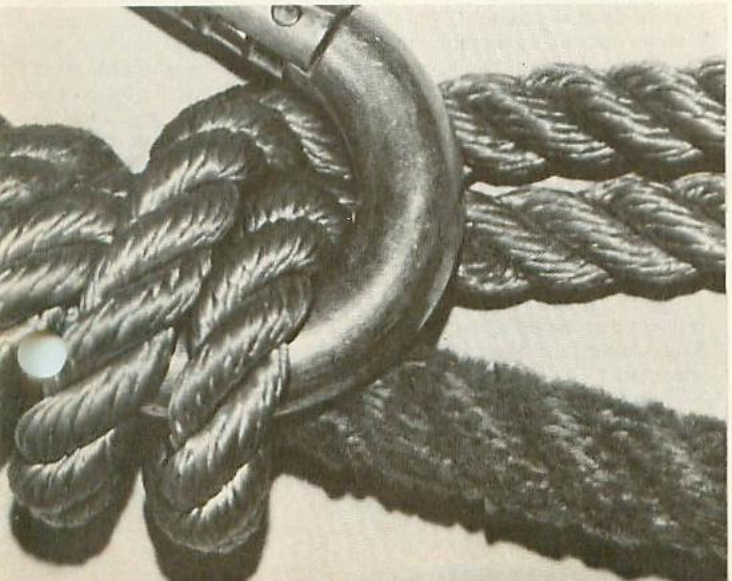
The old style Clog, because of its design, looks very strong and is popular, but has some drawbacks. The frame has only one side and can bend and cause the cam to jam up and not function at all. There are some cases recorded of this. The cam has sharp edges that contact the rope and the heel is what cuts through. The cam could be modified by reshaping it to a smooth radius at the heel to get strength gain at the rope.

The Gibbs, when assembled on the rope, has equal force to both side walls and cannot be misshapen easily. The main gripe is that the cam is not spring loaded and it takes two hands to put it on. I have found that if you let it go and it's not connected to you it's good-bye. In my opinion the extra strength and safety you gain is worth a few inconveniences until someone else comes up with something better. e

In test #5 the new GIBBS at 1500 pounds pressure caused minor fraying. 15% rope damage in 7/16 Goldline.



In test #11 the 3/8 Goldline 3-wrap Bachman at 590 pounds pressure caused knot slippage but no rope damage.



SEARCH AND RESCUE STATISTICS

FACTS? OR FIGURES?

by Lois Clark McCoy and George Grider

How many people get lost in the woods every year, or drown in floods, or are injured in tornados?

To answer these questions one would have to monitor the activities of 3,044 county sheriffs, and an additional number of parish judges, fish and game wardens, state policy officers and other responsible organizations throughout the United States. These are the various agencies who have the responsibility for the protection of life and property on land in the United States. In addition it would be necessary to monitor the efforts of the multitude of volunteer organizations who provide most search and rescue (SAR) manpower today.

The National Association for Search and Rescue (NASAR), A non-profit teaching organization, is attempting to gather statistics from these SAR and Emergency Response public safety organizations. We are attempting to answer the fundamental questions of how many persons are in distress on the land areas of the country; and how much national effort goes into their rescue and recovery.

The answers top these two questions, and the building of the data base from these answers, are important objectives of NASAR. Since any system for future emergency response management decisions must start with knowledge of the present state of the need, the maintenance of accurate records of events and information is critical.

One might ask, "Isn't that already being done?" After all, the Coast Guard counts the number of missions and man-hours spent saving people at sea. And searches for downed aircraft are tallied by the U.S. Air Force, the FAA, and the National Transportation and Safety Board. These national organizations form a central control point for the handling of boating and aircraft rescue statistics. But who controls a similar effort land areas?

The answer is that no *one* organization oversees this important national endeavor: the saving of people who get into trouble without the use of a boat, airplane, or motor vehicle. Hard to believe, but in this age of computerized information gathering and data processing, there is nothing to help us document the size of the need of those people in distress on the land areas of the United States. In 1977 there were more than 37,000 disasters, according to the American National Red Cross figures, but there is no known figure recorded for the number of persons who were involved in those disaster situations. We can only estimate the potential figure by using such numbers as collected by the National Park Service, which estimates that over 50 million people participate in recreational activities on a typical summer week-end throughout the United States, with six million of those 50 million persons being in one of the National Parks each day.

At present the National Park Service has the most comprehensive system of semi-improved data collection and reporting. While data collection and statistical record gathering is a continuing effort of NASAR, it has met with limited success to date: 1) there is no mutually agreed upon standardization of definitions, categories and methods for identification of information for land-based emergencies, and 2) the collection of such information is sometimes viewed as a threat by some agencies and organizations. Consequently some are unwilling to part with their data, if they do collect any.

In addition, much of the emergency response efforts today are conducted by volunteers. This further complicates record keeping as there is no requirement for payroll or financial accountability.

Furthermore, in the rush of the emergency, the last thought is the recording of data about those activities. That is attended to only after the fact, and then only if those involved can take time for their usual daily activities.

Today emergency response groups keep few records. Those who do keep records almost never collect the same data. In fact, after a year of intensive review of emergency response record keeping, we find almost no consistent information collected other than the date. And even then we are not sure whether the date recorded was that of the incident or the date the form was filled out.

Standardization is the most crucial attribute of the data gathering process. For without standardization, there can be no substantive evaluation. Unless the same type of information is gathered in the same manner and reported according to standardized criteria, there can be no valid comparison between the data.

In May 1978, questionnaires were mailed to 155 NASAR state agency and organization members across the country, requesti information on annual SAR activity. The responses gave spo results. Replies were obtained from 47 members in 19 states. Some agencies reported everything except the number of missions, while others reported only the number of missions. Some reported all items except cost, and some reported only cost. Twenty-seven respondents gave 1976 figures, and 31 respondents gave 1977 figures.

A major problem in summarizing the information into a picture of the national effort lay in the sources of the raw data, and in how the information was obtained. In many cases where the public safety agencies were the responsible agency, the agency was not devoted solely to SAR and did not emphasize keeping accurate SAR statistics unless a crime was involved. In addition, most volunteer SAR organizations, enlisted to perform SAR missions, are not the exclusive caretakers of any particular geographic area, and the statistics furnished by them, no matter how accurate, do not represent a distinct measureable area. Therefore the extrapolation of these figures to cover a larger area (e.g., the United States) is impossible.

Fortunately SAR statistics are available from a number of geographical areas lying within four states: California, Colorado, New York and Washington. These statistics are complete enough to portray a reasonably accurate picture of the SAR effort in these states, which represent 10% of the entire land mass of the 50 United States. Hence these figures may permit an estimate of what the entire national SAR effort could be.

In order to estimate SAR effort in states where *no* information is available, one must first determine if the unknown areas can be related by some formula to the known areas. To derive a formula the first step is to examine any relationships that may exist among the SAR values of the known areas. If such a relationship exists (and can be formulated), and if there is evidence to indicate that the unknown areas have the same SAR-related properties as the known areas (people live, travel, get lost or injured there), then such a formulation may be used to make estimates of SAR activity for areas where no SAR activity information exists. To cite an unrealistic but easily understoo example, suppose that every state for which SAR figures were kno had the exact same number of SAR activity man-hours. If these states exhibited a wide range of size, terrain, population, climate, and whatever other factors contribute to the workload of SAR teams, and their physical properties were more or less representative of all the United States, then one might estimate the national SAR effort by simply multiplying that one single SAR value by the number 50. Of course, such an example is highly unrealistic, since states vary in size considerably.

For example, Alaska covers nearly as much land as 19 contiguous eastern states. And populations vary tremendously: Alaska's third of a million people numbers less than Delaware's population, the smallest of the 19 eastern states. It is only natural to expect that population and land mass should have a significant bearing on how many people get lost, and therefore on how much time is spent on finding them. To test these various ideas, and to determine if any such relationship exists which can be used to estimate SAR activity for an unknown area, let's look at the areas for which we do have SAR statistics.

The most fruitful area in terms of known SAR statistics is the State of Washington. Actual man-hours of SAR activity were reported from two-thirds of the State's 39 counties, giving us SAR statistics from a number of distinct geographical areas. Each county contains a separate number of people, each one encompasses a different geographical area, and each one reports a different figure for SAR activity for people requiring assistance in that county.

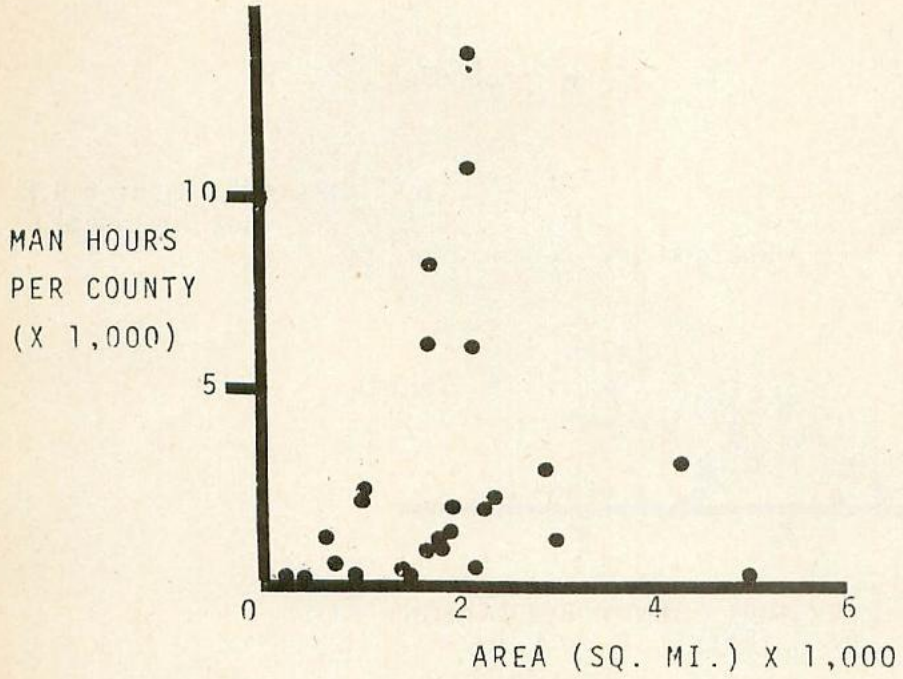
Let's look at these values and see what kinds of relationships we can formulate.

Figure 1A shows the 1976 Washington county SAR effort plotted against each county's geographical area. The lack of a distinct trend between SAR effort and county size indicates that the size of the county is not an important factor, at least with the limited range of size shown here.

Figure 1B shows the same counties' SAR efforts plotted against resident population of each county. Again there is no apparent trend King County and Pierce County, which contain Seattle and Taco where nearly half the State's 3.4 million people live, do report a highe SAR activity, but these two unusual points do not define a general trend that one could use for most of the counties.

Continued

FIGURE 1 — "SAR" EFFORT IN WASHINGTON STATE COUNTIES (1976)
MAN HOURS vs. LAND AREA AND POPULATION



DATA PROVIDED BY WASHINGTON STATE DEPT. OF EMERGENCY SERVICES

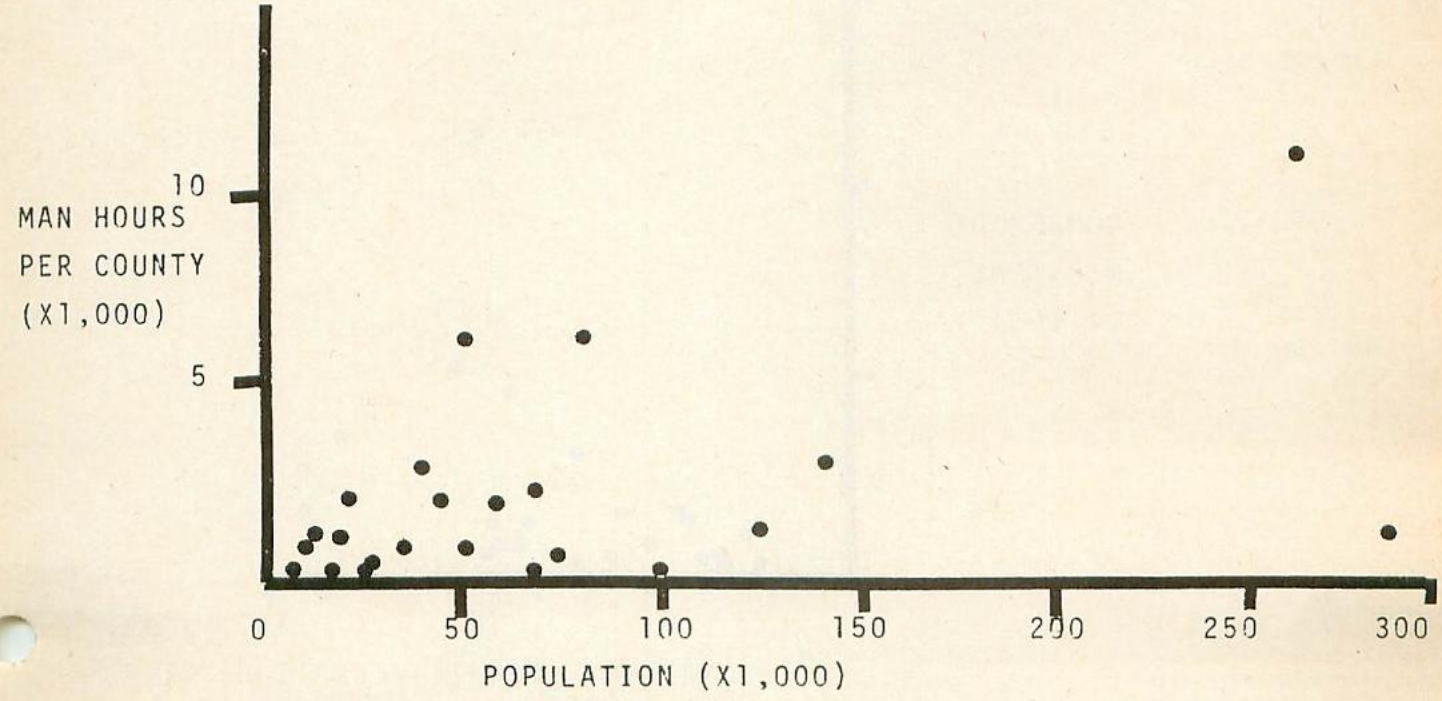


FIGURE 2 — "SAR" EFFORT IN WASHINGTON STATE COUNTIES
(1976)
(MAN HOURS vs. ALTITUTE OF HIGHEST TERRAIN)

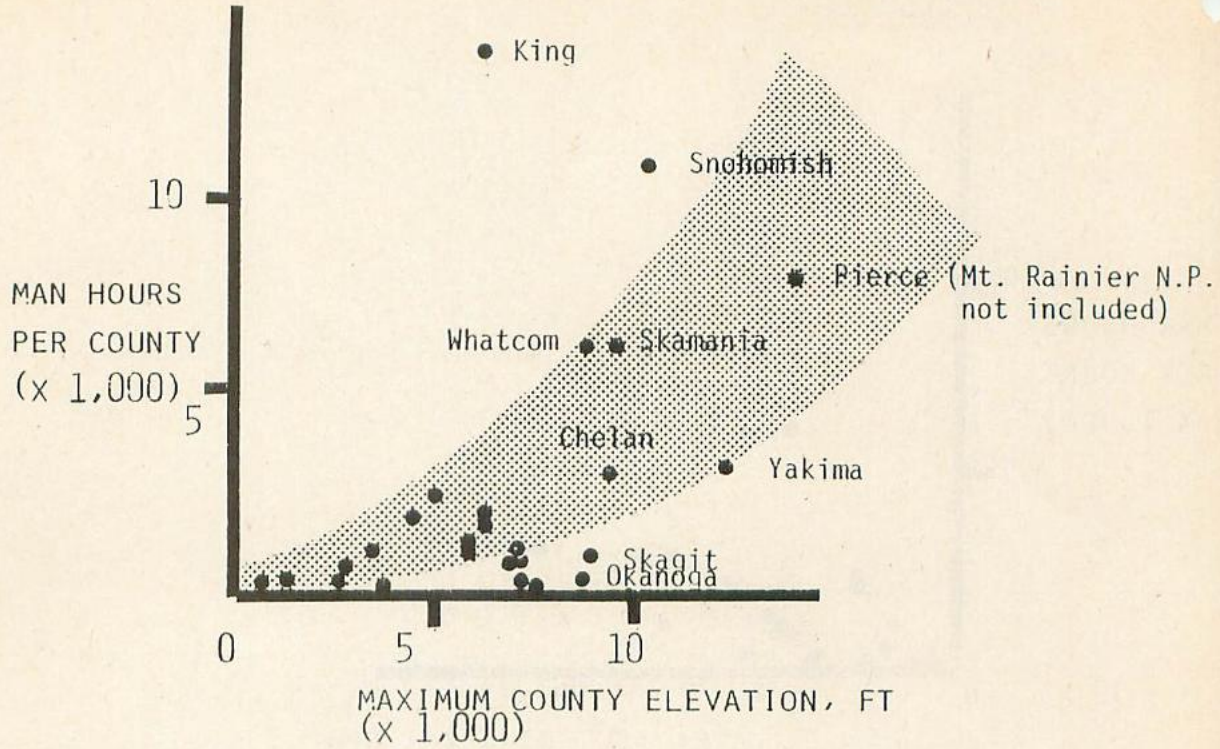


FIGURE 3 — "SAR" EFFORT IN CALIFORNIA STATE COUNTIES
(1977)
(# OF MISSIONS vs. ALTITUTE OF HIGHEST TERRAIN)

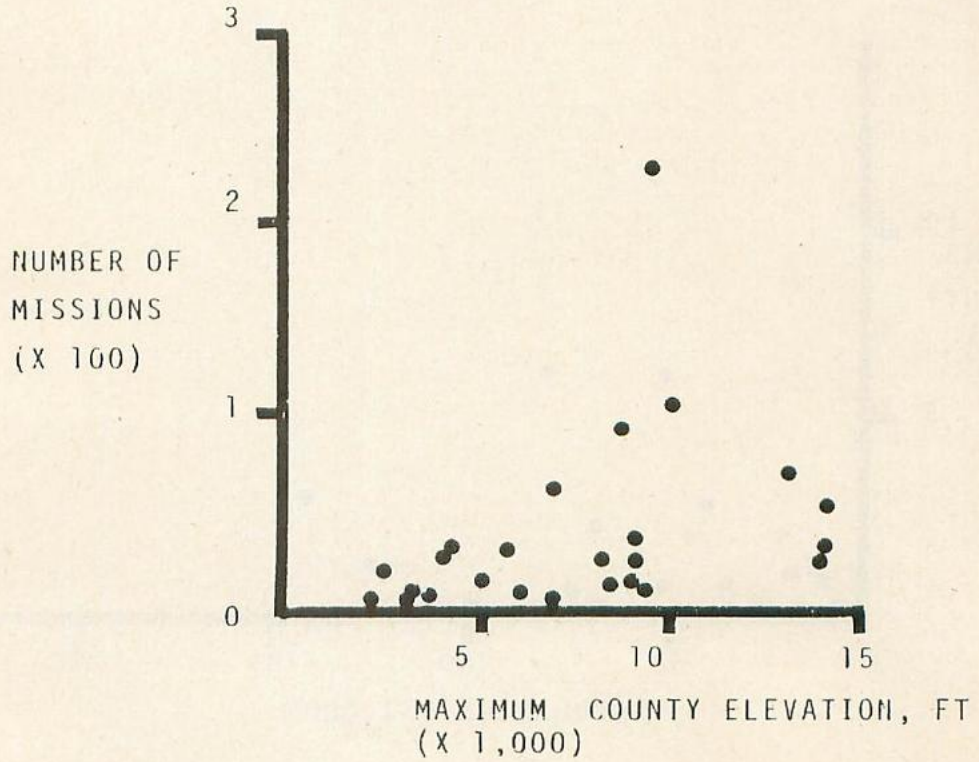
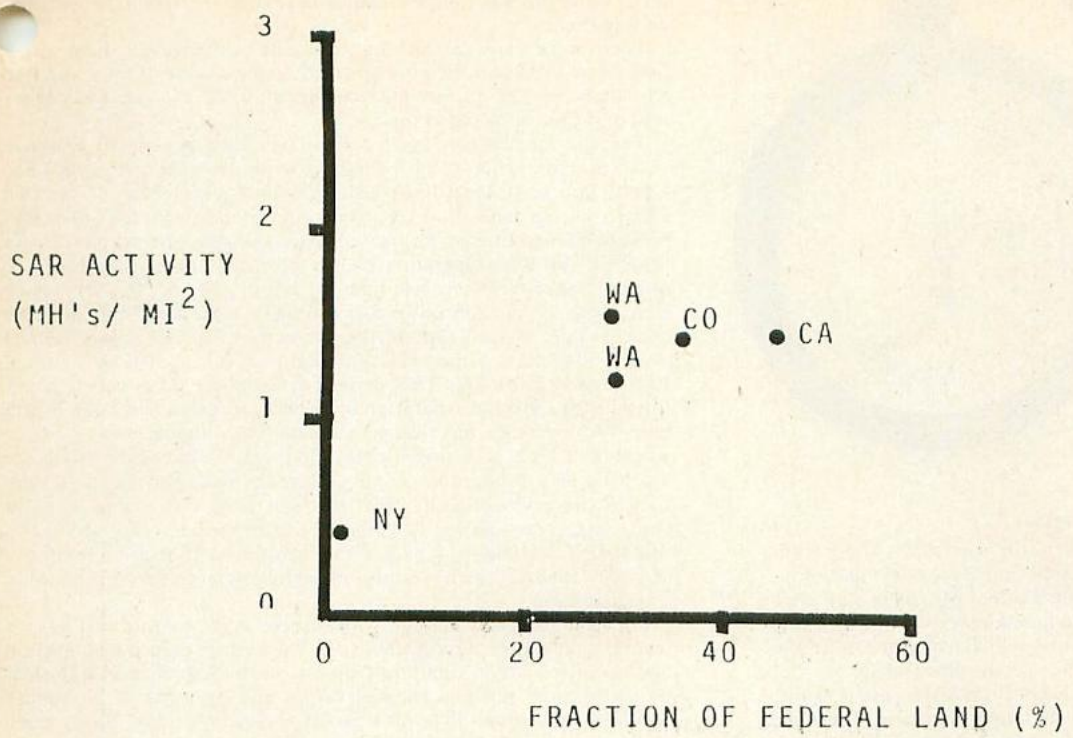


FIGURE 4 — "SAR" EFFORT IN SEVERAL STATES COMPARED TO FRACTION OF FEDERAL LAND



We can look for other relationships that might be useful in estimating SAR activity for unknown areas. Could it be that the terrain might have a more important relationship to SAR activity than either the physical size of the population of a county?

Figure 2 shows the relationship between Washington's SAR activity by county and a simplified measure of county terrain. That measure is the highest elevation in each county as read off the U.S. Geographical Survey state maps (scale 1:500,000). Figure 3 shows the same relationship for a number of counties in the State of California. (On the California chart, SAR activity is represented by the number of missions rather than the number of man-hours. One half of California's counties reported.) Each of these charts show that a rough but positive trend exists between SAR activity and the height of the county terrain.

How does this help us estimate the SAR effort on a national scale? The relationship on these two charts shows us that SAR activity can be *roughly* predicted as a function of certain geographical and perhaps demographic variables. We at NASAR hope that these values can be used to estimate similar relationships in other areas. The plots between SAR activity and elevation for Washington and California are presumably of little use in helping us estimate SAR activity for flatter terrain. The trend observed would predict SAR effort there to be zero, but that is based on too few points. We will be getting some data from the state of Florida and Texas in the next few weeks and this should give us a more complete picture for future comparisons.

Another interesting comparison we have found between one area and another lies in the statistics from the State of New York and the County of Los Angeles. In 1976 New York reported a total of 21,000 man-hours of SAR effort. This was compiled by the New York Forest Rangers and reflects activity mostly from the upper part of New York State. Los Angeles County reported 7,600 man-hours that year, which equals just over a third the effort of New York State. Los Angeles County covers an area one-twelfth the size of New York State. (That difference is much greater than the area differences shown in Figure 1 for the Washington State counties.) Moreover, Los Angeles County reported 20 fatalities, compared with 10 for New York State. What is the controlling factor here? Why, in the State of New York, with its severe winters and vast upstate area, is there so little SAR activity per square mile, compared to Los Angeles county?

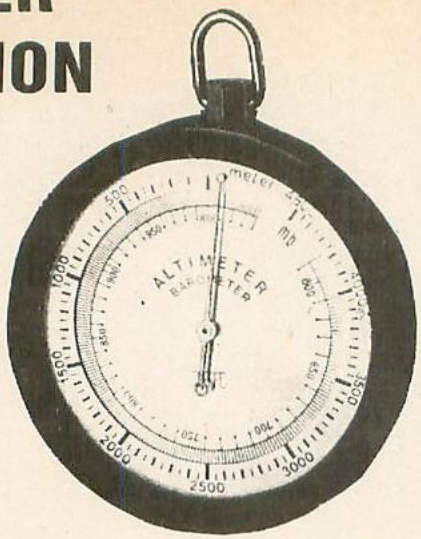
It occurred to us that it may have to do with the fact that in New York State a lost person may have to travel only a relatively short distance in any direction before coming to someone's farm, and hence getting help. Outside the City of Los Angeles in the San Gabriel Mountains, a lost person can go a long way without coming near private property or private improvements.

We looked at a new number — the amount of public (Federal) land — and we plotted the State SAR effort for the year of 1976 for the States of California, Colorado, Washington and New York, against their relative areas of Federal land. The results are shown in Figure 4 (Washington is plotted twice, for 1975 and 1976). The plot shows some correlation, at least for the few states that are available. More states falling in the blank area on the chart (between 1% and 30% are needed.

It now appears possible (and based only on the few statistics available) that we can estimate that the mean SAR effort in the United States falls between 1.0 and 1.5 man-hours per square mile per year. The total area of the United States being approximately 3.6 million square miles, this number thus predicts an annual effort of between roughly 3.5 million and 5.5 million man-hours devoted to SAR activity. Using the U.S. Forest Ranger pay scale for starting firefighters (with no academic training) of about $4.25 per hour, this annual labor rate represents a dollar value of between $15 million and $23.5 million a year expended for land search and rescue, on man-hours alone.

At present there is little or no historical data with which to compare this new data theory. We suppose that four years of on-going accurate data collection and reporting will eventually permit intelligent analysis of this first year's beginnings in the standardization of emergency response, rescue and recovery information, and of the storage and applications of that data.

ALTIMETER EVALUATION



by Ray Hague

In regards to the use of altimeters — in particular, the pocket altimeter, a Port Angeles Explorer Search and Rescue evaluation.

In July of 1972 we were grid searching Skidder Mt. As in all ESAR procedures, we had an established base line, a mark on this base line where each team departed and their course which happened to be due North True. All this was plotted on our topographical map.

Each team had 3 members and teams were some 80 feet apart. Thus, one man was the compass man and kept the teams on course. The other two were on opposite sides of him and acted as floaters. The course down the mountain was rugged and 3 miles in distance. The teams were staggered on their downward course as they had departed on course as they reached their point on the base line. Also, terrain differed allowing one team to make better time now, another later.

As we waited in the valley at the other end of their course, we discussed how we would get the other teams to rendezvous with the teams who made the find? But, what about the rest?

About this time one of our vehicles called in to say he was on forestry road 1529 at 1500' and was "glassing" the hillside. We knew where he was. All we did was follow the forestry road to the 1500' contour and he was there.

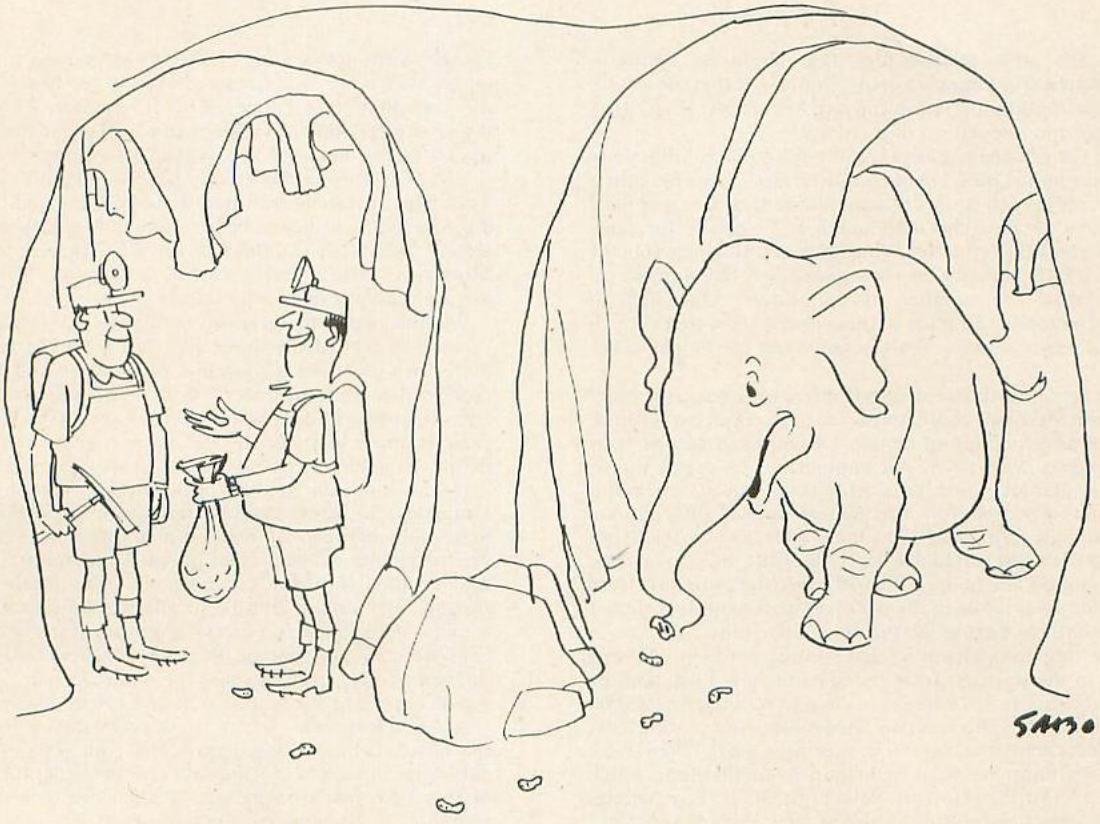
There wasn't any reason why we couldn't do the same thing with a field team. We knew their departure and their course. If the teams had altimeters we could cross-reference them, also. Two weeks later we tested in the following manner.

Two five-man teams departed. Echo one Easterly at about 25' above sea level. They proceeded for one-fourth mile on wide open grid. Then turned Southerly on a fixed bearing. Three minutes later Echo two departed from base on a fixed bearing Southerly. At 300' elevation Echo one found the subject and requested assistance from Echo two. In the past, the Base Operation Leader plotted (ET) estimated time to distance, approximately one mile per hour; however, this was rough estimating as the terrain and brush varied the time and distance considerable. When Echo one found the subject at 300' Echo two was at 150', therefore, Echo two continued to climb to 300' and turned East to meet Echo one. They arrived at Echo one, who were in heavy brush, with a ground separation of 50', after traveling some one-fourth mile. We, therefore, feel that the altimeter is a valuable aid to location, where the terrain is sufficiently steep to use it. We have used it to locate a vehicle on a topographical map. Here the road and elevation were known and gave a cross fix. With the field teams their departure point and course were known. The altimeter gives them a cross fix. We also find that with these cross fixes a team progress with relation to time of arrival or time out can be readily judged for contact with other teams or transportation.

We have used this method with success. Also, we find that when a team breaks out on a road where they are to meet their transportation and no wheels are in sight, they simply make radio contact with their transportation, tell him their elevation and he looks at his vehicle altimeter and knows if he must go up or down the road. Saves much running around and looking for a team.

We also ask the team leaders to mark the index contours on their map with the time they crossed it while on their course.

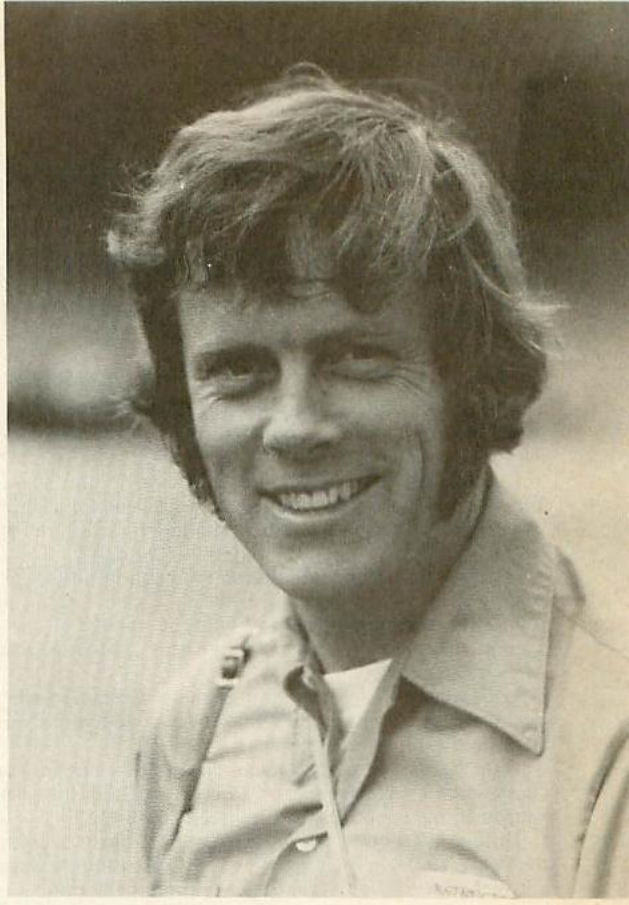
A word of caution: Be sure all altimeters are set the same, using a Bench Mark or a known reference.



WE CAN'T GET LOST! ALL WE GOTTA DO IS FOLLOW THE TRAIL OF PEANUTS---"

THE RESCUE PACK: for Search and Rescue Personal Equipment

by John Wehbring
President San Diego Mountain Rescue Team



The helicopter waits on its pad, motor blades turning slowly while a group of orange-shirted men begins to climb aboard. It is morning, and another search has begun. As each rescuer enters the aircraft, he carefully stows his rescue pack near him. These men are about to be airlifted to a remote landing zone, many miles from base, and the success of the mission now depends on their training and, to a large degree, luck. But in a broader sense, they must depend on what they bring with them, and the selection of that equipment is critical to their performance.

Searchers face a recurring dilemma whenever they enter the field. Should they carry only enough equipment to sustain themselves for a few hours, going light and fast, or should they consider the vast range of possibilities and prepare for them; in other words, be prepared? It comes down to weight vs. need. When the decision is made, it is often a compromise. Some items are necessary, others are desirable, and are added if the weight does not exceed the rescuer's estimated capacity (based on estimated work). By trial and error, they usually arrive at a list which is satisfactory, if not ideal.

The San Diego Mountain Rescue Team (SDMRT) decided such a list would be extremely beneficial to all members and trainees. It would ensure standardization of field packs so that each member could be depended on when an item was needed. There is a significant difference between the recreational hiker and the mountain rescue specialist. The rescuer operates in small, two- or three-man field crews, each man dependent on the other for mutual support. Equipment must not only sustain the rescuer, but must be adequate to complete the mission and, in case it is needed, to treat and evacuate the subject. If a team member lacks a needed item, it jeopardizes the entire performance of the team and may even place it in danger. For this reason, mandatory equipment lists have been developed.

Our team analyzed scores of missions in devising its Personal Equipment Checklist, comparing notes with all team members, as well as other mountain rescue units in California. Field experience scored heavily in this analysis. It was found that most people agree on some basic items, a larger group of items are generally considered important, and even more items are individual preferences which are definitely useful in search and rescue. The role of personal choice must be minimized, however, and relegated mostly to quality and brand.

Required items *MUST* be carried on the applicable mission; this must be stressed to each member. Frequent pack checks may be necessary to enforce it. Choice may be exercised in additions and substitutions, all of which must equal or exceed the stated minimum. For example, a headlamp is an acceptable substitute for a regular flashlight, and two quarts of water may be carried where one is required. It is absolutely essential that every member understands that they are expected not only to ***arrive*** at base camp with the equipment, but to ***carry it on the mission.***

We may consider three basic factors in selecting equipment: a) type of mission (search, rescue, reconnaisance, variations, probable duration); b) environment (terrain, weather, altitude); and c) support available (number of searchers, their training and equipment, helicopters, vehicles, food supply, etc.). Surprisingly, we have found that most missions fall into four or five categories when combining these factors. Therefore, some assumptions can be made.

MISSION

In most cases, we are considering a search. This search will last a minimum of several hours. The rescuer may be completely isolated from base for up to three days. He is one of a small experienced team of two or three persons, all in good physical condition. The search will extend beyond the immediate boundaries of base camp (the hasty search and building search are not considered here). Search tactics may include tracking, target searching, line or grid searching, and visual scanning. Dog tracking is a specialized field.

Other missions to be considered are rescues, either involving technical procedures or simple assistance, reconnaisance, communications, relays, aerial search, resupply, body recovery, and ELT search.

ENVIRONMENT

The environmental conditions typically found in California and Northern Mexico are the normal parameters of the San Diego Mountain Rescue Team. Deserts over 110° F and mountains higher than 14,000 ft. are common. Winter conditions can occur year 'round, but temperatures rarely are less than 0° F. Precipitation is lighter than some other areas, but may be unpredictable. Operations can occur in either darkness or daylight. Lack of vegetation of any kind is common.

SUPPORT

Normal support facilities (radio, helicopter, vehicles, replacement personnel) are available but cannot be depended on to be available at any particular time.

As mentioned previously, the rescuer must be:

1. Able to travel fast enough to cover the assigned search sector without becoming exhausted.
2. Entirely self-sustaining for two days and three nights, with a reduced capability for several more days.
3. Able to care for and evacuate an injured victim without additional equipment (under normal conditions).

EQUIPMENT SPECIFICATIONS

1. **Lightweight**—Total weight of all equipment should ***normally*** be not more than 10 Kg (22 pounds). All equipment should be the lightest possible weight, consistent with function.
2. **Compact**—All equipment must fit into a pack which does not project higher than the shoulders or wider than the shoulders and hips.
3. **Comprehensive**—Equipment must cover most eventualities.
4. **Durable**—All items must be able to sustain extreme heat or cold, long storage, dampness, and abuse. The pack must be air-dropable from 3 meters (10 feet).

OPERATION CLASSIFICATIONS

With the above factors under consideration, the San Diego Mountain Rescue Team realized that an equipment list could be devised for each of five basic missions. When an operation is initiated, the leader can specify which list will be required.

Continued

1. **General Operations**—Operations where environmental conditions are unknown or are not a factor. Includes all field trainings where equipment is not specified. This comprises the normal "ready pack" and is the most basic list.

2. **Mountain Operations**—Searches in mountainous areas, or in any back country terrain, where unusual cold or heat is not expected.

3. **Winter Operations**—Searches in very cold areas, or areas where ice and snow are prevalent.

4. **Desert Operations**—Searches in very warm areas, or areas where desert conditions prevail.

5. **Technical Rescues**—Rescue and evacuation missions, regardless of environment.

REQUIREMENT CATEGORIES

Within each operations classification, certain items are ***required***, others are not required, but are strongly ***recommended***, and other items are ***optional***.

1. **Required**—Each member must carry the mentioned items. Where units are not mentioned, it means one (1) each. Quality is not usually listed; it is based on team policy (for example, winter sleeping bag must be minimum 2½ pounds down, mummy-style). Substitutions are allowed only if they are of equal or better utility (e.g., headlamp for flashlight).

2. **Recommended**—These should be carried if the member can acquire them and they are not too heavy. Most SDMRT members carry these items.

3. **Optional**—These are items which are useful in search and rescue but are not essential. They may be heavier, more costly, or serve basically to improve comfort.

SDMRT has developed five separate lists, one for each Operation Classification. However, for this article, the five lists have been combined into one Master List (see Figure 1).

This list covers only ***personal*** equipment; team equipment carried in the field (radios, first aid packs, etc.) is distributed at base and must be allowed space in individual packs. Some personal equipment (tents, cook stoves, ropes) may be shared by two or more rescuers. Many useful items are not mentioned because they duplicate the functions of listed items or are simply personal likes. If minimum requirements are met and the rescuer can keep up with the search, then he may expand this list indefinitely.

FINAL TIPS

1. Don't make up a separate survival kit. All survival equipment should be with the searcher or in the rescue pack. Never leave a vehicle or area without taking a rescue pack. Survival gear should be used regularly and replaced as used.

2. Place everything inside the rescue pack. Avoid tying items on the outside (with certain exceptions). If equipment is to be tied on, test it first at home and carry adequate straps.

3. Keep the rescue pack completely packed and handy for a call-out. Items not normally stored in the pack (sleeping bag, water, extra food, clothes, maps) should be stored nearby. Practice assembling all equipment until it can be done in less than 15 minutes.

4. Constantly check all equipment. Repair and replace as necesssary. After an operation, clean and repack it. Be ready to go at any minute.

5. Mark all equipment with some personal identification, especially rescue gear such as carabiners. Use colod code, where possible.

EQUIPMENT DESCRIPTION

Rescue Pack—Resist the temptation to buy a pack large enough to carry everything possible. Two packs are usually required; a small one for desert and mountain operations, and a frame pack for winter operations and major rescues. Best rescue pack is a small rucksack, frameless or with a light interior frame, designed to carry about 10 Kgs. (22 pounds). It must be of steamlined design without protruding bulges or pockets, because much searching is through confined spaces. It must be tough but light; probably nylon is best. Outside pockets and tie-down tabs are very desirable. It should be able to carry well half-loaded. It should be waterproof or very water-resistant. Orange is the *ideal color* for rescue work, but other bright colors are permissable. Examples of good rescue packs are the Alpine Designs "Eiger."

Frame Pack—For larger loads, winter searches, or technical rescues and medical problems, an anluminum frame pack is advisable. Any good grade pack with a hip band will work.

Ground Sheet—Plastic sheet, 3'x8', is adequate. Primarily used to protect sleeping equipment from ground abrasion and moisture. ***NOT*** *to be used for rain shelter. An* orange plastic tube tent cut into 3 parts is ideal, and doubles as a ground-to-air signal panel.

Bivouac Shelter—Minimum is thin gauge plastic emergency tube tent. Must be able to protect ***completely*** from rain (or snow, if required). Regular size tube tents and large space blankets also are popular. Carry clothespins and ridge-line to rig in forested area.

Opaque Sun shade—A black or colored plastic sheet works well. Ground sheet can double as sun shade if it is opaque. 8'x8' is minimum size. Reflective space blanket is another suggestion.

Mountain Tent, Fly—Necessary for overnith winter searches a many other occurrences. Two or three can share one tent. This i weight/bulk item the inclusion of which depends upon the judgment of the searcher. Remember poles and pegs.

Ensolite Pad—The thin pad should be carried for most operations, with the thicker one used for winter searches or extra comfort.

Sleeping Bag—Very useful where bivouacs are likely sleeping bags are more efficient than down jackets for sleeping. Choose lightest down-and-nylon bag for expected weather. Should be top quality. Where room is not available inside the pack (preferred), use ***strong*** stuff sack to prevent abrasion holes when tied to the pack. Bivouac sack may be used in combination with down jacket and leg protection.

Foot Sack—The popular "elephant's foot" can be used in conjunction with down jacket. Good way to save weight.

Signal Mirror—Absolutely essential. Used to signal helicopters, identify search crew positions, and to direct sunlight over faint tracks. Military type ***glass*** mirrors are superior.

Whistle—Acme Thunderer is best. May be carried on neck lanyard with signal mirror and compass.

Day-Night Flare—Mark 13 military flares emit dense cloud of orange smoke from one end and bright red glare from the other. Used to signal helicopters, give wind directions, and mark drop zones. Carry several when working with helicopters.

Aerial Flare Kit—Pen-gun kits hold several different colors with launcher. Work out signal system with base.

Binoculars—Useful on desert searches or where panoramas are available.

Flashlight—Lightweight, broad beam. The Mallory flashlight, which operates on two AA penlight batteries, is ideal. Should be able to hold flashlight in your mouth to free hands. The broad beam is useful in night tracking.

Headlamp—Fix so it can be ***bolted*** or snapped to helmet (night searching tends to knock the lamp off if it is secured by elastic bands). Should have narrow beam. Used to determine direction in storms or during night searching. ***Not*** for tracking, unless it can be lowered ground level.

Extra Batteries and Bulb—For size of flashlight. Check condition frequently.

Candle Lantern—Primarily for winter SAR missions. With candle.

Compass—Good quality sighting compass, such as Silva "Ranger." Must be able to take accurate bearings in the field.

Map—Not listed as *required* because maps are sometimes not available. USGS topographical maps should be distributed at base and the quad name furnished to members coming on a search so they may be purchased or found in the files. All field units should be using the same maps.

Ruler—Plastic, metal, or wood ruler 15"-18" long, used to measure tracks, plot maps, and measure helipad skid width. Metal measuring tape is also acceptable.

Notebook and Pencil—Any small notepad, for jotting victim information, taking field notes, leaving messages. Pencil will not freeze or leak.

Trail Tape—Crepe paper strips can be bought in many colors. Do not use plastic tape except where weather conditions require. Crepe paper deteriorates rapidly, making recovery less important.

Tracking Stick—Old golf club shaft or ski pole without basket. Must be trained in use.

Felt Tip Pen—Used to mark paper trail tape with search crew number, time and date. Also for messages or emergency trail signs.

Watch—To coordinate helo pick-ups, log information, time heartbeat.

Camera and Film—To film operation or victim. Very useful in air crashes or body recoveries. Flash necessary at night.

Sunglasses—Should be relatively dark, with side panels.

Glacier Goggles—Extremely dark lenses, for snow work.

Helitac Goggles—Should fit tightly around eyes to prevent prop-wash injury. Plastic lenses okay, but protect from scratches. Should be shatterproof.

First Aid Kit—As specified in SDMRT publication. This is perso kit; extra medical equipment should be carried by team.

Sunburn Preventative—Glacier cream or similar screening agent.

Salt Tablets—Buffered type, should be handy. About 50 minimum.

Lip Balm—Blistex, Noscote or Chapstick are popular.

Anti-Venom Kit—Crotalidae anti-venom (rattlesnakes), by Wyeth.

Prescription item.

Sphygmomanometer—Simple aneroid blood pressure cuff with stethescope.

Insect Repellent—Cutters is excellent. Off or 6-12 also good.

Toilet Paper—Carry squares of paper towel. They're tougher and last longer. Can be used for other things as well.

Matches—At least 20 waterproof matches in a waterproof case. (Carry several book matches to use regularly).

Fire Starters—Candle works well, or buy surplus pellets.

Knife—Folding pocket knife, one- or two-blade Boy Scout type. Some spoon and fork sets have knife, useful for kitchen work.

Sheath Knife—Not necessary but may be personal preference. Better for some kinds of heavy cutting.

Saw—Used mainly to clear helispots. Wire saw is light and compact but keyhole type with handle works better.

Spoon and Fork—Stainless steel kits are fine.

Utensils—Funnel, pot holder, tools, etc.

Can Opener—GI type (P-38) only conceivable one. Carry several.

Stove and Fuel—Mostly for winter trips or prolonged searches. Primus 71L, Sven 123, Bluet, MSR are most popular types.

Cook Kit—Several pots and a frying pan are adequate.

Cup or Bowl—Sierra cup or plastic cup or bowl useful.

Food—Because of storage problems, only cans should be carried in the ready rescue pack. C-rations are moist, tasty (?), and nourishing. Investigate fruit snack-packs, canned fruit juice, tuna, sardines, peanuts, canned sour balls, brown bread, or similar items. Add fresh items after call-out or at base, and use instead of cans.

Water—Carried in plastic, aluminum, or steel water bottles. This is one item which some people prefer to carry on a pistol belt, to be handy at all times. Add dry flavoring mixes for taste, if preferred. If no water is available in the field, carry twice as much as considered necessary. ***Extremely important item.*** One gallon plastic jug for desert.

Bandana—Used as triangular bandage, neck shield, pot handler, etc.

Carabiners—At least one locking 'biner necessary. For rappels, MA's, brakes, climbs, and many other uses.

Nylon Slings—Various sizes, 1" flat or tubular webbing, in identifying color. Carry one untied long piece for unusual rigging.

Swami Belt or Waist Sling—Nylon, personally fitted and tested.

Rappel Seat—Commercial kind or do-it-yourself. ***Test it.***

Prusik Slings—Three slings adjusted to personal measurements. Can use ascender instead. Test.

Nylon Rope—Perlon or goldline type. For rappels or occasional rescue work. Carry heavier rope for major rescues or technical terrain.

ASCenders—Jumars or Gibbs best. Test well. Can be used for some MA's.

Rescue Pulley—The aluminum pulleys made by Russ Anderson, SARA and Eric Fuller are the only decent rescue pulleys around. Do ***not*** rely on the nylon or teflon ones.

Pitons, Nuts—Pitons are more useful for rescue work, but nuts and chocks are handy. Know how to use them.

Piton Hammer—To use when pitons are carried.

Descender—Figure-eight bars are popular, while some use brake bars.

Leather Gloves—Used for belaying, rope work, brush beating, helitac landings, using hand tools, and keeping warm. Carry rubber gloves for handling dead bodies.

Helmet—Bell Toptex, MSR, Joe Brown, etc. Should have good suspension system, chin strap, and be white or orange (for visibility).

Winter Gear—Equipment depends on conditions at site and directions of Operation Leader. Most of this is heavy or bulky equipment, and should be considered carefully. All personnel should be well-trained in its use.

Clothing—This is perhaps the most important equipment item to be considered (next to water). In principle, the rescuer should dress for the weather conditions at hand and carry additional clothing adequate to face any possible weather changes which can be expected. In some cases, additional clothing may have to be used for the victims. The layer principle (several light layers of insulation rather than one heavy layer), utilizing wool garments, is preferred in search and rescue. Outer clothing should be orange or other bright colors whenever possible. Standards should be established and enforced by individual rescue units.

A team shirt is important in identifying the rescuer to other people (and to victim). SDMRT has adopted a light, short-sleeved orange shirt which has proved functional and popular. Long-sleeved shirts can be used in winter or bushy country. Wool shirts, such as Goodrich Lakes, are good winter uniforms. Pants should be functional, loose fitting, and sturdy. Fatigues and mountain pants (cotton blend) are popular. Avoid blue jeans, especially in cold or wet weather. Wool is required by SDMRT in winter or during cold rain. Short pants are allowed in hot weather, but long pants should always be carried.

Boots are the mountain rescuers' primary tool and must fit the terrain. Vibram-soled mountain boots are best, but other specialized footgear can be employed. Short gaiters are handy not only for snow but in brush and dirt areas. SDMRT requires long gaiters in deep snow. Headgear is optional except in the desert, where a wide-brimmed hat is required.

SAN DIEGO MOUNTAIN RESCUE TEAM PERSONAL EQUIPMENT LIST

G	M	W	D	T		G	M	W	D	T	
x	x	x	x	x	Rescue Pack	x	x	x	x		Nylon Slings, 2
	-	-		-	Frame Pack	-	-	-	-	x	Nylon Slings, 4
x	x	x	o	x	Ground Sheet	-	o	o	-	o	Nylon Slings, extra
x	x	x	x	x	Bivouac Shelter	o	x	o	o	x	Swami Belt or Waist
		x			Opaque Sun Shade						Sling
	-	o		-	Mountain Tent, Fly	o	x	o	o	x	Rappel Seat
x	x	x	-	x	Ensolite Pad, ¼"	o	o	x	o	x	Prusik Slings, 3
-	-	o	-	-	Ensolite Pad, ½"	o	x	x	o	x	Nylon Rope, 50',
-	o	x	-	-	Sleeping Bag						9 mm
-	-	-	-	-	Foot Sack	-	o	o	-	o	Nylon Rope, 150',
x	x	x	x	x	Signal Mirror						9-11 mm
x	x	x	x	x	Whistle	-	-	o		o	Ascenders (Jumars)
o	o	o	o	x	Day/Night Flare	-	-	-		o	Rescue Pulley
o	o	o	o	o	Aerial Flare Kit	-	-	-		x	Pitons, Nuts, Piton
-	-	-	o		Binoculars						Hammer
x	x	x	x	x	Flashlight	-	-	-		x	Descender
o	o	o	o	x	Headlamp	o	o	-	o	x	Leather Gloves
x	x	x	x	x	Extra Batteries, Bulb	x	x	x	o	x	Helmet
		-		-	Candle Lantern			x		x	Ice Axe
x	x	x	x	x	Compass			-		-	Climb Axe, Daggers
o	o	o	o	o	Map			x		x	Crampons
x	x	x	x	o	Ruler			x		o	Snowshoes or Skis
x	x	x	x	x	Notebook & Pencil			o		x	Ice Screws or Ice
x	x	x	x	x	Trail Tape						Pitons
	-		-		Tracking Stick			o		x	Snow Anchors
-	-	-	-	-	Felt Tip Pen			o		o	Ski Poles
-	-	-	-	-	Watch			o		-	Avalanche Cord
-	-	-	-	-	Camera & Film	x	x	x	x	x	Team Shirt
x	x	x	x	x	Sunglasses	-	-	-	-	-	Long Sleeve Shirt
	-	o			Glacier Goggles	-	o	o		-	Wool Shirt
x	x	x	x	x	Helitec Goggles	o	o	-	o	o	Long Underwear
x	x	x	x	x	First Aid Kit	o	o	x	o	o	Mountain Pants
x	x	x	x	x	Sunburn Preventative		-	o			Wool Pants
x	x	x	x	x	Salt Tablets	-	-		-		Short Pants
-	-	o	o	-	Lip Balm			o			Wind Pants
-	-	-	o	-	Anti-Venom Kit	o	o	o	o	o	Belt
-	-	-	-	o	Sphygmomanometer	o	x	x	o	o	Wool Sweater
-	o		o	o	Insect Repellent		o	o		-	Down Jacket
o	o	o	o	o	Toilet Paper	-	x	x	-	o	Team Parka
x	x	x	x	x	Matches	x	x	x	-	x	Rain Parka or
o	x	x	-	-	Fire Starters						Poncho
x	x	x	o	o	Nylon Cord	x	x	x	x	x	Wool Socks
x	x	x	x	x	Knife	-	-	o	-	-	Extra Socks
-	-	-	-	-	Sheath Knife	x	x	x	o	x	Mountain Boots
-	o	o	-	o	Saw			-			Winter Boots
x	x	x	x	x	Spoon, Fork				x		Desert Boots
-	-	-	-	-	Utensils		-	-			Down Booties
x	x	x	x	x	Can Opener	o	o	x	o	o	Gaiters, Short
-	-	o	-	-	Stove and Fuel		-	o			Gaiters, Long
-	-	o	-	-	Cook Kit	-	-	-	-	-	Cotton Hat
-	-	-	-	-	Cup or Bowl	-	-	o		-	Wool Hat
x	x	x	x	x	Food, 3 days				x		Wide Brimmed Hat
-	-	o	-	-	Food, extra			o			Balaclava or Face
x	x	x		x	Water, 1 quart						Mask
o	o	-	x	o	Water, 2 quarts		-	x			Wool Mittens and
		o			Water, 1 gallon						Overmitts
x	x	x	x		Bandana		-	-			Wool Gloves
x	x	x	x	x	Carabiners, 3						
-	-	-	-	o	Carabiners, extra					x	= ***Required (Must*** be carried on Mission)
										o	= **Recommended** (Should be carried)
										-	= **Optional** (Useful but not essential)

NOTES:
G = General Operations
M = Mountain Operations
W = Winter Operations
D = Desert Operations
T = Technical Rescues

CALENDAR

SEPTEMBER 20, 1978 — MAY 20, 1979
California Mountaineering School
Joshua Tree National Monument
6121 Prescott Avenue
Yucca Valley, CA 92284
(714) 365-1152

SEPTEMBER 23-26, 1978
Rescue Dog Training Seminar
Truckee, California
Willy J. Grundherr
California Rescue Dog Assn.
P.O. Box 305
Tahoe Vista, CA 95732
(408) 739-4905

OCTOBER 5-8, 1978
NASAR's 10th Annual National Conference
Albuquerque, New Mexico
Rick Goodman, VP and Conference Chairman
924-C Chelwood NE
Albuquerque, NM 87112 (505) 293-3494

OCTOBER 8-12, 1978
16th Annual Safe Symposium
Town & Country Hotel, San Diego, California
Kerin Jaszkowiak, Administrator
SAFE Association
7252 Remmet Ave.,
Canoga Park, CA 91303 (213) 340-91303

OCTOBER 23-25, 1978
National Fire Prevention and Control Administration
Life Safety 4th Annual Conference
Seattle, Washington
Peg Maloy
U.S. Dept. of Commerce, NFPCA
P.O. Box 19518
Washington, DC 20036
(202) 634-7663

NOVEMBER 4-7, 1978
NASAR Training Course — Managing the Search Function: Instructor Workshop, **Denver, Colorado**
Bill Wade, Chairman, NASAR Training Committee
Great Smoky Mountains National Park
Gatlinburg, TN 37738
(615) 436-5615

NOVEMBER 11, 1978
6th International Mountain Rescue Conference, IKAR/CISA
Innsbruck, Austria
E. Friedli, President
International Commission on Alpine Rescue
Strattlighugel 34
CH-3645 Gwatt/Thun, Austria tel. 033 361292

FEBRUARY 21-24, 1979
Symposium on Hypoxia and Man at Altitude
Banft, Alberta, Canada
The Arctic Institute of North America
University Tower
2920 - 24th Avenue N.W.
Calgary T2NIN4 Alberta, Canada

Events of interest to the SAR community should be sent 2 months early to: **Calendar, Search and Rescue Magazine,** P.O. Box 153, Montrose, CA 91020 (213) 248-3057

LETTERS TO THE EDITOR

AOPA'S POSITION ON ELT MONITORING

Dear Dennis:

This is a word of thanks for your fair treatment of the Aircraft Owners and Pilots Assn.'s (AOPA's) position on ELT monitoring in the summer issue of **Search and Rescue Magazine.** Congratulations are also due on the tremendous advancements that the Magazine has made over the last few years.

While AOPA and NASAR may have valid separate reasons for being on the opposite side of this issue, we are pleased with our organizational relationship and look forward to our continued work together in the future.

Cordially,

Robert T. Warner
Executive Assistant to the President
Aircraft Owners and Pilots Assn.

GIVING CREDIT

Dear Editor:

I read with great interest the article *"The Coast Guard Auxiliary Specialists in Small Boat SAR and Its Prevention," in* **Search and Rescue Magazine,** Spring, 1978.

It is granted that the Coast Guard Auxiliary has and is still doing an outstanding job in educating the boating public and some SAR work. But, I would like to mention that the Game and Fish Commissions or Conservation Departments who are charged with the administration and the enforcement of the Boating Safety Act are seldom or in most cases ever given credit for their work in SAR. Here in Virginia our personnel of the Virginia Commission of Game and Inland Fisheries, as stated, are responsible for the administration and enforcement of the Boating Safety Act and conduct ninety per cent of the SAR work. Our boats and aircraft are in most cases the first on the scene and the last to leave. It is felt that our personnel are as qualified as anyone else in SAR. It is agreed the Auxiliary does assist in Virginia, but bear in mind they have no enforcement power whatsoever.

I believe in giving credit where credit is due.

Captain James N. Kerrick
Safety Officer

MEMORIES

Dear Editor:

I just received a copy of your Summer issue of **Search and Rescue.** I don't know how you happened to get my name or happened to send me a copy but I would like to express my sincere appreciation.

It's not often that I get the opportunity, in prison, to follow the latest developments in SAR. It brings to mind my former profession of fire fighter and paramedic with the California Division of Forestry.

#91891
Oklahoma State Penitentiary

HYPERTHERMIA POSTER

Dear Dennis—

The National Weather Service, a division of the National Oceanic and Atmospheric Administration NOAA, has announced the production of a new poster on how to deal with heat emergencies and hot weather in general. The new poster entitled *"Heat Wave,"* gives the basic precautionary measures to take during warm or hot weather and goes on to list some general first aid steps that can be given to someone suffering from a heat related problem. This item is available from local weather offices in limited quantities or can be purchased from the Government Printing Office. When requesting or ordering copies of the *HEAT WAVE* poster, please specify NOAA/PA 76022 or GPO Number 003-017-00398-1. The current GPO price for this new item is $3.60 per 100.

Peter R. Jensen,
NASAR PSAR Committee

NEWS & rumors

Payment Denied in Humboldt County Search for Bigfoot

REDDING (AP)—The search for Bigfoot is "at least an exercise in futility" says a judge who denied reimbursement for a search involving an alleged victim of the legendary creature.

So saying, Superior Court Judge Frank S. Peterson, from Del Norte County, ruled that Shasta County doesn't have to pay Humboldt County more than $10,000 for the search for a young woman that Bigfoot allegedly carried away.

Peterson added, "I have hiked the hills and mountains of Northern California for almost 50 years and the biggest footprint I ever saw was my brother Bob's."

Humboldt County officials began a search two years ago after Cherie Darvell of Redding, a citizen of Shasta County, was reportedly carried away by a big black creature while acting as a lure for a party of film-makers who said they were searching for Bigfoot.

The film-makers said Bigfoot is attracted by youthful feminity.

The search involved bloodhounds and a helicopter, but Miss Darvell was found three days later sitting unharmed at a roadside.

Peterson said a county is entitled to reimbursement by another county for only the search and rescue operations for lost persons, or persons "in danger of their lives," and not for investigations of crimes.

The judge said the term "in danger of their lives" would apply to natural causes such as "floods, heavy snows or other calamities not caused by another human being."

Los Angeles Times, Feb. 9, 1978

Survival Publications Are Available By Mail

The Environmental Information Division is a division of the Air Training Command's 3636th Combat Crew Training Wing.

The division conducts basic and applied research on world environments. These data are evaluated and prepared in the form of manuals, pamphlets, research memoranda, bulletins, and special studies for dissemination to ATC schools and other Air Force and governmental agencies.

The division provides continuous support to all ATC survival and life support schools. Through the 3636th CCTW, the division also provides Headquarters USAF and other commands and agencies with guidance and assistance in formulating policies, concepts, doctrines and in producing course materials for use in survival, rescue, life support and special operations schools.

Civil Air Patrol members interested in securing copies of these publications should write for them, requesting them by name and number. Write to: 3636 CCTW/DA. Fairchild AFB, Wash. 99011. Following is a list of publications currently available:

Environmental Information Division publications:

NUMBER	TITLE
A-103	**Down in the North** (Analysis of survival experiences)
D-100	**A Foot in The Desert** (Basic information for survival in the desert regions)
D-102	**Sun, Sand and Survival** (Analysis of desert survival experiences during World War II)
D-106	**Survival Geography ONC G-4 (SE¼)**
	Cultural Briefs—The Peoples of Iran, Iraq, Israel, Jordan, Lebanon, Saudi Arabia and Syria

Information Bulletins:

NUMBER	TITLE
1.	.3Sharks
2	**Poisonous Snakes of North America**
4	**Poisonous Snakes of Europe, Africa and the Near East**
	Poisonous Snakes of Southeastern Asia
6	**Poisonous Snakes of Australia, New Guinea and the Pacific Islands**
7	**Plant Sources of Water in Southeast Asia**
12	**Toxic Fish and Mollusks**
13	**Edible and Hazardous Marine Life**

Civil Air Patrol News, Aug. 1977

Life Rafts Removed on Some Flights

MIAMI (AP)—Three airlines have cut costs by removing life rafts from passenger jets flying routes over stretches of ocean. And the Federal Aviation Administration says at least four other carriers have been told they may do the same.

Braniff and National confirmed Monday that life rafts have been removed from their aircraft flying the Atlantic coastal corridor linking Miami and the Northeastern and Gulf routes between south Florida and the West. And Alaska Airlines flies over the Pacific on its Seattle-Anchorage route without life rafts on its 727's.

Warren Metzger, senior pilot and vice president of operations for Alaska Airlines, said the FAA gave approval two weeks ago for the over-water route without life rafts on the jetliners. He said the airline continues to fly an overland Seattle-Anchorage route as well as the overwater route, depending on flight conditions.

Transoceanic routes are not affected by the FAA's approval of the removal of life rafts from airliners flying over stretches of ocean.

The airlines had asked for the exemptions of the life raft requirements on certain overwater routes on grounds that they could save fuel without the extra weight of the life rafts and that the requirement was not necessary for modern aircraft.

In its application last year National said: "Multiple engine shutdowns are virtually unknown. National Airlines has never experienced a double-engine shutdown."

However, a National Boeing 727 lost power in all three engines 155 miles off the Florida coast during a Jan. 27 flight from Miami to Newark. The pilot restarted the engines and made an emergency landing at Jacksonville. The 103 passengers aboard would have had to rely on life jackets and emergency deplaning chutes if the jet had been forced to ditch.

Economics was emphasized in the exemption requests, FAA spokesman Jack Barker said. For example, National 727's flying without the rafts save approximately $149,000 a year in fuel costs, according to Bob Matell, National spokesman at Miami. The rafts cost about $119,000 each.

Barker said the FAA considered only safety aspects in granting the exemptions.

"The reliability of the aircraft" was the main safety consideration, Barker said. He stressed the reliability of the jet engine. "The airplanes also fly higher, glide further. Even on one engine, a plane (flying along coastal corridors) could reach land safely," he said.

"The requirements were drawn up uring the days of propeller craft," Barker said, "The idea of three engines going out is unreal."

Los Angeles Times, Feb. 7, 1978

Continued

Italian Dies after Rescue from Raft

PRETORIA, South Africa (AP)—Ne of two Italians rescued from a raft after drifting 73 days in the Atlantic Ocean died on a Greek freighter, the Italian embassy here said Wednesday.

The embassy said Mauro Mancini 50, a journalist, died Tues[illegible] night of pneumonia, and that there was no doctor aboard the freigh[illegible] Master Stefanos that picked up Mancini and yachtsman Ambrogio Fogar, 36, last Monday.

The two had left Mar del Plata, Argentina, Jan. 6, in their 35-foot yacht, Surprise, in an effort to become the first to reach Antarctica in a small boat.

Fogar told embassy official Giorio Sfara that their boat was sunk by a school of killer whales Jan. 19.

Los Angeles Times April 6, 1978

FIVE TRAPPED IN CAVE RESCUED IN ILLINOIS

WATERLOO, ILL.—Five young adventurers who set out for a few hours of spelunking were found Tuesday shivering, but safe, inside a cave where they had been trapped two days by rising, icy waters.

"It's good to be out. It was so cold," Lisa Albrizzi, 18, said.

A friend of the five explorers said the party had gone almost the entire two miles into the cave when they apparently encountered high water and turned back.

Meanwhile, the water in the cave had deepened, probably the result of melting snow, and the five decided to await rescue on high ground above a swirling, neck-deep pool that blocked their way out.

Divers who braved the pool's 35-degree waters heard cries for help and assisted the spelunkers across the pool and out of the cave, which is about 25 miles southeast of St. Louis.

"They were very wet. Several of them were very worked up but they were safe at that point," Diane Rehling, a spokesman for the Monroe County sheriff, said. "The divers did'nt think they would be there but when they swam through the water, they heard them holler for help."

"They had the good sense to get out of the water, stay in one pl[illegible] and wait to be found," said one of the rescuers, Kevin Barton, 21, of [illegible] Louis.

"If they had panicked and got into the water, it would have depleted their body heat very quickly. We'd never have found them alive."

By the time rescuers reached the spelunkers, their flashlights had failed.

"When we found them and told them it was Tuesday, they were shocked," Barton said. "They thought it was at least Friday night."

The five were taken to a hospital in nearby Red Bud "mainly for observation," an officer said. They were admitted in fair condition, suffering from exposure, a hospital spokesman said.

In addition to the woman, the others were identified as John Koeckner, 18; Gregory Berry, 22; Tony Nenninger, 20, and Michael Thompson, 18. All but Thompson were experienced in spelunking, friends said, and Nenninger taught a course on the subject at a St. Louis school.

Los Angeles Times, March 1, 1978

Rider Saved after 100-Foot Fall

PALM SPRINGS (AP)—A woman stranded in a snowy wilderness after her horse fell off a cliff was reported in good condition Thursday after a helicopter rescued her from a mountainside, authorities said.

Kathy Joost, 22, of Palo Alto, who was attempting a six-month journey on the Pacific Crest Trail from Mexico to Canada, was lifted from the 8,000-foot level of Red Tahquitz Peak Wednesday night and taken to Desert Hospital in Palm Springs for treatment of multiple bruises and an injured vertebra. Riverside County sheriff's dispatcher Doney Hazell said.

She said Miss Joost's horse slipped in the snow Tuesday afternoon, causing the rider and animal to fall 100 feet down a cliff.

According to the dispatcher, the woman had to shoot the injured horse. The next morning she activated an emergency locator tr[illegible] mitter and the signal was picked up by an airplane flying over her location.

Los Angeles Times May 12, 1978

TO ALL LAW ENFORCEMENT PERSONNEL AND INTERESTED PERSONS

Confirming Adjutant General William Weller's letter of the 22nd of March — Effective immediately the Colorado Wing of the Civil Air Patrol (CAP) will provide air search and rescue services that you may need for an emergency operation. They can be contacted by calling 320-4316 (a 24-hour emergency number).

Ground search and rescue services in the form of coordinators, search and rescue teams, support personnel or other emergency resources are available by calling the Colorado Search and Rescue Board (CSRB) through the Littleton Police Department Communications Center at 794-1551 (TID/LIT). All personnel requested will serve under the requesting authority and will not be limited to members of the Board.

If you cannot reach the CAP, call the CSRB. If you cannot reach the CSRB, call the CAP. Your request will be promptly relayed to an appropriate response unit. In the unusual case where both numbers are busy, contact you local office of the Colorado State Patrol and have them relay your request to the dispatchers of the Denver Division.

You will receive a call-back from a qualified coordinator who will be able to provide the assistance you need.

We are ready to assist in any way possible to provide air and ground search and rescue services. Dated: 1 April 1978

Roger MacDonald, Commander
Colorado Wing
Civil Air Patrol

Stan G. Bush, President
The Colorado Search
and Rescue Board

A Clean Sweep for Gov. Ray

OLYMPIA—(UPI)—Gov. Dixy Lee Ray came up with a new roster for the State Emergency Services Advisory Council yesterday by replacing all of the nine council members.

Chosen to replace appointees of former Gov. Dan Evans were Gene Fear of Tacoma, a consultant with the Survival Education Association; Thomas Green of Wenatchee, a Chelan County Commissioner; Tallmadge Hamilton, Jr. of Tacoma, a retired Internal Revenue Service employee; Vernon C. Karns of Camas, a retired Crown Zellerback employee; and Arnold E. Manseth of Mercer Island, general manager of Outstate Customer Services for Pacific Northwest Bell.

The list also included Jeanne Massingham of Chehalis, director of emergency services for Lewis County; Lucinda A. Pederson of Kelso, Richland, Manager of Radiological, safety and security programs for the Washington Public Power supply system; and Craig E. Wickman of Federal Way, a retired employee of the U.S. Postal Service. All members of the council serve at the governor's pleasure.

Meanwhile, Charles W. Votaw, a wheat and cattle rancher in Asotin County, was appointed to the board of trustees of Walla Walla Community College by Gov. Ray.

Votaw, president of the Asotin County wheat growers will serve a term ending in September 1981. He succeeds Bob Michelson new agriculture director. e

SEARCH & RESCUE MAGAZINE INDEX

FALL 1973
◈ Washington State SAR Conference ◈ A Visit with Jon Wartes ◈ A Child is Lost, by Lena Reed ◈ Chapter 1 of Mountain Search for the Lost Victim.

WINTER 1973
◈ A Rescue Worth Mentioning ◈ The Use of String Lines for Subject Confinement, Search Area Segmentation, and Grid Sweep Control, by Jon Wartes and Bill Rengstorf ◈ Mountain Rescue Association Spring Business Meeting ◈ Fort Jackson Search and Rescue Squad, by PFC Larry Strawther ◈ Part 1, Chapter 2 of Mountain Search for the Lost Victim.

SPRING 1974
◈ Driver Survives 500 Foot Plunge ◈ National Association of SAR Coordinators Annual SAR Conference ◈ Simulated Plane Crash ◈ Heated Oxygen Hypothermia Treatment ◈ Part 2, Chapter 2 of Mountain Search for the Lost Victim.

SUMMER 1974
◈ Surf Rescue, by Bill Wagner ◈ 1st National SAR Council, by Blair Nilsson ◈ National SAR School Graduation Speech ◈ The Rescue People, by George Sibley ◈ Part 1, Chapter 3 of Mountain Search for the Lost Victim.

FALL 1974
◈ A Tribute to Hal Foss, by Dyer Downing ◈ Harold A. Foss Obituary, by Rick LaValla ◈ Land Search Organization, by Lois McCoy ◈ How State Conferences Began, by Lena Reed ◈ International Mountain Rescue Conference, by Judy Bechler.

WINTER 1974
◈ The Rescue Group Nobody Knows — SAROC, by Lois McCoy ◈ Search Theory, by Dennis Kelley ◈ The Role of the State SAR Coordinator, by Paul Koenig ◈ Developing a Search Plan, by Andrew Hutchison ◈ Caldwell Search ◈ Utah SAR Seminar, by Paul Koenig

SPRING 1975
◈ Federal Agency Roster ◈ A Visit with Peter J. Pitchess Los Angeles County Sheriff ◈ 6th Annual National Association of SAR Coordinators Conference ◈ Mt. Stuart Rescue, by Paul Williams Man-Tracking, by Lois McCoy ◈ INLAND SAR '75.

SUMMER 1975
◈ Rappelling, by Bill March ◈ Oregon SAR Conferences, by Galen McBee ◈ NASARC Advisory Council Minutes, by Paul Koenig ◈ Aerial Reconnaissance in SAR, by Lt. Cdr. Scott Ruby, USN ◈ National Jeep SAR Association Convention ◈ Anatomy of a SAR Conference, by Wes Reynolds and Lois McCoy ◈ LANTSAR '75, by Lois McCoy ◈ NASARC Awards Program.

FALL 1975
◈ How to Teach Yourself Tracking Techniques, by Jack Kearney ◈ The Dilemma of Helicopter Rescue, by Paul Williams ◈ Snowmobile Rescue Units in Northeast Support CD, by Vincent J. Tuscher ◈ The Changing Face of SAR in Baja California, by Lois McCoy ◈ Northern California SAR Seminar, by Jim Presentati ◈ Avalanche Recovery, by Blair Nilsson.

WINTER 1975
◈ National Association of Search and Rescue Coordinators 6th Annual Conference ◈ Communications — The Visible Part of Planning, by Lois McCoy ◈ Emergency Preparedness Bibliography, by Skip Stoffel ◈ Search and Rescue Dogs, by Kenny MacKenzie.

SPRING 1976
◈ Vehicle Tracking, by Gar Salzgebar ◈ Establishing Search Areas, by Robert J. Mattson ◈ Mountain Flying ◈ River Crossing, by Bill March ◈ Northwest Bloodhounds Search and Rescue, by Lena Reed ◈ Flight For Life, by George L. Seaton.

SUMMER 1976
◈ The Rumplestilskin Effect, by Lois McCoy ◈ Safety in Helicopter Operations, by Lt. Com. L. B. Beck, USN ◈ Search and Rescue in Oregon, by John Olson ◈ Uniform Map System, by Ev Lasher, NASAR Spring Advisory Council Meeting ◈ "Go the Second Mile," by Stan Bush ◈ Basic Living, by Mike Humfreville ◈ CB Radios for SAR Communications, by Lt. Col. Homer Dillow, USAF.

MARCH ON SAR

by Bill March
Faculty of Physical Education
The University of Calgary, Canada

Berg Heil and greetings from Canada — as usual I am very busy at the University. I enclose a few technical notes which may interest you and also a summary of the I.K.A.R. report of treatment of exposure and hypothermia. I.K.A.R. stands for International Commission of Alpine Rescue Services — I don't know if the USA is a member — the United Kingdom is not!! You might like to check it out. The address is President Erich Friedl, CN-3645, Gwatt-Thun, Strattlighugel 34. To quote Pete Fuhrmann "For us here in Canada we felt that membership with the I.K.A.R. is the only way to stay up to date in the field of mountain rescue."

At the present I am looking for a chest heating pad which can be heated by a portable power source — any ideas? Also, if anyone is interested in a source of prestretched terylene rescue rope they can contact me direct.

TECHNICAL NOTES

Forest Ice Paws

The Forest Ice Paws consist of a heavy duty plastic non-slip work glove fitted with a long woolen cuff covered with waterproof nylon. They are completely waterproof and are designed to be worn with a thin silk or woolen underglove. In very low temperatures, -20°C., they are rather cold but around freezing they provide an excellent solution to the 'wet, cold problem.' After prolonged use the inner gloves need to be changed and it is necessary to carry an extra paid of inners. The gloves have worn very well on pure ice climbs. Their performance on rock is yet to be proven.

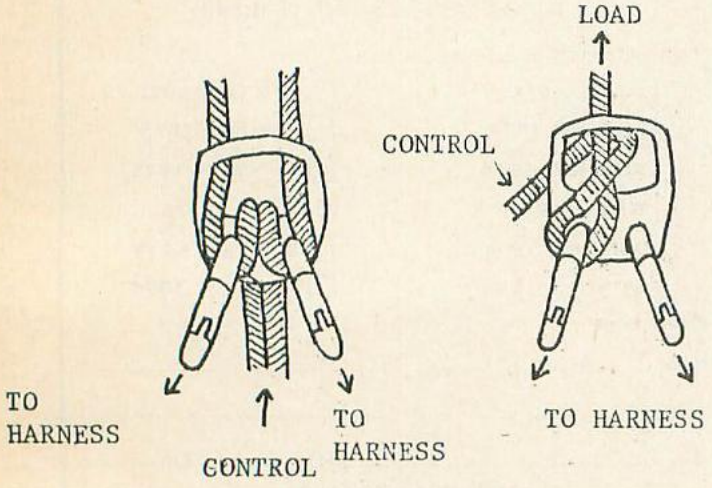
Forest Rabbits

This idea is so simple it is surprising that it had not been developed before — the Rabbit consists of a single strand of tape looped and stitched at either end. It is carried bandolier fashion across the chest and fastened with a carabiner — it certainly is useful when lots of slings are required to be carried. It can be used as a normal sling or for extending wire nut runners.

Technical Tip

The nylon retaining cord on the stitch plate is either tied back into the harness or clipped into a second carabiner. It cannot be clipped into the belaying carabiner as it will be subject to friction/melting by the running belay rope. I have replaced this cord with a swaged loop of stainless steel wire which can be clipped directly into the belaying carabiner with no danger of friction melting from the moving rope. This removes the necessity of a second carabiner, is quick and easy to use and so far, has proved to be very effective.

BANKL PLATEA



1. Used as Descender 2. Used as a Belay Plate

The Bankl plate is yet another climbing gadget — a combined belay plate and rappel device. As a rappel device it keeps the ropes separated and prevents them twisting and kinking. It also functions as a belay plate when used in conjunction with a friction twist similar to the Munter Hitch. A simple device with directions for use printed as the plate itself.

FURTHER INFORMATION ON THE TREATMENT OF EXPOSURE AND FROSTBITE

The following information is a summation of a review by G. Neureuther and G. Flora of papers on cold injury presented at a se of conferences between 1976-1977 in Europe. It represents guidelines recommended for the mountain rescue organizations who are members of the I.K.A.R. (International Commission for Alpine Rescue). Only the recommendations for Mountain Rescue First Aid men are included as relevant to mountaineers.

Much of the work reflects the findings of the British workers especially with reference to the dangers inherent in improper rewarming, i.e. the replacement of warm blood in the body core by cold blood from the body shell causing "rewarming death." The hot bath of 40°C. and higher or the lukewarm bath of gradually increasing temperature from lukewarm to 40°C. in the course of half an hour entails a risk of a rewarming collapse, and baths of these kinds should no longer be employed. It is interesting to note that the temperature of 40°C. is well below 45°C.-47°C. recommended by hot bath advocates in the U.K. Another recommendation is not to apply pre-heated or electrically heated blankets at least not in the case of a victim in a coma. A coma occurs when the body core temperature is approximately 30°C. — this gives rescue personal or reasonably accurate criterion for core temperature in a casualty. The conclusion reached is that any treatment should be restricted only to measures that increase the core temperature. The recommended field and mountain hut treatment is the application of a hot pack on the casualty's chest.

***Application of hot pack**

"A linen sheet folded five times and soaked on the inner surface with hot water (from a thermos bottle) is placed on top of the victim's underwear covering the chest and the abdomen, i.e. not placed on the bare skin; the pullover and the anorak (ski jacket) are placed over the compresses and a piece of aluminum foil is placed around the trunk only, i.e. the extremities remain outside the foil envelope; finally the whole body, including the arms and the legs, is enveloped tightly with several blankets fit closely around the neck. In the akya (ski stretcher) the whole body is secured with the aid of ropes inside a sleeping bag. This warming pack (compresses) must be renewed after one hour."

This rewarming procedure has also been followed in hospit because:

i) Simple procedure
ii) Immediate rise in core temperature

*This work is reinforced by Dr. J. Haywards, University of Victoria, B.C. whose research of immersion hypothermia indicates that the sides of the thorax are an area of high heat loss. This is where there is little sub-cutaneous fat and the lung walls come close to the surface of the body.

Other Rewarming and Heat Preserving Techniques

1. Infusion of fluids heated to above body temperature (1 litre of 5% glucose solution heated to 43°C.-45°C. prepared at accident site. "Carinthian heating bags are tied around the infusion bottle. These bags are available from the Austrian Mountain Rescue Service. The increase in core temperature is approximately 3.5°C. The infusion should be carried out slowly.
2. Administration of prewarmed oxygen requires much effort in apparatus and increases core temperature by 3°-5°C.
3. Washing of the stomach with warm water is theoretically sound but is not superior to warm packs and requires more effort.
4. In cases of respiratory arrest, artificial respiration with the aid of an oxygen bag should not be used since cold air enters the body — mouth to mouth recuscitation is preferable.
5. Bandaging of extremities is not recommended.
6. Pressure and active movement should be avoided. The straightening of bent knees may cause a drop in core temperatures from 30°C. to 27°C.

*Again Dr. Hayward's work indicates the groin as a high heat loss area with major blood vessels near the surface and close to the body core.

7. Hot compress on the back of the neck is unnecessary since warming of the brain is not an objective.
8. Short wave therapy is effective but not more so than the hot pack.

Mountain Rescue Pack Man at Accident Site with Conscious Casu

i) No active or passive movements for the casualty. Do not permit victim to walk.
ii) Replace wet clothes with dry clothes if it is feasible without moving the victim.
iii) Apply hot compresses every hour on the chest.

iv) Give casualty hot sweet drinks.
v) Warm casualty with direct body contact.
vi) Do not rub or bandage extremities.
*vii) Do not administer sub-cutaneous or intramuscular injections, since the injected material will be retained in the periphery.

Mountain Rescue Pack Man at Accident Site With Unconscious Victim
i) If the victim exhibits signs of cardiac arrest apply external cardiac massage and mouth to mouth resuscitation. Do not use respirator.
ii) Apply a hot pack to the chest.
iii) Monitor casualty's pulse constantly.

Mountain Rescue First Aid Man In a Hut Indoors
i) Place casualty into a preheated room.
ii) Apply hot packs.
iii) Monitor Pulse rate.

Frost Bite

Although three stages of frost bite were identified
i) First degree — white, cold and perhaps hard and numb extremities.
ii) Second degree — Blister formation
iii) Third degree — necrotic black tissue } after days or weeks

It is not possible in situ to determine whether the frost bite is superficial or deep. Differences in treatment do not therefore exist. It is important however, to see if hypothermia is present as treatment for this is the first priority.

Frost Bite involves:
i) Vaso-constriction of peripheral circulation.
ii) Thickening of the blood reducing its ability to reach the terminal blood vessels.

Treatment should therefore be two-fold:
i) Increase vaso-dilation.
ii) Increase ability of blood to flow.

At present there are two schools of thought regarding treatment:
i) Rapid rewarming in a water bath 43-45°C.
ii) Slow rewarming in a water bath of approximately 10°C. with a gradual heating of the water to 40°C. with ½ hour.

Rapid rewarming was rejected on the basis that it creates an imbalance between oxygen requirement and oxygen supply resulting in gangrenification of the tissue and irreversible injury. Blood supply to the extremities must be promoted, before the frost bitten parts are warmed. Rapid rewarming is also extremely painful.

Mountain Rescue Pack Man at Accident Site
i) Rewarming of body core by administering hot sweet drinks and applying hot pack on chest.
ii) Warm victim's frozen extremity with aid of own body heat — armpit, stomach, crotch.
iii) Do not rub snow or massage or apply ointments.
iv) Cover with dry loose dressing and keep free from pressure.
v) In frost bite without hypothermia encourage casualty to move affected part actively. Minor frost bite victims can walk but where large parts are frozen the casualty should be carried.

Mountain Rescue Pack Man — Hut Setting Indoors
i) Warm room.
ii) Give hot sweet drink — alcohol may be added.
iii) Place the affected part in water (approximately 10°C.) which should be heated up to 40°C. in ½ hour if the victim can stand the pain. If not a more gradual rewarming.
iv) Cover extremities with clean dry dressing.
v) Ask casualty to move extremities continuously.

*This would only apply to British Mountain Rescue Personnel who are are allowed to administer morphine. e

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about your changes of address. When you move, drop us a line with your new address so we can get you *Search and Rescue Magazine* on schedule. But PLEASE, send us both your new and OLD address, just to help keep our records straight.

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BOOK REVIEWS

RESCUE LEADERSHIP

by Paul M. Williams
77 pages. $3.95
Mountain Rescue Association
P. O. Box 396
Altadena, CA. 91001 USA

After the victim, the one most important person in any search or rescue is the operation leader. This is because his actions and decisions impact the victim the most once a mission begins. To excerpt this excellent book's prologue: "The role of volunteer rescue leader is most demanding, requiring great skills, including knowledge of rescue procedures and jurisdictions of responsible agencies. But most important is a knowledge of psychology, the ability to deal with volunteers, and a great sense of tact and diplomacy." This book is a must for every rescue person.

TRACKING: A Blueprint for Learning How

by Jack Kearney
150 pages. $7.95
Pathways Press
525 Jeffree St.
El Cajon, CA. 92020 USA

For serious students of tracking this book is a must. Jack tells all in this well illustrated document going into detail on such subjects as: awareness training, utilizing sun angle, aging, sign cutting, etc. Jack is most qualified to discuss this subject as a long time U.S. Border Patrolman and active instructor and participant in search and rescue. Jack belongs to a small, elite group of tracking specialists who have revolutionized this Nation's search and rescue.

THE COMPLETE BLOODHOUND

by Catherine F. Brey and Lena F. Reed
304 pages. $11.95
Howell Book House, Inc.
730 Fifth Ave.
New York, NY 10019 USA

In my mind the bloodhound has been the most controversial search and rescue resource, as well as perhaps being the first one. Some volunteer search and rescue teams have been accused of only keeping bloodhounds as an assurance of being requested by the local sheriff. In fact, in California it is in the state code that every county sheriff will maintain an up-to-date list of SAR dogs as well as their performance. This very complete book will take much of this speculation out of this important life-saving resource. Lena has written much for *Search and Rescue Magazine* and I can vouch for her writing excellence.

RESOURCE GUIDE FOR SEARCH AND RESCUE TRAINING MATERIAL

Edited by Patrick H. "Rick" LaValla
60 pages. $5.00
Survival Education Assn.
9035 Golden Givens Rd.
Tacoma, WA. 98445
(206) 531-3156

This comprehensive document is a MUST for anyone responsible, involved or associated with search and rescue (SAR). This thoroughly new publication was printed by Gene Fear and is without doubt the most extensive list of SAR books, pamphlets, films and learning aids. I repeat, this is a MUST HAVE document. Order one right away.

ACUTE MOUNTAIN SICKNESS — TYPE R

by Larry Penberthy
48 pages. $3.00
Altitude Medical Publishing Co.
5624 Admiral Way S.W.
Seattle, WA. 98116 USA

In mountain rescue it is particularly important to be aware of mountain sickness. Because of the urgency of the job there is seldom time to aclimate. It is common in search and rescue to be flown by helicopter from near sea level to over 10,000 feet elevation. In this articulate document on mountain sickness, Larry makes some simple suggestions for the relief of this disease. These practical suggestions have been tried without conclusion by this reviewer and it is noteworthy that some doctors are at odds with some of this book's findings. However, cognizance of this important subject makes this excellent book a valuable investment.

THE SAN GABRIELS. . . . Southern California Mountain Country

by John W. Robinson
214 pages. $19.95
Golden West Books
P. O. Box 8136
San Marino, CA. 91108 USA

This is a local book, but it is an outstanding example for mountain rescue. This book sets an example in story, photo and map excellence that makes its history another important dimension in local mountain rescue expertise, terrain familiarization. It is important to remember that one significant difference between a mountain rescue team and other well meaning groups or agencies is terrain familiarization. I find pertinent history a super way to reinforce my knowledge of local terrain and this magnificent book is an excellent example. e

PUBLISHER' FORUM

Dennis E. Kelley

..M SETNICKA, Yosemite SAR Ranger, sz his book on mountain rescue is ready for publication. . . **LOIS CLARK McCOY,** NASAR Administrator and invitee to the Governor's Conference suggests there is a correlation between SAR activity and a State's government land. . .**GREG MacDONALD,** 304 ARRS, has been awarded a Presidential Internship and is moving from Portland to Dallas. . . **Col. JAMES "LARRY" BUTERA** has replaced **Col. BRUCE PURVINE** as Director of Inland SAR at Scott AFB. Larry has been in rescue for 14 years. .**JACK STEPHENSON,** New Hampshire, sz he has found no interest in the heated sarong approach to hypothermia treatment. . . The question is, what government agency paid a fortune to have one built?. . . **Dep. JIM SMITH,** Barstow Desert Rescue Squad recently graduated from U.S. Bureau of Mines, mine rescue instructor's course. . . **NASAR President RICK LaVALLA,** whose birthday is forgotten, has embarked upon two major personal programs this Summer and Fall. First, he and **PAUL GREEN** are traveling to Scotland and England to enhance SAR relationships. Secondly, he and **BILL WADE** are establishing at 10Km run for fun at the Albuquerque Conference. . . **BEN PEDRICK,** Los Angeles County Sheriff's Mountain Rescue Inspector has announced the staff appointments of **RON JACK** Secretary and **DAN HENSLEY** Equipment Committee Chairman. . . **MITCH MICHAUD** of PAK Foam Products sz he designed their Super Bivvy Sak with rescue applications in mind. . . **TOM VINES** was re-elected President of the Appalachian SAR Conference. He recently had as dinner guest ex-Mountain Rescue Assn. (MRA) President **PHIL UMHOLTZ.** . . Phil left us with this parting remark in the MRA newsletter, "It is worthless to standstill, but far more dangerous to run in the wrong direction.". . . Incidently **ABBE KEITH,** MRA Executive Secretary did a beautiful job on the newsletter. . .**CHUCK DEMAREST,** newly elected MRA President, is taking pilot lessons. . . **HAL DUNN,** Alpine Mountain Rescue in Colorado sz he'd like to see a commercial source for a portable heated oxygen hypothermia treatment device. . . **MAUDE GIBBS** sz **..ROLD** is re-organizing their escender plant. . . **JIM BRADY,** ..ational Park Service Albright Training Center, Arizona sz he hopes to enter his first marathon in Southern California this Fall when it's cool. . . **GENE FEAR** of Survival Education Assn. is developing a Defensive Living program for public schools. . . **Col. MIKE CAUDILL** of Tennessee Office of Emergency Preparedness sz only California and Alaska have Workman Conpensation Insurance for SAR volunteers. . . **RICK GOODMAN,** NASAR Vice President sz **VICKI MASON** of Saddleback SAR was visiting in Albuquerque. . . **BILL WADE,** NASAR Training Committee Chairman sz he is meeting with **TOM DRABECK** in November in Denver on federal program investigating SAR response in disaster. . . **TONY ANDERSON,** NPS SAR Ranger sz he hopes to run Marine Corp. marathon in Washington, DC in November. . . Your publisher **DENNIS KELLEY** was recently elected President of the Montrose Search and Rescue Team.

TIME, THE ENEMY OF SAR — NATIONAL SURVEY

The following is the first national survey on ELT SAR response. This survey is independent of ICSAR, USAF, USCG, FCC or DCPA. It is intended to provide insight on this Nation's SAR. It was prepared by Rick Goodman, NASAR's 2nd VP. Please complete and send to:

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1. In your area, how much time does it take after the initial SAR call before expert SAR personnel are involved?
   a. 30 minutes
   b. 1 hour
   c. 2 hours
   d. 8 hours
2. SAR teams in your area are put on stand-by at least _____ percent of the time before being called out?
3. What would you say the average response time is to get most of your teams to the field after notification to respond?
   a. 1-2 hours
   b. 2-4 hours
   c. 4-8 hours
4. How long does your average team stay in base camp before being sent to the field?
   a. 15 minutes
   b. 30 minutes
   c. 1 hour
   d. 2 hours plus
5. On downed private aircraft with survivors, what percentage expire the first
   8 hours _____, 24 hours_____, 48 hours_____?
6. What do you think the average rescue time is in the county after notification of a missing aircraft?
   a. 12 hours
   b. 24 hours
   c. 36 hours
   d. 48 hours
7. If the private aircraft's ELT meets FAA specifications, how long should it transmit after impact?
   a. 1 day
   b. 2 days
   c. 7 days
   d. 30 days
8. How many Federal, State, or local agencies should be notified if a private aircraft is believed missing in your area?
   a. 1-3
   b. 4-5
   c. 7-10
   d. 11 - plus
9. Have you been involved in a ground ELT monitoring program in your State, County, or local area?
   a. Yes
   b. No
10. How many forms of communication do you use to call out SAR resources in your area?
    a. 1
    b. 2
    c. 3
    d. 4

FREE — SAR GLOSSARY

All responses will receive a "SAR Glossary" free, if you include a self-addressed, stamped, business envelope (approx. 4x9 inches). For the correct answers and self-evaluation see page 30.

SURVEY ANSWERS

Below are the answers for the above test. Add all correct answers for total score:

1. a. 10 points
   b. 5 points
   c. 2 points
   d. 0 points

2. 0- 25% - 7 points
   25- 50% - 10 points
   75-100% - 5 points

3. a. 10 points
   b. 5 points
   c. 1 point

4. a. 10 points
   b. 5 points
   c. 1 point
   d. 0 points

5. Give yourself 5 points for each correct answer.
   8 points - 40%
   24 hours - 80%
   48 hours - 90%

6. a. 0 points
   b. 0 points
   c. 0 points
   d. 10 points

7. a. 0 points
   b. 10 points
   c. 0 points
   d. 0 points

8. a. 5 points
   b. 7 points
   c. 9 points
   d. 10 points

9. a. 5 points
   b. 0 points

10. a. 2 points
    b. 5 points
    c. 8 points
    d. 10 points

SURVEY SCORE

76 - 100:
If I get lost, I hope it's in your area!

51 - 75:
Will you move to New Mexico? We need you.

26 - 50:
If my mother-in-law gets lost, may it be in your area!

0 - 25:
If you get lost, please make me your beneficiary. e

EDITORIAL: THE NAME'S THE SAME

Most people who have spent any time around any of those daring men associated with flying machines have undoubtedly been reminded in one way or another that pilots do it better . . . . from above.

Naturally I speak the truth; however, if you ever pause to look at what's going on around you, it becomes very apparent that there are lots of other people surrounding you who do it pretty darn well also.

Of course, we are talking about the many persons and agencies involved in the Search and Rescue picture, beginning from the ground up. If you really get down to the "nuts and bolts" of the operation you see that all the different facets of the operation must work together in unison so that each mission moves quickly and smoothly.

In essence, whether you are the airbound search pilot or the young searcher on the floor of the forest, "the name's the same," everyone is in it together with a common goal — find the victim.

After 13 years of active involvement in all levels of the SAR spectrum it is more evident than ever — "the name's the same" — dedication. Whatever your job may be in the rescue effort, be it on the ground; water or in the air — the name's the same — get to the victim as quickly as possible and get him out.

Too often petty jealousy, red tape, and lack of communications interfere with the victim rescue effort. We could write volumes on each of these but for now let's direct our attention to the communications aspect.

Recently I have asked members of the Aviation Committee to hel identify the agencies (federal, state, local, or private business) with the continental United States which have aircraft available for search and rescue participation. This may seem like an unusual request, but consider the fact that pilots and aviation are still the new kid on the block. Agencies that have their own pilots and aircraft usually understand very little about the flying operation except that it's there; the same is true for the pilots — they have a limited knowledge of the operation of the company. Throughout the years this has evolved and we have reached the point you do your job and I'll do mine. This has worked fine and the job has gotten done, but we can do it better . . . together. Remember the name's the same.

We need to strip all the complacent beliefs which allow a feeling to exist that I'll just do my own little thing and not worry about the other folks — I don't need to know their problems because I've got enough of my own. Is this important to us? Definitely, because we need to know what's going on in SAR and the changes taking place. If we had the opportunity to talk up among ourselves, get to know and understand a little more about the problems that others involved in rescue efforts have and the solutions that they have used to overcome their difficulties — How much easier it would be for everyone.

We do have that opportunity *NOW* in NASAR. Regardless if you are on an active committee, a federal or state agency, or a private member, always remember "The Name's The Same" and our goal is common; let's take full advantage of the opportunity that each of us have so that indeed we do have a National Association for Search and Rescue.

Art Jones
Louisiana State Aviation Safety Officer e

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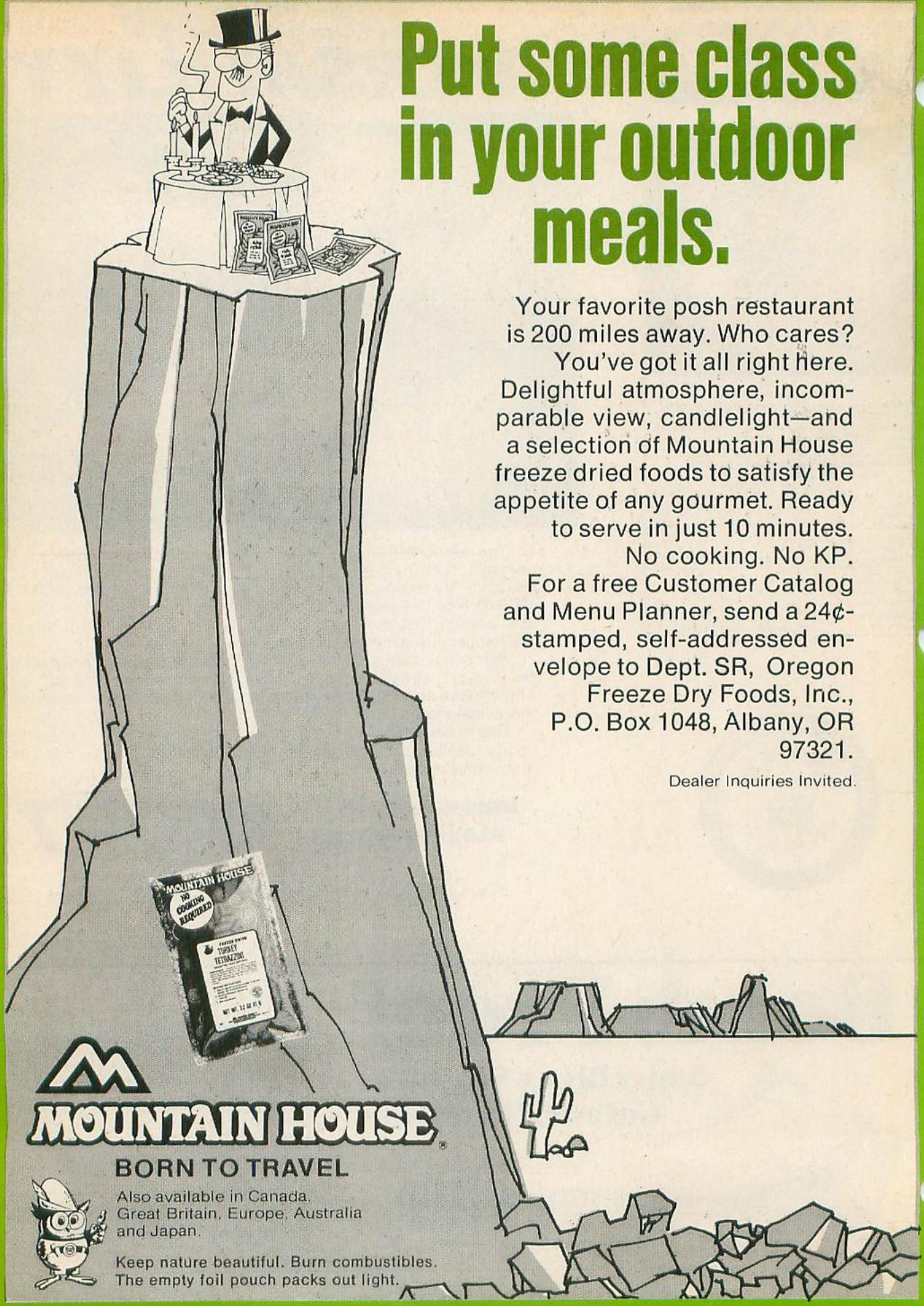

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