

CHAPTER 15

SURVIVAL

Without a decisive naval force we can do nothing definitive, and with it, everything honorable and glorious.

—George Washington

As you learned in earlier chapters, being a professional Sailor is dangerous. These dangers aren't limited to just your job in the Navy. In times of conflict, your ship or shore station may be in contact with an enemy force or ship. Regardless of your rate, rating, or duty station, you may need to stay alive in the water until you can reach land or be rescued. You must have the knowledge required to live in the field with limited equipment (survival) and to avoid the enemy (evasion). If captured, you also have the responsibility to flee from the enemy (escape) if possible.

This chapter contains information on the principles and techniques of sea survival, evasion, land survival, and escape that have been used successfully worldwide. The information given here is by no means all-inclusive, but should serve to help you if the need arises.

SURVIVAL AT SEA

Learning Objectives: When you finish this chapter, you will be able to—

- Recall the methods and procedures for abandoning ship.
- Identify the techniques for swimming through oil, flames, and debris.
- Recognize the techniques for using clothing and buoyant objects to stay afloat.
- Recognize the procedures used to care for and use personal floatation devices and the use of lifeboats and associated survival gear.
- Recall the characteristics of, use of, and adjustment to CO₂ inflatable and inherently buoyant life preservers.
- Identify the responsibilities and authority of the senior person in a survival situation.

Survival at sea depends on your knowledge, self-control, training, and equipment. The time to learn

as much as possible about survival and rescue at sea is **before** you abandon ship, not after you find yourself in the water. The information for survival at sea is general in nature and applies to all Navy ratings.

ABANDONING SHIP

Having to abandon ship isn't pleasant. Your "home" is gone along with most of your possessions and possibly some of your shipmates. You don't know how long you must wait for rescue. However, with the proper knowledge and training, frightening aspects can be greatly reduced. Don't panic and don't give up hope. Remember, the Navy knows you're missing and is searching for you. Also, remember that thousands of persons have survived ships sinking in both wartime and peacetime.

If time permits, the crew will abandon the ship in a planned and orderly manner. In the prepare-to-abandon-ship stage, all personnel go topside and muster at their abandon ship stations, don life jackets, and rig lines and ladders over the side. Bearing and distance to the nearest land, sea and wind conditions, and water temperature are passed over the 1MC (ship's general announcing system). When the order to abandon ship is given, all boats are lowered and lifeboats are released. The crew members then go over the side and board them as quickly as possible.

Know Escape Routes

Many survivors have reported that their shipmates were lost because they were unable to get topside before the ship sank. In many of these cases, the compartments in which personnel were trapped were not cut off—the individuals only thought they were.

Once on board a particular ship, most Sailors learn the easiest ways from their berthing compartments to their stations and automatically use these routes day after day. The habit of using the same hatches and ladders day after day becomes so strong that a person finds it difficult to use other routes. This habit is

especially true of persons whose stations are in the lower part of the ship. However, a hit from a torpedo or bomb or a collision with another ship may flood the compartments normally used or knock out a ladder. Often, some measure to control flooding taken by the damage control party closes off the normal method of travel.

The only answer to this situation is to know your ship. Small ships don't present much of a problem because they have only a few routes you can follow. However, large ships are another matter. Aboard an aircraft carrier or cruiser, learning all the passageways, doors, and ladders takes a long time. During leisure time, learn escape routes from various below-deck sections to the weather decks. Ask the individuals who work in those sections the best way to get topside; then follow that route. The time to experiment is before an emergency occurs, not during one.

Going Over the Side

As in everything else, there is a right way and a wrong way to abandon ship. Whenever possible, go over the side fully clothed. Shoes and clothing may hinder you while swimming; but in lifeboats, a covering of any kind offers protection against the effects of sun and salt water. In a cold climate, wear a watch cap to keep your head warm. Take along a pair of gloves and extra clothes if you can. Even in tropical waters you may feel cool at night because you can do little to keep warm.

Normally, you should leave from whichever side of the ship is lower in the water; but, if the propellers are turning, leave from the bow. Leave by the windward side whenever possible. Leaving from the lee side might protect you from a stiff wind, but the same wind causes the ship to drift down on you, often faster than you can swim. Also, if oil is on the water, you can clear the slick sooner by swimming into the wind.

Never dive, and do not jump unless you have to. Use a ladder, cargo net, line, or fire hose. If you must jump, do so feet first, legs together, and body erect. (First, check the water so you will not land on debris or on other personnel.) Except when jumping into flames, be sure your life preserver is fastened securely, including the leg straps. If you are wearing a vest-type preserver, place one hand firmly on the opposite shoulder to keep

the preserver from riding up sharply when you hit the water (in a long drop, the force of impact might hurt your chin or neck). Hold your nose with your other hand. If you are wearing an inflatable preserver, inflate it after you have entered the water.

In the Water

Once you are in the water, your immediate concern is to clear the ship as quickly as possible. Before you rest, you should try to be 150 to 200 yards away from the ship. When the ship goes down, it may create a strong whirlpool effect, which might draw you down with the ship if you are too close. Another advantage of distance is that you will be safer if an explosion occurs.

After you are safely away from the ship, conserve your energy. Don't splash about or shout unnecessarily. If any danger of underwater explosions exists, float or swim on your back with your head and chest as far out of the water as possible. Help your shipmates all you can, and try to stay in groups (fig. 15-1). Get on a lifeboat, of course, as soon as you can. In the meantime, grab anything floatable that comes by, or just relax in the water. Above all, **remain calm!**

SWIMMING AND FLOATING.—Check the chart shown below. It tells you the requirements you must meet to qualify as a third class, second class, and first class swimmer.

Meeting the requirements for swimmer third class won't help you if you have to swim ½ mile to a lifeboat. You can see that by qualifying for swimmer second class, you'd have a better chance to survive. Better yet, qualifying for swimmer first class gives you the best chance for survival.

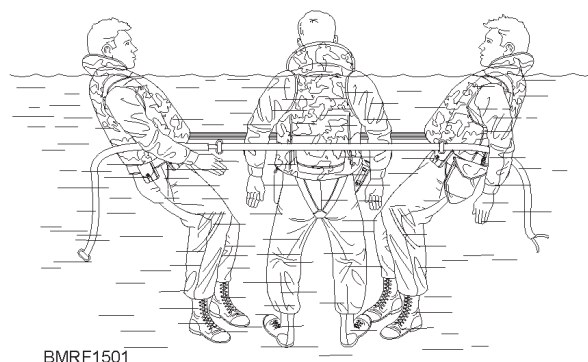


Figure 15-1.—Joining life preservers.

Student Notes:

After abandoning ship, you may have to swim fast, slow, on the water, or under the water. You may have to put on or take off clothes; carry or search for objects; float for hours; or in shark-infested waters, lie still and keep your arms and legs from dangling. There is a lot you might have to do. You can get ready by practicing all the strokes you know.

THIRD CLASS SWIMMER

1. Enter the water feet first from a height of 5 feet
2. Remain afloat for 5 minutes
3. Swim 50 yards

SECOND CLASS SWIMMER

1. Jump from a height of 10 feet
2. Remain afloat for 10 minutes
3. Swim 100 yards, using three survival strokes for at least 25 yards each:
 - Breast stroke
 - Side stroke
 - Elementary back stroke

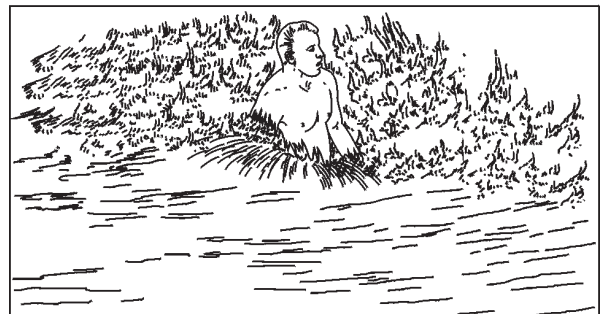
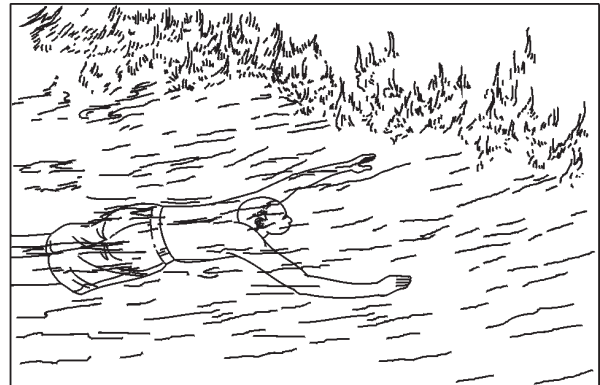
FIRST CLASS SWIMMER

1. Swim 220 yards
2. Enter the water feet first and immediately swim 25 yards underwater (you may surface for air twice at 25-foot intervals)
3. Remove your trousers or slacks in the water and inflate them
4. Tow another person 25 yards, using the following methods:
 - Cross-chest carry
 - Extended reach (recommended for struggling victims)
 - Grabbing the victims hair from behind and use side stroke (recommended for towing unconscious victims)

Almost all the Navy's shore installations have swimming facilities for your use. Here, you can practice swimming. You should practice various strokes and extend your swimming range. Then, you will feel more confident that you can stay afloat and swim to a distant lifeboat or floating object.

SWIMMING THROUGH FLAMES.—Flame-covered water is a terrifying sight. However, you don't need to be afraid of jumping into flames. If you follow the procedures listed here, you will clear the burning area safely (fig. 15-2).

1. Don't wear an inherently buoyant life preserver (if you have one on, get rid of it).



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Figure 15-2.—Swimming through flames.

2. If you're wearing a CO₂ preserver, keep it on but don't inflate it.
3. Discard your shoes because they will hinder your underwater swimming.
4. Take a deep breath when you jump from the ship and cover your nose and mouth with one hand and your eyes with the other.

Student Notes:

5. Swim as far underwater as possible.
6. When you must come up for air, extend your arms above your head, then pull them back in a wide sweep to force the upper part of your body above the surface.
7. When you surface, use your hands and arms to make wide sweeping movements across the surface to splash the water and drive away the flames.

NOTE

As you pop up above the surface, try to turn your back to the wind before you take a breath.

8. Submerge again feet first, and repeat the procedure until you're clear of the burning oil.

When going into oil that isn't burning, save your preserver to use as a raft. Keep your face above the surface. Keeping your head above the surface helps keep oil from getting into your eyes and mouth.

AIDS FOR STAYING AFLOAT.—If you're in the water without a life jacket, don't become frightened that you can't stay afloat—you can. Several articles of clothing, including the white hat, provide some flotation when used properly. The most useful article is your trousers or slacks, which you can inflate to serve as water wings.

1. To remove your trousers, lean forward in the water and slowly slip them down over your hips and legs. Don't let go of them—they may sink. To inflate your trousers—
2. Zip them; then float them on the surface with the fly or front turned down.
3. Tie a knot in each leg as close to the cuff as possible.
4. Work the garment around on the surface until the legs are over your shoulders and the knots are behind you, leaving the crotch in front of you.
5. Grasp the waist of the trousers with one hand on each side; then extend your arms straight upward, kicking your feet to get your body as

high out of the water as you can.

6. When this position is reached, pull the trousers downward smartly on the surface, trapping a pocket of air in each leg.
7. Then gather the waist under the water and hold in one hand (fig. 15-3). Keep the trousers legs wet by splashing water on them to reduce the loss of the trapped air.

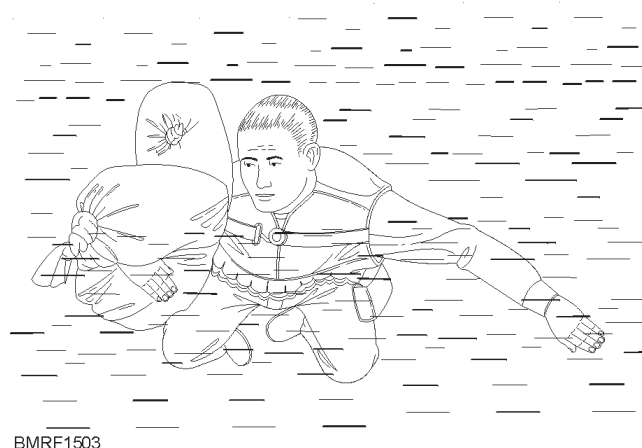
You may use mattress covers, sea bags, laundry bags, and pillowcases in a similar manner. A large amount of debris, such as pieces of wood, empty shell boxes, powder cans, and so forth, is usually present. You can use this debris to stay afloat.

SURVIVAL EQUIPMENT

The two basic categories of flotation devices are life preservers and lifeboats. Each is vital to the survival of a ship's crew if the ship sinks. Other than the lifeboat, the life preserver (commonly called a *life jacket*) is the most important piece of abandon ship equipment.

The inherently buoyant (vest-type) preserver is designed so that, if adjusted properly, it supports you and keeps your head out of the water even if you are unconscious. With a life preserver on, you can stay afloat for many days. Without a life preserver, you have little chance of surviving in the water for any great length of time.

The lifeboat presents the greatest chance of survival because it contains food and water, provides shelter from the elements, and contains equipment that greatly



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Figure 15-3.—Using inflated trousers/slacks for support.

Student Notes:

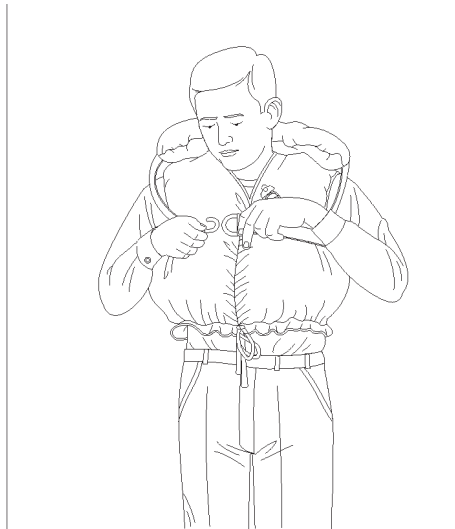
enhance your chances for survival.

During wartime, each person aboard ship is issued a life preserver. Wear it or keep it handy at all times. During peacetime, life preservers are stowed in ready-use lockers. Know where your preserver is stowed, how to put it on, and how to release and inflate the lifeboat.

Life Preservers

The Navy uses two types of life preservers—the inherently buoyant and the inflatable types. The inherently buoyant type has several designs. The vest type is the most widely used.

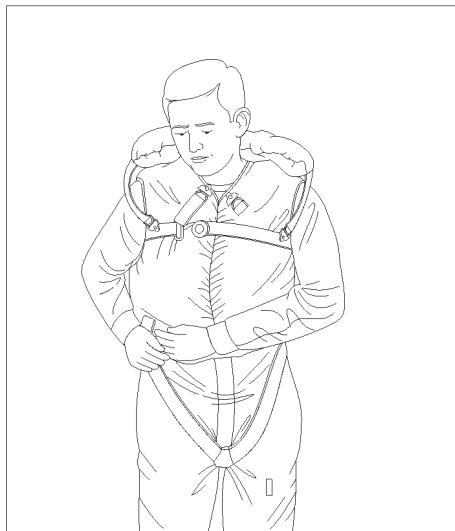
INHERENTLY BUOYANT TYPE.—The inherently buoyant vest type of life preserver (fig. 15-4) uses fibrous glass pads to provide buoyancy. The pads are sealed in plastic waterproof bags placed in an outer



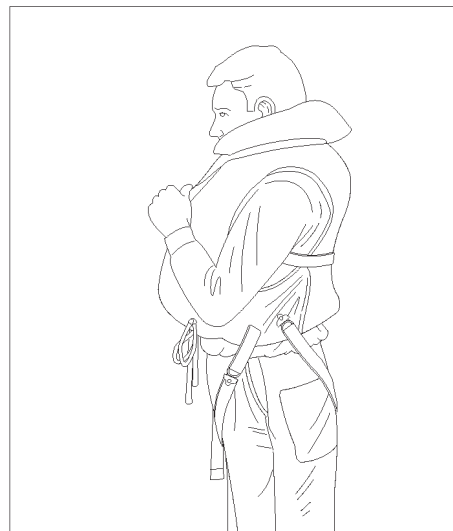
A. LIFE PRESERVER DONNED JACKET TIED AT UPPER CHEST AND WAIST: TIE PULLED SNUG, SNAP HOOK BEING FASTENED INTO RING ON CHEST STRAP.



B. LEG STRAPS BEING REMOVED FROM BACK OF PRESERVER; WILL BE LED BETWEEN LEGS.



C. BOTH STRAPS PULLED BETWEEN LEGS, ONE FASTENED TO D RING ON LEFT SIDE, OTHER BEING FASTENED.



D. TYING THE COLLAR.

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Figure 15-4.—Adjusting the inherently buoyant vest-type life preserver.

Student Notes:

cover or envelope. The preserver has cloth tapes to pull tight for a close fit. Leg straps prevent it from riding up while you are in the water. A body strap across the chest helps give a snug fit and provides a hold for lifting you out of the water. You can also use the strap to attach yourself to a life raft or to other persons in the water.

Put on the vest type of life preserver over your clothing. Tie the upper tapes to make it fit comfortably, and pull the tape at the waist fairly tight to keep the preserver from sliding up in the water. Then adjust the chest strap and fasten the snap hook into the ring. Pull the leg straps as tight as possible without producing discomfort. Tie the collar tapes tightly under the chin. The collar holds the head upright and helps prevent an unconscious person from drowning.

INFLATABLE TYPE.—The inflatable life preserver (fig. 15-5) is made of lightweight, neoprene-coated nylon. It's carried in a pouch container held around your waist on a web belt. You blow up the inflatable preserver either by mouth or by using a carbon dioxide (CO₂) cylinder. It's equipped with a lifting harness, a waist belt, and a wooden toggle and a line for attaching yourself to a life raft or another survivor. Take the following steps when using the inflatable life preserver:

1. Pull the pouch around to the front, remove the preserver from its pouch, and slip it over your head.
2. Grasp the lanyard attached to the CO₂ cylinder and jerk downward. If you need more buoyancy, the life preserver can be orally inflated by taking the following steps:
 - a. Turn down the knurled ring at the base of the oral inflation tube as far as it will go.
 - b. Depress the mouthpiece by force of the mouth, and blow into the tube as if you were blowing up a balloon.
 - c. Release the mouthpiece when inhaling to prevent escape of the air.
3. When the preserver is inflated, lock the oral valve by turning the knurled ring against the mouthpiece.

NOTE

Always wait until you have entered the water to inflate this type of life preserver.

The automatically inflatable work-type life preserver provides you maximum lifesaving protection. At the same time, it doesn't interfere with the jobs you do, such as working over the side, performing underway replenishment (UNREP) duties, working as part of a boat crew, or manning selected battle stations. The automatically inflatable work-type life preserver will—

- Inflate the life preserver if you go into the water in an unconscious or helpless state.
- Allow you to inflate the auto inflatable preserver orally by the auto function device or by using a combination of the two.

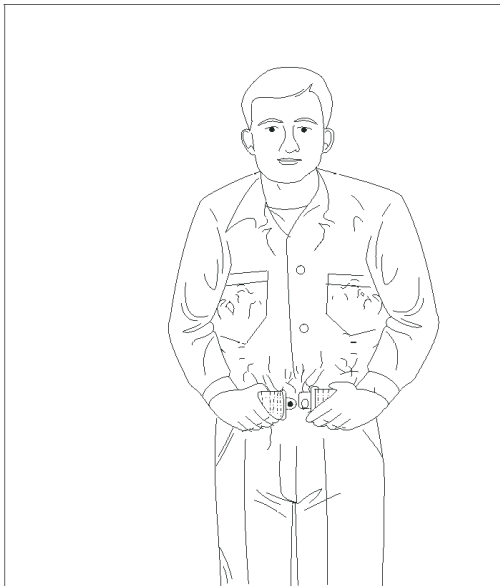
The auto-function device uses a water-degradable paper to release a spring that causes two CO₂ cylinders to be punctured and inflate the preserver.

PIN-ON LIGHTS.—Small watertight flashlights or chemically activated light sticks have been developed for use with life preservers to help rescuers see a person in the water more easily at night. The flashlight consists of a one-cell battery case to which is permanently attached a heavy metal safety pin for fastening the light to the preserver. The lens is dome-shaped, providing 360° visibility from above. The chemically activated light sticks are activated by a chemical reaction in the stick.

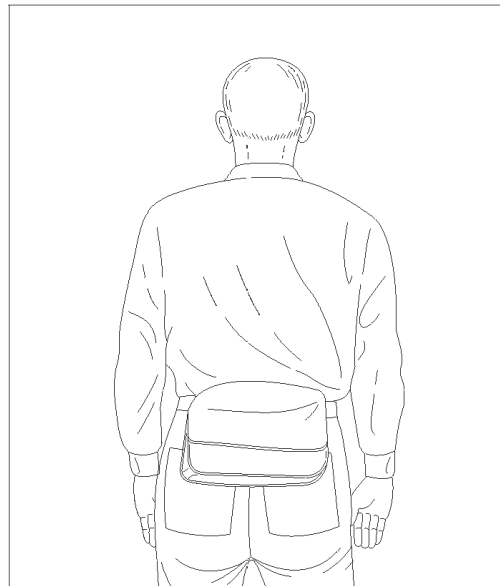
Wear these lights whenever you use the life preserver. Check the battery at least once a week to see that it works. Replace the battery at least every 6 months. Check the light stick each time you use the preserver, and replace it if you see any indication that the stick has been damaged or used. Remember the following tips when using these lights:

- On the vest-type preserver, pin the light near the top of your shoulder so that the lens points upward.
- When pinning the light on the vest-type preserver, take care not to pierce the waterproof

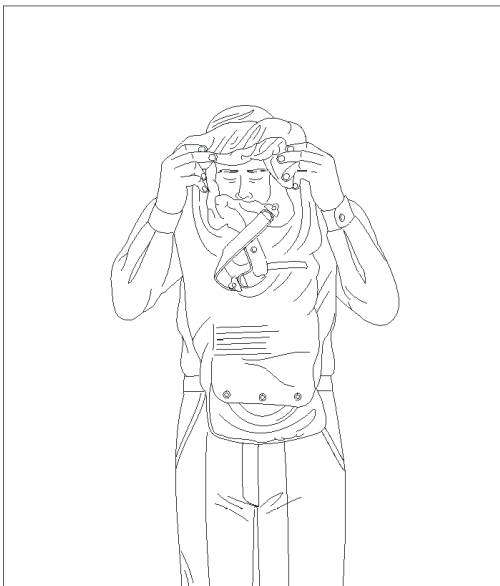
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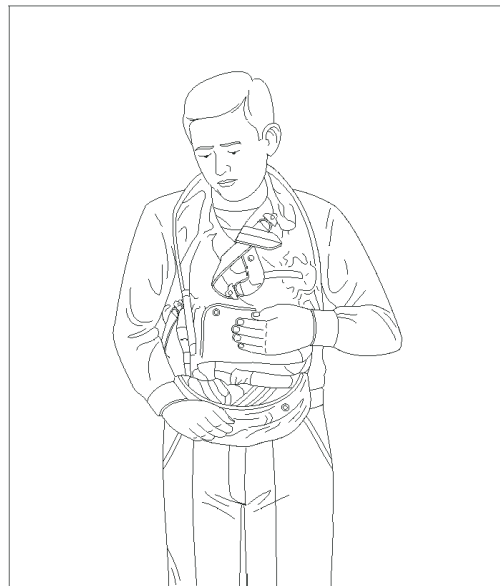
A. WEB BELT FASTENED.



B. POUCH IN CARRY POSITION.



C. POUCH HAS BEEN PULLED AROUND TO THE FRONT. COVER OF POUCH HAS BEEN UNSNAPPED. PRESERVER HAS BEEN PULLED OUT AND IS BEING PUT OVER THE HEAD.



D. PRESERVER IN POSITION, HAND JERKING DOWN ON LANYARD.

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Figure 15-5.—Inflatable life preserver.

covering in which the fibrous glass pads are wrapped.

- Attach the light to the inflatable preserver to the tab provided for this purpose.

Some ships may issue strobe lights. These lights

have a brighter intensity. The battery screws in and is water-resistant.

Some commands are issuing chemical lights as life vest pin-on lights. The light used for a pin-on light has a green color when the chemical is activated. You activate the chemical light by squeezing the lens, which crushes

Student Notes:

an inner vial; that allows the chemicals to mix, causing the wand to glow. Dispose of these lights after one use.

CARE AND STOWAGE OF PRESERVERS.—

Some of the rules you should follow when taking care of and stowing your preservers are contained in the following section:

Laundering your life preserver. Inherently buoyant life preservers—

- Launder the outer covers after removing the fibrous glass pads. (**NOTE:** Don't launder the pads.)
- Clean the inflatable types with a mild soap solution only.

Stowing your life preserver. The rules for stowing life preservers include—

- Don't stow life preservers in the vicinity of oil, paint, grease, heat, moisture, or dirt. The nylon material will deteriorate.
- Keep preservers clear of sharp edges, which increase wear and tear.
- Keep preservers away from steam lines and radiators.
- Dry preservers thoroughly before stowing them to prevent mildew.
- Don't tamper with your life preserver or handle it roughly.
- Don't sit or lie on it. This compresses and mats the filler pads and reduces the buoyancy of the preserver.

Inspecting your life preserver. The following rules apply when inspecting life preservers:

- Inspect your inflatable life preserver every time you put it on and at least once every month (when in your custody).
- Inflate it by mouth to locate possible leaks in the air chamber or inflation valve.
- Make sure the piercing pin of the CO₂ valve is in good working order and the cylinder itself has not been punctured.

- Weigh the cylinder on a gram scale to make sure it is fully charged.

Other actions. Other actions you should take with regard to your life preserver include—

- Being able to put the life preserver on and adjust it in the dark.
- Treat it like a friend; someday it might turn out to be the best one you have!

Lifeboats

A warship doesn't have room to carry all the powerboats needed to transport the entire crew. At sea, a powerboat is usually difficult and sometimes impossible to launch rapidly. For these reasons, the Navy has spent time and expense developing efficient lifeboats other than powerboats.

The Navy uses several types of inflatable lifeboats. Each boat has sufficient equipment to support the number of survivors for which the boat was designed to carry. Each boat's gear includes the following equipment:

- Canopy
- Sea anchor
- Lifeline
- Boarding line
- Rain-catcher tube
- Air hand pumps
- Paddles
- Sponges
- Boat repair kit for patching leaks
- Floatable knife

The inflatable lifeboat (fig. 15-6) also carries—

- Desalter kits for turning seawater into freshwater.
- Survival kits containing food rations, sea marker dye, a flashlight, batteries, a signal mirror, a

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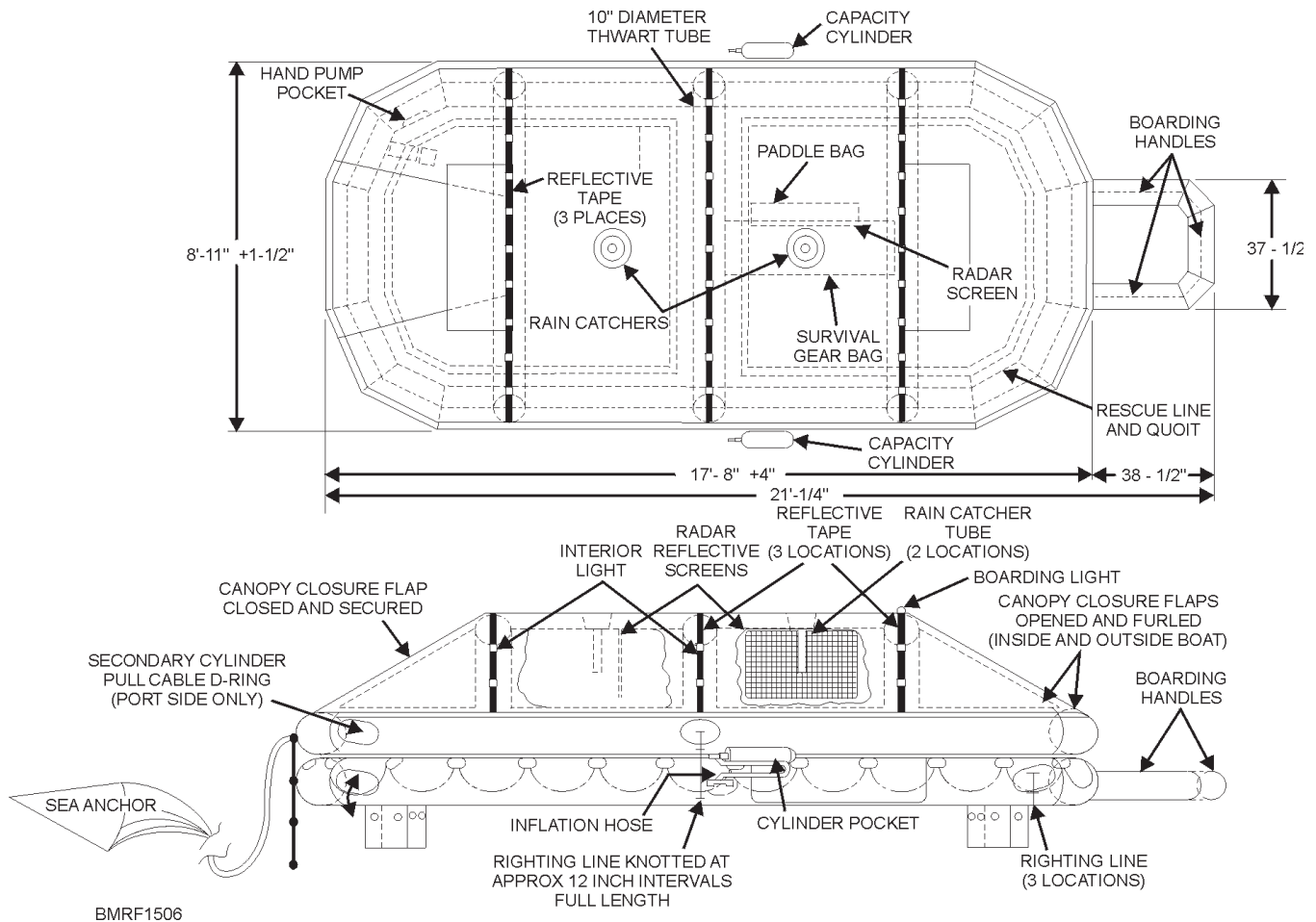


Figure 15-6.—Inflatable lifeboat.

whistle, a first-aid kit, a distress signal kit, and containers of freshwater.

- Survival kits in the large boats are designed to sustain 15 to 20 people for 5 days on regular rations.

SIGNAL EQUIPMENT.—Using signaling equipment in the lifeboat correctly might be the difference between rescue or remaining adrift. The opportunity to attract the attention of friendly aircraft or surface vessels may pass quickly; you must be prepared at all times to use the signaling equipment.

The following chart (next page) describes how to use signaling equipment.

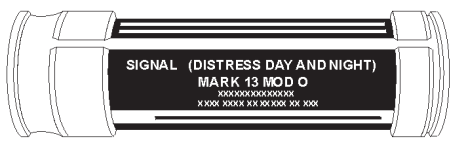
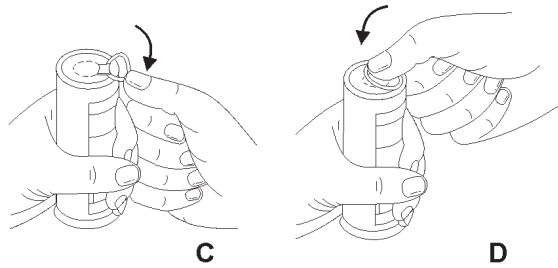
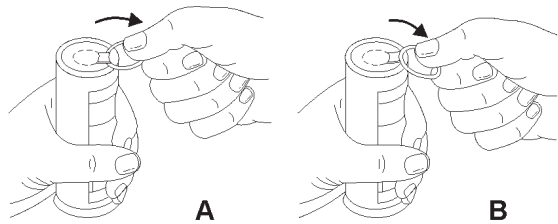
CARE AND USE OF SURVIVAL AND SIGNAL EQUIPMENT.—When using survival and

signal equipment, stow it in containers for safekeeping and protection against the elements. Some of the items, such as the mirror and whistle, have a lanyard for wearing around the neck. Keep all items as dry as possible. After using any item, replace it in its container. Protect flashlights and knives from salt spray; otherwise, they will soon become corroded. About the only items that should be left out continuously are the sponges.

EQUIPMENT FOR OBTAINING WATER.—Never discard (throw away) any article that will hold water. When it rains, every container that can possibly hold water is invaluable. A rain-catcher tube attached to the lifeboat canopy will help you fill the containers. Even in a light rain, some water will drain from the canopy down through the tube. After filling all available

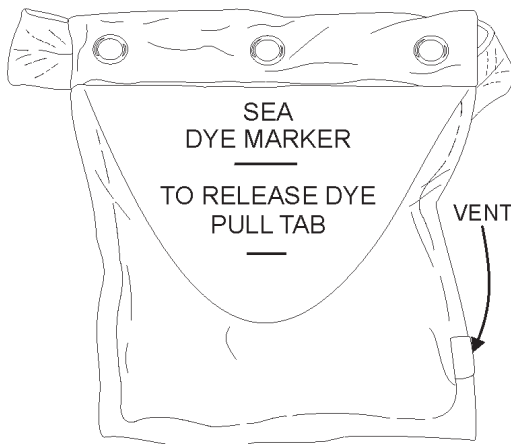
Student Notes:

EQUIPMENT	DESCRIPTION	HOW TO USE
Signal mirror	The mirror is an effective device when the sun is shining. Rough water makes focusing the mirror on a rescue ship or aircraft difficult. If the mirror is lost or is unusable, make another one from a piece of shiny metal.	<p>To signal with the mirror—</p> <ol style="list-style-type: none"> 1. Punch a cross-hole in its center. 2. Hold the mirror about 3 inches in front of your face and sight through the cross at the ship or aircraft. The spot of light shining through the hole onto your face will be seen in the cross-hole. 3. While keeping a sight on the ship or aircraft, adjust the mirror until the spot of light on your face disappears in the hole. The bright spot, seen through the sight, will then be aimed directly at the search ship or aircraft <p style="text-align: center;">NOTE</p> <p>The survival kit contains instructions for using the mirror</p>
Distress signal kit	The signal kit contains 12 (Mk 13 Mod 0) distress signals for day and night use and for providing wind drift information to helicopters rescuing personnel. One end of the signal tube produces an orange smoke for day use; the other end produces a red flare for night use. You can identify the night flare end in the dark by a series of small beadlike projections embossed around it. Each signal will burn for approximately 18 seconds.	<p>To use the signal—</p> <ol style="list-style-type: none"> 1. Select the proper flare, tear off the sealing tape from around the end of the cylinder, and remove the plastic cap to expose a metal pull ring (fig. 15-7). (Only the night end of the flare has a metal ring; the smoke [day] end does not have the ring.) 2. To ignite the MK 13 signal, grasp the pull ring and flip it over the rim of the signal case, as shown in view A. 3. Press down the overhanging ring with your thumb until the seal snaps, as shown in view B. (If the seal refuses to snap, continue pressing on the ring so that it bends over the rim and against the signal body, as shown in view C). 4. Flip the ring back to the top of the signal and press down, as shown in view D, using the bent pull ring as a lever. 5. After the seal breaks, point the signal away from your face and body and give a sharp yank on the pull ring. 6. Hold the signal at an angle of approximately 45° from the horizontal position with your arm fully extended. The contents are hot, so take care not to drop any of the contents on yourself or the lifeboat. 7. After using one end of the signal, cool it by dipping it in water; then save it until you use the other end. Make sure the distress signal is cool before storing it.
Dye marker	The dye marker shown (fig. 15-8) produces a brilliant yellowish-green fluorescence when it is submerged in water. Under good conditions, the dye will be a good target for only about 1 hour, but it will retain some of its color for up to 4 hours. From an altitude of 3,000 feet, a rescue plane may see the dye marker as far away as 10 miles. The range decreases as the dye spreads or is diluted by the water.	See the front of the dye marker cover.



BMRF1507

Figure 15-7.—Igniting the MK 13 distress signal.



BMRF1508

Figure 15-8.—Dye marker.

containers, stow them carefully so that you won't lose any water. Cover all open containers to slow down evaporation; use those you don't have covers for first. During the rain, drink all you can hold.

In polar areas, you can obtain freshwater from old sea ice. Old sea ice is a bluish color, splinters easily, and is nearly free from salt. New ice is milky in color, hard,

and salty. You may also obtain freshwater from icebergs, but use caution. As its underwater portion melts, an iceberg gets top heavy and can capsize without warning.

SURVIVAL STEPS

Most of the following survival information applies to persons in lifeboats, but some of this information applies to persons in the water. In trying to survive at sea, you will face thirst, hunger, and exposure whether you are in a lifeboat or in the water. You can endure these conditions, however, if you take the proper steps.

Thirst

The one absolutely essential requirement for survival is drinking water. Without it, death will most likely occur in 8 to 12 days. Normally, you need about 2 quarts of water a day; but because of inactivity and lack of food, you can survive on as little as 6 ounces a day in a lifeboat.

Water is lost from the body by the evaporation of perspiration and through the digestive process. Some actions you can take to reduce water loss include the following:

- Keep your clothes wet during the day (weather permitting, of course), but dry them before sundown.
- Wear the least amount of clothes possible, depending upon your need for protection from the elements.
- If water is scarce, eat sparingly.
- **Never drink seawater or urine.** To do so would only aggravate your thirst and increase body water loss with a subsequent speedup in dehydration.
- Do not drink your entire daily water ration at one time. It is better to drink small amounts three or four times daily.

Hunger

The food rations supplied with each lifeboat are

Student Notes:

specially designed to maintain your physical and mental abilities and aren't thirst-provoking. The ration is based on an allowance of one packet per person per day; but, you should eat only when you feel the greatest need. Don't take any food or water the first 24 hours. Food is much less important for survival than water. With water, a person can survive for 4 weeks or longer without food.

Nearly all forms of sea life are edible. Some fish are poisonous; for example, jellyfish (which you should never eat). Each lifeboat has a fishing kit for catching fish.

All sea birds are edible, and practically the entire bird is useful. In addition to the food and liquid obtained from sea birds, you can fashion fishhooks and lures from the bones and feathers. In cold weather, a bird's skin (with feathers) will protect exposed parts of your body.

Birds sometimes settle on the raft or boat, and survivors have reported instances where birds landed on their shoulders. If birds are shy, try dragging a baited hook through the water or throwing a baited hook into the air.

You can catch gulls, terns, gannets, and albatrosses by dragging a baited hook behind the boat or raft. You can attract them within shooting distance by dragging a bright piece of metal or shell behind the raft. It's possible to catch a bird if it lands within reach. Most birds, however, are shy and will settle on the raft out of reach. In that case, try a bird noose. Make it by tying a loose knot with two pieces of line, as shown in figure 15-9. Bait the center of the loop with fish entrails or similar bait. When the bird settles in the loop to eat the bait, tighten the noose around its feet.

The North Atlantic and the North Pacific have relatively few birds, and these are found mostly along the coasts. You may see many species of birds, often hundreds of miles from land, in southern waters.

Exposure

Exposure presents many dangers. Some dangers include sunburn, hypothermia, frostbite, and immersion foot. Some actions you can take to survive these conditions are as follows:

MAN OVERBOARD

All the information in this section applies mainly to ship disasters when your ship is sunk. Such events normally occur in wartime but rarely in peacetime. However, a mishap that can happen to you at any time, and usually without warning, is to fall overboard. One minute you are walking along the main deck; the next

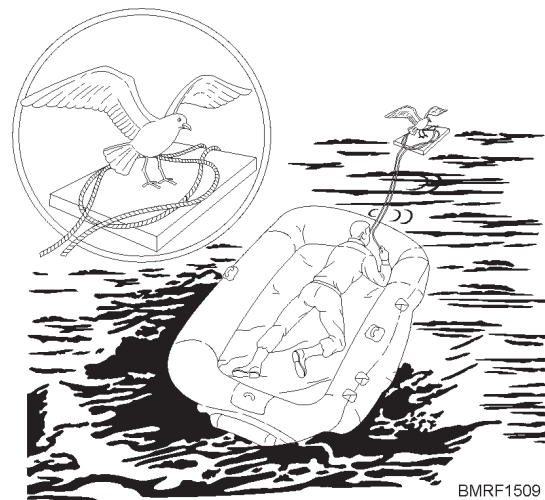


Figure 15-9.—Bird noose.

BMRF1509

CONDITION	ACTION
Cold	You can't survive for any great length of time in cold water without a special exposure suit. In water cooler than 75°F, you face a serious condition called <i>hypothermia</i> . Hypothermia occurs when your body is exposed to subnormal temperatures. To overcome hypothermia, minimize heat loss from your head, neck, sides, and groin. Raise as much of your body as possible out of the water; wear a hat; and assume the fetal position or huddle in close, side-by-side contact with others. Don't move about. Stay calm and encourage others not to panic.

Student Notes:

CONDITION	ACTION
Cold (Continued)	<p>In cold waters, your greatest danger after abandoning ship is the effects of the cold. Wear as much clothing as you possibly can, especially heavy undergarments. Ordinary clothing gives you no protection against cold if you are immersed in water. You must get out of the water as quickly as possible</p> <p>Huddle together for warmth. A huddled group can survive cold that might be fatal to one person alone. Rig wind and spray shields, but don't block the sun's heat. Exercise mildly, if possible, to increase body heat; but never do so to the point of exhaustion.</p> <p>Lifeboats are uncomfortable and cold. In frigid temperatures, you must keep both ends of the inflatable lifeboat closed to keep the temperature comfortable; but this confinement creates other discomforts. Closing the ends reduces ventilation and raises the humidity. Then you must reopen the ends to let out the impure air and to bring in fresh air, which, of course, is cold.</p>
Sunburn	<p>Shoes and clothing are a real protection against sunburn and exposure. Remove clothing only when it is absolutely necessary. If you must remove your clothes while in the water, take off only the heaviest articles. Because your shirt or jumper offers warmth at night as well as protection from the sun during the day, don't remove it. Sunburn is easier to prevent than to treat. Try to remain out of the direct rays of the sun. If you can't avoid direct exposure, keep your hat on and cool your body by wetting your clothing.</p>
Dampness	<p>Although remaining dry on a lifeboat is always difficult, make every effort to keep your clothing dry. Since continuous condensation of moisture causes it to drop like rain, sponge out the boat whenever possible. Cold weather aggravates these uncomfortable conditions.</p>
Frostbite and immersion foot	<p>Frostbite and immersion foot are serious injuries that can happen even when you're wearing enough clothing to stay fairly comfortable. Frostbite usually affects the hands, face, or feet, and it most often occurs on windy, very cold days. Affected parts of the body turn stiff, pale, and numb. To prevent frostbite, keep exposed parts of the body as warm as possible and maintain circulation. If frostbite occurs, treat the affected part immediately by placing it in contact with a warm part of your body. Cover it with your hand or put frozen fingers inside your clothing. Don't rub the affected parts; that could result in damage to frozen tissue.</p> <p>Immersion foot is the swelling of the foot accompanied by numbness and pallor (lack of color) or discoloration. Immersion foot is caused by poor circulation in the legs, particularly when the foot remains wet for several days. To prevent immersion foot, exercise the ankles and toes for a few minutes several times each day. Keep your feet warm, dry, and elevated as much as possible. Unlace your shoes or take them off. If you have no dry socks or wrappings for your feet, put them under the arms or in the lap of a shipmate. Never treat immersion foot by rubbing. As with frostbite, tissue damage may result. Rewarming is the only proper treatment.</p>

Student Notes:

minute you are in the water, swimming for your life.

If you fall overboard and someone hears or sees you (one of the purposes of the lookout watch), you can count on being rescued within a few minutes. Such rescues are made in nearly every instance. However, if no one sees you fall overboard or hears a cry for help, you'll be missed and rescue procedures will then be put into action.

If you fall overboard, the most important thing to do is stay calm. Panic will cause you more harm than almost anything else. If you see any floating debris nearby, hang on to it. Otherwise, remove and inflate your trousers. Remember, you can stay afloat for a long time, even without help, if you use the floating positions. Don't swim after the ship, because you'll only exhaust yourself needlessly, and the ship may waste valuable time searching for you at the point where you fell overboard.

The method used to rescue a person overboard depends on the circumstances at the time. In daylight, with good weather, a helicopter (if available) is normally used. Otherwise, the ship's motor whaleboat is used, or you may be recovered directly over the side of the ship.

Helicopters use three basic devices for recovering a person in the water—

1. Sling. If the sling is used, adjust it so that it is across your back and under your arms with the hoisting cable in front of you.
2. Net. If the net is used, simply sit in it and hold on.
3. Two- or three-pronged seat. If a two- and three-pronged seat is used, sit on the prongs and wrap your arms around the upright portion.

When a motor whaleboat is used for rescue, the boat crew helps you into the boat. Also, a swimmer provides assistance if you are injured or exhausted. Don't try to enter the boat from astern; you may be injured by the propeller.

If neither a helicopter nor a whaleboat can be used for rescue, the ship will maneuver to a position where a swimmer, towing a line, can reach you. After the line is fastened around your body, personnel on deck will haul

you in and hoist you aboard.

While awaiting rescue, remain calm. If sharks are in the area, float on your back, using as little arm and leg movement as possible.

To decrease your chances of having to be rescued at all, observe all safety regulations. Don't lean on lifelines. Don't go on deck in bad weather unless you have to. Always wear a life preserver when working in areas where you are in danger of falling overboard. Aboard aircraft carriers, don't walk behind a jet plane turning up its engines because the blast can blow you overboard.

Ships frequently hold man-overboard drills. In spite of precautions, accidents happen. Therefore, when you are at the beach, don't spend all your time sunbathing. Practice swimming and floating. Someday your life may depend on your ability to swim and float.

REVIEW 1 QUESTIONS

- Q1. When aboard ship, you should know escape routes for what reason?
- Q2. True or False. You should dive into the water to abandon ship.
- Q3. What swimming classification gives you the best chance for survival if you have to abandon ship?
- Q4. If you have to jump from a ship into burning water, you should—
- Q5. Which of the following items can you use to stay afloat?
 - a. Trousers
 - b. Sea bag
 - c. Pieces of wood
 - d. All of the above

Student Notes:

Q6. List the two types of life preservers used by the Navy.

a.

b.

Q7. When you have custody of your life preserver, how often should you inspect it?

Q8. List the contents of survival kits carried by inflatable lifeboats.

a.

b.

c.

d.

e.

f.

g.

h.

i.

Q9. What is the one essential requirement for survival?

Q10. The food ration carried by lifeboats is based on how many packets per person per day?

Q11. List some of the dangers you might face by exposure.

a.

b.

c.

d.

SURVIVAL ASHORE

Learning Objectives: When you finish this chapter, you will be able to—

- Recall the methods and procedures for survival ashore to include individual survival, group survival, and methods of evasion and escape.
- Identify the responsibilities and authority of the senior person in a survival situation.

Survival is largely a matter of mental outlook, and the will to survive is the deciding factor. The experiences of hundreds of service personnel isolated during World War II and the Korean conflict and Vietnam police action prove that survival is largely a matter of mental outlook. These experiences also prove that the will to survive is the deciding factor in survival. Whether with a group or alone, you will experience emotional problems resulting from fear, despair, loneliness, and boredom. Your will to live will also be taxed by injury and pain, fatigue, hunger, and thirst. Being prepared mentally to overcome all obstacles and accept the worst greatly increases your chances of coming out alive.

INDIVIDUAL SURVIVAL

The shock of being isolated behind the enemy lines, in a desolate area, or in enemy hands can be reduced or even avoided if you remember what each letter in the key word *S-U-R-V-I-V-A-L* stands for.

Size up the situation

Undue haste makes waste

Remember where you are

Vanquish fear and panic

Improvise

Student Notes:

Value living

Act like the natives

Learn basic skills

S — Size up the situation by considering yourself, the country, and the enemy.

In considering yourself, hope for the best, but be prepared for the worst. Get to a safe, comfortable place as quickly as possible. Once there, look things over, think, and form a plan. Your fear will lessen and your confidence will increase. **Be calm!** Take it easy until you know where you are and where you are going.

Part of your fear may come from being in a strange country; therefore, try to determine where you are by landmarks, compass directions, or by recalling intelligence information passed on to you by your leaders.

In considering the enemy, put yourself in the enemy's shoes. What would you do? Watch the enemy's habits and routines. Base your plan on your observation. Remember, you know where the enemy is; the enemy does not know where you are.

U — Undue haste makes waste.

Don't be too eager to move. That will make you careless and impatient. If you begin to take unnecessary risks, you have a good chance of being captured. Don't lose your temper; doing so may cause you to stop thinking. When something irritating happens, stop, take a deep breath, relax, and start over.

Face the fact that danger does exist. To try to convince yourself otherwise only adds to the danger.

R — Remember where you are.

You may give yourself away because you're used to acting in a certain way. Doing "what comes naturally" could be the tip off that you don't belong there.

V — Vanquish fear and panic.

To feel fear is normal and necessary. It's nature's way of giving you that extra shot of energy just when you need it. Learn to recognize fear for what it is and control it. Look carefully at a situation and determine if your fear is justified. When you investigate, you will usually find many of your fears unreal.

When injured and in pain, you'll have difficulty controlling fear. Pain sometimes turns fear into panic and causes you to act without thinking. Loneliness can also cause panic. It can lead to hopelessness, thoughts of suicide, carelessness, even capture or surrender. Recognizing these signs helps you overcome panic.

I — Improvise.

You can always do something to improve the situation. Figure out what you need, take stock of what you have, and then improvise. Learn to put up with new and unpleasant conditions. Keeping your mind on SURVIVAL will help. Don't be afraid to try strange foods.

V — Value living.

Conserve your health and strength. Illness or injury will greatly reduce your chances of survival and escape. Hunger, cold, and fatigue lower your efficiency and stamina, make you careless, and increase the possibility of capture. Knowing that will make you especially careful because you'll realize your low spirits are the result of your physical condition and not the danger. Remember your goal of getting out alive. Concentrating on the future—on the time when you will return home—will help you value living during your survival situation.

A — Act like the natives.

"At a railroad station, there were German guards," one World War II male escapee related. "I had an urgent need to go to the rest room. The only rest room was an exposed one in front of the station. I felt too embarrassed to relieve myself in front of all passersby. I walked throughout the entire town, occasionally stopping and inquiring if a rest room were available."

This man was detected and captured because he failed to accept the customs of the natives. When you are in a foreign country, accept and adopt native behavior to avoid attracting attention to yourself.

L — Learn basic skills.

The best life insurance is to make sure you learn the techniques and procedures for survival so thoroughly that they become automatic. That increases the chances that you will do the right thing, even in panic. What you know about survival could save your life. Be inquisitive

Student Notes:

and search for additional survival knowledge.

GROUP SURVIVAL

Just as you must make your reactions to survival situations automatic, so must the entire squad, platoon, or other group that you might be a member of or be leading. The best chance for survival belongs to the group that works **together** and has a leader who accepts responsibility for the group. When you are the senior person, accept responsibility for your group by taking steps to lead members to work together. Some actions you can take include the following:

Organize group survival activities. Group survival depends largely upon the organization of its manpower. Organized action by group members who know what to do and when to do it, during ordinary circumstances and during a crisis, prevents panic. Keeping the group informed, devising a plan, and sticking to the plan helps achieve organization.

Assume command and establish a chain of command that includes all members of the group. Good leadership lessens panic, confusion, and disorganization. Make certain each person knows his or her position in the chain of command and is familiar with the duties of every other person, especially your duties as the senior member. Under no circumstances leave leadership of the group to chance acceptance by some member after a situation arises.

Maintain respect for your leadership by using it wisely; be the leader and set the example. Group survival is a test of effective leadership. Watch out for problems that could turn into serious arguments. Keep troublemakers from attracting undue attention, and keep those who may “crack up” from disrupting the group. Prevent carelessness caused by fatigue, hunger, and cold. Know yourself and the members of your group; take responsibility for each person’s welfare.

Develop a feeling of mutual dependence within the group by stressing that each person depends on the others for survival. Emphasize that the group will not leave the wounded or injured behind—that each member’s responsibility is to make sure the group returns intact. A feeling of mutual dependence fosters high morale and unity. Each member receives support and strength from the others.

Make the decisions no matter what the situation.

However, base your decisions on the information and advice of other members of the group—much as admirals make decisions based on input from their staff. Above all else, never appear indecisive.

If situations require you to act immediately, consider the facts and make decisions rapidly. The ability to think on your feet usually determines successful survival.

STRESS OF SURVIVAL

Survival is a state of mind. Your ability to return to your group or to be rescued depends in a great part on your ability to cope with frustrations. You may become frustrated because you find you are unable to accomplish specific tasks. Perhaps you are hungry, cold, lost, injured, or lack the proper equipment. Being able to improvise equipment, care for your physical needs, and provide first aid for your injuries will help you to control your environment, reactions, and emotions. Don’t be afraid to experiment and use your imagination. A logical experimental approach is the best way to solve most problems.

Remember the following rules:

1. Almost everything is useful—don’t throw away anything.
2. You can be lazier than you would expect, if you just think. The least effort can be the most efficient.
3. Everything you do should be oriented toward rescue.
4. If your surrounding conditions don’t suit your needs, do what you can to change them.

SURVIVAL TECHNIQUES

As a member of the armed forces, you always face the chance of being exposed to conditions that can force you into a life-or-death struggle. However, you can remain alive anywhere in the world when you keep your wits. Remember that nature and the elements are neither your friend nor your enemy. By using your wits, you can make them work for you instead of allowing them to work against you.

Student Notes:

Survival depends on you. You must be physically fit and know how to locate or collect water. You must know what plants and animals are available for food, how to find or catch them, how to prepare them, and how to recognize those which will harm you. The more you know about the conditions peculiar to the region you are in, including the plant and animal life, the better are your chances for survival.

Water

Without water your chances of living are slight, and all the food in the area means little. That is especially true in hot climates where you sweat a lot. Even in cold weather your body needs at least 2 quarts of water each day; a lesser amount reduces your efficiency.

When you can't find surface water, tap through the earth's water table for groundwater (rain or melted snow that has filtered through the ground). Getting to the water table and its supply of generally pure water depends on the contour of the land and the characteristics of the soil.

In the desert or arid regions, watch for water indicators. Some signs of water include—

- Plants covering animal trails and the direction in which certain birds fly. By searching in areas toward which these birds fly, you will probably find water.
- Places that are visibly damp, where animals have scratched, or where flies hover indicates recent surface water. Dig in those spots for water.

Leave your handkerchief out on clear nights to collect dew; then squeeze the water into a container. During a heavy dew, you should be able to collect about a pint an hour.

You may find runoff water above the water table. Runoff water includes streams, stagnant pools, and water in bogs. Consider this water contaminated and dangerous even if it is away from human habitation. Boil or treat this water with water purification tablets before you drink it.

If you are unsuccessful in your search for ground or runoff water or if you don't have time to purify questionable water, a water-yielding plant may be your

best bet. You can easily get clear, sweet sap that is pure and chiefly water from many plants. Many plants with fleshy leaves or stems store drinkable water. Try them wherever you find them. Desert plants often have their roots near the surface. Pry these roots out of the ground and cut them into 24- to 36-inch lengths. Remove the bark and suck out the water.

Not all vines yield palatable water, but try any vine you find. Use the following method for tapping a vine. It will work on any species.

1. Cut a deep notch in the vine as high up as you can reach.
2. Then cut the vine off close to the ground and let the water drip into your mouth or a container.
3. When the water ceases to drip, cut another section off the vine.
4. Repeat this procedure until the supply of fluid is exhausted (fig. 15-10).

NOTE

If the liquid is a white sap or very dark in color, it is not drinkable. If the liquid is clear, test it for odor. If it is slightly pink or red in color, that normally indicates the presence of tannic acid, which isn't harmful. If it has no taste, or does not taste bad, it is a good source of water.

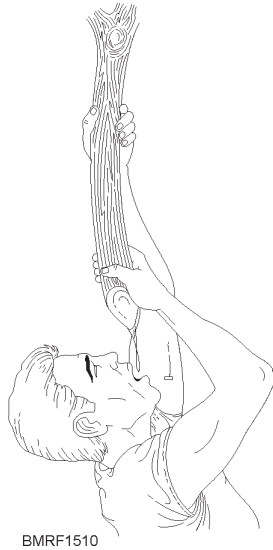
Food

It takes little reasoning to recognize that your second requirement is food. That's especially true during a time of survival when you need every ounce of energy and endurance that you can muster.

People have been known to live for more than a month without food; but unless you are in extremely difficult circumstances, you don't need to deprive yourself of something to eat. Used properly, nature can provide you with food. Apply the following rules as soon as you realize you are isolated:

1. Inventory your rations and water. Estimate the length of time you will be on your own.
2. Divide your food—two thirds for the first half of your isolation and one third for the second half.

Student Notes:



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Figure 15-10.—Extracting water from vines.

3. Avoid dry, starchy, and highly flavored foods and meats if you have less than 1 quart of water for each day. Remember eating makes you thirsty. Eat food high in carbohydrates, such as hard candy and fruit bars.
4. Keep strenuous work to a minimum. The less you work, the less food and water you require.
5. Eat regularly if possible—don't nibble. Plan one good meal each day and cook it if you can. Cooking makes food safer, more digestible, and better tasting. Also, the time you spend cooking will give you a rest period in which you can relax.
6. Always be on the lookout for food. With few exceptions, everything you see that walks, crawls, swims, or grows from the soil is edible. Learn to live off the land.

PLANTS.—Experts estimate that about 300,000 classified plants grow on the earth's surface, including many that grow on mountain tops and ocean floors. Of these, 120,000 varieties are edible. Obviously, you won't be able to learn about all of these plants from reading this chapter. But if you know what types of food to look for in the area in which you are stranded, can identify them, and know how to prepare them properly, you should find enough to keep you alive. You may even surprise yourself with a delicious meal.

Eat those plants available in the area to provide you with needed energy while you search for meat. You can depend on them to keep you alive if you're injured, unarmed in enemy territory, or in an area where wildlife is not abundant. Although plant food may not provide a balanced diet, especially in the Arctic where heat-producing qualities of meat are essential, it will sustain you. Many plant foods, like nuts and seeds, will give you enough protein for normal efficiency. In all cases, plants provide energy and calorie-giving carbohydrates.

Most sources of plant foods (fruits, nuts, and berries) have one or more parts that have a lot of food value. For example, certain roots and other underground parts of plants that are rich in starch are excellent sources of food. Some examples are shown on the following page.

ANIMALS.—Foods derived from animals have more food value per pound than those derived from plants. Learning what parts of animals you can eat or use in other ways and learning how to prepare animals for cooking increase your chances of survival.

Methods of Cooking and Preserving Foods

Besides making most foods more tasty and digestible, cooking makes them safer to eat by destroying bacteria, toxins, and harmful elements in the food. Your survival chances increase as your knowledge of field survival skills increases. Survival skills include your ability to improvise and to apply the following principles of cooking and preserving the foods you obtain in the field.

Harmful Plant and Animal Foods

Although you will encounter relatively few poisonous plants and animals, you should learn to recognize and avoid them.

Some places, such as the Arctic and subarctic regions, have less than a dozen plants that are poisonous. These include the water hemlock (fig. 15-16) and the poisonous mushrooms (figs. 15-17 and 15-18).

Student Notes:

FOOD	CHARACTERISTICS
Wild potato	The wild potato is an example of an edible tuber (fig. 15-11). This small plant is found throughout the world, especially in the tropics.
Solomon's seal	Tubers of Solomon's seal (fig. 15-12) grow on small plants found in North America, Europe, Northern Asia, and Jamaica. Boiled or roasted, they taste much like parsnips.
Water chestnut	The water chestnut is a native of Asia, but it has spread to both tropical and temperate areas of the world including North America, Africa, and Australia. It is found as a free-floating plant on rivers, lakes, and ponds in quiet water. The plant covers large areas wherever it grows. It has two kinds of leaves—the submerged leaf, which is long, rootlike, and feathery, and the floating leaf, which forms a rosette on the surface of the water. Beneath the water, the plant bears nuts that are 1 to 2 inches broad with strong spines that give them the appearance of a horned steer (fig. 15-13). You can roast or boil the seed inside the horny structure.
Nut grass	Nut grass is widespread in many parts of the world. Look for it in moist, sandy places along the margins of streams, ponds, and ditches. It occurs in both tropical and temperate climates. The grass differs from true grass because it has a three-angle stem and thick underground tubers that grow ½ to 1 inch in diameter. (See fig. 15-14.) These tubers are sweet and nutty. Boil, peel, and grind them into flour; you can use the flour as a coffee substitute.
Bullrush	Bullrush is a tall plant found in the wet, swampy areas of North America, Africa, Australia, the East Indies, and Malaya. (See fig. 15-15.) You may eat the roots and white stem base cooked or raw.



Figure 15-11.—Wild potato.

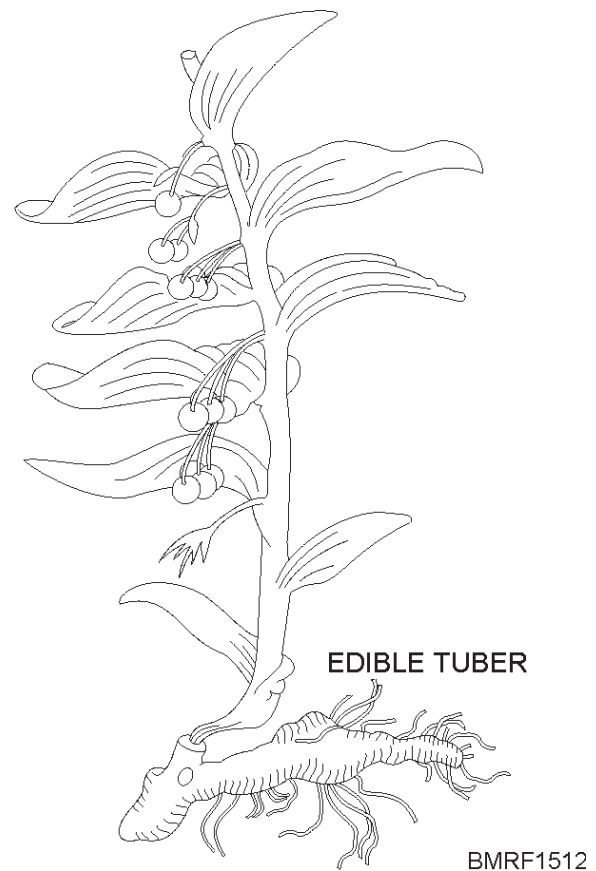


Figure 15-12.—Solomon's seal.

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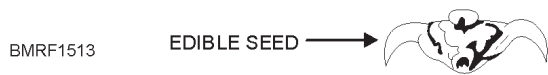
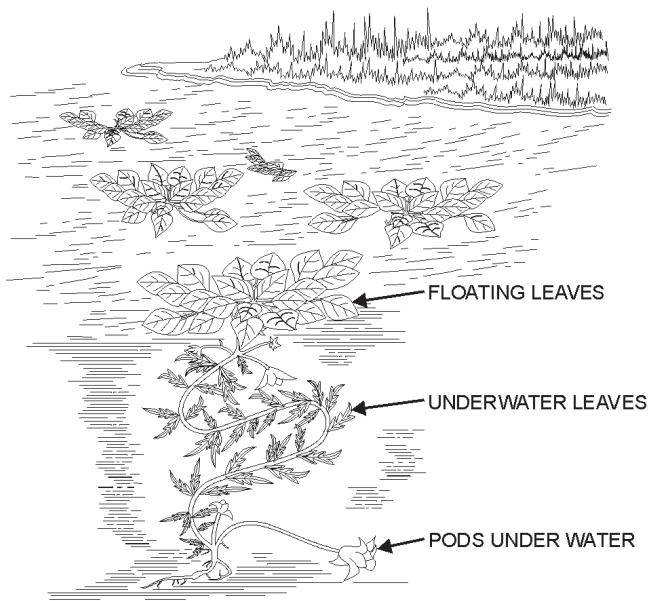


Figure 15-13.—Water chestnut.

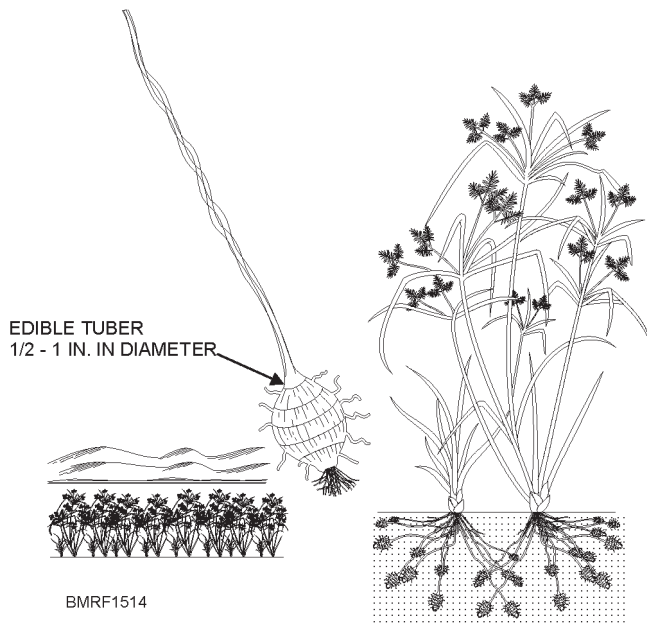


Figure 15-14.—Nut grass.

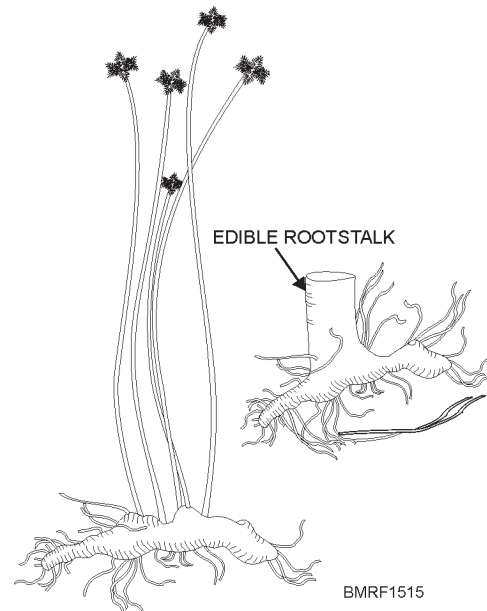


Figure 15-15.—Bullrush.

The tropics have no greater proportion of poisonous plants than the United States. If you're in doubt about whether plants are poisonous or nonpoisonous, observe the habits of vegetable-eating animals, such as birds, rodents, monkeys, baboons, and bears. Usually the foods these animals eat are safe for humans. Cook all plant foods because cooking removes plant poisons (except those in poisonous mushrooms).

NOTE

Avoid eating plants that taste bitter. Also avoid eating untested plants that have milky juices. Don't let the milky juice contact your skin.

You may eat most animals. However, some, like mollusks, may introduce parasites into your body, especially if you eat them uncooked or when they aren't fresh. Crustaceans are almost always edible, but they spoil rapidly and may harbor harmful parasites. Be sure to cook the freshwater variety; eat the saltwater variety raw if you desire.

You have no simple way of telling whether a fish is edible. That depends on the place in which they live, their source of food, or even the season of the year. Often fish that are edible in one area of the world are not in another. At first, eat only small portions of any fish. If you feel no ill effects, you can probably continue to eat the fish safely.

Student Notes:

TYPE OF ANIMAL	PROCEDURE
Birds	<p>Cook most birds with the skin on to retain their food value. After plucking a bird, cut off the neck close to the body and take out the internal organs through the cavity. (NOTE: Scalding most birds makes them easier to pluck. Waterfowl are an exception; they are easier to pluck when dry.) Wash out the cavity with fresh, clean water. Save the neck, liver, and heart for stew. Boil scavenger birds, like buzzards and vultures, at least 20 minutes before you cook them to kill parasites.</p> <p>Birds' eggs are among the safest of foods. You can hard boil eggs and carry them for days as reserve food.</p> <p>Save all the feathers you pluck from the birds. You may use them for insulating your shoes or clothing or for bedding.</p>
Fur-bearing animals	<p>Clean and dress the carcass of a fur-bearing animal as soon as possible after death. Any delay will make your job harder. Cut the animal's throat and allow the blood to drain into a container. The boiled blood is a valuable source of food and salt. Save the kidneys, liver, and heart. Use the fat surrounding the intestines. All parts of the animal are edible, including the meaty parts of the skull, such as the brain, eyes, tongue, and flesh.</p>
Shellfish	<p>Crabs, crayfish, shrimp, prawns, and other crustaceans are excellent sources of food. However, crustaceans spoil rapidly so boil them alive immediately after capture. You can steam, boil, or bake shellfish such as clams, oysters, and conchs in the shell. Shellfish make an excellent stew when cooked with greens or tubers.</p>
Other foods	<p>You can easily catch grasshoppers, locusts, large grubs, termites, ants, and other insects to provide nourishment in an emergency.</p>

METHOD	DESCRIPTION
Roasting or broiling	<p>This is a quick way to prepare wild plant foods and tender meats. Roast meat by putting it on a stick and holding it near the embers of your fire. Roasting hardens the outside of the meat and retains the juices.</p>
Baking	<p>Baking is cooking in an oven over steady, moderate heat. The oven maybe a pit under you fire, a closed vessel, or a leaf or clay wrapping. Pit cooking protects food from flies and other pests and reveals no flame at night.</p>
Steaming	<p>You can steam foods that require little cooking, like shellfish. Place your food in a pit filled with heated stones over which leaves are placed. Put more leaves over your food. Then force a stick through the leaves down to the food pocket. Pack a layer of dirt on top of the leaves and around the stick. Remove the stick and pour water to the food through the holes that remains. Steaming is a slow but effective way to cook.</p>
Parching	<p>Parching may be a desirable method of preparing some foods, especially grains and nuts. To parch, place the food in a metal container and heat slowly until it is thoroughly scorched. In the absence of a suitable container, use anything that holds food or water—a heated, flat stone; turtle shells; seashells; leaves; bamboo; or a section of bark.</p>
Drying	<p>Drying preserves food by ridding it of moisture. You can dry plant food and meat by exposing them to wind, sun, air, fire, or any combination of these. To produce jerky, cut meat into 1/4-inch strips and place it across grates; allow it to dry in either the wind or smoke until brittle.</p>

Student Notes:

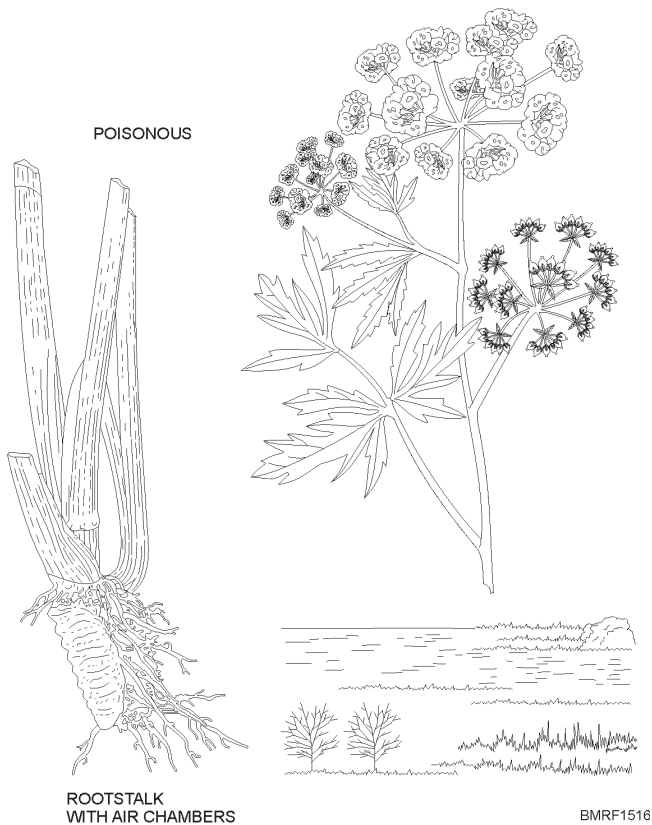


Figure 15-16.—Water hemlock.

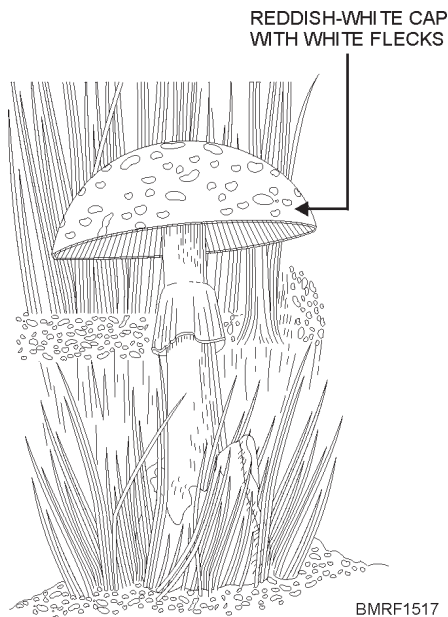


Figure 15-17.—Fly agaric.

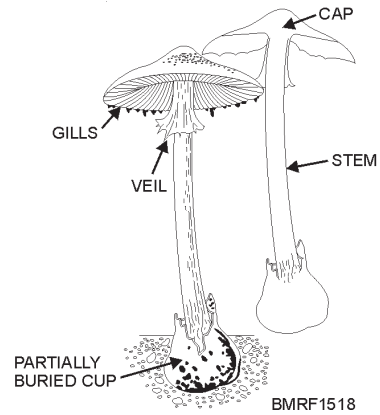


Figure 15-18.—Death angel.

EVASION

According to the Code of Conduct for Members of the Armed Forces of the United States, it is your duty to evade capture by the enemy. Your job is to **get back** to your unit. Your survival will depend on your ability to apply the techniques of evasion. No other reason is more important for making evasion techniques part of your basic combat skills.

Evasion means traveling through enemy-held territory without being captured. Falling into the hands of the enemy is an event that no military person wants to experience. However, at some point in your career you may find yourself in a situation where capture is a possibility. You need to know a few basic evasion principles to decrease your chances of winding up as a guest of the enemy.

During World War II and the succeeding actions in Korea and Vietnam, many of our soldiers, Sailors, and marines were able to avoid the enemy and safely return to friendly forces. They were successful because they applied some or all of the guidelines presented in the following paragraphs. You need to learn this information so that you know how to evade the enemy. It could mean the difference between freedom or capture; interrogation; and possibly, inhumane treatment by enemy forces.

Obviously, the most important consideration in evasion is knowing where the enemy is located. If you don't know the enemy's location, watch for the

Student Notes:

following signs. They can tell you the enemy's location as well as other valuable information.

1. Signs that groups have passed, such as crushed grass, broken branches, footprints, cigarette butts, or other discarded trash, may reveal their identity and size, their direction of travel, and the time they passed through.
2. Workers in fields may indicate absence of the enemy.
3. Apparently normal activities in villages may indicate absence of the enemy.
4. Less obvious conditions may indicate the presence of the enemy, such as the following:
 - a. The absence of workers in fields is an indication that the enemy is near.
 - b. The absence of children in a village is an indication that the children have been hidden to protect them from action that may take place.
 - c. The absence of young people in a village is an indication that the enemy controls the village.

Some evasion techniques you may find useful are cover, concealment, and camouflage. To keep yourself from being seen, you may have to hide in bushes or lie flat in shallow ditches using brush as a cover or camouflage.

When evading the enemy, remember the following points:

1. Conceal yourself from enemy aircraft and nearby enemy troops.
2. Move quietly; noises carry in fog, fallen snow, heavy foliage, and over rock faces.
3. Maintain personal hygiene to prevent body odor; cover body waste and scraps of food; avoid activities, such as cooking and smoking, that produce smells; such smells can reveal your location.
4. Don't make sudden, rapid movements that can reveal your location.
5. Select routes for movement that avoid exposed

areas and don't show your silhouette against the skyline. Don't leave obvious tracks.

Crude Direction-Finding Techniques

How do you determine direction without a compass? Nature can help you or nature can fool you. The two best crude sources of direction are the sun and the stars, but you must know how to use them.

Sun	<p>The sun travels from the eastern sky to the western sky. How can you use the sun to determine an east-west direction?</p> <p>You can use shadows (even on a cloudy day) made by the sun to get an accurate east-west line. On a flat surface, drive a stick 3 or 4 feet high in the ground. Then mark the tip of the stick's shadow with a rock. If you wait awhile and then mark the shadow again, you will see that the line connecting the tips of the shadows inscribes an east-west line on the ground.</p>
Stars	<p>To use the stars, you must have a clear night. You may locate north by finding the North Star (Polaris), the outermost star in the handle of the Little Dipper.</p>

These are very crude direction-finding techniques; you may only use them in the Northern Hemisphere. If your ship or aircraft is going to be operating in the Southern Hemisphere, you should learn the techniques for that area of the world.

Evasion Travel

The route that you select to travel while trying to evade the enemy depends on your situation, the weather conditions, and the nature of the terrain. Whether you select a ridge, stream, valley, coastline, dense forest, or mountain range to follow, be sure it is the safest, rather than the easiest, way. Experience has proved that the most difficult route is frequently the safest.

Travel Tips

Some tips you can use when traveling include the following:

Student Notes:

- Be patient, cautious, and avoid overconfidence. An enemy's approach isn't a cause for panic. Normally, you have a good chance of remaining unobserved.

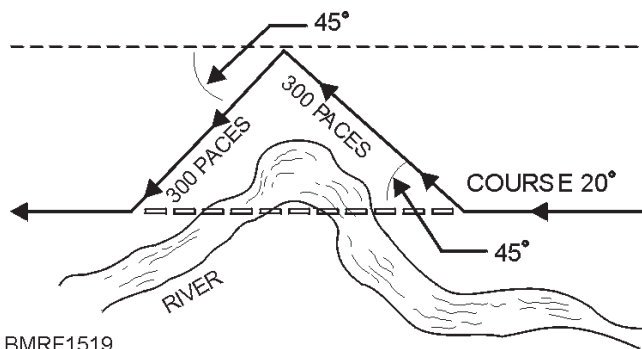
- Conserve your strength by avoiding exhaustion. When you have to remain in one place for an extended period, exercise moderately to keep fit.

- Generally, avoid eating uncooked food or drinking unboiled water. Select a hiding place to cook the food and boil the water you will use en route to the next evasion objective.

- Hold on to items of personal clothing and equipment; they serve a useful purpose during evasion. Keep some items that will identify you as a military person, such as your dog tags. If you can't positively

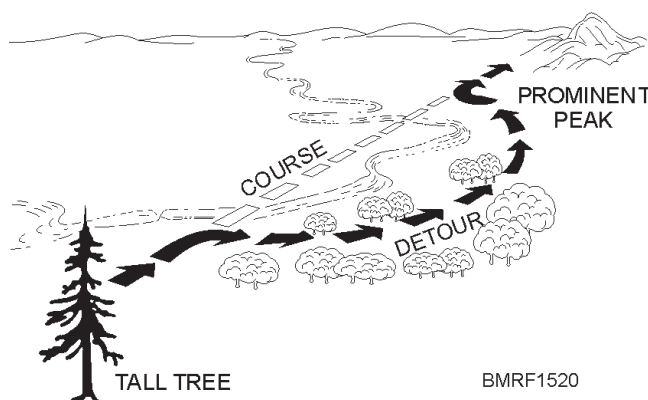
Along a ridgeline	Using a route along a ridgeline is usually easier to follow than one through a valley. You can frequently use animal trails on top of ridges to guide your travel. When following a ridge-top trail, stay below the trail and move parallel to it. Never travel along the top of a ridge. Doing so makes you an easily identifiable silhouette against the skyline.
Use of a stream	Using a stream as a route is of particular advantage in a strange country. It provides a fairly definite course and might lead to populated areas. It's a potential food and water source and may provide you a means of travel by boat or raft.
Following a coastline	Following a coastline leads you on a long, roundabout route. However, a coastline serves as a good starting point. It is an excellent base line from which to get your bearings and a probable source of food.
In a dense forest	When traveling in a dense forest, you probably won't be able to spot distant landmarks. You can stay on course by lining up two trees forward of your position in your direction of travel. As soon as you pass the first one, line up another beyond the second. You might find it helpful to look back occasionally to check the relative positions of landmarks.
Marking your route	You can mark your route with bent bushes, rocks, or notches placed on the backsides of trees at approximately eye level. Make bush marks by cutting vegetation or bending it so that the under, lighter sides of the leaves are facing upward. These signs are especially conspicuous in dense vegetation, but you should be cautious in using them. By plainly marking your route, you risk discovery.
Trails in your general direction	Follow trails that lead in your general direction; when you come to a fork, follow the path that appears most traveled. If you follow the wrong trail and become lost, stop and try to remember the last time you were sure of where you were. Mark your location and start backtracking. Sooner or later you will discover a recognizable feature with which you can pinpoint your position.
Detouring in rough country	You might have to detour frequently in rough country. To do that, try to follow the method shown in figure 15-19 for estimating distance and average angle of departure for short detours. On your return from the detour, estimate the angle and distance to regain your original line of travel. For greater accuracy, count paces and use a compass. Another method (fig. 15-20) lets you select a prominent landmark ahead and behind your line of travel. On returning from your detour, walk until you are again lined up on the two landmarks; then follow your original course.

Student Notes:



BMRF1519

Figure 15-19.—Estimating distance and average angle of departure.



BMRF1520

Figure 15-20.—Using prominent landmarks.

identify yourself as a military person, you may be treated as a spy if captured or be refused assistance by escape organizations or friendly natives.

- Don't leave or throw away any articles that, if found, could give the enemy a clear picture of your direction of travel. Bury, or otherwise dispose of, the effects of your campsite.

- Practice supply economy. You may have to use the same jacket or pair of shoes throughout the entire evasion trip, which could cover hundreds of cross-country miles during both winter and summer seasons. Build up your food and water supplies. Carefully ration them so that they will last until you can reach an evasion objective or can replenish them. If you have food but no water, don't eat. Since the digestive processes require water, you will dehydrate faster if you eat.

- Use firearms only in an emergency. Keep them concealed at all times during your evasion unless a situation arises that requires a show of arms.

- Avoid contact with people as long as possible. However, if you can't proceed on your own because of sickness, lack of food, or other reasons, then, and only then, seek out native assistance. Natives who are sympathetic to the allied cause or members of the underground who operate escape lines for the purpose of returning evaders to allied control may offer assistance. Be wary in contacting natives or accepting their help, regardless of what they claim to be.

- If you're fortunate enough to travel through an area where an organized escape line exists, the chances are good that a spotter will seek you out. Spotters for resistance or underground organizations are particularly alert when they have reason to believe allied evaders are in their area but so are enemy police and counterintelligence agents. Persons wearing civilian clothing in enemy-held territory are not necessarily civilians.

Crucial Phase of Evasion

To establish contact with friendly lines or to cross the border to a neutral country is the most crucial point of evasion. All of your patience, planning, and hardships will be in vain if you aren't careful when contacting friendly frontline forces. Many personnel attempting to pass through friendly lines have been killed because they didn't identify themselves properly. Most of these people wouldn't have been shot if they had been cautious and followed proper procedures. The normal tendency is to throw caution to the wind when in sight of friendly forces. You must control this tendency.

Regular patrols or special mission personnel operating behind enemy lines are given the challenge and password of the day as a security measure. Challenges and passwords provide for the identification of the patrol as it approaches a friendly position. In addition, frontline troops are told the time and place where patrols will leave and enter the lines. These conditions exist only if you are able to rejoin your outfit within 24 hours following your separation. After 24 hours, you must follow certain established procedures and hope the frontline troops will also

Student Notes:

follow them. Usually frontline troops, especially those employed several miles forward of the forward edge of the battle area, shoot first and ask questions later. Contacting these troops is, at the very least, sensitive and a calculated risk. However, in the absence of an opportunity to contact a friendly patrol, contact with frontline troops may be your only alternative. Generally, frontline troops are told to honor the display of a white flag or another white object and to advance the unknown person to be recognized.

Once back in friendly hands, you'll naturally want to talk about your exploits and will undoubtedly receive countless questions from frontline troops. However, that is the time you should remain silent. If you talk at this point, you may endanger the lives of those who helped you. In addition, you may compromise methods other service personnel might use to evade the enemy and get out safely. Give only information of immediate tactical importance to frontline units. Advise the first officer or petty officer contacted that you are returning to duty from missing in action, prisoner of war, or internment status. Then request to be taken to someone authorized to receive evasion and escape information.

These survival techniques are but a few of the ways you can stay alive and live to return to friendly forces. You can gain an in-depth knowledge of survival, evasion, and escape techniques through special training. The Navy provides this special training at survival, evasion, resistance, and escape (SERE) schools located at strategic locations throughout the world.

ESCAPE

If I am captured I will continue to resist by all means available. I will make every effort to escape and aid others to escape. I will accept neither parole nor special favors from the enemy.

—Code of Conduct, Art. III

What happens if you become a prisoner of war (POW)? After all, it is possible. Isolation, fear, and injury all work in favor of the enemy to increase your chances of capture in spite of a determined effort on your part to evade. The surrender of your arms, however, does not mean you forfeit your responsibilities as a member of the American armed

forces. **The armed forces Code of Conduct directs that you begin planning your escape the minute you are taken prisoner.**

Escape is tough; making it work is even tougher. It demands courage, cunning, and much planning in seeking ways out, determining what routes to follow, and locating friends. Above all, it demands physical stamina under the worst conditions imaginable. Experience has proven that "model" camps with regular rations and considerate treatment are the exception. But no matter what extremes you encounter as a POW, try to keep yourself physically able and sufficiently equipped to escape as soon as possible.

If captured, try to make your escape early. You may never be in any better physical condition to escape than at the moment you are captured. Prison rations are barely enough to keep you alive; they certainly won't supply you with a reserve of energy. The physical treatment, lack of medical care, and insufficient rations of prison life soon have effects such as physical weakness; night blindness; and loss of coordination, reasoning power, and morale.

There are other reasons for making your escape early after your capture. Friendly artillery fire or air strikes occurring during that time may increase your chances of getting away. The first guards you will have are not as well trained in handling prisoners as those farther back from the front lines. Some of the line guards may even be walking wounded who are distracted by their own condition. In addition, you know something about the terrain where you are captured, and you know the approximate location of friendly units. Several days later and many miles away, you may be in strange territory. An escape from a prison camp is much more difficult and requires more detailed planning. It must be organized and supported as any other military operation. The method you should use to escape depends on your particular situation. The only general rules are to make an early escape and to escape when the enemy's attention is distracted.

Save, Add to, Take Care of (S-A-T)

Since the conditions in various POW camps differ, it is impossible to provide a specific escape or survival plan for each situation. What you need is a guide to help

Student Notes:

CODE OF CONDUCT

ARTICLE I

I am an American, fighting in the forces which guard my country and our way of life. I am prepared to give my life in their defense.

ARTICLE II

I will never surrender of my own free will. If in command I will never surrender the members of my command while they still have the means to resist.

ARTICLE III

If I am captured I will continue to resist by all means available. I will make every effort to escape and aid others to escape. I will accept neither parole nor special favors from the enemy.

ARTICLE IV

If I become a prisoner of war, I will keep faith with my fellow prisoners. I will give no information or take part in any action which might be harmful to my comrades. If I am senior, I will take command. If not, I will obey the lawful orders of those appointed over me and will back them up in every way.

ARTICLE V

When questioned, should I become a prisoner of war, I am required to give name, rank, service number and date of birth. I will evade answering further questions to the utmost of my ability. I will make no oral or written statements disloyal to my country and its allies or harmful to their cause.

ARTICLE VI

I will never forget that I am an American, fighting for freedom, responsible for my actions, and dedicated to the principles which made my country free. I will trust in my God and in the United States of America.

you plan to make the best of what you have. One such guide is to remember the word S-A-T-SAVE, ADD TO, TAKE CARE OF

Maintaining Your Health

Good physical health is essential to survival under any circumstances. It is especially important in a POW

camp where living conditions are crowded and food and shelter are lacking. That means you must use every device possible to keep yourself well.

Soap and water provide a basic preventive medicine; so keep clean. If water is scarce, collect rainwater, use dew, or simply rub yourself daily with a cloth or your bare hands. Pay attention to areas on your body that are likely to develop rash and fungus infection—your crotch, your scalp, and between your toes.

Student Notes:

Save	<p>Save what you can in a POW camp—clothing, pieces of metal, cloth, paper, string anything! A piece of twine may mean success or failure when the time comes for you to break out. Hide these items under the floor or in a hole in the ground. Since they appear harmless, little or nothing will be done to punish you if they are discovered.</p> <p>Wear as few clothes as possible during your imprisonment. SAVE your shoes, underwear, shirts, jacket, and any other items of clothing that will protect you from the elements to wear during your escape.</p> <p>Save any nonperishable foods you receive from the Red Cross or your captors. Candy, for example, comes in handy as a quick source of energy when you are traveling. If no candy source is available, SAVE each issue of sugar given you by the enemy. When you get enough, boil it down into hard candy. SAVE it until you build up your supply. Store any canned foods you receive. The enemy might puncture the cans to prevent you from saving them. However, you can recook some food into another form that preserves it. Other foods to hoard against the day of your escape include suet (a hard fat), cooked meat, nuts, and bread.</p> <p>Save pieces of metal no matter how insignificant they may seem. Nails and pins can serve as buttons or fasteners. You can use old cans to improvise knives, cups, or food containers. If you are fortunate enough to have a razor blade, guard it. Use it for shaving only. Devise ways of sharpening it; rub it on glass or stone or some other hard surface. A clean shave is a good morale booster.</p> <p>Save your strength but keep active. A walk around the compound or a few mild calisthenics will keep your muscles toned. Sleep as much as you can. You will not get much rest on your way back.</p>
Add to	<p>Use your ingenuity. Select those items that you cannot get along without and supplement them; for example, your rations. There is more to eat in and around your compound than you think. When you are allowed to roam around the prison campgrounds, look for natural foods native to the area, such as roots, grasses, leaves, barks, and insects. If possible, ADD these foods to your escape cache (supplies). They will keep you alive when the going gets tough.</p> <p>Supplement your clothing so that the more durable garments are in good repair when you escape. A block of wood and a piece of cloth make good moccasins; that saves wear on your shoes. Substitute rags for gloves; weave straw into hats. Do not forget to salvage clothing from the dead.</p>
Take care of	<p>Probably the most important part of any plan for survival is the take-care-of phase.</p> <p>Maintain what you have. You won't receive a reissue of shoes or clothes that you wear out or lose. Also, maintain your health; it is not easy to regain once you lose it.</p> <p>Put some of your clothing into your escape cache. Watch the rest for early signs of wear, and repair them with improvised material if needed. Use a needle made from a thorn, nail, or splinter and thread from unraveled cloth to mend a torn pair of trousers. Wood, canvas, or cardboard bound to the soles of your shoes will save them from wear. Even paper will suffice as a reinforcing insole if your shoes do wear through.</p>

Student Notes:

Keeping clean also applies to your clothing. Use soap and water when you can spare it. Hang your clothes in the sun to air if soap and water are not available. Examine the seams of your clothing and the hairy portions on your body frequently for lice and their eggs. Disease-infected lice can kill. A possible way to get laundry service, or even a bath, is to tell your guard that you are infested with lice, whether or not your complaint is true. The prison authorities, fearing that lice on prisoners may cause an outbreak of louse-borne disease among the civilian and guard population, might provide this service.

If you become ill, report your condition to the camp authorities. The chance that you will receive aid is worth the try.

After You Escape

Once you escape, you may have trouble contacting friendly units even when you know where they are. Approach the problem as you would if you were a member of a lost patrol. Time your movements so that you pass through the enemy forward areas at night and arrive between the enemy and friendly units at dawn. A good plan is to find a ditch or shell hole where you have cover from both friendly and enemy fire. Attract the attention of the friendly forces by waving a white cloth, shouting, exposing or laying out a panel, or some other method. In doing so, you alert friendly forces who are prepared to accept any small group that appears willing to regain contact. When you alert friendly forces, they are not as likely to shoot you on sight.

REVIEW 2 QUESTIONS

Q1. Give the meaning of the letters in the key word *S-U-R-V-I-V-A-L*.

S

U

R

V

I

V

A

L

Q2. If in a group, what action(s) makes(s) for the best chance of survival?

Q3. List the sources of drinking water.

a.

b.

c.

d.

Student Notes:

Q4. True or False. Food derived from animals has more food value per pound than food from plants.

Q5. List plants that you should not eat.

- a.
- b.
- c.

Q6. List some techniques that are useful to evade the enemy.

- a.
- b.
- c.

Q7. What does the armed forces Code of Conduct direct you to do?

SUMMARY

You will probably spend the majority of your naval career aboard ship. Hopefully you will never fall or be washed overboard or have to abandon ship.

The U.S. Navy operates in all parts of the world from the tropics to polar regions. Each region has its own special survival problems. You may encounter the extreme cold of the polar regions or the heat and humidity of a tropical jungle. Your survival in these places will depend on your ability to take care of yourself. Knowing how to combat hypothermia or heat exhaustion will greatly increase your chances for survival.

Although it could happen, hopefully you will never find yourself stranded in enemy-held territory. To be captured by an enemy force is one of the worst situations you could face. Being properly prepared to make an escape and return to your unit is not only your duty, but it is what every POW thinks about. Knowing how to make that escape work is even more difficult. Knowing what the local environment has to offer in food and water supplies will help you survive during your escape. Maintaining the proper state of mind will greatly increase your chances of making a successful escape.

REVIEW 1 ANSWERS

- A1. When aboard ship, you should know escape routes **so you won't be trapped or cut off in case of an emergency or if you must abandon ship.**
- A2. **False.** You should **never** dive into the water to abandon ship. Use a ladder, cargo net, line, or fire hose.
- A3. The swimming classification that gives you the best chance for survival if you have to abandon ship is the **First Class Swimmer.**
- A4. If you have to jump from a ship into burning water, you should **take a deep breath, cover your nose and mouth with one hand and your eyes with the other, and swim under water as far as possible.**
- A5. You can use **trousers/slacks, sea bag, and pieces of wood** to stay afloat.
- A6. The two types of life preservers used by the Navy are the—
 - a. **Inherently buoyant type**
 - b. **Inflatable type**
- A7. When you have custody of your life preserver, you should inspect it **once each month.**
- A8. The contents of survival kits carried by inflatable lifeboats include—
 - a. **Food rations**
 - b. **Sea marker dye**
 - c. **Flashlight**
 - d. **Batteries**
 - e. **Signal mirror**
 - f. **Whistle**
 - g. **First-aid kit**
 - h. **Distress signal kit**

i. **Containers of fresh water**

- A9. The one essential requirement for survival is **drinking water**.
- A10. The food ration carried by lifeboats is based on **one packet of food per person per day**.
- A11. Some of the dangers you might face by exposure include—
- a. **Sunburn**
 - b. **Hypothermia**
 - c. **Frostbite**
 - d. **Immersion foot**

REVIEW 2 ANSWERS

- A1. The meaning of the letters in the key word *S-U-R-V-I-V-A-L* are—
- S**ize up the situation
 - U**ndue haste makes waste
 - R**emember where you are
 - V**anquish fear and panic
 - I**mprovise
 - V**alue living
 - A**ct like the natives
 - L**earn basic skills
- A2. In a group, **working together** is the best chance of survival.

A3. Some sources of drinking water include—

- a. **Dig to the water table**
 - b. **Collect dew during the night**
 - c. **Runoff water**
 - d. **A water-yielding plant**
- A4. **True.** Food derived from animals has more food value per pound than food from plants.
- A5. Plants that you should not eat include—
- A. **Water hemlock**
 - B. **Fly agaric**
 - C. **Poisonous mushrooms**

- A6. Some techniques that are useful to evade the enemy include—
- a. **Cover**
 - b. **Concealment**
 - c. **Camouflage**
- A7. The armed forces Code of Conduct directs you to **make every effort to escape**.