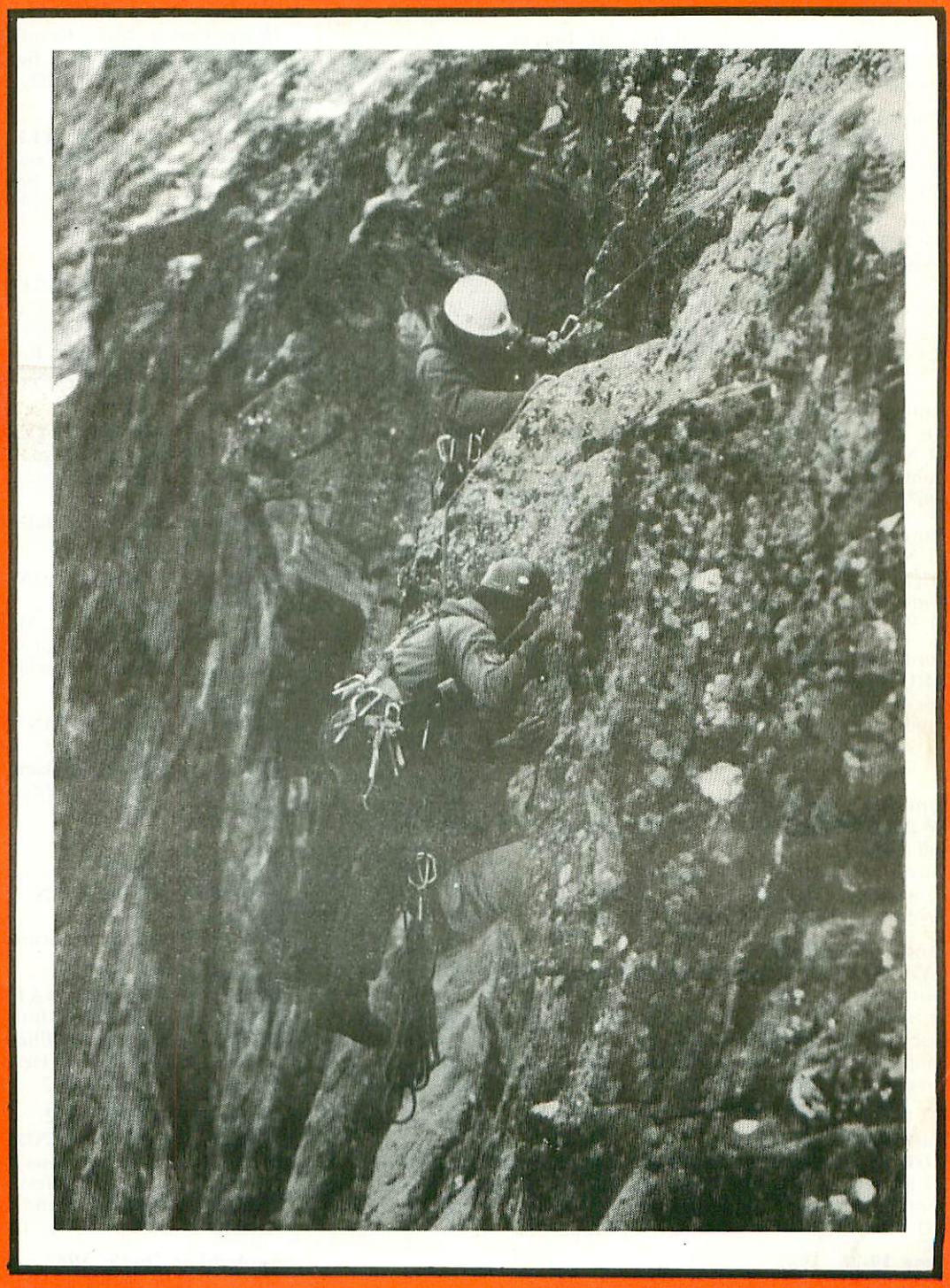
SUMMER 1982

SEARCH & RESCUE

MAGAZINE



A rescue operation using traditional climbing gear in the Mt. Blanc area

See page 12

CALENDAR

SEARCH & RESCUE MAGAZINE provides a way for rescuers from coast to coast to keep current with significant SAR events. Every issue we run a 'Calendar' column that lists interesting SAR related conferences, schools, seminars, and events sponsored in your local. Lead time is important so let us help you by keeping us abreast of current events in your area early.

June, 1982
NATIONAL JEEP SAR ASSN. NATIONAL CONVENTION
Salt Lake City, Utah
Hosted by Salt Lake City Search and Rescue
Contact: Everett Bogart, National Com. Officer,
Salmon, ID 83467 208/ 756-2957

June 3-5, 1982
EMERGENCY MEDICINE '82
Marina Inn, **South Sioux City, Nebraska**
Sponsored by Marian Health Center, Sioux City, Iowa

June 3-5, 1982
SWIFTWATER RESCUE TECHNICIAN TRAINING
Carson City, Nevada
Conducted by Sierra Search and Rescue Team
in conjunction with Rescue 3.
Contact: Bob Creon, Sierra SAR,
P.O. Box 1192, Carson City, NV 89702

June 7-11, 1982
8th ANNUAL MEETING OF THE INTERNATIONAL TUNNELLING ASSOCIATION, Cedex, France
Contact: Sec.-General, ITA/AITES, 109 Av. Salvador Allende,
69672 Bron CEDEX, France TELEX 37008 Cetelyon

June 7-11, 1982
TUNNELLING '82-3rd INTERNATIONAL SYMPOSIUM
Brighton, England
Contact: The Institution for Mining & Meterallurgy,
44 Portland Pl., WIN 4BR, England

June 6-11, 1982
ORIENTATION TO SEARCH AND RESCUE COURSE
Los Guillucos Criminal Justice Training Center, **Santa Rosa, Ca**
Contact: Mr. Jerry Warren, L.G.C.J.T.C.,
7501 Sonoma Hwy, Santa Rosa, CA 95405

June 8-12, 1982
SWIFTWATER RESCUE TECHNICIAN COURSE
Salt Lake City, Utah
University of Utah and Rescue 3
Contact: Dr. Ralph Brown, U of U,
Division of Health Sciences, Salt Lake City, UT 84112

June 16-20, 1982
SWIFTWATER RESCUE TECHNICIAN COURSE
Scottsdale, Arizona
Arizona Public Safety Dept., Pima County Sheriff's Search and Rescue in conjunction with Rescue 3
Contact: Chuck McHugh, Pima County S.O.P.O., Box 910,
Tucson, AZ 85702 and/or Marty Caldwell, Arizona Hwy Patrol,
P.O. Box 2365, Bullhead City, AZ 96430

June 19-20, 1982
MOUNTAIN RESCUE ASSN BOARD OF DIRECTORS MEETING, Hilton Inn, **Colorado Springs, Colorado**
Contact: El Paso County Search and Rescue,
P.O. Box 95, Manitou Springs, CO 80829

June 19-26, 1982
NATIONAL CAVE RESCUE SEMINAR
Columbia College, **Columbia, California**
Contact: A. Peri Frantz, NCRC Seminar Chairman
16345 Englewood Ave., Los Gatos, CA 95030
408/ 356-8506

June 21-25, 1982
RESCUE 3, SWIFTWATER, RESCUE COURSE 1&2
Los Guillucos CJTC, **Redding, California**
Contact: Rescue 3, P.O. Box 4686,
Sonora, CA 95370 209/ 532-7915

June 24-28, 1982
SWIFTWATER RESCUE TECHNICIAN COURSE
Austin, Texas
City of Austin Fire Dept. in conjunction with Rescue 3
Contact: Capt. Charles Wall or Lt. Don Smith, Austin City F.D.
Training Division, Box 1088, Austin, TX 78767

June 28-30, 1982
RESCUE 3, SWIFTWATER RESCUE COURSE 1&2
Rogue Comm. Coll., **Grants Pass, Oregon**
Contact: Rescue 3, P.O. Box 4686,
Sonora, CA 95370 209/ 532-7915

July 5-9, 1982
RESCUE 3 SWIFTWATER RESCUE COURSE 1&2
Sacto Area R.O.P., **Sacramento, California**
Contact: Rescue 3, P.O. Box 4686,
Sonora, CA 95730 209/ 532-7915

July 11-14, 1982
ADVANCES IN EMERGENCY CARE
Grand Traverse Hilton
Contact: Michigan Chapter American College of Emergency Physicians, 1305 Abbott Road, Suite 109,
East Lansing,Michigan 48823

July 26-30, 1982
RESCUE 3, SWIFTWATER RESCUE COURSE 1&2
Bakersfield Junior College, **Bakersfield California**
Contact: Mr. Jackie Fisher, Bakersfield Junior College,
Fire Tech Coordinator,
1801 Panorama Drive, Bakersfield, CA 93305

July 11-16, 1982
USCDC REGION IV CONFERENCE
Nashville, Tennessee
Contact: Hilary Lingner, Metro Nashville,
Davidson County, Div. of CD, 7M Floor,
Metro Courthouse, Nashville, TN 37201

July 13-15, 1982
BRITISH ASSOCIATION OF CD & EMERGENCY PLANNING OFFICERS
University of York, England
Contact: Eric Alley, 39 Meaux Road, Wawne,
Hull HU75XD, England

July 30-31, 1982
NATIONAL JEEP ASSN. UTAH STATE CONVENTION
Provo, Utah
Contact: Utah County Search & Rescue

August 13-14, 1982
CIVIL AIR PATROL NATIONAL BOARD MEETING
Hyatt Regency O'Hare Hotel,
O'Hare Field, **Chicago, Illinois**
Contact: CAP National Headquarters,
Maxwell AFB, AL 36112

September 13-17, 1982
AIRCRAFT CRASH AND MASS CASUALTY MANAGEMENT, Arizona State University, **Tempe, Arizona**
Contact: Center for Professional Development,
College of Engineering and Applied Sciences,
Arizona State University, Tempe, AZ 85287

September 16-19, 1982
NASAR 14th ANNUAL SAR CONFERENCE
Las Vegas, Nevada
Contact: NASAR, P.O. Box 2123, La Jolla, CA 92038

Continued on page 22

SEARCH & RESCUE

MAGAZINE

SUMMER 1982

Table of Contents

FEATURES & DEPARTMENTS

A RESCUE OPERATION IN THE MT. BLANC AREA USING AN "ESTEKO" AUTRIAN STRETCHER.

Story page 12

EDITORIAL CONTRIBUTIONS: Desirable articles and photo essays include but *are not limited* to dramatic rescues, first hand search and rescue experiences and techniques, survival situations, technical and "how-to" features, and most everything of interest to the SAR community. Serious contributors should purchase a subscription for editorial content and guidelines.

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Motivation

TRACY JO WHITTEMORE
Team Captain,
Lompoc Search & Rescue Team
512 South T Street
Lompoc, CA 93436

I am affiliated with the Santa Barbara County Sheriff's Search and Rescue Team — Lompoc. This organization's membership consists of many different people, from all walks of life, that donate their time, money, and effort towards the common goal of helping others. At the national level of Search and Rescue, a phrase was coined referring to these dedicated volunteers as, "unpaid professionals." Keeping these people interested in search and rescue activities and remaining with the organization is a never ending task.

In this article I will discuss the make-up of a volunteer who willingly accepts the responsibility of being on call 24-hours a day, rain or shine, responding to lost hikers, extricating bodies, reuniting children with their parents, etc., motivation, and the factors that affect the volunteer.

Webster's Dictionary defines a volunteer as "anyone who enters or offers to enter into any service of his own free will with no promise of compensation." Compensation in this case being monetary. It is important for the volunteer to understand the goals and objectives of the organization, as well as realizing the needs and desires he as an individual hopes to fulfill.

Likewise, it is important for the organization to remember that each Team member is an individual with varied needs and goals set for themselves. It must be remembered that each individual plays many roles; the role of volunteer is just one example. (See Chart 1-1) The organization must provide security, social aspects, higher needs, opportunities and resources for growth for each individual. It must realize the individual's goals and help with obtaining them.

With regards to the volunteers duties to the organization; the volunteer must give a certain amount of work, loyalty, and time to become qualified to do the job. Within Search and Rescue (SAR) it is important that the organization act as a team; whereas, the individual can act according to the situation, without always waiting for direct orders. The individual must know the social and functional roles of all the people with whom he will be interacting.

As the individual learns the goals and objectives of the organization, his needs and goals must be continuously met; otherwise, the individual may resign. Resignations generally stem from a lack of interest or time. In order to keep the individual interested, he must be kept motivated. Motivation, is the responsibility of the organization.

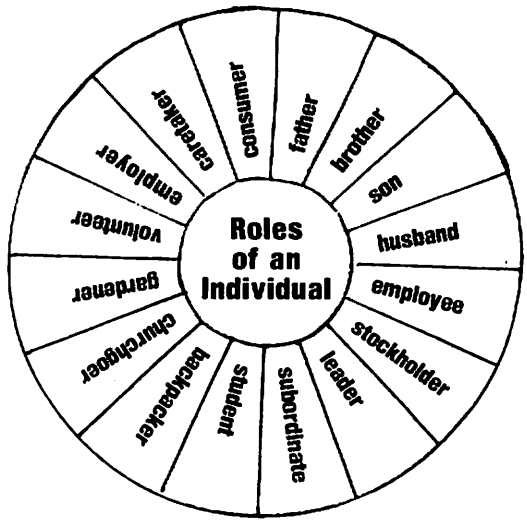
Motivation means 'to move' with regards to needs being directed toward goals. There are many theories regarding motivation. Process and expectancy models try to explain the 'how' of motivation, while the content models try to identify the elements that motivate people. Some of the theories are:

Vroom Expectancy Model — The degree of motivation is based on a person's degree of preference to meet a particular need.

Porter and Lawler Expectancy Model — This model analyzes the relationship of effort, performance, rewards, and satisfaction and how the individual perceives each. Performance is based on personality traits, abilities, and how the individual views his particular role. Within the model both intrinsic and extrinsic rewards exist. "Satisfaction is more dependent on performance than performance on satisfaction."

Smith and Cranny Expectancy Model — Performance can be directly affected *only* by effort, not by rewards or satisfactions. Effort can affect satisfaction and rewards, as well as be effected by each. Thus, a change in anyone variable will produce a change both in the other variable and eventually indirectly influence performance.

The roles an individual must portray throughout their lifetime are never ending. (Shown are just a few examples.)



Here, the role of a volunteer, in this case a Lompoc Search and Rescue member, is subdivided even further.

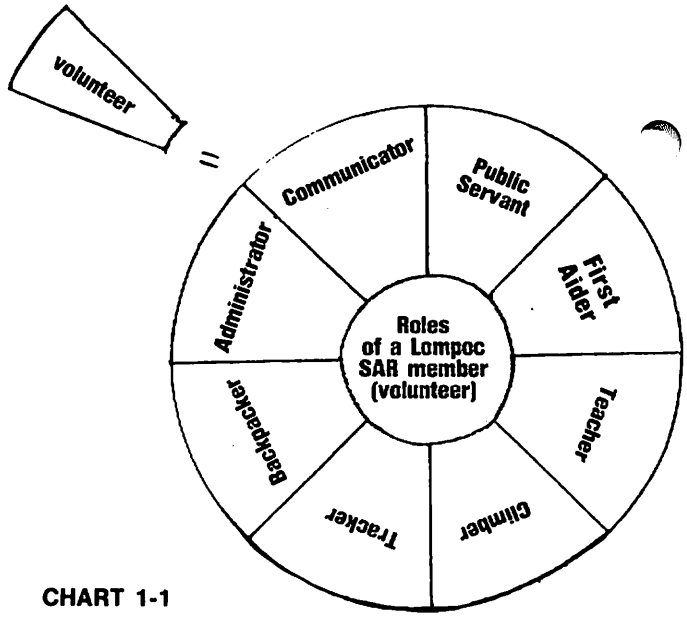


CHART 1-1

Maslow's Hierarchy of Needs — Abraham Maslow distinguished five levels of needs: (1) *physiological* - need for air, food, drink, etc., (2) *safety* - need for emotional and physical security, (3) *love* - need to be accepted; belong to a group, (4) *esteem* - need includes power, achievement, and status, (5) *self actualization (self-realization)* - one's need to feel they have accomplished something to the best of their ability, one's potentialities, creativity, and initiative. One must start from the bottom and work up. Depending upon the level a person is at, determines the motivating factors. Satisfied needs are no longer motivators. new needs will replace the old. Motivation stems from what a person is seeking, not by what they already have. (See Chart 1-2)

McGregor's Theory X — A system of motivation in which the supervisor appeals only to his employees through their lower-level needs.

McGregor's Theory Y — A system of motivation in which the supervisor appeals only to his employees through their higher-level needs.

Herzberg's Studies — Factors that produce satisfaction are called motivators; while factors that cause dissatisfaction are called — hygiene factors. Job satisfaction is associated with the job itself; dissatisfaction is associated with the job environment. Examples of positive job satisfaction motivators are, achievement, gowth, recognition, responsibility, and the work itself. Company policy, administration, leadership, working conditions, salary, status, and security fall within the category of hygiene factors. When compared to Maslow's Theory, it was found that lower-level needs tended to be dissatisfiers, while higher-level needs tended to be satisfiers.

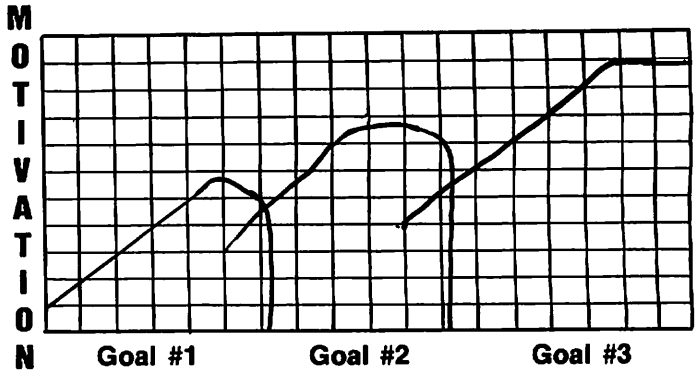
Motivational Formula — Knowledge x Skill = **Ability;** Attitude x Situation = **Motivation;** Ability x Motivation = **Human Performance;** Human Performance x Resources = **Organizational Performance.**

We realize there are many ideas and concepts regarding motivation, and still there are no 'absolutes' in this field.

When we consider volunteers, we do find some commonalities in their hierarchy of needs. Volunteers seek companionship, status, a sense of achievement, new experiences, the need to feel as though they have made a difference, and new knowledge and dimensions to add to their lives. Most volunteers strive to fulfill higher-level needs. Sometimes these needs are hidden from the conscious mind, thus making it harder to intentionally motivate with a particular goal in mind.

Professionals value self-realization and are generally individuals with self-motivation. These people have strong achievement drives, they want responsibility, involvement, and opportunities for growth. Money is a lower-level need whereas, the quantity and quality of their work is on a higher-level. Keeping this in mind, they also require more recognition and status. They are restless, sensitive, and vulnerable to frustration. Many of the 'unpaid professionals' fall into this same category.

In order for the organization to fulfill its duties to the individuals, it must understand the motivation process. The steps of this process are: (1) determine objective, (2) empathize (understand what drives people), (3) communicate (feedback), (4) integrate interests (relating the organization's purpose to the member's need), (5) provide auxiliary conditions (train each member, provide proper equipment, and establish a supportive climate), and (6) develop teamwork (build group effort out of individual effort). With the motivational process established, it must be remembered that motivation moves in cycles. Once the motivating factor has been obtained, a new factor will move into place. (See Chart 1-3) Motivation maintenance must be provided.



As each goal is met, a new one must replace it in order to keep motivation alive.

CHART 1-3

The purpose and goals of the organization should be clearly stated. The purpose of an organization will remain constant, just as goals will change. Goals should be: (1) measurable, (2) Attainable, (3) clearly understood, (4) shared ideas, (5) subgoals should be related, and (6) flexible, to accommodate change. It is important that the goals of a volunteer organization be set by the group. No one person can set goals and expect the others to follow wholeheatedly.

The organization must explain to new members the role they are to play within the structure of the organization. (See Chart 1-1) A person's role is defined as the pattern of actions that are expected of the person in his activities involving others. When role expectations are substantially unknown and inadequately defined, role ambiquity will exist. If the member feels uncomfortable in his role as a search and rescue member, his morale may be undermined.

The essentials that make up a well organized team are: (1) a small group, (2) a leader, (3) a common goal, (4) regular interaction, (5) each member responsibly contributing, (6) team spirit/cooperative attitudes, and (7) conscious coordination. The leader of the team must allow for indifferences amongst

Continued on page 17

MASLOW'S HIERACHY OF NEEDS

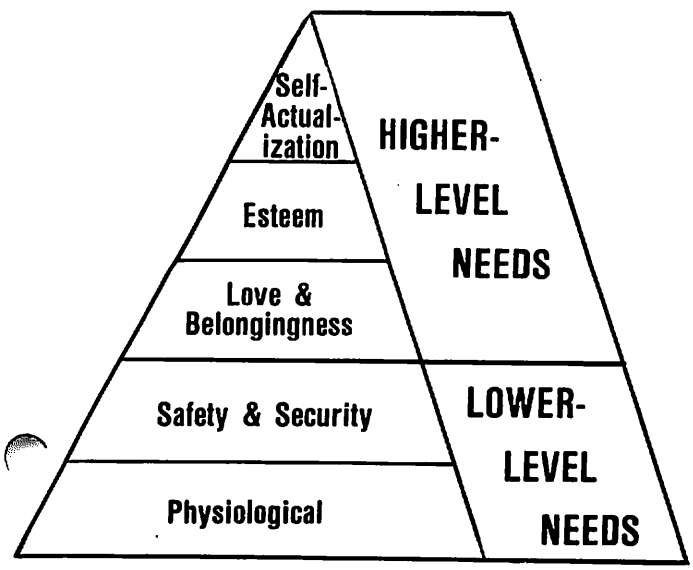


CHART 1-2

BUSH ON SAR

STAN BUSH
c/o The Colorado Search and Rescue Board
2415 East Maplewood Avenue
Littleton, Colorado 80121

To SARM Readers:

In combining the input from various parts of the country, the following materials are a revised summation of *"The First Step in the Second Mile."*

STILL not in final form, naturally!

I would appreciate it if you would evaluate this outline — try it out — show it to others — *AND* let me have feedback.

We're still working away at a Wilderness Medical Technician program — slow but steady — and hope that you will continue to support the concept and its implementation.

Stan G. Bush

PROPOSED OUTLINE

WILDERNESS MEDICAL TECHNICIAN COURSE

This is a **proposal.** The materials have been tested with some rescue units in Colorado and seem adequate. However, it is **NOT** final in any way. It is presented here as a supplemented outline to provide a starting point. Evaluate, add, subtract, rearrange as you see the need. It is developed primarily for a back country high altitude environment and other modules can be added for other environments. It is designed primarily for use by the mountain search and rescue team.

There is still discussion as to whether individuals taking this course should have completed EMT training or whether they must have had advanced Red Cross First Aid or some special course in Emergency Care. No decision has been reached and it may derive that several approaches to this course could be accepted.

At the "Medical Side of Rescue" symposium in Colorado Springs in 1978 a set of general medical criteria for Rescue Teams were established. They are included here for study and analysis.

Rescue Team Medical Criteria

1. Each team must have an identifiable physician advisor.
2. Members of the team must be adequately trained in basic life support skills.
3. The team must have fluid replacement capability.
4. When needed, the team must be able to manage the hypothermic victim.
5. They must be able to maintain core temperature, control pain, control allergic reactions and monitor basic vital signs.
6. They must be capable of opening, establishing and maintaining an adequate airway.
7. There must be a continuing medical education program with emphasis on practical stress situational medical problem training.
8. There must be awareness and training for proper patient packaging and continuing patient care during evacuation.
9. The physiological changes inherent in the victim's environment during transport should be noted, understood and provided for.
10. The rescuers must be in condition to be able to perform effectively when they reach the victim.
11. The rescuers must understand how the environment will affect the patient.
12. The rescuers must be aware of the legal implications of their work.
13. The rescuers must record the details of emergency care given to the victim and maintain a continuous record of vital signs.
14. The rescuers must have adequate equipment, gear and medicines to manage the victim.
15. There must be an evaluative system for critiquing the care given by the rescuer — including self-evaluation, evaluation by others on the mission and by an outside source.

Introduction

- Review of basic emergency care and traumatic emergency care procedures
- Warning that the rescuer should not try to diagnose his own problems
- Study of 'Survival Limits' relating to terrain and environment
- Review of Topographic Anatomy
- One person in charge of the patient (3rd man on the wall, 7th man on the litter)
- Need for continuous communication between all team members.
- The legal aspects of the activites being conducted
- Need for tact, diplomacy and calm
- Sytems review:

Skeletal	Muscular	Nervous	Respiratory
Circulatory	GI- GU	Lymphatic	Sensory
Digestive	Metabolic		

- Synergistic Effects (multiple illness and environmental)
- Masking
- Acute Medical Syndrome — does victim look sick?

Pre-Planning

- Training and realizing that the **brain** is the best piece of equipment at the scene
- How will the DOA be managed — by whose instructions?
- Planning to prevent the rescuer from becoming a victim physical condition, fluid management, salt management, etc.
- Making sure priorities are straight —
  1. The safety of the rescuer
  2. The safety of the incident site
  3. Management of the victim
- The gear that must go in with each rescuer —
  Adequate clothing for the extreme
  Special gear (snowshoes, etc.)
  Food and water
  Heat and shelter
  Emergency care gear, equipment, medicines
  Rescue gear as needed
  ★ Stressing that EACH item above must be in sufficient quantity to serve ***both*** the rescuer ***and*** the victim
- Identifying and packaging the necessary EC gear — A tentative **minimum** list noted here for each rescuer —

Gauze	Tape	Scissors
Stethescope	BP Cuff	Thermometer
Cardboard	Medications	Rubber tubing
Notebook	Pencil	Towel

Sequence

1. Safety of rescuers and victim (consider victim or rescuer who becomes ill)
2. Life threatening problems
3. Shelter for the victim
4. Stablize the victim
5. Work-up (diagnosis)
6. Food and water as needed
7. Course of action —
   Continue with activity (search etc.)
   Allow victim to rest (recover) and continue
   Leave victim with others taking care of him
   Evacuate victim
   Emergency evacuation

Long Term Therapy

- Positive patient interaction with rescuers (empathy) (TLC)
- Site management (including investigation, if needed)
- Patient positioning (horizontal, vertical, side, etc.)
- Comments made in the presence of the patient
- Records of all vitals and actions taken
- Temperature management
- Fluid management (oral, IV) — loss monitoring-sensible, insensible, etc.
- Bowel movements 3-4 days

- Urine output — between 1 pint and 2 quarts per day
- Ambulation after several hours
- Food management - energy foods
- Salt management - 1 teaspoon per day
  For thoraccic problems - induce coughing every 2 hours
- Massage and hand contact
- Victim never left unattended
- Full explanation to patient of problem and what is being done
- Patient changes for better or worse after 24 hours

Diagnosis

Sequence —

1. Life Threatening
2. Trauma management
3. Work-Up
4. Vital Statistics — ID, relatives, etc.
5. Current problems — cold, shots, healing break, medications, illnesses, pacemaker, etc.
6. Medical History - illnesses, operations, injuries, allergies, heart condition, tonsils, medications, etc.
7. Family History - exposure, allergies, diabetes, epilepsy, etc.

- Pulse rate — at least 8 places
- Respiration rate
- Blood pressure
- Skin - general appearance - tension - color (cyanotic, jaundice) - texture - moisture - erruptions - swelling - hematomas - petachi
- Speech — clarity - accuracy - rapidity of response
- Mobility — paralysis
- Level of consciousness
- Pain — local, broad, dull, sharp, location, non-verbal pain reactions (watch problems relating to threshold of pain)
- Temperature - surface, oral, rectal (normal temperature variations) - 106°!
- Strength in extremeties
- Fluid loss — vomitus, diarrhea, urination, sensible, insensible.
- Tenderness
- Nausea
- Chills

Secondary work-up —

- Continuous evaluation of the skin — Acute Medical Syndrome (AMS)
- Head — trauma - pain
- Eyes — color - dilation - focus - how see movement - inflamation - pain - deposits - discharges
- Ears — hearing - pain - ringing - discharges
- Mouth — bad breath - pain - bleeding - peculiar taste - dryness - salivation - soreness - sores
- Teeth — abcesses - broken - pain - dentures (if firm, leave in)
- Nose — colds - sinus - drip - bleeding - dryness - blockage
- Throat — sore - swallowing - coughing - talking - swelling
- Neck — stiff - swelling - masses - pain - muscle tension
- Chest — pain - constriction - ribs - discoloration - chest sounds (8 places)
- Lumbar — direct, rebound, referred tenderness - pain - constipation - gas
- Neurological — convulsions - twitches - cramps - joint pain - shooting pain
- Extremities — feeling - color - mobility - symmetry

Total Body Management

- Adequate shelter (above and below patient)
- Mode of transportation — walk, carry, rush
- Management of victim struck by lightning
- Management of exhaustion
- Drug and poison reactions
- Cold water immersion (near drowning management)
- Patient packaging
  Rescue shock Syndrome (always carry rescued patient out)

Environmental Management

- Frostbite
- Part of the body frozen — rewarming problems in the field
- Hypothermia — no one dead unless warm and dead
- Prickly Heat — sweat glands clogged (cremes, etc.)
- Heat cramps — lack of salt and fluids
- Heat exhaustion — vascular dilation - normal temperature - faint, rapid heart
- Heat stroke — dry skin - rising temperature - metabolic system inactive — (COOL)

Psychological

- Actual or impending excitement states or depressive states
- Cerebral arterial sclerosis
- Psychoses:
  Organic — drugs, infection - slurring - tremors - personality changes (sedate - prevent injury)
  Psychogenic
  —Manic depressive - excitement to depression - unaware of it
  —Paranoia - guilt and failure
  — Schizophrenia - fantasy world
  Neuroses — States of anxiety - many of them with many levels - most common: Hypochondria - phobia - hysteria - depression
- Modes of identification, management and treatment

Shock

- Hemorrahagic (Traumatic)
- Neurogenic (Electric)
- Cardiogenic
- Allergenic
- Insulin (Diabetic coma)
- Respiratory
- Psychogenic
- Septic (infection)
- Metabolic (fluid unbalances)
- Hypovolemic (internal fluid loss)
- Warming — elevation of feet - fluid replacement - TLC - massage - medications

Long Term Trauma Management

- Open wounds — lavage - loose bandage - drain tubes - purient materials - watch systems: lymph nodes, redness - 100-101 normal - vaseline gauze - antibiotics - tetracycline - penicillin
- CVI's — survival good after 1 hour of care
- Fractures — position of normality - traction
- Head injuries — 15 minute vitals for 4 hours - ICP - use of mannitol
- Thrombophlebitis
- Burns — rule of 9's - water management (internal and external) - Thermal vs solar
- Psychological patient management

Head

- Headache — aspirin - empirin - diamox
- Fractures — vitals - do not replace dura

Cont. on page 22

• • •

BRINGING SEARCH & RESCUE TOGETHER IN NEW YORK

AN ATTEMPT AT REVERSING BURNOUT AND BOREDOM

MARILYN A. GREENE
1690 Western Avenue
Albany, New York 12203
(518) 456-0115

Although New York State usually conjures up visions of skyscrapers towering over congested streets, the truth is that the Empire State consists of over 90% rural and wilderness lands. The wilderness areas are predominately the Adirondack and Catskill Mountain Regions, which are highly recreational areas producing about 450 searches annually. The Adirondack Park alone is three times the area of Yellowstone National Park and equal in size to the State of Vermont. New Yorks' searches are coordinated by either the N.Y.S. Police, Environmental Conservation or the County Sheriff depending on the search location and agency jurisdiction.

In the Summer of 1971, the heart of the Adirondack Park Region was the scene of a massive search for nine year old Douglas Legg. This search was the largest in New Yorks' history with over 3,000 people having volunteered their time during the one month long ordeal. Douglas was never found, but from this tragedy developed over 30 volunteer search and rescue teams and specialized resources within the state government. These organizations began intense training programs to become proficient service providers in preparation for future searches. The New York State Federation of Search and Rescue Teams also emerged as an organization setting standards for member teams and providing a single call-out number for agencies in need of SAR resources.

Ten years later less than eight volunteer SAR teams remain active in New York and the number of their trained members is diminishing to a critical level. The common opinion for this steady decline in SAR participation is two-fold:

(a) Infrequent search call-outs makes regular training eventually boring and seemingly without purpose causing vital memberships to decline.

(b) In the absence of adequate searches, New York's geographic immensity prevents many teams from getting together to share skills and ideas thus preventing intra-team motivation in SAR.

98% of the state's searches are concluded successfully within 24 hours by the use of limited measures, however, some efforts are initiated late because the situation is not recognized as requiring a search. Many team call-outs are of this 'body search' nature with some services being requested two and three weeks after a person is reported missing. Falling into this category are certain missing youth and elderly who are presumed to have 'skipped' but are eventually found to have fallen victim to a field injury or illness. Although these situations can and do happen everywhere, based on the law of averages and human error, volunteers in SAR can experience burnout when their efforts to develop a lifesaving resource seem overlooked.

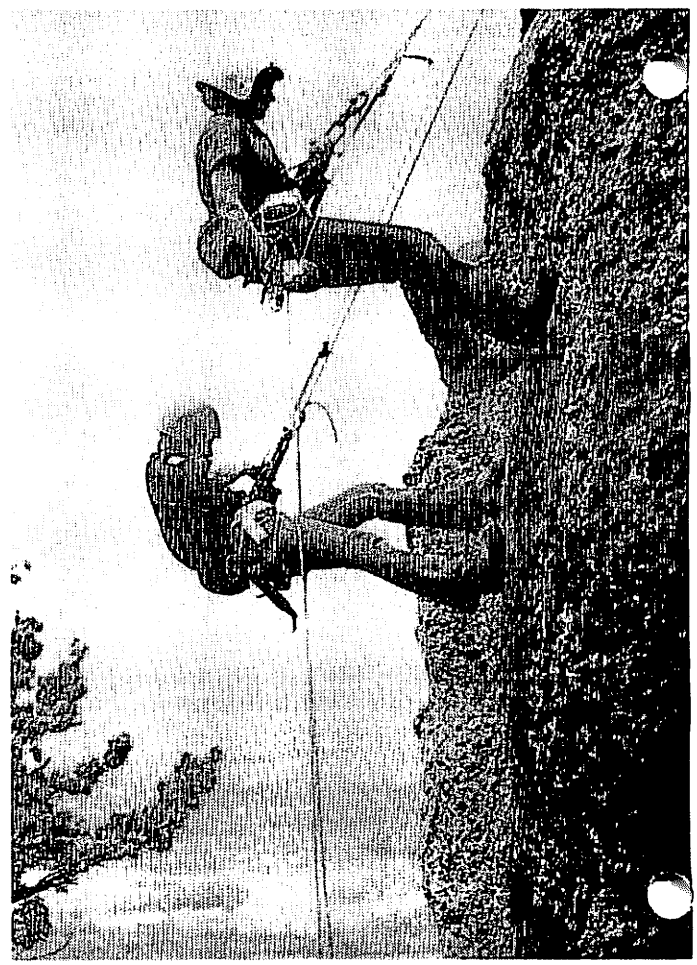
Burnout can occur under two situations: When the demands placed upon an individual exceed that person's ability to cope with them, and when continued efforts to achieve a goal are never rewarded with accomplishment.

Burnout is devastating to both the people who experience it and the industry that must pay for its efforts. IBM, for example, has been a forerunner in approaching the causes of burnout and have implemented programs to prevent or reverse its effects. Many industrial giants have followed this example and have invested millions of dollars in tension relieving measures such as on-site gyms and running paths as well as management programs to set attainable goals. But what is to be done about burnout among volunteers? The reason for approaching vocatic burnout is obvious, it costs money, but avocational burnout only costs theoretical dollars. ie: If volunteers are not available to perform a function then municipal employees will have to fill the void or it may be acceptable to perform the job less effectively due to the reduced number of trained personnel. The bottom line remains, however, that the volunteer himself must recognize and approach the problem of burnout if he is to survive in his chosen avocation whether it be SAR, volunteer fire or ambulance services or the countless other activities which depend on volunteer hours and support for their existance.

Recognizing the need to approach this problem within SAR services in New York State, David Ogsbury, the Search Coordinator for 76 Search And Rescue, has organized the second of a series of SAR Conferences. The conference goals are to acquaint the State's teams with each other, compare their SAR objectives and capabilities then discuss common problems and solutions.

The latest conference, (SAR-CON II) drew representation from people involved in Bloodhounds, SAR Dogs, Line Search, Underwater Search and Cliff Rescue. Discussions on each team's SAR capabilities and demonstrations of specialties were dramatic and informative. But, even with highly skilled services available for only a phone call, most teams expressed the same low call-out and burnout concerns.

When seeking the reason for burnout or infrequent search call-outs SAR teams must first take a hard look at themselves. Two questions must be answered with utmost honesty. (1) Is this team projecting the image of a professional and competent service provider? — and — (2) Is this team providing the agency with the resources it needs to do the job at hand?



Participants of SAR-CON II demonstrate cliff rescue techniques at the six mile long Helderberg Escarpment. The vastness of New York's rural lands are shown in the background.

SAR Dog Handler Don Phillips of the Adirondack Rescue Dog Assn. is caught during a field search with his partner Sam. A victim can disappear quickly in the forests of New York. This photo was taken in an area with very little ground vegetation.

As usual, questions give rise to more questions. New York has over 700 law enforcement agencies which employ approximately 62,000 officers. Depending on the location of a search, any one of those agencies or officers can become responsible for a search effort whether he has prior experience in that field or not. Although some agencies have trained search management personnel, (usually those covering extremely high loss areas), many agencies handle searches very infrequently and do not have the opportunity to develop SAR expertise. The latter agency group would require comprehensive field management services from the teams while the agencies with in-house SAR experience may require only that a team cover an assigned area. Therefore, the answer to the question 'are the teams providing the agency with the resources it needs' must be 'no' in a majority of search situations.

The problem of determining individual agency needs would be greatly simplified if there were a system within the government which would assign responsibility for searches to one statewide agency, whether it be the Sheriffs, Environmental Conservation or or the N.Y.S. Police. Also, one state appointed individual with the responsibility of overseeing all search activities would give the teams one contact point for making positive recommendations and for availing SAR resources to the agencies.

However, it is necessary for any team in any state to be able to function within the available system whether it be a single agency or a complicated system.

Recognizing the need to develop and provide 'full spectrum' SAR services to a majority of the agencies in New York, each team must admit its present limited ability to provide such a broad service and take steps to correct the problem. Presently, all New York State teams are specialists in varying fields, ie: Bloodhounds, SAR Dogs, Line Search, High Angle Rescue and Water Search, but no one team can fulfill the needed 'full spectrum' ideal. The solution is clear — the teams must develop a game plan for a mutual aid response system which will provide all of the specialties which are warranted for each particular mission. Such an undertaking will require cooperation and a blending of individual team pride into a mutual State SAR spirit. Through this platform it is hoped that the teams of New York can reverse the trend of burnout and boredom as well as providing improved services to New York's residents.

Each team left the conference with a clearer understanding of the wealth of SAR resources still available in New York State. All were encouraged at the potential benefits to the victim, to the agency and to each team that cooperative training, mutual field response and resource sharing can provide.

As one participate aptly phrased the feelings of the group, "burnout and boredom can effect anyone, anywhere and in any profession. But if we let Search and Rescue die in New York State, what will happen to the next Douglas Legg?" SAR

ALERTING

JERRY WELLMAN
840 E. 6th Avenue
Salt Lake City, Utah 84103

There's a common thread among people who join a SAR group, attend a couple of meetings, and then "drop out." It's always been a puzzle as to why someone will pay $25 to join a group to volunteer their time and expertise (or develop expertise for SAR) but then drift away. Yet SAR groups seem never to have enough people?

In posing the question both to former members of SAR groups and to "disgruntled" SAR group members, there were many reasons as to why they were inactive or disgruntled. But one common response was "lack of contact, and we got alerted on missions seldom if ever."

So I wrote, or called, several SAR groups in three states and simply asked for their "alert roster," hoping I'd get some kind of a list. From a dozen contacts, I got four lists. Repeated calls to several groups got no response and one group even told me it was none of my business.

(I hope I never have to call them for a mission!)

I then contacted a number of the Salt Lake County Search and Rescue Posse, who operate under the authority of the Salt Lake County Sheriff's office.

This Salt Lake County groups responds to a mission a week, perhaps more, and is there when you need them, seems to have plenty of members and lots of group enthusiasm.

The county group not only sent me their roster but called to explain their alerting was so important to the victim that they bought pagers and are paged through the sheriff dispatch.

The group also said they are keen on member contact and use phone calls, their radio frequency and personal contact to keep their members informed, alerted and trained.

I say that they focused in on the importance of having members respond to missions but keep interested in the group so that each mission saw seasoned members and not first-timers posing a risk to the victim and themselves.

I wondered how victim-oriented the other groups were that had no sure-fire way to get their people to a mission, and how effective they might be if "no contact" meant a high turnover rate among members and thus, little long-term experience.

How long can it take to put together an alert list and designate someone as the "alerting officer?" And what about taking 30 minutes to define how an alert will be conducted to ensure those needed at the scene get there first, but that other members are called so they don't hear about the mission on the 10 o'clock news and wonder why they weren't called.

Without a broad data base and with only my experience as a "group member" and the information from college classes on "groups," I would have to speculate those groups with little contact are inefficient. I would go further to guess those groups that are "member-oriented" are also highly victim-oriented.

As a SAR group with a public, legal or moral mandate to fulfill a SAR responsibility, it should be paramount that an effective way be established (and maintained) to contact a group's members, train them by communicating to them meeting times and places, and get them to a SAR scene quickly.

That "forgotten" member is perhaps the worst public relations a group can have — for he will remember how he was forgotten and how, perhaps, a group forgot about the victim.

An effective alert structure may not make a group proficient, but the more experience and dedication members get from missions can only point to ever-increasing victim orientation.

Take a minute now or at your next meeting to evaluate how effective your alerting is. Then, determine if you have given local authorities (and fellow search groups) a contact point for your group in case you are needed!

SAR

AN ALL PURPOSE RESCUE LINE

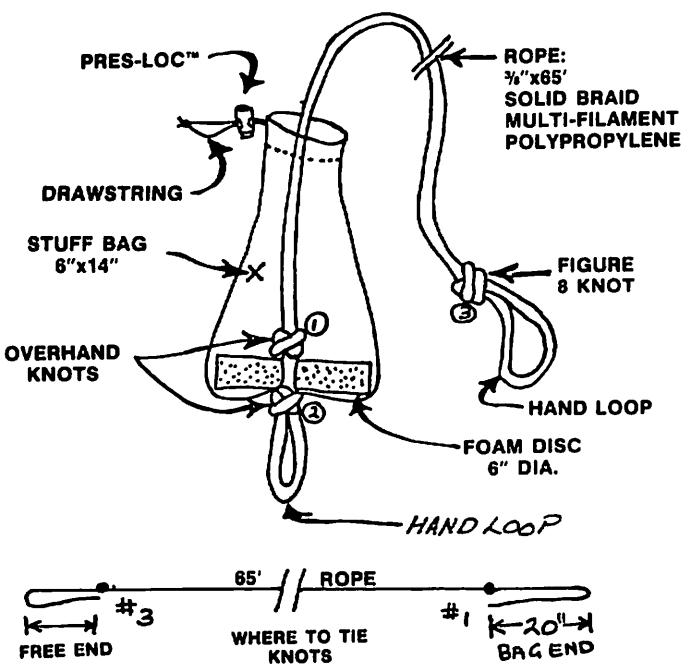
(that you can make yourself)

CHARLIE WALBRIDGE
Safety Chairman
American Canoe Assn.
230 Penllyn Pike, Penllyn, PA 19422

A victim in the water needs help fast. For a rescuer, the fastest and safest approach is to reach out to them from the shore with a throwing line. But long lengths of rope are difficult to handle. They require skill to keep from tangling; time to make ready, and considerable practice to throw accurately. Ring buoys have problems, too. They are only slightly easier to throw, and unless tied to a line, offer the victim only support rather than rescue. Line guns are effective, but use a very small diameter line which may lack the strength needed to be of help. In addition, the projectile can endanger the victim, and the apparatus is quite costly. But these were the alternatives . . . until now.

The concept of the throw line bag is not new. It was developed by the U.S. Navy during World War II for use in lifeboats in the open sea. But in the years that followed it passed into obscurity until Red Cross small craft expert Ray Miller uncovered it in Coast Guard archives. Realizing its potential, he made a few samples and began showing them off around the country. Within a few months the device was adopted by white water boaters, who had need of a compact way to carry a throw line. The idea spread to commercial outfitters, and from there to national agencies such as the Red Cross and Park Service as well as state boating agencies, police and fire departments, and rescue squads located across the country.

The bag in use is elegantly simple; just grab the hand loop which sticks out the opening and toss the bag at the victim. Most people prefer to lob it underhand, but sidearm or even overhand throws can be made if conditions dictate. With a bit of practice, most people can manage 50 foot throws, while a strong arm will be able to reach out 70 feet and beyond. To reuse, just stuff the rope back in the bag the same way it comes out. There's no need for fancy coiling or other elaborate time consuming preparations.



Fully stuffed, the bag can be hung in a place that's out of the way, yet easily accessible. It can even be used with a ring buoy; just tie the ring into the end of the rope, hold the bag, and toss the ring to the victim. The line will trail behind, allowing you to haul him in once he grabs hold.

One of the outstanding features of the rescue bag is that it's easy to make one for yourself. You'll need a length of ⅜" line, a heavy-duty 6"x12" round-bottom stuff bag, a 6" diameter, 1-2" thick foam disc, and a pres-loc fastener. The type of rope you use will vary according to application and availability. Polypropylene is preferred because it floats, but it is very stiff and difficult to use unless obtained in a multi-filament braided cord. Braided nylon is a good second choice. As to length, a minimum of 55 feet is required; allowing 5 feet for knots, this gives an effective reach of 50 feet. Most people will want to use 70 feet of line for added usefulness; greater lengths are difficult to throw so that the extra rope is probably worth it. Here's how to put it all together.

1. Cut a slit in the bottom of the bag about 1" long for the rope to stick out. Find someone with a sewing machine with a buttonhole attachment to finish the edges to prevent fraying. If this is absolutely not feasible, you can set an oversized grommet. If you go this route, cut a "spacer" of leather which will attached to the bag along with the grommet. The added thickne... this provides will help the grommet grip more securely.

2. Drill a hole in the center of the foam disc about ½" in diameter. The best material to use is 1" thick 6 pound density Ethafoam; styrofoam also works well, but breaks up and has to be periodically replaced. ¾" Marine Plywood works well as far as durability goes, but it's a bit tough on the person who gets on the receiving end of your throws.

3. Now you're ready to attach the rope to the bag. Make a 20" loop at one end and secure the end to the rest of the line with an overhand knot. Force the end of this loop through the hole in the foam, and through the hole in the bottom of the nylon bag. Tie an overhand knot tightly against the bottom of the bag to secure the rope, bag and foam together.

4. Holding the bag firmly in one hand, stuff the rope into the bag. Let the rope go through the hand holding the bag as you stuff; this will keep it from sliding backwards between pulls and allow you to move faster. Short strokes, with the stuffing hand kept inside the bag, work better than longer ones.

5. When you reach the end of the rope, make a 14" loop, and secure with a figure-of-eight knot. If you can't make the "figure of eight" work, an overhand knot is almost as good. Stuff the knot down into the bag, but allow the loop to stick out above the top. Pull the drawstring tight.

6. Pres-locs™ can be purchased at many well-equipped outdoor stores. Slip the drawcord through the opening in the Pres-loc™, then knot the ends so that it can't inadvertently come back off. Slip the Pres-loc™ securely against the bag to hold the opening shut.

The finished bag can be hung from the loop at either end. Keep it where it can be reached quickly when needed, or wherever you might otherwise use a throwing line or ring buoy. For those interested in going through the above steps, the bag can purchased complete for $24.50, postpaid, from Wildwater Designs, 230 Penllyn Pike, Penllyn, Pa. 19422 or for $26.50 from Northwest River Supplies, P.O. Box 9186, Moscow, Idaho 83843. Less expensive bags, which utilize a smaller diameter rope, are not recommended. SAR

LETTERS TO THE EDITOR

ntlemen:

On page 22 of the Summer, 1981 issue there is an article *"O.A.R. Introduces New 'Wide Coverage' VHF Band Radio Direction Finders for 1981"* pertaining to Model ADFS-320 VHF Band Automatic Direction Finder manufactured by A.O.R., a Divison of General Indicator Corporation.

I would like much more information pertaining to this article, including price, etc. and will appreciate it if you will furnish me either this information or the business address of O.A.R.

Harvey A. Morse
Springfield MA

Dear Harvey

Thanks so much for the note of concern on the Ocean Applied Research Radio Direction Finders. The point of contact for this product, which we forgot to include in our New Products Department, follows:

Mike Duke, Marketing Manager
Ocean Applied Research Division of
General Indicator Corporation
10447 Roselle Street
San Diego, CA 92121 Tel. 714/453-4013

I am sure Mr. Duke can assist you in your quest for price data. *Ed.*

February 18, 1982

Thomas J. Von der Emrse, Ph.D.
Wright State University
c/o The National Management Assn.
2210 Arbor Blvd., Dayton, OH 45439
/ 294-0421

Dear Dr. Van der Embse

As the publisher of *Search and Rescue Magazine* I was startled to read a negative connotation of "rescue" in the 4th course of your First-Line Supervisor Program. It is distressing to discover that your job may produce a feeling of No-Okness within your victim.

How important is it for the rescuer to make the rescuee feel OK about this lifesaving situation? In our business, we say that survival is 10% equipment, 10% experience and 80% attitude. Does a person who is rescued lose a bit of his own self esteem and desire to live? Is a Not-Ok rescue contributing to the patient's trauma or shock? Should search and rescue strive to always be a win-win situation?

The implication to me of your writing is that the rescuer must take steps to perform nurturing rather than rescuing as a helping person (parent). Here nurturing and helping are referencing the subject text and diagram from your 1st module, page 1-21, last paragraph:

> On the helping (parent) side, a supervisor might nurture employees, especially in the training phase, and provide assistance to them in learning their tasks. There is a very thin line, however, between nurturing and controlling, over which the supervisor might step and rescue the employee. This may actually stifle the employee's development. If the supervisor comes in and says, "Here, let me do this for you," he is probably rescuing the employee. If on the other hand, he says to the employee, "I see you may be having some problems with this operation. Do you want me to demonstrate it for you?" That would be a transaction on the OK side of the helping parent. In this case, the employee sees that you're not going to take over and do the work for her, but rather help her develop her proficiency so that she can do it herself.

I might extrapolate this idea to suggest the following preferred help in a search and rescue (SAR) incident:

1. Make the victim believe it was their own actions which culminated in their now safe situation.
2. Compliment the victim on his or her courage, resourcefulness, survivalbility, adaptability, and coolness in the face of dancer.
3. Communicate to the victim by action, touch, and verbally that you are very positive about them and their situation. This is important even if the victim may seem unconscious.

Finally, I would appreciate any additional references that will further enlighten me on this subject. In particular, I would very much like to hear from you on this subject.

Yours truly,

Dennis E. Kelley, Publisher
Search and Rescue Magazine
P.O. Box 641, Lompoc, CA 93438
Tel. 805/ 733-3986

March 5, 1982

Dear Mr. Kelley:

Thank you for your letter and your comments. It appears that there may be some confusion about the word "rescue" in my First Line Supervision Program. I was referring to "rescue" in a psychological sense and not in the sense that you would use it in your journal.

What you deal with in your journal would normally be referred to as a legitimate rescue. A psychological rescue would occur when a person steps in and does something for someone else without a request for help and regardless of the ability of the other person to do it themselves. A good source for this is the book *Born to Win* by Muriel James and Dorothy Jongeward. It gives the transactional analysis view and definition of Rescue. You will note that the psychological rescue uses a capital R to distinguish it from a life saving legitimate rescue. The source that I mentioned will provide this information.

Sincerely,

Thomas J. Von der Embse, Ph.D.
Chairman, Wright State University
Dayton, Ohio 45435

SAR

ACCIDENTS AND RESCUES IN THE EUROPEAN ALPS

ROBERTO IVE
Salita Montanelli 2,
34123 TRIESTE — ITALIA

The Alps are a very serious and severe test for everybody who is called to come to the rescue on mountains.

They are easy to reach, with a good system of roads, trails, cableways; they offer a lot of people the opportunity to prove the adventure spell in a very short time.

Very often people are not technically prepared and for this reason during the last year the Alpin Rescue Corps of France, Italy, Switzerland, Austria and Yugoslavia have been involved in more than 25,000 operations.

The only encouraging datum is that the number of accidents is stationary, according to the work of preventive information and to the technical improvement of the Rescue Teams.

In all the Alpin countries, the Rescue Teams are formed by soldiers, mountain guides and voluntary soccourers.

The voluntary soccourers are all climbers of well known capability and technical knowledge even if they are not professionals. They have learned the most modern rescue techniques, both on rock and ice, after a series of free lessons.

About 75% of rescue operations are realized by them. About 55% of the accidents are not in direct relation with the climbing activity; they happen to people with a very little or no knowledge at all of the Alpin environment, with no training and without the right equipment. The 35% of the incidents are from mountaineering, 9% from sky out of trail and only 1% from speleology.

In Italy, where about half of the Alpin chain lies, a stathistic schedule about the origins of the accidents has been prepared:

	Year 1979	Year 1980
Fallen on a trail or easy ground	16.17	15.10
Lost of Direction	15.42	14.84
Lost of hold	8.50	10.87
Fallen on ice or snow	9.42	9.66
Illness	7.67	8.02
Bad weather	10.92	7.42
Fallen on sky (not in turistic area)	3.42	5.09
Delay	1.75	4.92
Fallen of Stones	3.67	3.28
Inability	6.41	2.42
Fallen in a Crevasse	1.00	0.26
Other Reasons	13.07	11.48

The seriousness of the accidents is high: wounded or dead people are the protagonists of the 80% of the operations.

From the experiences of the last years it became clear the necessity to operate with an extreme rapidity.

For this reason the rescue teams are usually of few men, equipped with the usual climbing gear. Passing time, the use of steel cables or heavy equipment is becoming uncommon even in 1979 on Laliderwant North Face, in the Austrian Alps, a successful operation used a 2200 feet steel cable with no additions.

On ice, in case of fall into a crevasse, the pincers and the nets are always less used; the rescue techniques are always more improving the use of easy gear in common use to all the climbers.

The Mountaineering Schools of all the Alpin countries give their teachments some lessons about self-aid. So, anybody who gets in difficulty, has the opportunity to know the correct use of the normal gear in case of trouble.

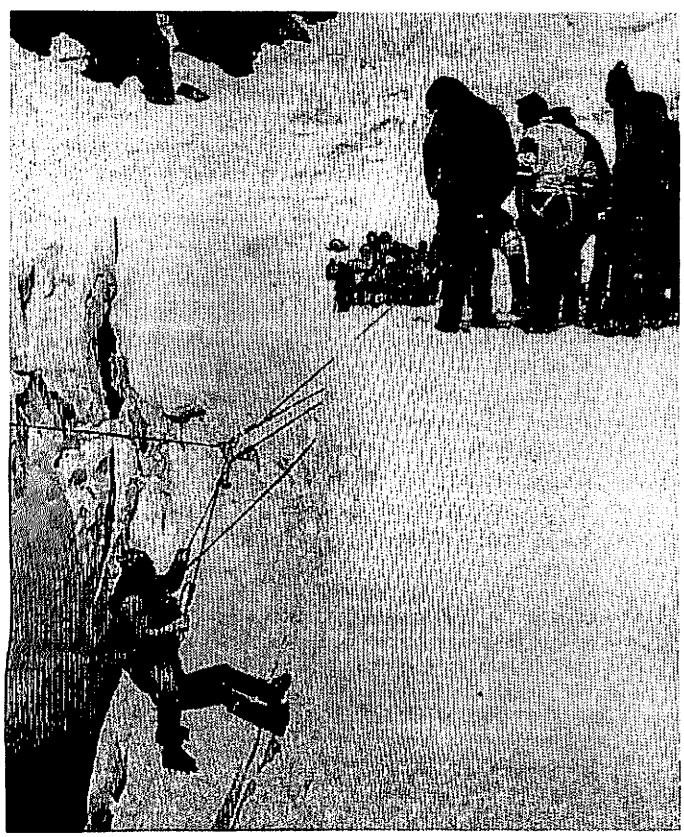
There is a big increase in the number of dead due to avalanches. This increase is in relation with the improving number of out of trail skiers.

About speleology, the high level in the techniques and in the organization of the rescue teams is well known. This ability has been attested, also out of the caves, in civil protection operations, where they have operated with a big success.

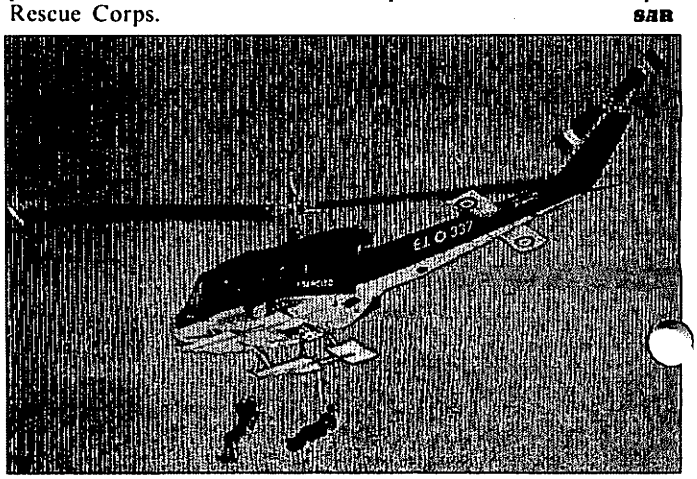
Now, the speleological explorations are realized only with the use of ropes; ladders are no longer used. This means more wear and tear but, on the other side, it means more lightness, speed, and facility of use.

It is difficult to anticipate the future trend of the accidents from the observation of the statistic data. We can say that, even if the number of people climbing in the Alps is increasing, the number of accidents is steady. Partially this is due to the good work of prevention and information of the Alpin Schools and of the Alpin Rescue Corps.

SAR



A rescue operation in the Mt. Blanc area without stretcher



NEGLIGENT SAMARITANS ARE NO GOOD

Author Unknown

A question frequently asked in emergency care courses is "What liability do I have?" Correct adice can be given to participants and stengthen the will to get involved.

In the past ten (10) years, the framework of emergency care has seen more changes than any other field of medicine. The days of the "scoop and swoop" ambulance service are gone in most areas. Until recently the training of ambulance service personnel was minimal. Training programs for the public were in their planning stages.

Several studies now complete, allow an evaluation of the effect of emergency are by citizens. In Seattle, Washington we see a 51 percent increase in the long-term survival of cardiac arrest cases when cardiopulmonary resuscitation (CPR) is initiated within the first two minutes. The majority of these cases involve the citizen bystander.

It is important to note studies, emphasize the need for updating and annual receritifcation of skills.

Rapid implementation of definitive care with advanced life support should be available within eight to ten minutes of cardiac arrest. Long-term survival hinges on rapid assessment, basic life support techniques and implementation of advanced life support treatment.

Constant changes in application of emergency medical technique provides potential for malpractice. Minnesota, like all 50 states, has a form of legislation commonly referred to as the Good Samaritan Law. The Minnesota law was enacted in May of 1971. The Minnesota Good Samaritan Law (MSA 604.05) empts certain persons from civil liability for treatment rendered at the scene of an emergency or while transporting victims. The law does not apply to situations within health care institutions or offices of licensed health care professionals. The provider of care must act "in good faith and in the exercise of reasonable care."

Recently several malpractice cases against emergency care providers have been reviewed. The cases involve the same legal theory — negligence.

Instructors in cardiopulmonary resuscitation (CPR) are aware of changes in technique and improvement of methods. Awareness of the legal profession in emergency health care is apparent in many new cases involving trained and untrained responders. To better understand the law and prevent malpractice, one needs to understand the jurisprudence system. A tort is a civil wrong. This loss can include forms of property damage or personal injury. Negligence is needed to support the loss. The party claiming a loss must prove negligence and damages.

Minnesota has a comparative negligence law. Each party involved, is assessed a percental of negligence and damages are awarded accordingly. Emergency care personnel operate under a "Do No Harm Theory." Procedures and principles of CPR are designed to allow us to do what the victim cannot do. Procedures in all aspects of emergency care need to be followed. A current malpractice case illustrates the point well. A 42 year old man arrived home complaining of indigestion. He denied symptoms for two hours and then complained of chest pain that radiated into his left arm. He was also experiencing nausea and appeared ashen gray in color. His concerned wife called the local emergency number. The first responder was an off duty firefighter who overheard the call on a police scanner. The firefighter, trained to the level of crash injury management, indicates that the course included eight hours of basic cardiac life support. This training was to the standards of the American Heart Association. The firefighter was taught by the training officer of the fire department and received certification. The firefighter assessed the patient and confirmed the wife's observations. The diagnosis was a possible heart attack. The firefighter loosened the patient's clothing, made the man comfortable and monitored the pulse. No other equipment was available.

A police officer arrived with positive pressure and straight flow oxygen equipment. The patient was placed on oxygen by nasal cannula of four to six liters per minute. An ambulance was enroute. The patient complained of severe chest pain and lost consciousness. The police officer and firefighter placed the patient on the floor. The firefighter kept the airway open and oxygen was continued. The police officer testified that he obtained a radial pulse on his arrival that was "strong and regular." He recalls that he rechecked the pulse at least once and found no change. When the patient was placed on the floor, the police officer states it became more difficult to monitor the radial pulse. The pulse became weak and irregular. The officer monitored the pulse by placing two fingers over the carotid artery. The pulse became weaker but was still present. The officer, concerned about the change in pulse, began chest compressions. Two person CPR was performed for four to nine minutes. Paramedics and the ambulance service arrived. The patient was in total cardiac arrest confirmed by monitor. An intravenous line was established and the victim was defilbrillated once CPR was continued. Medications were administered and a faint pulse was obtained. Blood pressure was barely obtainable. Pressures were eventually unobtainable and after vigorous resuscitative efforts the patient was pronounced dead.

An autopsy was ordered by the local medical examiner. One fact is confirmed by all present at the scene. The persons performing CPR agree that the proper hand position was maintained during chest compressions. One of the paramedics is a CPR instructor. He states that the two individuals doing chest compressions used excellent skills and verification techniques.

Investigation of the man's death began with a review of the autopsy results. There was evidence of a recent myocardial infarction. There was a laceration of the liver with approximately 1,000 cc (2 units) of blood within the abdominal cavity.

Based on the facts given, what would your assessment of the situation be? Has medical malpractice been committed? Who is responsible for the victim's death.

A cardiologist reviewed the autopsy material, interviews with the paramedics and first responders. Electrocardiograms (ECG) made at the scene and the ambulance service reports were reviewed. Based on the past medical history of the patient, the cardiologist feels that the myocardial infarction should not have caused death. The doctor feels that basic and advanced emergency medical care was readily available and resuscitative efforts should have been successful.

The pathologist reports that the liver damage was as a result of the chest compressions. He feels that the blood loss, while significant, did not cause the patient's death.

Investigation of the incident shows that personnel did not follow the techniques that they were trained to perform. Improper medical care was given. It is the feeling of the medical experts that the cause of death was directly related to the improper cardiopulmonary resuscitation that was done. Established procedures of CPR were not followed.

So who gets sued? The firefighter and police officer were from different communities. The police officer, his chief and the department training officer were named as defendants along with the community that employs them. The firefighter and his community were also sued. Had the firefighter followed procedures as trained, he would not have let the police officer begin CPR on a victim with a pulse.

Put yourself in the place of the patient. You have just suffered a severe heart attack. Basic life support personnel are with you and oxygen is being given. Your damaged heart is still pumping when someone starts to interfere with the rhythm. In doing so, your liver is damaged and you lose two pints of blood. The combined effect of the chest compressions, blood loss and associated cariogenic shock are felt to be the cause of death. A law suit could easily have been prevented. Of more importance, a life could have been saved.

It is important to utilize our training to the fullest. We must emphasize to our students that we only function at the level of training that has been achieved. We must follow procedures that have been learned. There has been recent involvement with instructors in medical malpractice cases. If you teach correctly and adhere to procedures, you should have no problems. I suggest that we look at our skills and adhere to procedures. Demand that students achieve the level of training that we are offering. SAR

STANDARD MAP LOCATION IDENTIFICATION SYSTEM

JOHN L. WEHBRING
840 East 6th Avenue
Salt Lake City, Utah 84103

The Problem

An essential requirement of most search and rescue operations is the ability to identify a precise location on the earth. The reasons are obvious: plotting search crews, directing air drops and helicopter pick-ups, spotting victim location, and more. The problem occurs in attempting to describe, in words, that location.

All rescue teams have worked out procedures for identifying location among themselves. The only time conflict arises is when they work with other agencies who 1) are not experienced in map work, 2) use a different system, or 3) are not familiar with the rescue team's operations. In some cases (air search, for example) other agencies have primary organizational responsibility and direct MRA units using their system.

The optimum method of overcoming this problem would be:

1. Have everybody involved in search and rescue adopt one uniform system.
2. Have everybody learn all systems used.

Neither of these are practical, of course. For one, there are so many agencies involved in search and rescue, each with an entrenched system, that it would be virtually impossible to have them switch to a uniform system and that might not fit their particular function. Each system is practical in its own context. Secondly, there are so many individuals involved in search and rescue, some of whom are new, many of whom are only involved for a short time, that they could all not learn all systems.

On November 27, 1965, MRA adopted a Uniform Map System. A few years ago the Board appointed the Map Uniformity Systems Committee to implement the system and to continue liaison with other agencies. On November 25, 1972, Chairman Asa Ramsey submitted a report with recommendations that stressed the inherent difficulties with the system. He recommended that latitude and longitude be used. No action was taken. The present task is to re-evaluate the entire system and make a recommendation.

Location Identification in Mountain Rescue

Mountain rescue operations assume additional constraints on the problem of location identification. Most ground search operations are confined to a relatively small area, areas having physical features but few geographic names. Maps are often a problem — the most commonly used being the U.S. Geological Survey maps at scales of 1:62,500 (about 1"=1 mile) and 1:24,000 (about 1"=.38 mile). These are excellent maps but are not always available or the most commonly used. Forest Service, local government, other agencies, or even road maps are sometimes used. Field crews sometimes must operate without any maps at all. Some rescue teams, operating in unfamiliar areas, must purchase or acquire maps after a search operation begins.

A very important consideration in selecting a standard map locator system is the ability of a field crew to utilize a map under difficult conditions. Search and rescue operations rarely are conducted under ideal conditions. It may be raining, snowing, sleeting, or the wind may be blowing too hard to hold a map still on the ground. The crew may be standing knee-deep in water or perched on the side of a rugged mountain. Night searches obliterate familiar landmarks. Orienting a map is a problem under these conditions, reading a compass is even more difficult.

Because of these limitations, the overwhelming preference is for the simplest method of location identification — by reference. In six years of mountain rescue activity the writer has never used any *other method of field location*, except in training. Maps may not even be needed if the area is well known. Where a map must be consulted it can be read standing up, without orientation, and even without unfolding it all the way. Radioed descriptions are almost always understood by base. This simple method will, we feel, continue to be the primary method of describing location from a search field crew to base.

The problem arises, as mentioned previously, when trying to describe the location to other agencies not using the same map or where a lengthy spoken description is confusing or difficult to transmit. In our experience this nearly always occurs when attempting to describe a location to airplanes or helicopters. A secondary instance may be when notifying local law enforcement authorities or the news media, neither of which may have the proper topo maps. Sometimes this difficulty may be overcome by using reference points well known to any local person. It is our experience that the reference system is the most widely understood method in use anywhere.

When a mountain rescue team must resort to a coordinate method it faces a problem. It must realize that it is trying to notify the ultimate receiving agency of its location, therefore it must know that that agency understands and uses the selected coordinate system. For this reason the local mountain rescue unit must, prior to going on an operation, become familiar with the system used by any agency with which it is likely to deal, whether this is the Forest Service, Park Service, Coast Guard, military, Sheriff, CAP, or private helicopter service. The best method is to work *with* these agencies, using their method rather than trying to convert them to another system.

Aerial Search and Rescue

Since the most common for selecting a coordinate system is to identify a ground location to air units, the system should conform to their navigation methods. It may be useful to review the use of aircraft and the division of authority in search and rescue. In general, the local law enforcement authority in the area is responsible for the search or rescue. It can utilize its own capabili., volunteers, or request other governmental assistance. We have found that in the majority of mountain search and rescue operations aerial support is provided by local government through sheriff or fire department helicopters, contract helicopters, Sheriff's Aero Squadron, or CAP. Only the CAP is a branch of the Federal government (by statute). Many rescue teams regularly use Army, Air Force, or Marine aircraft.

Air search is a divided responsibility. Lost military planes, and civilian planes presumably, crossing county or state boundaries, are the responsibility of the U.S. Defense Department, which is assigned to the Air Force. The National Search and Rescue Plan was established basically to locate missing aircraft. Because ground units frequently enter air search operations they were also integrated into the plan. The Mountain Rescue Association felt that, since its teams were involved, it would be better to adopt the standard system then being proposed and to refine it for ground search use.We will examine the problems incurred later.

There are two basic ways to identify a spot on the ground: by reference to known locations and by the intersection of grid coordinate lines.

Reference Systems

System 1. REFERENCE BY NAME

The easiest way to identify a location is to refer to its name. If a location has a name (or number) which is known or recognized by the receiver, even if he must refer to a map, he can precisely identify it. Examples: 1234 Main Street, Mt. Laguna, Fish Creek Ranger Station, Scissors Crossing.

Advantages:

1. Simple.
2. Very accurate.
3. Does not always require map, does not require compa:
4. Reference maps may be dissimilar. Can use other map. than USGS.

Disadvantages:

1. Both transmitter and receiver must know location by name or have map with location indicated.

System 2. REFERENCE FROM KNOWN LOCATION

This system is the most frequently and commonly used by mountain rescue teams — and by most other persons. It is actually a logical extension of System 1. It is used when the location to be identified does not have a name. Very simply, nearby points are identified and the desired point is identified as to its relationship to the known point. Usually this is done by indicating direction and distance. A variation is to use non-physical reference points such as political boundaries, section lines, or contour lines found on the map. Example:

Two miles north of Saddle Juntion.
500 Feet up Switzer Creek from the Highway 27 bridge.
Halfway between Caramba and Laws Camp.
Where the 8500 foot contour intersects the boundary between Sections 10 and 11.

Advantages:

1. Simple.
2. Accurate, depending upon care taken.
3. Does not always require map and compass, but usually it is preferred to have a map for reference.

Disadvantages:

1. Both transmitter and receiver must know reference points or have same map.
2. Reference distances and directions must be accurately measured.

System 3. TRIANGULATION

Triangulation is a reference system where back azimuths (reverse compass bearings) are taken from the desired point to two known points at nearly a right angle with the desired point. Compass bearings are normally given from magnetic north when plotting approximate location, from true north when accuracy is required. The azimuths should be reported as being ***from*** the known points to the desired location, e.g. "We are at the intersection of 95 degrees magnetic from Toro Peak and 210 degrees magnetic from Rabbit Peak." Triangulation can also be used by referring to an azimuth and distance from a known point, e.g. 85 degrees true from Toro Peak, distance 5 miles.

Advantages:

1. Useful if reference systems are difficult to use because of lack of reference points.
2. Reasonably accurate, if carefully done.
3. Can be plotted on a variety of maps if known points are used.

Disadvantages:

1. Requires experienced person with compass, clear view of points, easily recognized points, and very careful measurements. A sighting compass is almost required for precision.
2. Always requires compass, usually requires map. Sometimes compass can be affected by magnetic fields.
3. Sometimes best reference points are off the map.

COORDINATE SYSTEMS

Any coordinate system employs two imaginary perpendicular lines intersect at or near the location to be described. Coordinates are laid out as parallel horizontal and vertical lines superimposed over a map. They form a gridiron-like pattern so are often called grid coordinates. There are many coordinate systems in use, nearly all of which utilize North-South and East-West lines.

The earth is spheroid, therefore any mapping system which attempts to portray a spherical surface on a flat two-dimensional plane will have distortion. Various methods of compensating and minimizing this distortion while still having a readable map have been devised. They are called map projections. Rather than describe them we will say that the most commonly used is called Universal Transverse Mercator. (USGS index maps and the aeronautical charts use a variation called the Lambert Conformal Conic Projection.) On the maps used in mountain rescue work distortion is minimal and the coordinates account for it.

Generally, the coordinate lines themselves are numbered or lettered; in some systems the *area* bounded by four coordinate lines is numbered or lettred. A location can thus be described by stating the closest coordinate lines which are perpendicular to each other OR by stating the smallest area numbered by the system in which the location is situated.

Advantages (all coordinate systems)

1. Number or letters are used to describe locations, shortening and simplifying the transmitted message.
2. System is standardized for all areas covered.
3. Depending on refinements, can be very accurate.

Disadvantages (all coordinate systems)

1. Coordinate systems must be understood by the transmitter receiver.
2. Coordinates must be accurately plotted.
3. Nearly always requires the same map or map system.

System 4. LATITUDE AND LONGITUDE

Latitude and longitude is the most universal, widely used, and accepted coordinate system. It divides the spherical earth into two sets of lines, one running north and south through the poles (longitude), one running east and west around the earth beginning at the Equator and continuing in diminishing concentric circles toward the poles (latitude). There are 360 degrees of longitude, 0° and 360° being at Greenwich, England. Latitude is measured from the Equator (0°) to the poles (90°).

Each degree of latitude spans about 66 miles; since longitude lines are widest at the Equator and converge at the poles their distance varies. In California they are about 69 miles apart. Each degree (°) is further divided into 60 minutes (′), each minutes into 60 seconds (″).

To describe a location, draw a vertical line from the point to the map border. Find the nearest longitude indicated, then, moving toward the left, calculate the precise location using minutes (and seconds if they are needed). Do the same for latitude by drawing a horizontal line to the map border and measuring up. A description might be transmitted: "117° 2′ 36″ by 32° 40′ 18″." At this accuracy a location less than 100 feet square can be described.

Advantages:

1. Well established, accepted, universal, understood by almost all.
2. Can be very accurate.
3. Nearly all maps show latitude and longitude.

Disadvantages:

1. Usual disadvantages of any coordinate system.
2. Sometimes people forget which way to measure to calculate the precise location, or forget that degrees are divided into 60 minutes and minutes into 60 seconds.

System 5. MILITARY GRID REFERENCE SYSTEM

The Defense Department has adopted a standard system based on a refinement of latitude and longitude. To simplify, letter designations are used to identify the gridded *areas*, down to a map 100,000 meters on a side. From there, overlay grids breakdown the area to 10,000 meters, 1,000 meters, 100 meters, 10 meters, and 1 meter, using numbers. A typical military designation would read PZ 51031-72468. In some cases, the larger areas (first numbers) are dropped where they are not indicated on the map. Numbers are read **right** and **up.**

Advantages:

1. Simple and accurate.
2. Used by most military services.

Disadvantages:

1. **Requires** that map have grid coordinates drawn on the map or an overlay be used. Military maps have these grid coordinates or the overlays. This is nearly impossible with mountain rescue maps. USGS maps have tick marks on the border but they are generally not understood.
2. Measured in meters, which is not generally understood in the United States.

System 6. GOVERNMENT SURVEY (Township and Section)

In the nineteenth century the U.S. Government set out to survey all the country. It established a number of fixed, accurate lines called baselines from which these surveys could be made. In California, for example, there are three of these baselines, one each in Northern, Central and southern California. Baselines are named for a nearby geographical feature.

Continued

STANDARD MAP LOCATION I.D. SYSTEMS — continued

To be complete, each of these points is made up of an east-west line, called a baseline, and north-south line, called a meridian. In Southern California all areas are measured from the San Bernardino Baseline and Meridian (SBBM).

From there the land is divided into north-south lines, six miles apart called "ranges" and east-west lines, also six miles apart called "townships," both numbered consecutively from the SBBM intersection. Areas between the intersection of these "ranges" and "townships" are called "townships." The standard township is six miles square and contains 36 square miles.

Each township is then divided into 36 sections, each one mile square. Each section can be further sub-divided into quarters, each quarter into another four quarters, etc., until a very small area is described. In mountain rescue work, sections are usually used to describe the one-mile-square area. Section lines and numbers are included on USGS maps.

To be accurate, a radioed location description should include township, range and section, example: T 18 S, R 2 W, Section 10, OR, to spell out, "Township 18 South, Range 2 West, Section 10". This one square mile area is usually sufficient to direct aircraft; where further identification is needed a reference system may be used.

Advantages:

1. Easy to find on topographic maps and Forest Service maps.
2. Relatively simple to use.

Disadvantages:

1. Not as accurate as other methods for pinpointing location.
2. Not on aeronautical charts and some other maps.
3. Not useful out of U.S.
4. Not understood by some people.

System 7. STANDARDIZED SECTIONAL AERONAUTICAL CHART GRID AND IDENTIFICATION SYSTEM (SACGIS)

This sytem has been adopted by the USAF Rescue Centers and the Civil Air Patrol. It is not printed on any maps or charts. The system is intended to be used primarily in air search. As revised January 1, 1971, the system uses the Sectional Aeronautical Charts (scale 1:500,000) as a base. Each Sectional is divided into grids based on the existing 15' USGS topographic maps. The grid guadrangles are numbered consecutively from left to right. This system requires that each agency acquire its own aeronautical charts and plot the grid lines from a master.

System 8. MRA UNIFORM MAP SYSTEM

This is a refinement of System 7. It uses the USGS maps numbered in System 7, then locates points on these maps. Each map is divided into four quadrants. lettered as follows:

A	B
C	D

Points are measured horizontally, then vertically from the nearest corner of the map. Distances are measured in miles and tenths.

Advantages:

1. Integrated with SAGGIS system.
2. Accurate to one-tenth mile.

Disadvantages:

The combined SACGIS - MRA system is extremely complicated and difficult to set up and use. It appears that it is rarely used in actual operations by mountain rescue units except during air searches in some parts of the country. The main problem seems to be that the system is fine for air search but not for mountain ground operations. Some specific criticisms follow:

1. Aeronautical charts vary from area to area. Some overlap, causing problems in duplicated areas.
2. Although there is a standard system for numbering, each agency must draw grid lines on its charts and number the sections according to a master map.
3. Each USGS map must also be numbered. This can usually be done before an operation, however where maps are bought and distributed during an actual operation they must also be numbered. USGS maps (now named) are the process of being assigned numbers, however ma teams still have the old, unnumbered maps. These numbers, of course, conflict with the SACGIS numbers but are similar to the Civil Air Patrol's Standardized Latitude/Longitude Grid System — their secondary coordinate system.
4. Field units must use 15' topo maps (or 7½' maps, if they are available). Many National Parks are on "odd-ball" scaled maps. The system also precludes the use of other kinds of maps that might be in common use. It is virtually impossible to use other maps with this system.
5. The SACGIS system is based on 15' grids. Many teams use 7½' maps. In this case each 7½' map represents one quarter of the 15' map's area and must be lettered A, B, C, or D. This is sometimes forgotten. Field crews must be careful to always measure from the **APPROPRIATE** corner, ***not*** from the corner nearest the location. For example: on a 7½' map with an "A" designation, the coordinate must always be measured from the upper left corner, for B it is the upper right corner, for C lower left, and for D lower right. This is very confusing because crews are trained with 15' maps and will usually measure from the nearest corner. It may also require measuring a distance as long as 22 inches (where the location is at the diagonally opposite corner.).
6. The map must be opened all the way, placed on a level surface, and the distance measured. In the field this is extremely awkward, particularly if it must be done frequently.
7. Measuring the distance in miles and tenths is also a problem. USGS 15' maps are at a scale of 1:62,500 or about 1"= slightly less than one mile. This difference is enough to create a sizeable error, especially when trying achieve an accuracy of .10 mile. 7½" maps are at a scale o. 1'=.38 mile. Therefore, a ruler cannot be used to measure the coordinate. The field crew must use a substitute method for transferring mileage shown on the indicated scale on the bottom of the map to the map itself. This is usually done by breaking a stick the proper length shown on the scale and comparing it to each coordinate the distance. At best it is awkward and it is probably inaccurate as well. Some people forget and report in inches anyway.
8. The probability of forgetting any one of the crucial steps (such as measuring horizontally first, or remembering to include an "O" where an even miles is measured) is high unless all members are well-trained. Other systems are much simpler. It is also possible to mix up numbers when calculating the coordinates and transmitting them.
9. System cannot be used outside the United States.
10. Many rescue teams do not use or understand this system locally.

Editor's Note: Another disadvantage is the inconsistency in which the quandrants are labeled. According to RCC Scott AFB the quadrants are now lettered **clockwise** in this manner . . . . .

A	B
D	C

System 9. OTHER COORDINATE SYSTEMS

Many states have adopted their own system of grid coordinate. The California Coordinate Grid System, for example, uses 1000 yard ticks, shown on USGS maps. The World Geographic Reference System (GEOREF) is being replaced by the Universal Transverse Mercator. The World Position Referencing System is a variation of longitude and latitude. And, of course, some maps have their own coordinate system.

This report recommends that, when a coordinate system . needed, longitude and latitude be used. It is the only system in common use all over the world and nearly all pilots and agencies understand it. It is included on almost all maps having any kind of coordinate system. It is simple. Its operational disadvantages are no worse than the MRA system. SAR

Motivation — continued

individuals, yet keep the team doing important tasks (not busy work) that are fun and/or productive. The team should move into action by the needs of the organization. When the members have to be directed, the leader must be specific and to the point. Each member should have a say in team policy and programs. The success of the team must be shared by each and every individual. If all of these ideals are adhered to, the organization will remain growing and active for all concerned.

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SAR

To keep members of the Santa Barbara County Sheriff's Search and Rescue Team - Lompoc motivated, we incorporate our training into as many hands-on activities as possible. First aid skills are kept proficient by volunteering our services at local events where emergency medical personnel would be required, i.e. Moto Cross Races, Rodeos, Fairs, etc. This also generates funds.

We utilize our backpacking expertise by taking kids from different agencies (Girls/Boys Clubs, Probation Dept., Family Services) on trips into the backcountry. We teach them about the equipment they're using, proper backpacking procedures, backpacking etiquette, and preventative SAR. (Note: We have found local merchants very cooperative when it comes to discounting food rates for such causes.)

Lompoc SAR stresses preventative SAR whenever possible. We gave one presentation to a local Jr. High School and much to our surprise, the student body presented us with $50.00. from their own funds. Participating in Public Service Awareness programs, sponsored by local shopping centers and merchants, is a good way to get your message heard.

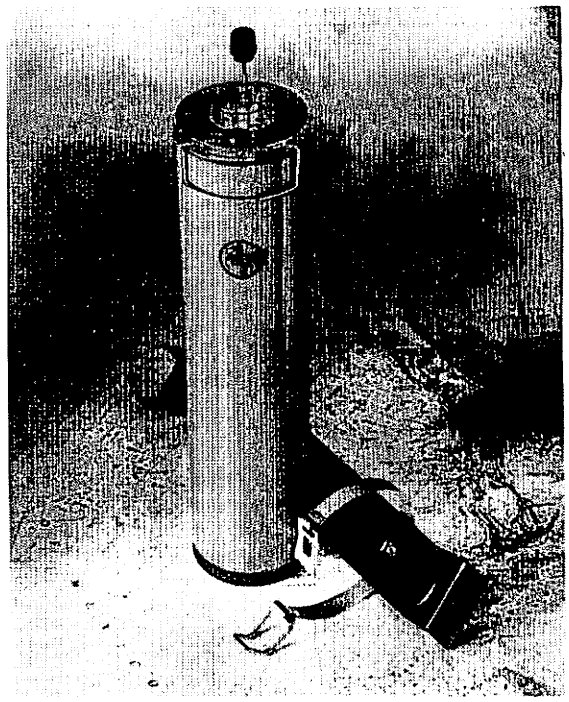
Knowing everybody has a special talent, our Team utilizes the expertise of our individual members by scheduling projects that will benefit the Team as well as the community we serve; as a for instance, arrangements were made with the United States Forest Service allowing us to build and maintain a backpack campsite. The USFS provided the equipment we needed, we provided the manpower, free of charge. Our Team received recognition for a weekend project, that provided us with physical activity, increased knowledge of the area and an activity that could involve the families of our Team members.

Another of our Team's achievements has been the designing and constructing of a training center. Two 30' towers exist within the center, whereby we can teach the basics in technical rescue, i.e. rappelling, traversing, raising and lowering stretches, etc. Incorporated in this area is an obstacle course geared towards strengthening the physical requirements needed for SAR. This center was built with blood, sweat, and tears, yet it was completed at no expense to our county.

Lompoc SAR is always ready to respond to an official SAR operation, but while they're waiting to be called they are not idle, they will always be found busy, doing something for the good of the cause.

NEW PRODUCTS

ACR INTRODUCES EPIRB DESIGNED FOR INLAND AND COASTAL USE



HOLLYWOOD, FLORIDA — ACR Electronics has introduced the RLB-17: the world's first Class C Emergency Position Indicating Radio Beacon (EPIRB), specifically designed for inland and coastal use.

In an emergency situation, the unit transmits the international alarm signal over channel 16 to alert the Coast Guard and nearby ships to the emergency. Alternately, it sends a homing signal over channel 15 to pinpoint the location for rescue. In addition, a microprocessor-controlled flashing light atop the RLB-17 is automatically activated in darkness.

Long used by offshore sailors and commercial vessels, previous EPIRB models have been specifically designed for long-range, offshore use rather than for the recreational boater. But the ACR Class C EPIRB, which is comparatively low in price, is designed to be effective within a 20-mile range.

Statistics show that 95 percent of all boating accidents occur within 20 miles of shore, and the RLB-17 is designed to meet the needs of boaters who cruise within that limit.

Equipped with a self-floating container, lanyard handle and mounting bracket, the unit is powered by eight conventional C-size alkaline batteries for an eighteen-month shelf life. It is approved by the FCC, and dimensions are 3" diameter x 13" length. ACR Electronics manufactures the most extensive line of emergency signaling equipment in the world. For more information, write **ACR Electronics, Inc. 3901 N. 29th Ave., Hollywood, FL 33020.**

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

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Continued on page 23

SAVED BY A NOSE

LENA REED
10705 Woodland Avenue
Puyallup, WA 98373

Summer was coming to an end, and 79-year-old Walter Ostrom decided to enjoy the last of it as he set out for a Sunday morning walk. He left the Lockview Nursing Home where he was a resident on August 30, 1981. When he did not return after a few hours, a search was started, and the Seattle Police Department was called in. By the end of the day Mr. Ostrom had neither returned nor been found. There was no clue pointing in any direction.

The next day Joe Brower, a Seattle Police Officer, heard about the case when he went to work on the evening shift. Brower is a member of Northwest Bloodhounds Search and Rescue, and owns a trained Bloodhound. Four-year-old Deacon was bred by Jerry Yelk, famous as a Bloodhound handler in Wisconsin for fifty years. Mantrailing was Deacon's inheritance, and developed by the years of training from Joe and his wife Martha, who hoped to use him for search and rescue work . . . and maybe police work. Hearing now about the Ostrom case, Brower offered to take Deacon on the search.

It was almost dark by then. The Department had intended to postpone further searching until morning, when the ESAR (Explorer Search and Rescue) could be called out. There was scant hope by that time of finding the victim alive.

Joe Brower didn't wait. He called the nursing home to let them know that he would need an article of the missing man's clothing to start his hound. When he arrived he found that the room had been cleaned out, but Mrs. Ostrom had returned, bringing her husband's clothing from home. Joe didn't know how long it had been since it had been worn; but Bloodhounds have trailed from clothing which has been hanging in a closet, or packaged and frozen, for months. Deacon took the trail. It was good enough for him.

The trail was now about 30 hours old, and there had been considerable rain. It led over city streets, which do not retain scent as well as the earth. Nevertheless, Deacon led on, and his owner could only grip the lead to his trailing harness and trust him. There was nothing to guide human senses. When the hound approached the dead end of a street, with a jungle of blackberry bramble closing it, Brower knew the end had to be close.

An old gentleman living nearby had dug up an area between the street and the end of the bank, which fell sharply away. Here he had made a little garden, and he was working away in it as the trailing team approached. Deacon seemed determined to cross the garden, refusing to be turned aside. Keeping the faith, Brower let him lead on. The trail was short from there. Twelve feet below, concealed by the brush and bramble on the steep hillside, lay the missing man. He had been there for thirty hours, through cold night and rain. Miraculously, he was still alive; but so weak that he was unable to move or make a sound. The gardener working twelve feet above had heard nothing.

Officer Joe Brower of the Seattle Police, and a member of Northwest Bloodhounds SAR, with Deacon, whose nose saved a life.

Walter Ostrom is recovering now. But for a Bloodhound, the story would have had a different ending.

Before the week was over, Deacon was called on to do it ag
At 2:15 a.m. on September 6th, Joe Brower was awakened by a call from the Seattle Police. An 8½-year-old girl had disappeared from the back yard of her home in the Greenwood district, and kidnapping was feared.

Michi Kei Tolmie was the child of a Caucasian father and Japanese mother. Brought up in traditional Japanese manner, she was a shy and reserved little girl, well-behaved and certainly not one to go with a stranger. There was no family problem, the parents insisted; Michi was a good girl, who never left her yard by herself. It was inconceivable that she would run away.

On this Saturday night the family had been out for recreation, and returned home about midnight. The family dog had been let out of the house into the fenced back yard to relieve itself. After a few minutes, Michi had been told to let it back in. She went out the back door to call the dog, and never returned. Thus began the hours of agony as the parents searched the area to no avail, and then called the police.

Brower loaded Deacon in his car, and went to the Tolmie home, where he was joined by a second police officer. When he brought the Bloodhound into the home for the girl's scent, he found it full of cats, which were a distraction to the hound. Finding a reliable scent article was difficult; all the child's clothing had been laundered. Finally they were given a little rubber thong sandal, and went into the back yard.

Around and around the yard Deacon worked, and back into the house, where his nose seemed to vacuum the entire area, the parents, and the child's bed. Feeling that the scent article might be contaminated by family scents, Brower looked around the house and saw a little nylon jacket. He decided to try that, and took Deacon back into the yard. This time the hound alerted like a salmon striking the bait. Tail wagging, he went over the low fence around the yard, across the next few back yards, and out an op back gate. He was trailing fast when he came to a house wit high front porch, fronted by several steps. When he leaped up them to the front door it seemed like the end of the trail.

However, the big Bloodhound checked the door and turned away. Not there. Yet it was obvious to him that the girl was close. Dashing down, he charged around to the side of the porch and flung himself against a dense rhododendron which grew against it. His tail beating with excitement, the hound struggled vigorously but unsuccessfully to get through; then whirled to rush to the other side of the porch, and attack another rhododendron barrier. This time he found a passage, a small space between bush and stairs. He squeezed in, and it was the end of the road! Brower's flashlight showed a frightened child huddled there in the dark. Alive! The Tolmie family's night of terror was ended.

When the story was told, it was all the fault of a cat. As Michi had opened the door to let the dog enter, one of the family cats had dashed out and away. Chasing the mischievous feline, the child became lost and frightened in the dark, and panicked. Patrol cars had been searching the neighborhood, flashing their spotlights about; but like most children, she had been trained not to go to strangers or into their cars. Instead, she had looked for a place to hide.

Joe Brower and Deacon gave excellent examples of the way the Search and Rescue Bloodhounds work. There is no need for a concentration of manpower and vehicles, with base camp and extensive equipment. One man with one trained Bloodhound goes straight to the scene from which a person was reported missing. A scent article is needed, so that the hound knows the subject of his search. It isn't always necessary that it be a piece of clothing; many successful searches started from small objects the subject handled and dropped to the ground. Frequently searches have been started from the vehicles that hunters, fishermen and berry or mushroom pickers have driven. It should be an object which h not been laundered since worn (if worn) and not worn or handl by others.

Deacon's cold nose debunked the old stories that Bloodhounds are useless if it has rained, or if the trail is in the city. In spite of the handicap of concrete sidewalks and city air pollution, Deacon followed that scent.

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 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.

FALL 1976
★ Nicaraguan Jungle Survival, by S. Wicker-Guerrero ★ That Faithful Old Albatross, by Jerry Hagan ★ Medical Emergency Triage Tag, by Robert Blodgett and W. Murphy ★ USAF Search and Rescue Films ★ Plane Crash!, by Skip Carnes ★ Teach Yourself Tracking, by Jack Kearney ★ Emergency Transmitter Location, by Bruce Gordon and Lou Dartanner.

WINTER 1976
★ One Walked Away, by Bruce Schweiger ★ Glacier!, by Bill March ★ Editor Wild Plants, by Dan Hensley ★ Health Foods vs C-Rations for Survival ★ Cheyenne, Editorial.

SPRING 1977
★ Basic Snowcraft, by Bill March ★ European Search & Rescue, by Robin Burton ★ Fruit Salad Caper, by Lois McCoy ★ Use of a Metal Detector in Avalanche SAR, by Jon Gunson ★ EMT Plan for Mountain Search & Rescue Teams, by Lyn J. Morgan.

SUMMER 1977
★ Ground Anchors, by Bill March ★ Salt Tablets. . Yes or No?, by Sandy Bryson ★ Tornado! Funnel of Fury, by Grover Brinkman ★ Search and Rescue is Going to the Dogs!, by Bob Koenig and Marcia Koenig ★ Pikes Peak. . .Colorado's Longest Vertical Rescue, by Mike Taigman ★ Race Against the Tide, by Mary Jane Beck ★ Survival in Cold Water, by Robin Burton.

FALL 1977
★ Comptroller General's Report to the Congress, by GAO ★ California SAR Support Program, by Wayne Kranig ★ Summary of Federal SAR Conference, by Col. Bruce Purvine ★ Interrogation: Remember Your P's and Q's, by Tom Valenzuela, Jr. ★ Improving SAR Proficiency, by Lee Lucas.

WINTER 1977
★ The Nashville Experience, by Donald Irwin ★ The First Rescue, by LCDR John Ebersole USCG ★ CBS Strives for Realism, by Skip Stoffel ★ The Multi-Agency SAR Plan, by Lt. T. P. Hart USCG ★ The Pocket Scanner, by Jon Gunson.

SPRING 1978
★ New York Fire Department Auto Rescue, by Wayne T. Parola ★ Lloyd K. Mosemann Speech ★ Deep Water Rescue Breathing, by Albert L. Pierce ★ East Meets West, by Dick Sale ★ The Cass Cave Incident, by Bill Clem ★ The First Step in the "Second Mile," by Stan Bush ★ The U.S. Coast Guard Auxiliary, by LCDR John Ebersole ★ Mountain Rescue in Britain, by Bill March ★ The Ambulance in the Valley, by Joseph Malines.

SUMMER 1978
★ Man Lifted Off Flaming Silo in Daring Helicopter Rescue, by Millie Ball ★ ICSAR = The Interagency Committee on SAR, by Lois Clark McCoy ★ Alaska Plane Crash!, by Rollo Pool ★ The ELT is the Best Search Tool Currently Available, by Robert J. Mattson ★ Emergency Locator Transmitters, by NTSB ★ Air and Ground E.L.T. Direction Finding, by Bruce Gordon.

FALL 1978
★ Rescue on Mt. Watkins, by Tim Setnicka ★ Belaying, by Bill March ★ Ascenders in Rescue, by Eric Fuller ★ SAR Stats: Fact or Fiction ★ Altimeter Evaluation, by Ray Hague ★ The Rescue Pack, by John Wehbring.

WINTER 1978
★ Introduction to AFRCC, by Col. Butera, USAF ★ Selected SAR Missions ★ Computer Applications ★ Communications ★ State Organizations ★ Volunteer Organizations ★ ELT ★ Weather ★ Data Collection ★ Federal ★ ITAP.

SPRING 1979
★ Mtn. Rescue Saves Trucker, by Steve Blakely ★ The Shepherds vs the Hounds, by Sandy Bryson ★ Dogs in Disaster Search, by Bill Dotson ★ How the Bloodhounds Do It, by Lena F. Reed ★ They Sniff Out Drugs, by Tom Alex ★ Bloodhounds, by James T. Beck ★ Ranger Service Dogs, by Sandy Bryson ★ What Goes Down Must Come Up, by Bill Clem.

FOREVER READY

Ssgt JAMES R. PEARSON,
Det 3, 1361st Aerospace Audiovisual Squadron,
Rhein Main Air Force Base, West Germany

"I hear you Jolly 81, I hear you!!"
"Roger Phantam Four' ventor us in."

"Turn left Jolly, A little more; that's it, come and get me out of there. You're right on Jolly; 5-4-3-2-1 you're overhead! You're overhead!

The large HH-53 helicopter (Jolly 81), with a green and black paint scheme, roared loudly as it passed over the downed pilot. The pilot, Phantom Four, had been performing escape and evasion procedures for some time. Now lying on the pine forest floor, his head throbbed and his vision was blurred due to a head wound he received after ejecting from his aircraft. The last thing he saw before blacking out was the large rescue helicopter coming to a hover about thirty yards away.

Two of the Jolly's three 7.62mm mini gun.s were manned in case they received hostile ground fire during the rescue operation. The flight engineer helped the pararescueman (PJ) strap on the hoist or penetrator, a device with three fold down seats attached to a hoist. Then the PJ was lifted out the door and then lowered toward the ground.

As he descended, the PJ was constantly scanning the woods around him for enemy troop movements. At the same time, he was mentally going through a checklist of what he expected to do to get himself and the pilot back alive. Keeping his feet straight out, he could almost feel the static electricity jump from the penetrator as it touched the ground. Freeing himself, he made for the nearest cover with his M-16 rifle and medical kit. Meanwhile, the helicopter flew off into the distance to await the call for pickup.

With one knee resting on the brown pine needles, which covered the forest floor, the PJ paused in the middle of the heavy brush. His senses tuned in on every sound, as his eyes searched the surrounding pine forest for movement. Seeing the pilot motionless under brush thirty feet away, the PJ, with his M-16 ready, began moving from tree to tree until he reached the pilot's side.

Seeing the bright red blood coming from the pilot's hairline, he hurriedly opened his medical kit and removed a brown package marked, "HEAD WOUND." He tore it open and placed the tan bandage to the wound, applying pressure while tying it around the pilot's head.

With the bleeding controlled, the PJ checked the rest of the pilot's body for injury. Not finding anything serious, he called for the helicopter's return. Lifting the pilot onto his shoulder, he moved to the edge of a small clearing, laid the pilot on the ground and waited.

At the sight of the HH-53, the PJ moved the pilot into the clearing. Popping a white smoke grenade for cover, he watched the helicopter approach their position from tree top level. Slowing its speed the Jolly hovered into position to retrieve the two men. The 100 mph winds from the helicopter's rotor rende the smoke useless and forced the PJ to bend forward to keep from being blown over. Once the men were under the belly of the helicopter, it was calm like the eye of a hurricane.

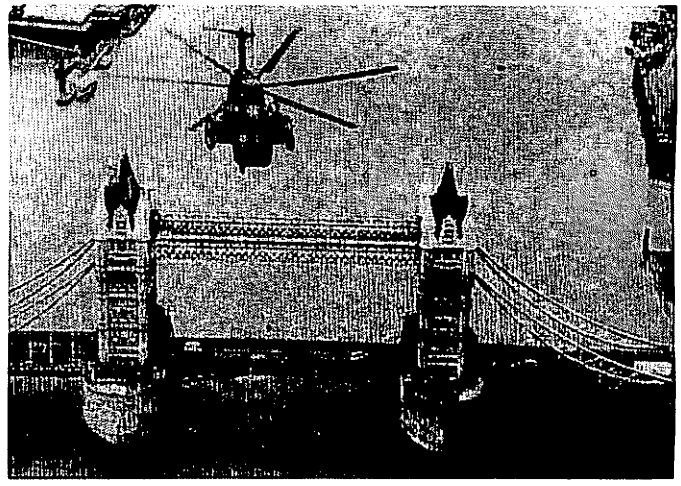
As Jolly 81 hovered, the flight engineer lowered the penetrator. After it hit the ground the PJ moved the pilot onto it, then himself. Seeing the PJ give a thumbs up signal, the flight engineer activated the hoist and the two men began the ride up. When they reached the side of the helicopter, crewmembers grabbed the penetrator and pulled them in. As the HH-53 headed for home, the flight engineer closed the door and the pilot strapped into a a stretcher.

Another pilot rescued from behind the lines at U.S. Air Base, RAF Woodbridge, United Kingdom. This was only an exercise, but it's one of many that members of the 67th Aerospace Rescue and Recovery Squadron perform. In the event there is a conflict in Europe, they will be the ones to rescue the downed aircrews.

"The role of the 67th in Europe is actually a threefold one," remarked Lt. Col. Curt Bayer, Director of Operations. "The first being rescue in support of the United States Air Forces Europe (USAFE) operations during all types of wartime contingencies. Secondly, is to be a mobile and deployable combat resource capable of rescue anywhere in the world. The third role is strictly peacetime rescue of people, both military and civilian, in need of help."

This last role, peacetime rescue, can put members of the 67th into any type of rescue though only at the request of the host nation. By international agreement each country is responsible for search and rescue (SAR) within its own borders.

With a current manning of 247, the 67th operates five HC-130 Hercules (Kingship) aircraft and five HH-53 (Jolly) helicopters. Their SAR responsibility ranges from the mid-Atlantic to the shores of Burma and from the North to the South Poles. Thi an area of about 68 million square miles.



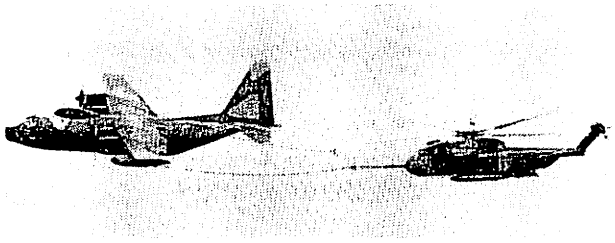
The 67th has three detachments within these boundaries. One is at Ramstein AB, West Germany, where USAFE's Rescue Coordination Center is located. A second, at Zaragosa AB, Spain, is tasked to provide NATO combat SAR. The third detachment is located at Keflavik Naval Air Station, Iceland, and is responsible for combat SAR in that area. All the detachments provide peacetime SAR at the request of a host country.

The HC-130; with a range of 5,400 miles, a fuel capacity of over 12,000 gallons, and seven different radios, plays an important role in any rescue it participates in. Because of its range and speed of 240 knots, it is often the first aircraft on the scene. If it is the fi and the rescue involves other aircraft, ships or ground sea parties, it usually becomes the on-scene command post.

The Kingship normally carries a crew of two pilots, a navigator, radio operator, flight engineer, loadmaster, two PJs and a crew chief. The crew can deploy survival kits into the water or onto land. In peacetime SAR, PJs, who are all jump qualified,

may deploy. In combat, however, it would be impossible to get them and the survivor back out because of the difficulty of landing the HC-130 in a hostile environment.

The HH-53 is the most powerful helicopter in the Air Force ay. It carries a crew of two pilots, a flight engineer and two PJs. Capable of speeds up 210 knots, it carriers two 450 gallon auxiliary fuel tanks and can be refueled in the air by a HC-130. The range of the helicopter is limited only by the endurance of the crew.



For combat SAR, the HH-53 carries a hoist equipped with 250 feet of cable, selfsealing fuel tanks, armor plating and three 7.62mm mini guns. The guns, with a rate of fire up to 4,000 rounds per minute, are used only for defense in the event the helicopter comes under hostile fire during a rescue operation.

In combat or peacetime, the PJs can be deployed into any type of environment ranging from the cold waters off the coast of Iceland to the dense woods of the Black Forest in West Germany. The training the PJs go through is tough. Seven out of ten people who start the course don't have what it takes to make it through. Some of the schools they attend are: the U.S. Army jump school at Fort Benning, Georgia; the Special Forces Scuba School at Key West, Florida and the Pararescue School at Kirkland AFB, New Mexico.

At Kirkland PJs go through two months of medical training which prepares them to administer medication, insert IVs, control bleeding, splint fractures and broken bones and deliver babies. This helps them carry out their primary role of getting a survivor to medical authorities by maintaining or improving his condition.

The PJs' training is a never-ending program once they get to their new assignment. Depending on their location, they continue to receive training in artic survival, mountaineering, skiing plus the duties of being a crewmember of the HH-53 or HC-130.

"The primary role of the PJ in a combat environment is to attempt to return to allied control our pilots, aircrew members and ground personnel," related MSgt. John Moore, a veteran pararescueman. "Like in Southeast Easia, we got Marines out and not just aircrews. Throughout the Viet Nam conflict, rescue recovered over 900 pilots, enough to equip over three complete ghter wings.

"Being able to save a life from the rescue side is very good and from the pilots view, I think it increases their drive. They will try harder to escape once they are down because they know that someone is going to try to get them out. So I think our pilots put forth that extra effort because they know they are not going to be forgotten."

The 67th was tasked with the responsibility of recovering space hardware during the Apollo program. The HC-130, using an ultra sensitive tracking device, would follow the progress of the reentry and instruct the HH-53 where the object came down. If need, the HH-53 would make the final recovery and return of the hardware.

Now with the birth of the space shuttle, the unit is receiving training in which the Kingships provide air to air refueling for the Jollys to deploy to the Azores. From there they preposition for any possible post launch mishap that would require rescue of the astronauts.

"That others might live," is the motto of rescue and that is what it is all about. The long hours of training, pulling alert and time consuming exercises keep the 67th "Forever Ready," knowing that someday, somewhere and sometime a life may depend on what the unit does. Be it the people in supply who order the parts so the maintenance crews can keep the aircraft in the air, the airman who repairs the aircraft in cold and wet weather or the aircrews that do the flying, they all play an important part. Anywhere down the line, if the chain is broken, it could effect the outcome of a rescue mission. It is one of the jobs in the Air Force that demands the best of each person.

Lieutenant Colonal Bayer summed up the way all the people in the unit feel about their role in rescue. "The rescue mission is probably one of the most demanding, yet satisfying missions you can find in the Air Force today. Nowhere else do you get the immediate and most satisfactory feedback that you get from somebody whose life was in danger and probably would have died if you hadn't been there to pick them up. The words, expressions and feeling generated by the survivor, once you get him on board that helicopter or C-130, is enough to pay for 99 hours of flying around the flag pole, training and preparing for it."

SAR

Search & Rescue Magazine BOMB

BOMB is your direct line to the editor's desk. Each month, the two top-rated authors receive bonuses based on your votes. To cast your vote, first look at the list of this month's articles below — then, after reading, rate each article as **Very Good, Good, Fair** or **Poor** with an **X** in the appropriate box. Your feedback helps to produce the best possible magazine.

BUSH ON SAR Continued

- Teeth — ache - broken - cracked - loose - out (do not clean, store in jaw) cavity - loss of filling - use of eugenol, zinc oxide, coppalite
- Eyes — conjunctivitis - bacteria - crusting - cleansing
  — infection — cleansing - dark glasses
  — eye strain
  — snow blindness
  — sub conjunctival hemorrhage — hot compresses
- Nose — cold — avoid sprays - no change in temperature - no nodes enlarged
  — sinusitis — infection - 102° - swelling - may be fatal
  — nose bleed
- Throat — dry — candy - fluids
  — viral pharyngitis — sore throat - no temperature change - with or without cold
  — streptococcal pharyngitis — may lead to rheumatic fever - ill - 103° - chills - infections - boils on tongue - nodes enlarged
- Mouth — canker sores - ulcers - baking soda
  — herpes simplex — fever blisters - small red spots - blister - clear fluid - rupture and crust - alcohol wipes
- Ear — pain - object in ear - put nothing in ear - warmth - aspirin

Thoraccic Region

- CVI's — general treatment based on location - no monitors, etc. - cardiac arrest - angina pectoris - myocardial infarction - ventricular tachycardia, etc. - does the particular CVI make a difference in the back country?
  — tightness - pressure - heaviness - squeezing - aching - choking - paralysis - immobility and oxygen
- Crycothyroidotomies
- Reduction of Tension Pneumothorax
- Contused Lung
- Hyperventilation — shallow breathing - rapid - gasping - hand spasms
- Bronchitis — bacterial - hoarse - green sputum
- Pleurisy — inflammation - pain
- Pneumonia — lungs full - increased temperature - penicillin and oxygen
- Acute Mountain Sickness — headache - tight chest - coughing - froth
- High Altitude Pulmonary Edema — bloody sputum - pulse to 160 - respirations - 20-40 increased temperature - cyanosis - oxygen and get to lower elevation
- Cerebral Edema
- Pulmonory Embolism — clot - stress - dehydration - viscosity - pale - sudden pain - short breath - bulging neck veins - shock - oxygen - aspirin - evacuate

Lumbar Region

- Hemorrhage — vomiting - passing blood
- Diarrhea
- Acute Gasteroenteritis — waves of cramps - general low tenderness
- Staphylococcal Enteritis — food poisoning
- Jaundice — liver injury
- Hepatitis — virus - right upper quadrant - gentle pain
- Peptic Ulcer — pain develops 4-6 hours - - food helps
- Indigestion — immediately after eating - food does not help - fullness - gas
- Food/Activity Syndrome
- Appendicitis — middle pain - 1-3 to lower right quadrant — rising temperature - no chills - muscle spasms - referred tenderness - movement of pain to upper quads may indicate rupture.
- Intestinal obstruction — gradual waves of pain - distention
- Perforated Ulcer — rapid pulse - spasms
- Hernia
- Gallbladder disease
- Peritonitis — diffuse pain - increased temperature - distention - no bowel sounds (3-4 minutes)
- Kidney Stones — stabbing back and groin pain - sudden onset - intense pain

Diseases, Allergies, Infections

- Infection — swelling - heat - redness - limited motion - lymph nodes - purulent discharges
- Hay Fever — nasal - stuffy and swollen eyes - antihistamines
- Hives — food and drugs - red or white bumps - itching - antihistamines - sting kill - freeze
- Contact Dermatitis — metals - freeze - calomine - hydrocortisone ointment
- Laryngeal Edema — rare - dangerous hives - swell throat shut - swelling eyes - adrenalin
- Anaphylactic Shock — respiratory system - muscle spasms - adrenalin - hydrocortisone

Presumptive and Conclusive DOA

MEDICATIONS

Vaseline	Empirin	Aspirin
Mannitol	Diamox	Eugenol
Coppalite	Zinc Oxide	Super Anahist
Coke Syrup	Ipacec	Di Gel
NR Tablets	Placebos	Lemon Drops
Baking Soda	Calomine Lotion	Antihistamines
Hydrocortizone	Adrenalin	Alcohol Wipes
Zephiran Chloride	Sting Kill	Insulin
IV Solutions	Ethyl Chloride	Tranquilizers

Summation and Testing SAR

CALENDAR Continued

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September 23-25, 1982
SELF RELIANCE & SURVIVAL EXPO '82
H. Roe Bartle Exhibition Center, **Kansas City, Missouri**
Contact: Paul Stenstrom, Blue River Marketing, Inc.,
P.O. Box 5446, Kansas City, MO 64131 800-821-3358

October 1-3, 1982
BARSTOW SEARCH & RESCUE SCHOOL
Barstow, California
Contact: Barstow Desert Rescue Squad,
P.O. Box 108, Barstow, CA 92311

October 7-9, 1982
ANNUAL TACDA SEMINAR
Wichita, Kansas
Contact: The American Civil Defense Assoc.,
P.O. Box 1057, Starke, FL 32091 904/ 964-5397

October 8-10, 1982
THE CALIFORNIA REGION, MOUNTAIN RESCUE ASSOCIATION SEMINAR 1982
Yosemite Valley, California
Contact: Sierra Madre Search & Rescue
P.O. Box 24, Sierra Madre, CA 91024

October 10-14, 1982
ANNUAL USCDC MEETING
Portland, Oregon
Contact: J. Herbert Simpson,
P.O. Box 370, Portsmouth, VA 23705 804/ 393-6532

October 11-13, 1982
EMERGENCY MEDICINE TODAY
Raleigh, North Carolina
Contact: P. Michael Eddinger, North Carolina Office of Emergency Medical Services, Box 12200
Raleigh, North Carolina 27605-2200 919/ 733-2285 SAR

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Search & Rescue Magazine

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Search & Rescue Magazine tells it like it is. Lesson learned from a fire at sea.

THERE IS MORE TO SEASICKNESS THAN BEING MACHO

Search & Rescue Magazine sets the record straight.

A SATELLITE OF THE FUTURE THAT KEEPS TRACK OF TODAY

Search & Rescue Magazine presents SARSAT, a space-age tracking system.

KNOW YOUR TURF!

What is the importance of knowing your territory?

Search & Rescue Magazine answers this question and provides you with the "How To" to profile your area of operations.

Bonus: GETTING TO KNOW YOU

A BRAND NEW DEPARTMENT TO PROFILE OUTFITS LIKE YOURS

Search & Rescue Magazine introduces you to the Lompoc Search and Rescue Team.

What does the future hold for *Search & Rescue Magazine*

For details don't miss our next issue