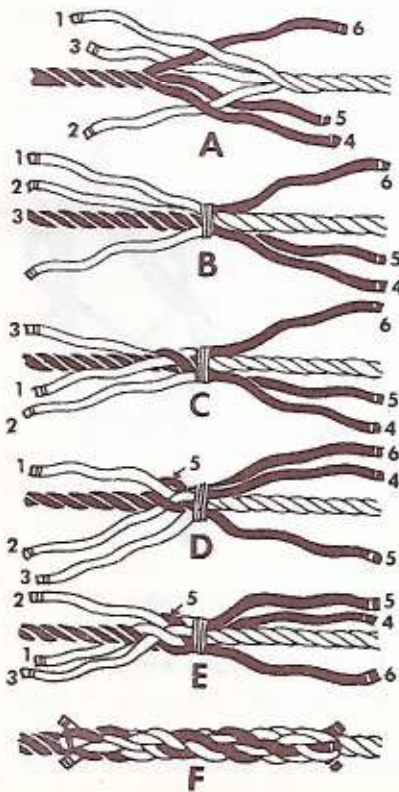
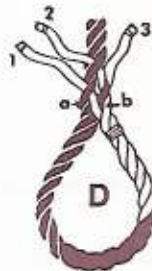
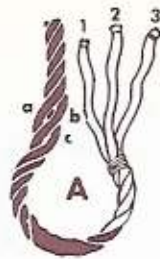


The Eye Splice

(The strongest rope loop)

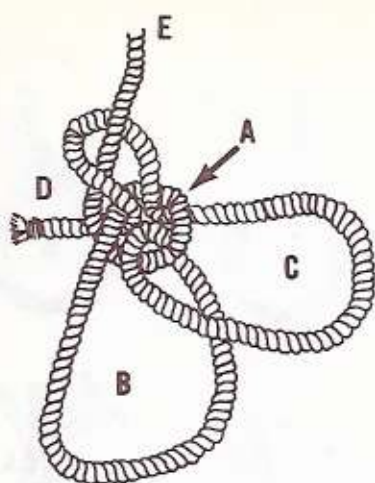
- Unlay end.
- Strand 2 is tucked over strand c, under b, and out between a and b.
- Strand 1 is tucked once over b and under a.
- Tuck strands twice, as strand 2.
- To give the splice a tapered look, reduce each strand to half its size after each tuck by unlaying and cutting off half the fiber of each strand.



The Short Splice

(The best way to join two ropes together)

- Unlay each rope a few turns and alternate the strands.
- Tie the strands down to prevent further unlaying.
- Tuck one strand (1) over an opposing strand, and under the next strand.
- The tuck of strand 2 goes over the first strand 5, under the second, and out between the second and third.
- Repeat operation with the other two strands (1 and 3) from same rope end.
- Remove tie and repeat operation on other rope end. Make two more tucks for each strand, roll tucks, clip ends.



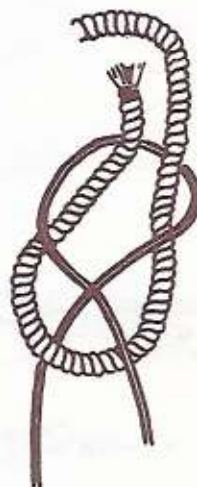
French Bowline

The French bowline is formed the same as the bowline, except that the end D, instead of going about the standing part E, is given a round turn about the gooseneck A, then knot is finished off as before.



Sheet Bend

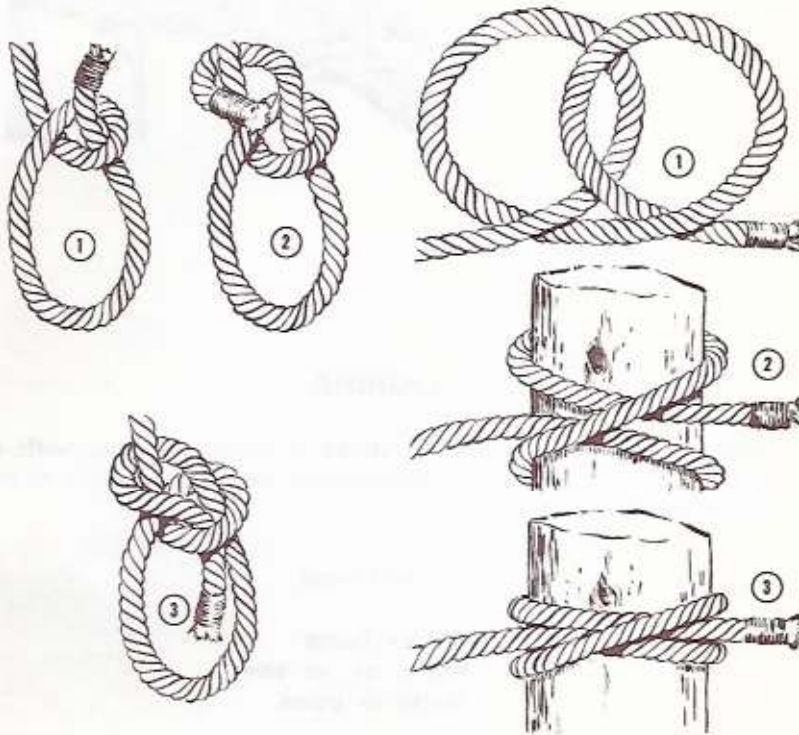
Form a bight on the heavier rope. Bring up smaller rope end through bight, twist it over and under bight. Then bring it under itself. This is the best knot when tying together ropes of different sizes.



Taut-Line Hitch

Pass rope around peg or make a loop. Bring the end over and under the standing part twice. Make another turn with the end around the standing part, bringing it over and under the loop formed. Hitch may be moved by pushing it up or down the standing part.

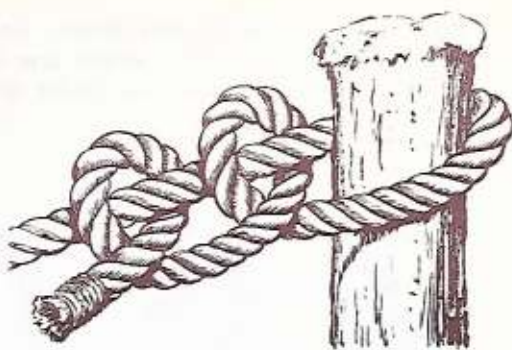
Don't tie the weak **Granny Knot**. Remember, the square knot has two ends lying together **under** one loop and over the opposite loop. The Granny has one end under and one over on both loops.



The **Bowline** is a loop knot and is used to tie a boat, hitching, or lifting. It is often called the King of Knots because it never jams or slips if tied right. To tie: Make an over-hand loop with the end held toward you. Pass the end up through the loop, then up behind the standing part, then down through the loop again. Draw tight.

The **Clove Hitch** is an end securing knot. It is a quick, simple method of fastening a rope around a post or stake. It is used to begin a lashing. It will slip when used at the end of a rope. To tie: (1) Make a turn with the rope around a post and over itself. (2) Take a second turn around the post. Pull the end up under the second turn. (3) Tighten by pulling on both ends.

Two half hitches are used to make a rope fast to a ring or post. It is simply a hitch tied twice.



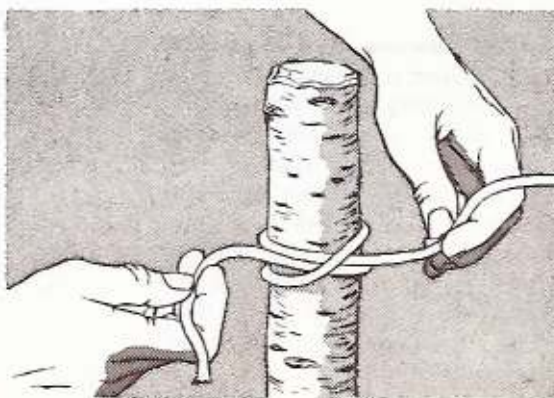
LASHING

Lashing is a way of joining sticks or poles together with cord or twine. Simple outdoor equipment can be quickly made to make outdoor living easier.

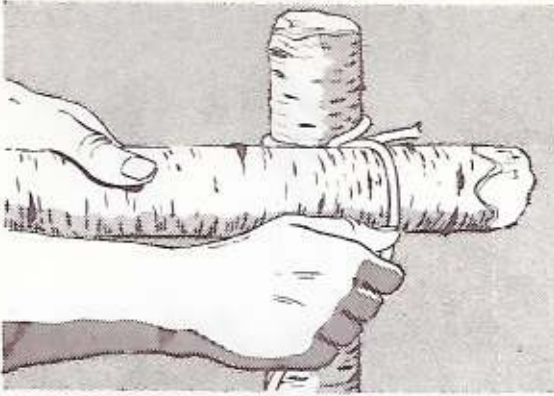
You will need:

Binder twine
Knife, ax, or saw
Sticks or poles.

Square Lashing is used to join two sticks together at right angles. You can make coat hangers, towel racks and other items. Begin by making a clove hitch on the vertical or upright stick.



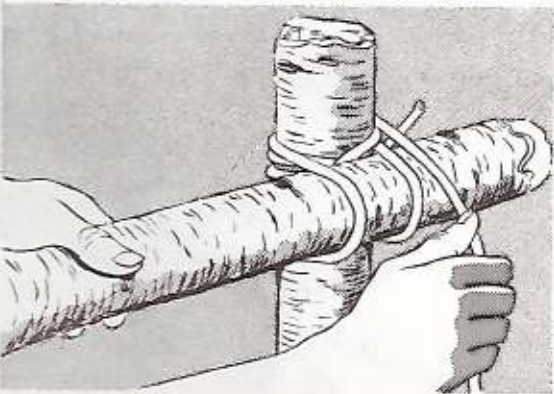
Pull a long piece of twine forward and over the front of the horizontal stick.



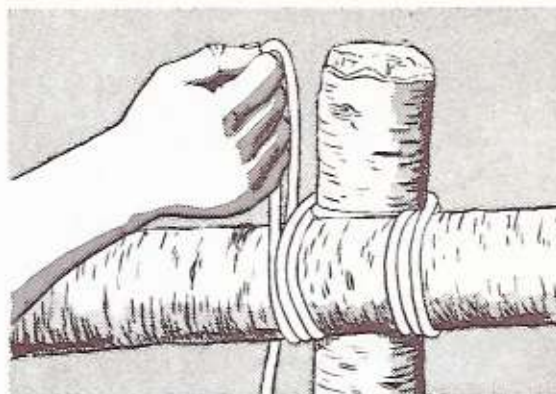
Pull the twine behind and around to the front. Next, pull up in front of horizontal stick.



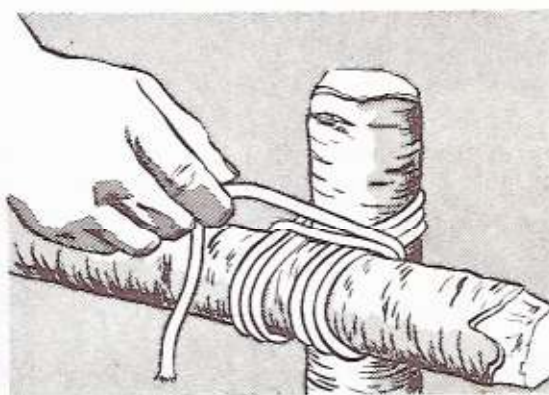
Pull the twine around upright and to the front to the starting point.



Repeat the same pattern three or four times, pulling tightly each time.



When the sticks are tightly wrapped then tighten the binding by **frapping**—this is done by winding the twine between the two sticks three or four times, pulling each wind tight.

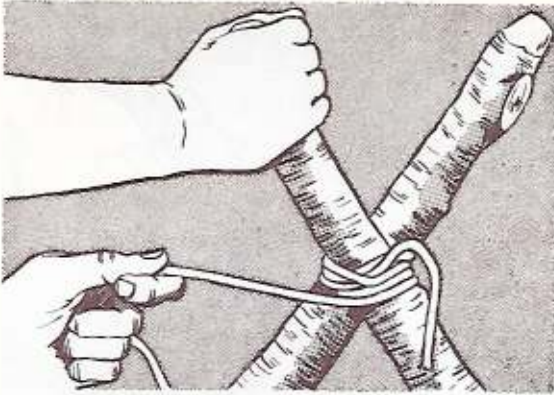


End with a square knot in the back. Cut off ends and tuck them under the lashing.

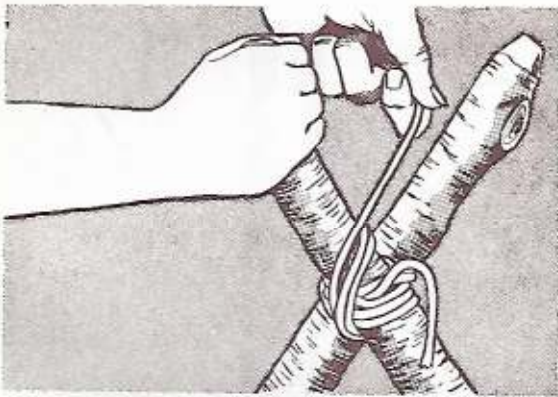


Diagonal lashing

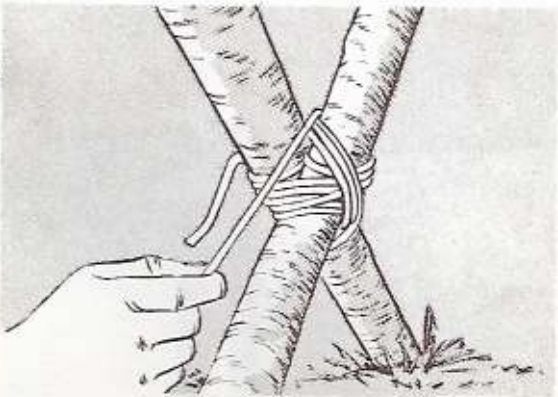
is used to make racks and braces. Begin with a clove hitch around two or three sticks at the point where they cross. Make two or four horizontal winds.



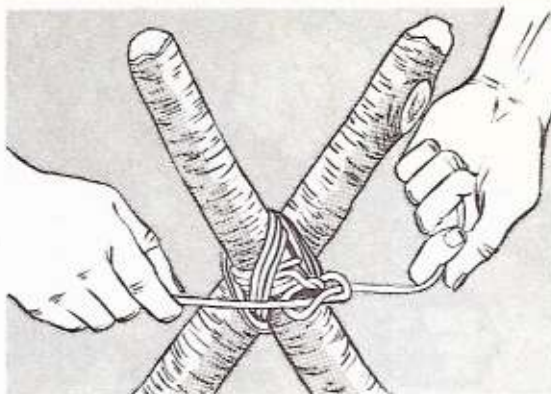
Make the same number of winds in the opposite direction. Pull each turn tight.



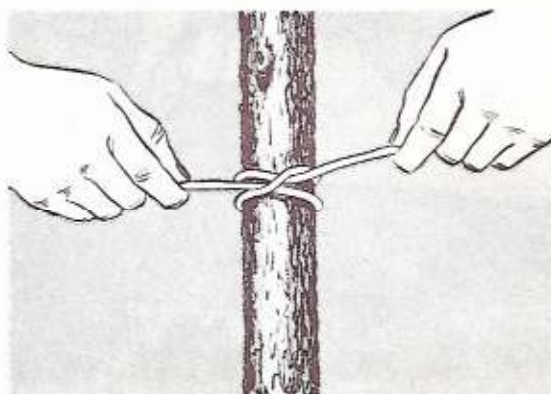
Frap between the sticks as in square lashing, winding two to four turns.



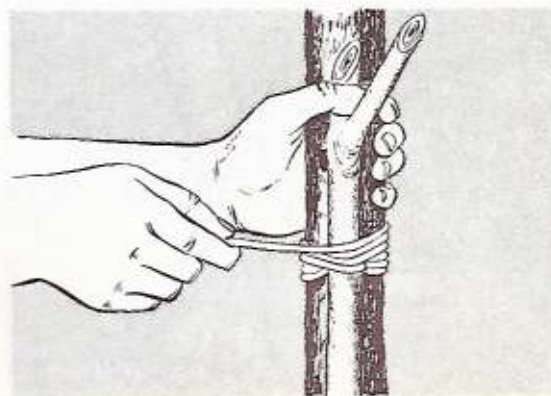
Pull windings tight and end with a square knot.

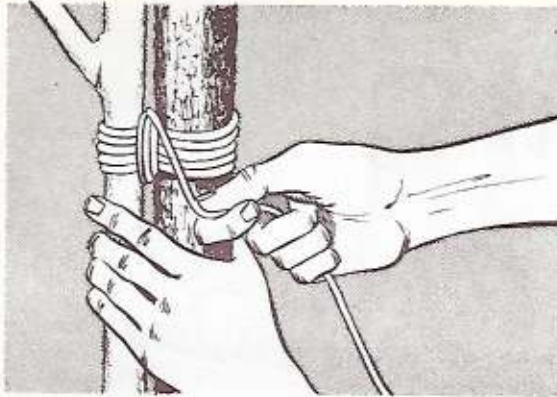


Round or sheer lashing is used to join two parallel sticks. It is used to make pot hooks and to attach sticks to trees. Begin with a clove hitch on one stick.

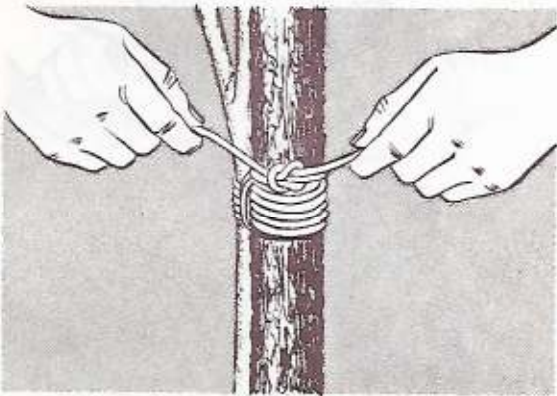


Place the other stick parallel and make parallel winds until the sticks are bound firmly.

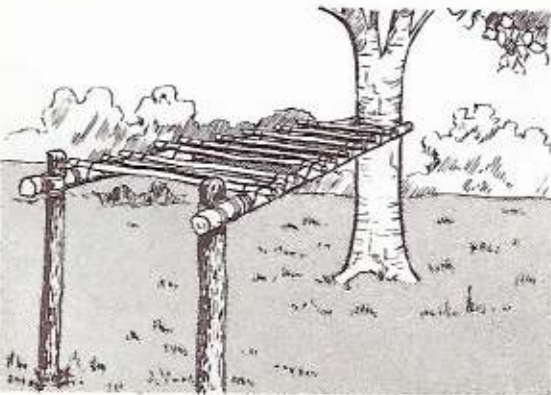




Frap by pulling twine to the front and between the sticks. Make two to four winds and pull each wind tight.

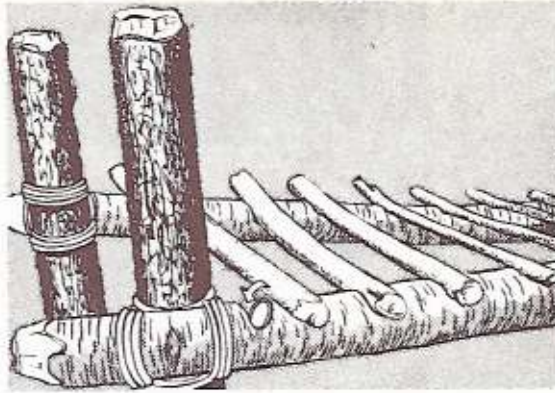


End with a square knot.

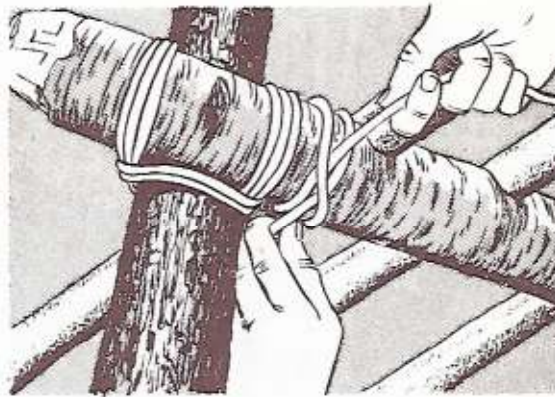


Continuous lashing is used to make a table top or seats.

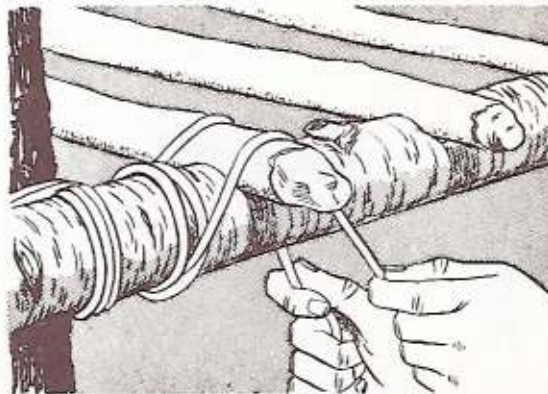
Make your frame first. Cut and trim sticks to be used as cross pieces.

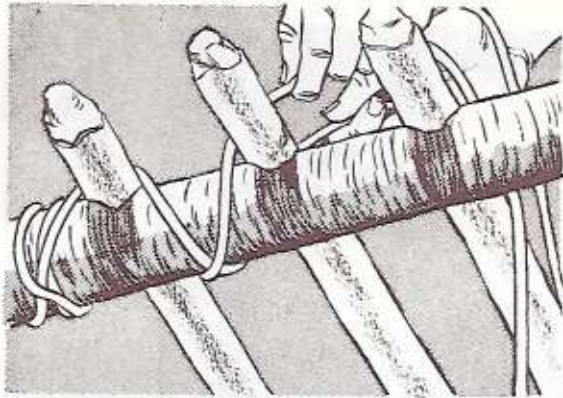


Make sure you have a long piece of twine to lash completely along one side. Tie a clove hitch in the middle of the twine. Tie knot underneath.

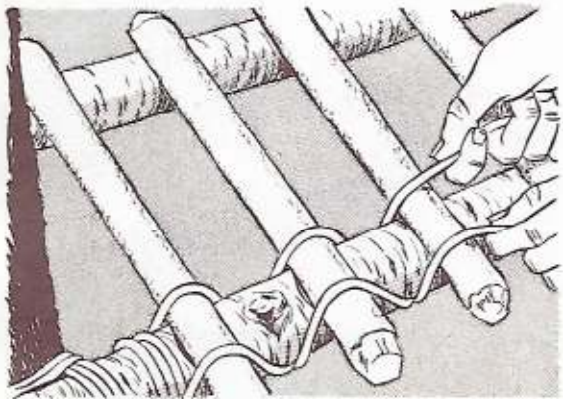


Take an end of twine in each hand and pull it up and over the first cross piece. Then pull it down under the frame.

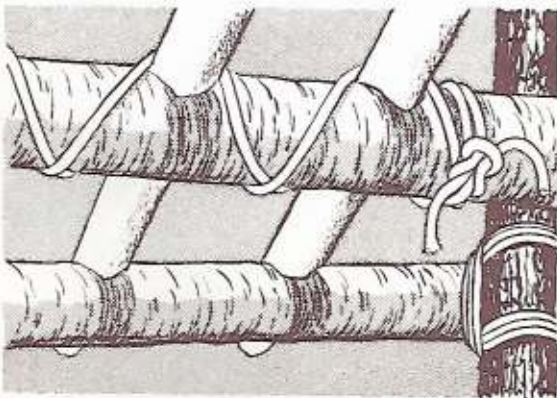




Cross the twine under the frame making an X. Pull tight.



Bring twine up and over next cross piece. Do the same over all the cross pieces crossing under the frame each time.



Pull tightly and end with a square knot. Repeat on other side.



In this picture are some examples of lashing.

"And a threefold cord is not quickly broken" (Ecclesiastes 4:12).

Chapter 6

EQUIPMENT AND SHELTER

PERSONAL EQUIPMENT

A tool or ditty bag contains:

- Extra shoelaces
- Candle stub
- Small pliers
- Twenty feet heavy cord
- Safety pins
- Needles and thread
- Buttons
- Extra matches in container
- File
- Whetstone
- Small copper wire
- Waterproof tape
- Flashlight batteries
- Paper and pencil
- Small package of face tissues
- A clothes bag containing extra clothing
- A toilet article bag

Other need items

- Knife
- Hand ax
- Small first aid kit
- Flashlight
- Mess Kit
- Canteen
- Camera and film
- Sunglasses

Then comes sleeping gear. A good sleeping bag and a ground cloth.

Add a poncho to the top of your pack. This makes it handy in case it rains.

Outpost Equipment (For 10 People)

The outpost equipment should include:

One cooking kit containing:

- 1 8-quart pot
- 1 4-quart pot
- 1 2-quart pot
- 1 2-quart coffee pot
- 1 10" fry pan
- 1 9" fry pan
- 1 griddle (optional)
- 12 plates
- 10 cups

One cooking tool kit containing:

- 1 paring knife
- 1 large fork
- 1 large spoon
- 1 ladle
- 1 pancake turner
- 1 potato peeler
- 1 can opener
- 1 measuring cup
- 1 sugar dispenser
- 1 set of large salt and pepper shakers
- 1 large waterproof match box
- 1 sheet of plastic
- 1 roll of aluminum foil
- 1 roll of paper towels

Clean up kit containing:

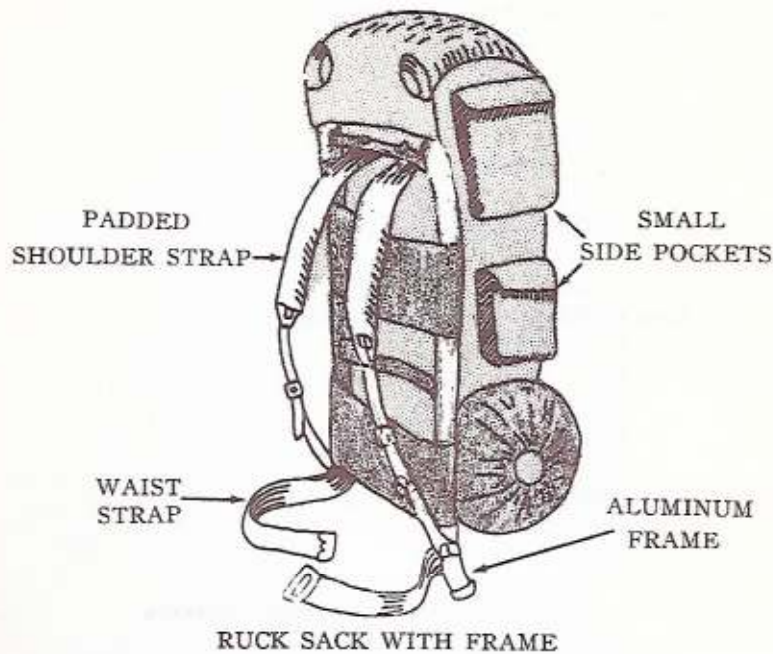
- 2 water pails
- 2 long handled dish mops or scouring pads
- 3 plastic garbage cans

Fire building equipment including:

- 1 bowsaw
- 1 Hudson Bay type ax
- 1 small shovel
- 1 6" file
- 1 whetstone
- 1 heavy wire grill (optional)

A first-aid kit is a necessity. A desert water bag or a large water can with a faucet will come in handy.

PACKS



MATERIAL: Packs are constructed from various fabrics such as canvas duck, nylon, and poplin. The most common of these is canvas and it is usually less expensive. The material should be water repellent to protect your gear from sudden showers along the trail.

PADDED STRAPS: In selecting your pack, pick one with padded shoulder straps. They make your pack much more comfortable and may prevent sore, raw shoulders. If your pack does not have padded straps you can purchase ready-made pads and attach them to the straps or you can make your own with foam rubber.

WAIST STRAP: A recent addition to many pack frames, and in my estimation one of the most valuable, is the waist strap. This strap buckles around the waist like a belt. It is amazing how the strap helps to equalize the load between the shoulder and the lower back.

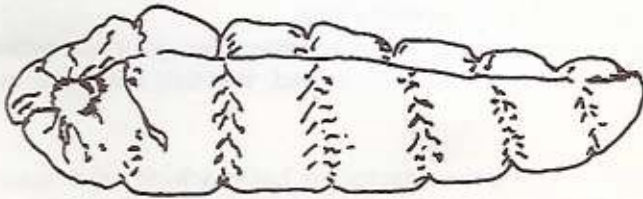
SELECTING YOUR BEDROLL

One of the most important pieces of equipment you possess is your sleeping bag. A good, warm, comfortable bedroll is essential to good sleep, and adequate sleep is a must for an enjoyable backpacking trip. Therefore, you should give careful thought and attention in selecting your sleeping gear.

INSULATION: The warmth of your bag depends upon the type of insulation and how many pounds of insulation are in the bag. Among the types of insulation found in bags are: down, dacron, wool, kapoc, polyester, and acrylic. The best by far is down insulation. It is lightweight and very warm. Unfortunately it is also the most expensive. Next to down, dacron is best. It makes a fairly lightweight and warm bag, and is much less expensive than down. A good four-pound-filled dacron bag will keep you warm in most backpacking situations. It will keep you warm in temperatures which are near freezing. You can increase the warmth of your sleeping bag in colder weather by folding a wool blanket inside or by wrapping it around the top and bottom of the bag.

Other insulations such as kapok and polyester are rated much lower than dacron. They are not as warm and are heavier in weight and therefore not ideal for a pack trip sleeping bag.

COVERS: Sleeping bag covers also come in a variety of fabrics. Any durable cover is fine. However, if weight is a factor, the best is nylon. If weight is no problem, the common canvas type cover on many type bags is fine. Never buy a bag with a waterproof, airtight cover on the top. Body vapor will be trapped inside the bag leaving it damp and clammy. Select a cover that will allow the bag to breathe. Some sleeping bags have waterproof bottoms.

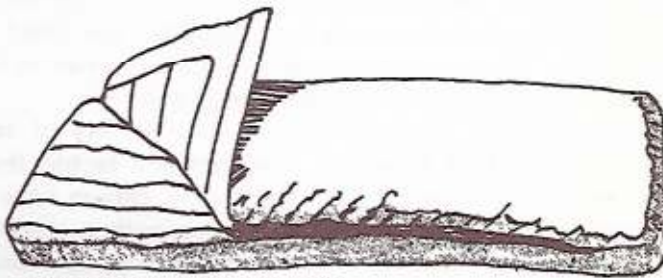


MUMMY-TYPE BAG

These are satisfactory because they will not trap body vapor. However, with a poncho or ground cloth there is no need for this type bottom.

LINERS: It is a good idea to fit your bag with a liner. These liners have two advantages. First, it will keep your bag cleaner. After use, it is a simple matter to remove the liner and launder it. Second, it adds warmth to the bag. If your sleeping bag does not have a removable liner you can make one from an inexpensive cotton flannel sheet. Fold the sheet in half, stitch or pin the bottom and one half of the side of the folded sheet, and then slip liner inside the bag.

SHAPE AND SIZE: Most sleeping bags come in two basic shapes—the oblong shape and the mummy shape. However, because of its light weight, the mummy bag is used by many campers for back-packing. The main disadvantage of the mummy bag is its tight fit which makes some campers feel cramped.



OBLONG—TYPE BAG

MATTRESSES

Camping is not a test of endurance, but an enjoyable experience. Therefore, if you can sleep better with a mattress, then by all means use one with your sleeping bag.

There are several types of mattresses for your consideration; there is the air mattress, the foam pad, the tick mattress, and the ground bed.

Since weight is a prime factor in backpacking, the foam mattress is not ideal because of its weight and bulk. The tick mattress (which is simply a tick bag you fill with native insulation at your

camp site) would not be suitable in some areas due to a restriction on using native material except in emergencies. You would have the same problem with the ground bed. Taking all into consideration, the most practical choice would be the air mattress or foam pad.

PILLOWS

Some campers find they can sleep much better with a pillow. In fact, some of the most rugged and experienced campers consider a pillow a must for sleeping. I have a favorite pillow I insist on using for camping. Because I am so particular about this pillow, my wife calls it my "teddy bear." There are pillows available that can be inflated in seconds. They also make a good camp seat cushion.

A good substitute for a pillow is to fold a coat or other clothing to place under your head.

GROUND CLOTH

A ground cloth made from waterproof material should be placed beneath your sleeping bag. An inexpensive ground cloth may be made from clear plastic.

PONCHOS

A poncho is a must for pack trips. It is ideal for foul weather. It is loose enough to provide ventilation (which is essential to prevent excessive perspiration) and is also ideal to slip over you and your pack during sudden showers on the trail. The poncho can also be used for a ground cloth and an emergency shelter.

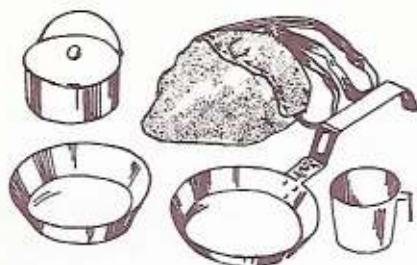
TOILET KIT

Your camping gear should include a toilet kit that contains soap, toothbrush, toothpaste, comb, metal mirror, lip salve, and a small plastic cup. Include a hand towel, a bath towel, and washcloth in your pack to use with your toilet kit.

COOKING GEAR

If you plan to cook your own food on the trail, the small compact cook set sold in sporting goods stores is sufficient. They usually contain a small pot with cover, a frying pan, a plate, and a cup. These items are compactly nestled together in a canvas case with a shoulder strap. For silverware there is a stainless steel messware kit available. It contains fork, knife, and spoon in a

plastic case. If you plan to cook in a small group or patrol instead of individually, you should use larger cooking utensils and divide them for packing between each individual in the party.



COMPACT COOK KIT



SILVERWARE KIT

CANTEENS

Canteens come in two varieties—plastic and aluminum. Most include canvas cover with shoulder strap. In areas where there is occasional opportunity for refill, a one-quart canteen is probably all you will need. However, in areas where there is little water you should carry a two-quart canteen.



CANTEEN WITH SHOULDER STRAP



MILITARY CANTEEN

MATCH CONTAINER

Store a good supply of matches in a waterproof match container and carry them with you at all times.

TOOLS

HAND AX

A hand ax is pretty heavy. However, its usefulness in camp is

well worth the additional weight. You will find it more comfortable to carry the ax in your pack instead of on your belt. (Be sure ax is in sheath when not in use.) If you are backpacking with a group it is not necessary for everyone to carry a hand ax. Let someone bring an ax, another a folding camp saw, etc.

KNIFE

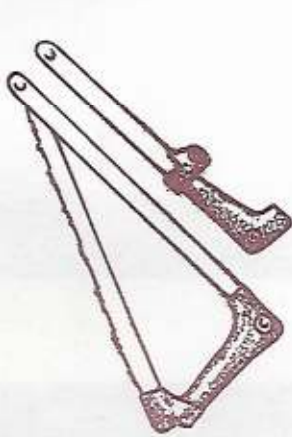
A good camp-type pocketknife is usually all you need for a backpacking trip.

CAMP SAWS

If you are planning an extended trip and you plan to make various gadgets in camp, a folding, portable camp saw is a handy tool to have along.

FILE

A small mill file is good to carry in your pack to keep your hand ax sharp.



FOLDING CAMP SAW



FORGED HANDLE AX
WITH SHEATH

FLASHLIGHT

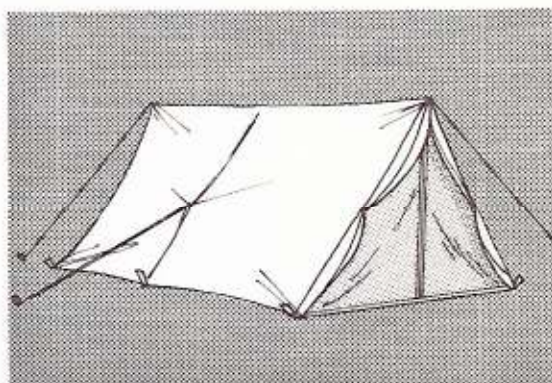
Be sure you have a reliable flashlight with fresh batteries. If you plan to be gone several days it is wise to carry extra batteries.

TYPES OF TENTS

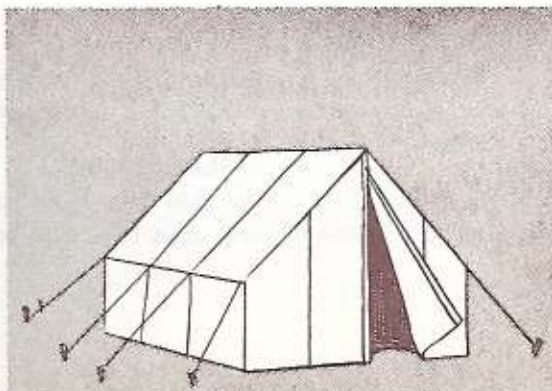
This pup tent makes good shelter for one or two in fair weather.



This is a mountain tent. It is lightweight, easy to carry and folds into a compact package, ideal for hikers, bikers, and canoeists.

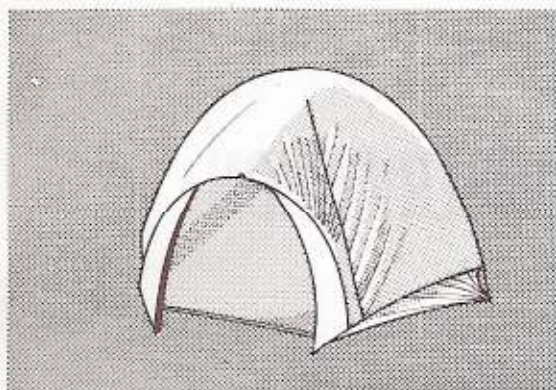


This is a wall tent. It is best as a semi-permanent shelter. It is more difficult to put up.

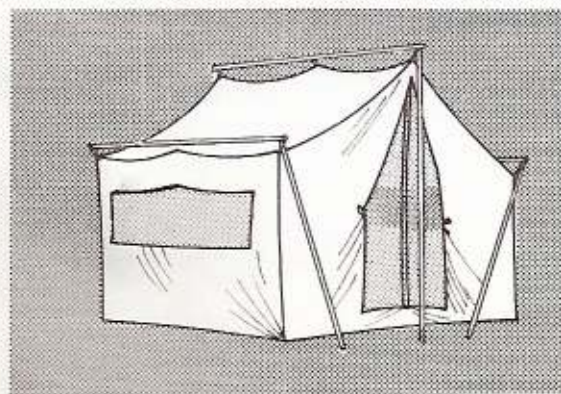




This is an umbrella tent. It is easy to erect and requires little space. It does not stand strong winds and in hot weather, ventilation is not good.

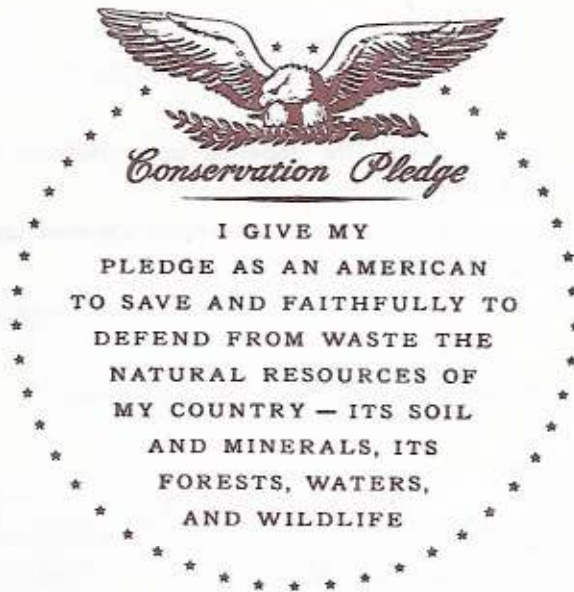


This is a dome tent. It provides more head room than conventional backpacking tents. It is light and compact but more difficult to erect than some tents. The dome tent is durable in heavy winds, rains, and snow. It is a very good winter and summer tent.



This is a cabin tent. Ideal as a patrol tent for four or more boys. The cabin tent is spacious and comfortable.

Chapter **7****NATURE
AND
CONSERVATION**



"But ask now the beasts, and they shall teach thee . . .

"Or speak to the earth, and it shall teach thee; and the fishes of the sea shall declare unto thee.

"Who knoweth not in all these that the hand of the Lord, hath wrought this?

"In whose hand is the soul of every living thing, and the breath of all mankind" (Job 12:7-10).

As a good camper you should practice and encourage others to practice measures which will protect our water supply, varied plant life, soil and wildlife. These are the national resources necessary for you to enjoy hiking and camping.

You should also learn to appreciate the wonders of God's world and develop a sense of responsibility for their care.

The following check lists are intended to help you to fully enjoy your out-of-doors experiences and to practice good conservation while doing so.

CONSERVATION AND YOU

- . . . Enjoy the beauty of God's world by watching a sunset, a flower or a view.
- . . . Get acquainted with something in nature—a tree, a bird, an animal or an insect. Observe it and learn several facts about it.
- . . . Remember that your life depends upon natural resources for food and shelter.
- . . . Learn how the lives of other creatures depend upon these resources and upon each other.
- . . . Keep alert to learn new things about nature and conservation.
- . . . Practice conservation in little, everyday things.



THE CLEAN AND ATTRACTIVE CAMPSITE

Cleanliness and beauty are part of conservation. Keep your campsite beautiful.

- . . . Keep your living quarters clean and attractive.
- . . . Pick up papers and trash found around your site.
- . . . Burn or carry home all garbage and other refuse on trips, cook-outs, and overnights.
- . . . When hiking, keep to the trails to avoid trampling plants.
- . . . Leave trails and camp sites cleaner than you found them.

GOOD NEIGHBOR POLICY

"Therefore all things whatsoever ye would that men should do to you, do ye even so to them. . ." (Matthew 7:12).

If using private property:

- . . . Obtain permission before entering property.
- . . . Close gates if you found them closed or leave them open if you found them open.
- . . . Treat the property with respect, leaving behind no trash or other undesirable evidence of your use.

FIRE

Fire is a friend, for it warms you, cooks your food and lifts your spirits. But a fire out of control is your enemy.

In case of fire:

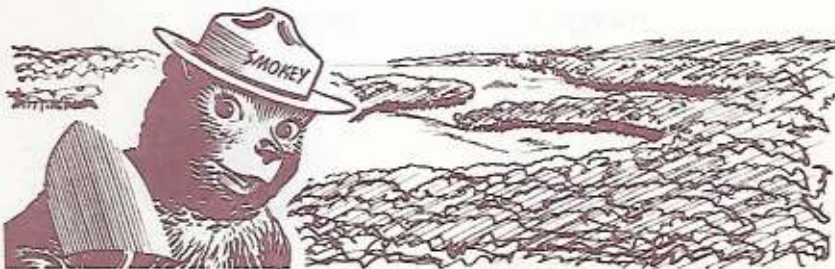
- . . . Know where the fire-fighting equipment is kept.
- . . . Know how to use it.
- . . . Keep it in operating condition.
- . . . Know what to do and where to go when a fire breaks out.
- . . . Know how to report a fire and to whom.
- . . . Know how to provide for the personal safety of each other.

NATURE AND CONSERVATION



When building fires:

- . . . Obtain a fire permit if required.
- . . . Select an established fireplace if available rather than a new spot.
- . . . Choose a spot well away from underbrush and live trees.
- . . . Clear the fire area and its surroundings of combustible materials.
- . . . Select only dead wood for fires.
- . . . Build a fire no larger than necessary.
- . . . Keep close watch at all times on burning fires.
- . . . Avoid building fires altogether if the weather is windy or dry.
- . . . Keep water, fire extinguisher, sand, broom, rakes, shovels or other fire-fighting equipment ready for an emergency.
- . . . Always extinguish fires before leaving campsites.
- . . . Extinguish fires by sprinkling plenty of water on them, stirring ashes until no sparks are left.
- . . . If building fires in grassy areas, remove turf beforehand and replacing it afterwards.



SOIL

Soil erosion is one of the most common problems of camps.

- . . . Keep to established paths and trails to minimize erosion.
- . . . Especially avoid disturbing the plant cover on steep slopes.
- . . . Build small diversion dams to stop erosion.
- . . . Plant grass, trees or other plants on bare soil to protect it.
- . . . Replace disturbed turf when you find it.

WATER

Clean, pure and abundant water is necessary.

- . . . Appreciate the beauty of your water source and help keep it clean.
- . . . Avoid wasting water.
- . . . On overnights, build temporary latrines in such a way that they will not drain into waterways and pollute them.
- . . . Keep your waterways free from garbage and trash.

PLANTS

A campsite may be used for many years. Will campers in years to come find a green and beautiful place or a bare, eroded, and ugly one?

- . . . Know your state laws protecting trees and flowers.
- . . . Avoid thoughtless marking of living trees and shrubs.
- . . . Know which boughs or saplings may be cut.
- . . . Cut saplings selectively, so that remaining plants may be improved by their removal.

- . . . Know which flowers may be picked freely and sparingly.
- . . . Know which flowers are not to be picked at all.
- . . . Avoid overusing campsites so that plant life may not be destroyed.
- . . . Erect overnight camps with a minimum of clearing.
- . . . Plant a tree.
- . . . Recognize and avoid poisonous plants.

WILDLIFE

Campsites can be a home for wild creatures, where you may observe and enjoy animal friends, large and small.

- . . . Know the kinds of wildlife found in and near your camp.
- . . . Know and obey fish and game laws.
- . . . Take fish out of water only if you can use them.
- . . . Protect the homes of wild creatures and perhaps even plant trees and shrubs to create new homes.
- . . . Avoid annoying or killing small living things such as turtles, frogs, toads, and non-poisonous snakes.
- . . . Learn to observe the life habits of wildlife.
- . . . Never take from camp the small living things which make their homes there.
- . . . Keep wild pets rarely and then only for a few days with proper care, releasing them where they were found.
- . . . Realize that some insects are beneficial and should not be destroyed indiscriminately.

CONSERVATION HELPS

Write your state forestry department or U.S. Forest Service, Washington 25, D. C., for free posters and literature about Smokey Bear.

Write National Audubon Society, 1130 Fifth Avenue, New York 28, New York, to learn about the Audubon Junior Club program.

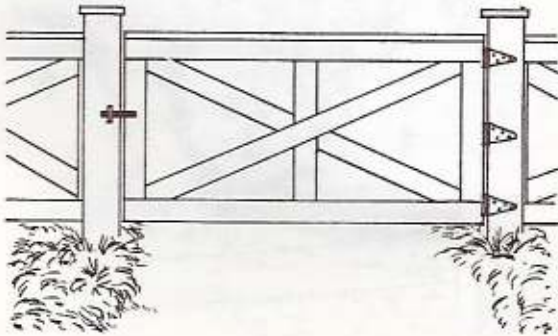
The National Wildlife Federation, 232 Carroll Street, N.W., Washington 12, D. C., will send you a list of free and inexpensive materials. Be sure to see the "Let's Build" series.

American Forest Products Industries, 1816 N. Street, N.W., Washington 6, D. C., has a free packet of conservation materials for camp leaders who will use them in a serious study situation.

Send 75¢ to Superintendent of Documents, Washington 25, D. C., for "Conservation Experiences for Children," Bulletin 1957, No. 16, Department of Health, Education and Welfare.

Write American Camping Association, Bradford Woods, Martinsville, Indiana, about the 15-minute movie, "Adventuring In Conservation."

OUTDOOR MANNERS



There is such a thing as manners in the out of doors. All campers should know and discuss rules of hiking and camping before beginning a trip.

Leave gates open or closed, just as they were found. Property owners will like this practice.

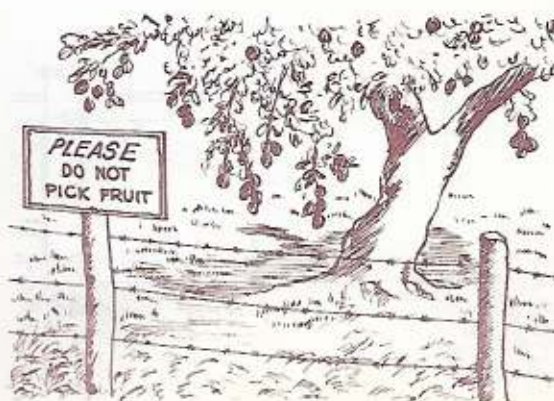
Don't make short cuts across private property without permission.



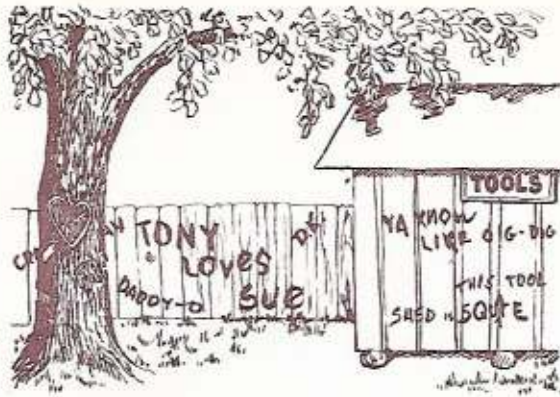
Stay on paths or roads. Don't cut across fields of grain. Go around the edge of any planted field when there is no road or path.



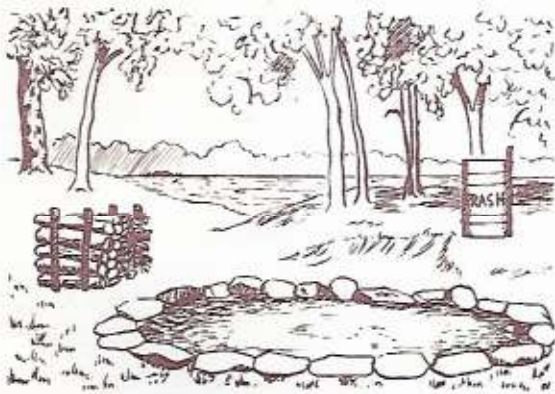
Do not pick fruit or vegetables without permission.



Do not mark,
carve, or whittle on
trees, fences, or
buildings.



Remember to fol-
low the rules you
learned a b o u t
building fires and
controlling them.
Leave the site ready
for the next camper.
A supply of wood
will be appreciated.



Walk singly or by
two's facing traffic.



A Good Camper

- does his share of the work.
- is careful with fire.
- maintains and leaves a clean camp.
- observes rules governing the area used.
- is friendly, cheerful and helpful.

Chapter **8**

**COMPASS
AND
MAP**

HISTORY OF THE COMPASS

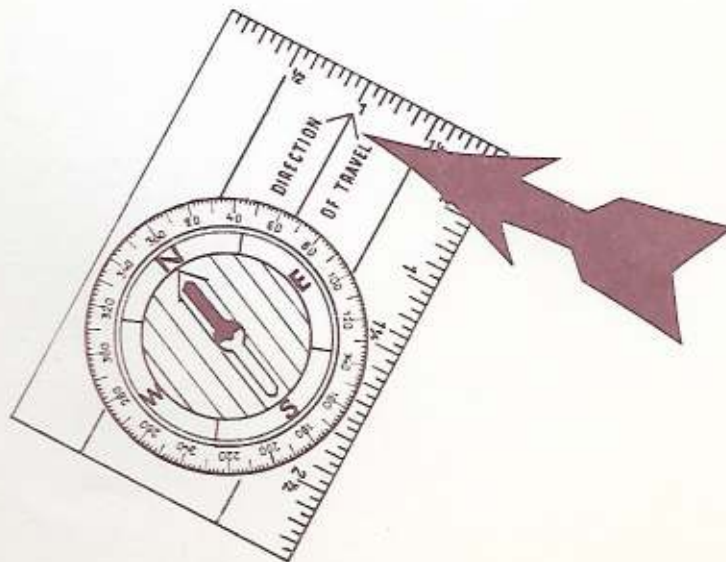
The first compass was a magnetized, ore-bearing rock or stone which, when suspended on a thong or vine, would always point in the same direction.

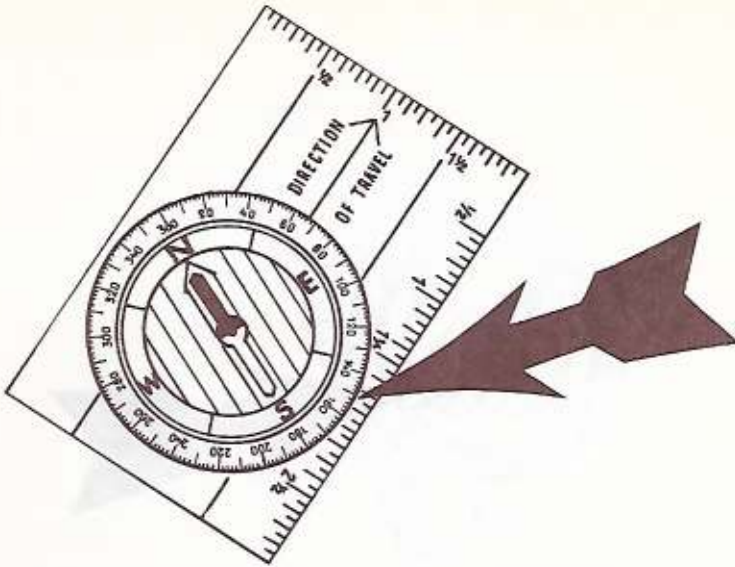
No one knows who first discovered the compass. The Chinese seem to have understood its secrets 3,000 years before Europeans learned to navigate without the aid of the sun and the North Star. According to some authorities, Marco Polo brought back a knowledge of the compass from Cathay in 1260.

The north end of the magnetic needle of your compass always points to the magnetic North Pole which is located at a point in the Hudson Bay region.

THE SILVA COMPASS

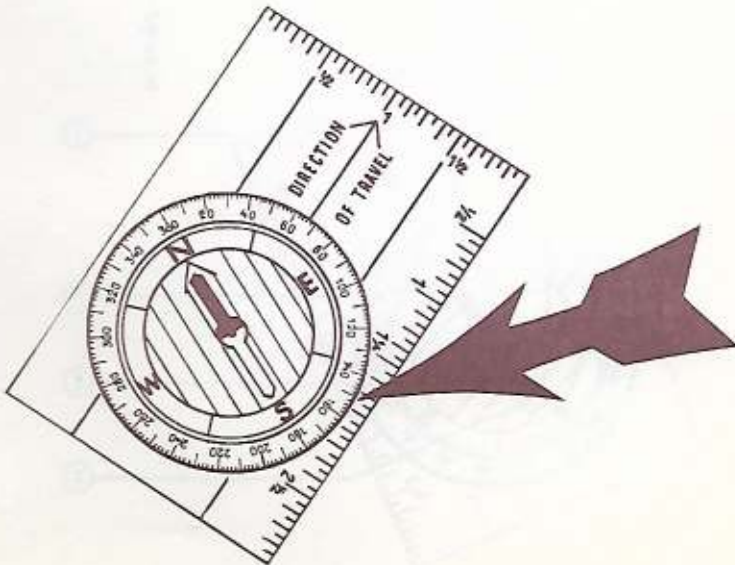
There are several important parts to the compass. First, the **direction of travel** arrow is on the plastic base. This is the arrow that shows which way to walk after the compass is set

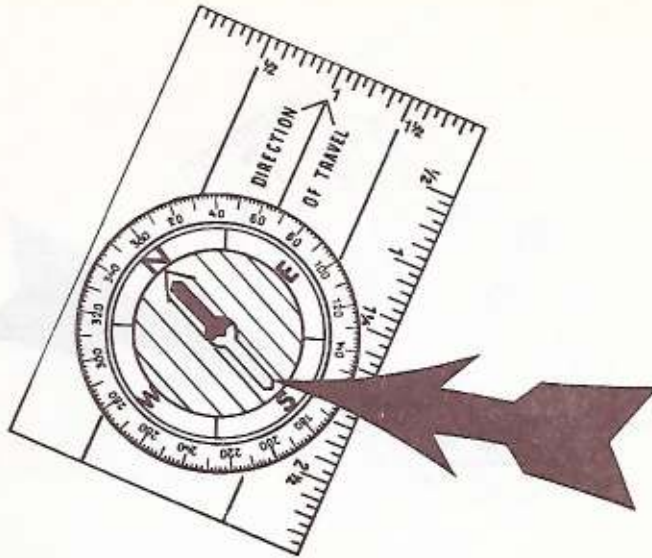




This is the **housing**. It turns—try it.

The numbers around the outside of the housing are degrees. The degree number at the direction of travel arrow is the degree setting of the compass.

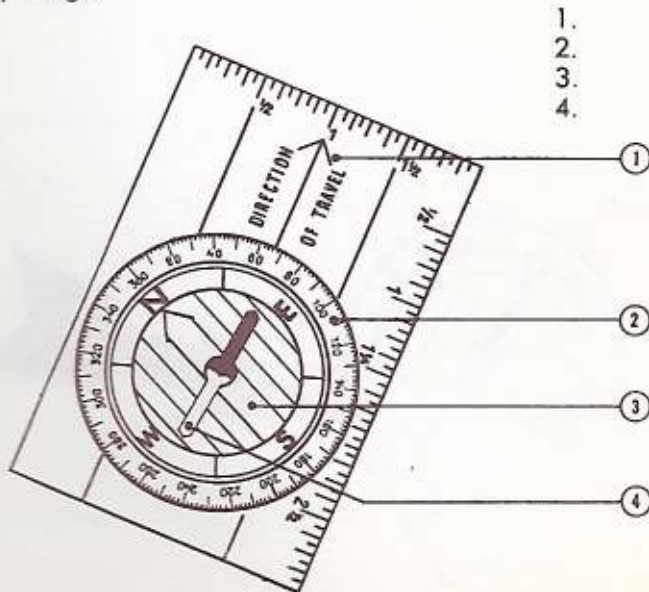




Inside the housing is a needle which swings on a pin. It is the **magnetic needle**. It always points north and is **NOT** the way to go. The direction of travel arrow points the way to go.

Under the magnetic needle is an arrow. This is called the **orienting arrow**.

Be sure you know the main parts of the compass then write them below.



Chapter 9

BACKPACKING

For topnotch outdoor adventure, nothing is greater than packing your gear on your back and heading into the wilderness. The turn of each corner and the crest of each hill brings new discoveries. You may study nature untouched by man and observe wildlife in its natural habitats. You will feel a kinship with the vastness, the solitude, and the tranquillity of the wilderness; you meet the challenge of the wilds by providing for your own food, shelter, and other needs. Whether the trail leads you into forest, mountain, or desert, it will be an experience you will long remember. However, before you respond to the call of the wilderness, there is certain knowledge you must have and certain preparations you must make. The following pages will assist you in getting "ready" to meet the challenge of the wilderness trail.

PACKING YOUR PACK

There are five basic rules to follow in packing your pack.

1. Items needed first should always be at the top of the pack or in an outside pocket where you can easily get to them when needed. Simply anticipate what you will need first, second, third, etc., when you arrive at the campsite, and then pack accordingly. Items that may be needed along the trail, such as poncho, canteen, etc., should be easily accessible.

2. Balance the weight in the pack so it will ride easily.

3. Pack items in separate bags such as extra change of clothing and food for each meal. A good plan is to pack all the food for one meal, such as breakfast, in a separate bag and assign this to one member of the party to carry. Pack the lunch in a separate bag and assign to another hiker, etc. Then when you arrive at the campsite you know that Joe has everything for breakfast on the first day, or that Bill has everything for supper on the second day, and so on. This is much better than arriving at the site and asking, "Who has the soup? Who has the pudding?" etc.

4. Be sure no loose or projecting item is on the outside of the pack to snag or hamper you on a narrow trail.

5. Use a check list to make sure you have included everything you need in the pack.

TYPICAL CHECK LIST

- | | |
|-----------------------------|------------------------|
| a. Sleeping bag or bedroll | l. Toilet kit |
| b. Ground cloth | m. Ditty bag |
| c. Poncho | n. Small first-aid kit |
| d. Pajamas | o. Tent or shelter |
| e. Extra change of clothing | p. Canteen |
| f. Extra underwear | q. Ax |
| g. Extra socks | r. Air mattress |
| h. Jacket or sweater | s. Moccasins |
| i. Cooking gear | t. Survival kit |
| j. Eating utensils | u. Flashlight |
| k. Food | |

That's about it for packing. With a little practice you will find the combination that fits you best.

GETTING "READY"

The success and enjoyment of your pack trip will greatly depend upon the preparation you have made well in advance. Consider the following suggestions in getting ready for your pack trip.

PHYSICALLY "READY"

If you are not accustomed to rugged activities such as trip camping, you should get your body ready for these activities. A good all-around exercise to get you physically fit is jogging. Many doctors believe jogging ranks number one in total benefit to your body. Start out easily, jogging a short distance, then walking, then jogging again. Slowly increase the distance until you can jog a mile without difficulty. To get the maximum benefit from jogging you should keep going until you are very tired or until you are breathing very heavily. Exercises such as push-ups, sit-ups, and chinning are good to strengthen arm, shoulder, and back muscles. Start out slowly and gradually build up to your maximum. Do the following exercises to get your back and shoulders conditioned to your pack: put on a full pack and practice walking and jogging up and down stairs. Having access to bleachers in a stadium or gym will work even better. A backpack trip should not be a test of endurance

but an enjoyable experience. If you are physically ready you will find it even more pleasant.

PLAN YOUR TRIP

Secure a map of the area you plan to hike in and carefully plan your route. Estimate the distance you plan to travel each day and approximately where you plan to spend each night. Familiarize yourself with landmarks in the terrain such as lakes, streams, mountains, etc. Accumulate as much information as you can about the area you are going into. When you have finalized your plans, share them with a responsible person who is not making the trip with you.

GET FOOD AND EQUIPMENT READY

Go over your menu carefully, making sure all food items are ready. Place the basic items for each meal in a separate bag. Staple items for all meals, such as salt, pepper, sugar, etc., should be in a bag together. Double check your cooking utensils to be sure you have everything and place them in a bag for packing. Check all your gear and take care of all repairs; cleaning, sharpening or replacing should be completed well in advance. It is very disappointing when you hurriedly throw your gear together at the last minute and then discover later during the trip that you have forgotten some item or failed to do something essential for the trip.

ON THE TRAIL

On the trail you should maintain a relaxed, comfortable pace. The main object is to enjoy your trip, not to see how far you can travel or how fast you can travel. Remember, you will be on the trail most of the day, so you want to conserve your energy. Rest frequently. Usually a few minutes is all that is necessary. Avoid prolonged rests that may cause your muscles to get stiff. Of course you will take a longer break at lunch. Always stop early enough in the afternoon to set up camp and prepare the evening meal before dark.

HIKING TIPS

If you are not traveling on an established trail, the following tips will be helpful.

1. If possible, always walk around or over obstructions, rather than on them. It takes as much energy to lift the body

- one foot off the ground as it does to walk thirteen steps.
2. Travel the route of least resistance.
 3. Travel in a zigzag pattern when walking up hill. It takes less energy.
 4. Travel the ridges whenever possible. You will note that most animal trails follow the ridges. They set a wise example to follow.

FOOT CARE

One of the areas you should give special attention to while hiking is the care of your feet. Make sure your boots are not too tight or too loose. Either one can give you trouble. Be sure socks are fairly new and in good condition. Avoid wearing mended socks or socks with holes. They will multiply your chances of getting blisters. Be sure socks fit properly. If your feet perspire a lot it is a good idea to carry a pair of dry socks and change them frequently. If your feet are tender, dusting them with foot powder or bathing them in rubbing alcohol at the end of the day is helpful.

SNACK FOODS

Some hikers, including myself, make a practice of carrying snack foods to eat while on the trail. Dried fruits (such as raisins) and candies (such as caramel and chocolate) will give you quick energy. Be sure to take only the candy that will not melt. My favorite snack is a combination of raisins, dry roasted peanuts, and M and M-style chocolates.

ENJOY NATURE

Prior to your trip you should do some research on the plant, animal, and birdlife in the area you are hiking. This will enable you to enjoy more fully the world of nature while on the trail.



FINDING YOUR WAY

You should never venture out into the wilderness without becoming completely familiar with the use of a compass and a map. Detailed information on the use of a compass and map may be found in chapter eight of "Adventures in Camping" handbook.

SELECTING THE CAMPSITE

Several factors should determine the location of a trail campsite.

1. Enough level ground for tents or shelters.
2. Good water drainage.
3. Plenty of wood and water nearby.
4. Freedom (as much as possible) from insects.

An ideal spot is a point of land jutting out into a lake or stream. Usually drainage is suitable, water is handy, breezes will drive away insects, and the view is good. Survey the area carefully and plan your site before unpacking your gear. In setting up camp always follow in sequence these basic rules: shelter—fire—food.

TRAIL CAMPFIRES

1. Locate fire so prevailing wind will blow smoke away from tents
2. Clear large enough space for safety.
3. Collect plenty of fuel and kindling in advance.
4. Build best type of fire to meet your needs.
5. Never leave a fire unattended.
6. Be sure fire is completely out before leaving camp.

COOKING ON THE TRAIL

Prepare a menu for each meal before leaving on a trip. Keep your meals simple but nutritional. List detailed instructions on how to prepare each meal item. You will be using special backpack foods, so be sure to follow instructions exactly. Do not take shortcuts.

At the meal site read your menu twice to be sure you know what to do and how to do it. Plan your meal so that all items will be done at approximately the same time.

After the meal, burn all scraps. Liquid waste may be buried in a grease pit. All items such as tin or foil that cannot be burned should be placed in a plastic bag and carried with you to a trash container. (Keep this in mind when buying and packing food stuff.)

Chapter 10

SURVIVAL

All campers who plan to spend much time in the out-of-doors should train and prepare themselves in the techniques of survival. Even the most experienced woodsmen sometimes get lost. Daniel Boone once said, "I was never lost in the woods, but once I was mighty confused for three or four days." Every year men become lost on hunting trips. During vacation season many people become lost while camping or hiking. One boy got lost while picnicing with his family at a state campground. His trouble started when he began chasing a chipmunk. A short time later he realized he was out of sight of the campsite. He started back in what he thought was the direction of the campsite, but he was mistaken. By the time he realized his mistake, he was out of hearing distance of his family and lost.

If we do become lost we can survive any of these experiences with a minimum of discomfort, with the use of a little common sense and a knowledge of woodlore. There are several basic rules to follow:

1. Make a survival kit and carry it on your person at all times while you are in the out-of-doors.
2. Keep your cool—don't lose your head.
3. Look for or make a shelter.
4. Build a fire.
5. Make signals for rescuers.
6. Find water.
7. Search for food.
8. Mark your trail so you can return to your shelter.
9. Conserve your energy.

MAKE A SURVIVAL KIT

Select a waterproof container small enough to fit into your pocket. (Small plastic containers are ideal.) This kit should contain the following items:

1. Emergency food such as bouillon cubes, caramel squares, tropical chocolate bar, or malted milk tablets.
2. Waterproof matches.

3. Fire starters such as a candle or a small block of paraffin-soaked material.
4. Metal match (found in sporting goods stores).
5. Small knife or razor blade.
6. Small compass.
7. Whistle (for signaling).
8. Nylon fishing line (about 25 feet).
9. Fishhooks, flies or lures (depending on the location).
10. Wire that is light and flexible for making snares (about 10 feet).
11. Water purifying tablets (about six).
12. Assorted Band-Aids (about six).
13. Small bar of soap for first aid.
14. Aluminum foil for making drinking and cooking utensils (two sheets about 12" square).
15. A list of the items and the date to replace them. Some items such as food will become stale.

A suggested plan is to fold one sheet of foil and place it in the bottom of the kit. After arranging the other items, place the second sheet of foil on the top. Place the sheet with the written list of items on top of the foil.

SURVIVAL BLANKET

An ideal companion item to your survival kit is a survival blanket. They are made from a new material that is also used in the astronaut's space suits. They fold small enough to fit in your pocket and they will conserve 90 percent of your body heat. They may also be used as a shelter or signal marker. They may be purchased in sporting good stores.

KEEP YOUR COOL

The major problem you must cope with when lost is panic. The moment a person realizes, "I'm lost," a strong urge to bolt and run headlong into the forest in search of a trail or familiar landmark will come over him. The forest becomes a menacing enemy. Common sense and reasoning can be lost if we give in to panic. If you have never had the nerve-shaking experience of realizing you are lost, you may scoff and say, "Not me."

However, specialists in this field inform us that it is a normal

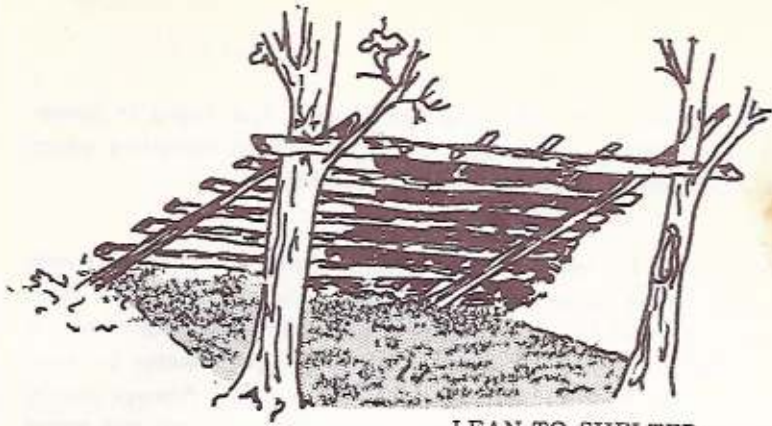
reaction to feel panic when lost. The important thing is to know how to handle this feeling when it happens to you. When the sudden realization hits you that you are lost, stop dead in your tracks. If you are standing, sit down. Fight off any urge to run or to keep going. Take out your survival kit and eat a piece of candy. Analyze the contents of the kit and the purpose of each item. If this does not calm you, build a fire. The secret is to do something to overcome the feeling of panic. Bow your head and pray for God's help. Quote aloud your favorite Scripture passage. We suggest that you write down Psalm 121 and place it in your survival kit. Read it aloud. You will soon begin to feel better; you are not alone. Jesus is with you to help you. When you have calmed down, begin to think. Study the area around you. Try to visualize the last place you can remember before you became lost. Try to reason out what you did that caused you to become lost. Sometimes a little sensible reasoning will put you back on the right track. Perhaps you are not lost at all, but like Daniel Boone, you are "just a mite confused." If so, calmly be on your way. However, if there is the slightest doubt, mark the trail so you can come back to the place where you first became lost.

MAKE A SHELTER

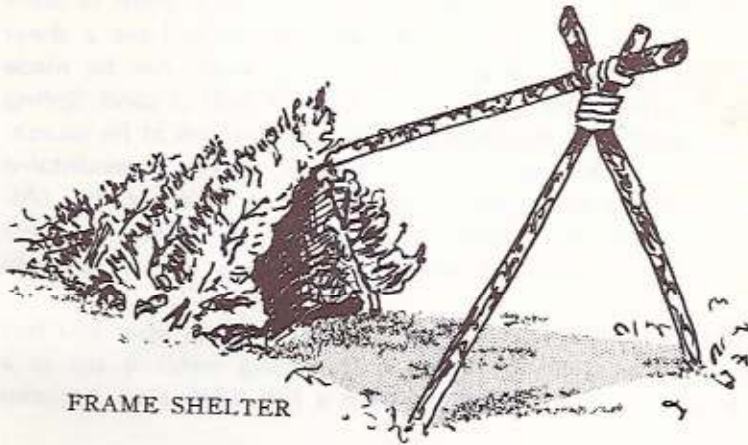
If you cannot find a solution and you know you are really lost, start immediately to build a shelter. Don't wait until too late in the day. By beginning early you can take it easy and conserve your energy. The shelter will not only protect you from the elements, but there is also something reassuring about a shelter and a fire; plus the building of it gives you something to do while waiting to be found. (See the illustration for some suggestions on building an emergency shelter.) After completing the shelter, make a ground bed from leaves or boughs to protect you from the ground cold.

KEEP YOUR FIRE GOING

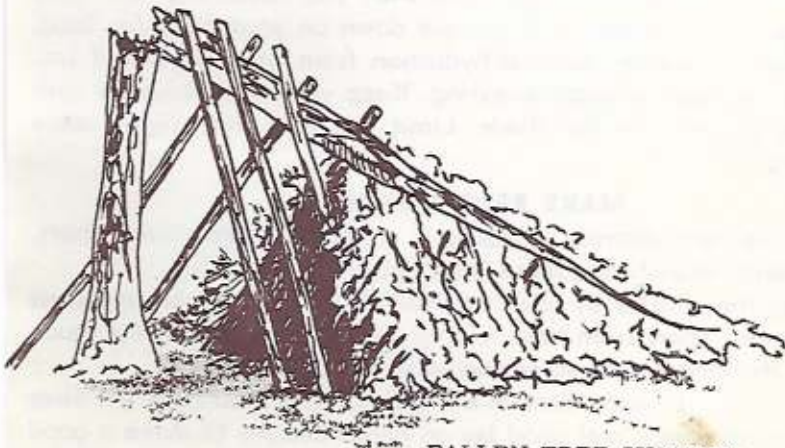
Get a good fire going, and then gather plenty of wood to keep your fire going throughout the night. Don't allow your wood supply to run low. Keep a large supply of fuel and kindling in reserve. Keep kindling and tinder in a dry place. Conserve your matches. You will need a good size fire for warmth during the night; therefore, arrange the wood so it will burn slowly, yet keep you warm. You will probably need to tend the fire about twice during the



LEAN-TO SHELTER



FRAME SHELTER



FALLEN TREE SHELTER

night. The fire will not only keep you warm, but there is something very comforting and cheery about a blazing campfire when you are alone at night, particularly if you are lost.

FIND WATER

If you are lost for very long, one of the most important items for your survival is water. Locate water as soon as possible. You can do without food for a long time, but your body must have a certain amount of water to survive. In searching for water be sure to mark your trail so you can return to your shelter. Always purify water before it is used. If no water is available you can get some water from heavy dew. In winter or in mountains there is snow that can be melted. If you are fortunate enough to have a sheet of plastic you can make a solar well. Muddy water can be made cleaner by filtering it through a layer of clean cloth or sand. Spring water in the wilderness is almost always pure if drunk at its source. In desert areas, lush vegetation is a sign of water. In mountains you can sometimes find pools of rain water in rock pockets. (Always treat or boil this water.) In searching for water the best policy is to search downhill. Gullies and valleys usually lead to water.

Don't conserve water if you have a canteen. Drink what you feel you need. There is no advantage in rationing water a sip at a time. It is better for your body to have a full drink than a dozen sips or swallows.

If water is plentiful, drink more than you need. This will take the edge off of hunger and will cut down on your need for food.

If water is scarce, avoid dehydration from wind, sun, and loss of body moisture through sweating. Keep your body covered with clothing and stay in the shade. Limit activities that might cause sweating.

MAKE RESCUE SIGNALS

The standard distress signal is a series of three: three shots, three blasts on a whistle, three fires, etc.

Using the whistle in your survival kit, give three blasts about five seconds apart from time to time. A whistle blast carries much farther than the human voice and takes much less energy.

Lay out three signal fires in a clearing. After you light the fires and they are going real good lay on green boughs to make a good smoke signal. A good smoke signal can be spotted several miles



away. (Usually it is a good idea to wait long enough to be sure someone knows you are lost before lighting signal fires. Perhaps the next morning after you become lost.) However, anyone seeing the three smoke signals will know someone needs help.

By using the orange side of your emergency blanket you can make a marker that is easily spotted from the air. Using a mirror, a piece of foil, metal, or glass you can make a flash signal that will attract the attention of a plane. If lost in the snow, you can tramp out the signal SOS in the snow. Rocks or logs spelling SOS on a sandy beach also make a good marker.

Avoid leaving your temporary camp. However, if it is necessary to leave in search of water or food, leave a note on paper, bark, a tree blaze, or on the ground, and mark the trail in the direction you are going.

SEARCH FOR FOOD

If it appears you are going to be lost for a while you should look for food. In most parts of the country it is totally unnecessary for a person who is lost to perish from want of emergency food. However, if you do not find food immediately, don't worry; you can go for days without food and even weeks and still not harm your body. Of course you will feel hungry, but that is because you are accustomed to three meals a day. Chances are if you conserve your energy you will probably be found long before you need food for survival. However, if you have time on your hands, try one of the following sources of food to satisfy your hunger.

EDIBLE PLANTS

If water is scarce, plant food which is high in carbohydrates and vitamins is better than high protein food such as meat.

The list of edible plants is so long we will list only the most common ones. Their availability depends upon the section of the

country and the season of the year. These edible plants are in the following categories: greens, roots and tubers, fruits and buds, and nuts.

WILD GREENS

DANDELIONS: Young tender leaves may be eaten raw.

CLOVER: Young leaves and blossoms may be eaten raw.

CHICORY: Young tender leaves boiled as greens.

PIG WEED or LAMB'S QUARTER: Boil young leaves for greens that taste like spinach. Seeds may be eaten raw or cooked into an Indian cereal.

PLANTAIN: Cook leaves and eat as greens.

PURSLANE or PUSLEY: Boiled as greens.

SCURVY GRASS: High in vitamin C; it was used by explorers and frontiersmen to prevent scurvy. Eat leaves raw.

ROSEROOT or STONECROP: Also high in vitamin C. Eat young stem and leaves raw for salad or cooked for greens. Roots may also be cooked as a vegetable. Plant may be identified by its rose-perfumed aroma.

GLASSWORT or BEACH ASPARAGUS (sometimes called salt worts): Eat raw as salad.

MUSTARD: Boil and use as greens.

WATER CRESS: May be eaten either raw or cooked.

SHEPHERD'S PURSE or PICKPOCKET: Eat raw as salad.

MINER'S LETTUCE or SPANISH LETTUCE: Eat young leaves raw; older leaves may be cooked like spinach.

SHEEP SORREL: Leaves may be eaten raw.

PASTURE BRAKE or BRACKEN (sometimes called Eagle Fern and Croziers): Use only when very young. May be eaten either raw or cooked.

DOCK (sometimes called wild spinach): Leaves eaten raw as a salad or cooked as greens.

COMMON CHICKWEED: Boil as a green.

MILKWEED: Boiled and eaten as a green.

WINTER CRESS (or Yellow Rocket): Eat young leaves raw; cook older leaves as a green.

GOLDENROD: Young tender leaves are used as salad; dried leaves and dried blossoms may be brewed into a tea.

FIRE WEED: Boil young tender stems. (They are similar to asparagus.)

WILLOW: Young tender leaves may be eaten raw. (They are ten times richer in vitamin C than oranges.) Also, you may peel the outer bark from young willow shoots and eat the inside raw.

CAUTION

A good rule to follow is: If you cannot identify the plant, leave it alone. It is better to be hungry than sick.

ROOTS AND TUBERS

CATTAILS: One of the best survival foods available. The root is used as a tuber vegetable. New shoots may be eaten raw as salad. The white inner stalk may be eaten raw or cooked as a vegetable. The yellow pollen can be made into a flour. The dried stalk and leaves can be used to stuff pillows and comforters.

ARROWHEAD (or tule potato): Use the tuber like potatoes.

INDIAN CUCUMBER: Roots may be eaten raw.

GROUNDNUT (also called Bog potato or Indian potato): May be eaten raw, but are better cooked. They taste more like turnips than potatoes.

SEGO LILY (or Mariposa): Bulb is boiled as a vegetable.

JERUSALEM ARTICHOKE (a native sunflower): Scrub and eat tuber raw like carrots or boil and eat like potatoes.

REEDS: Roots are boiled or cooked like potatoes.

WILD ONION: Bulbs and plants can be cooked by boiling or bulbs can be roasted over low heat.

BURDOCK: The roots should be boiled to eat. Use only first year's roots. (The stalk becomes prickly and grows a flower the second year.)

BULRUSH: Roots may be eaten raw. The white base of the stem may also be eaten raw.

TOOTHWORTH: Scrape the roots and eat raw.

SPRING BEAUTY (or Fairy Spuds): High in vitamins A and C. Clean roots and boil with jacket on.

POND LILY (white or yellow): Roots may be used as a cooked vegetable.

FRUITS AND BUDS

Most of the wild fruits listed may be eaten raw or cooked into pies or cobblers. However, for survival foods the best method is to eat them raw.

BERRIES: Wild—blueberries, cranberries, raspberries, blackberries,

serviceberries (also called June berries), strawberries, gooseberries, and mulberries all make good survival food eaten raw. However, serviceberries and gooseberries taste better when cooked.

MAY APPLE: Ripe fruit may be eaten raw. However, they are much better when cooked.

WILD GRAPES: Eat as they are.

MANZANITA: Berries may be eaten raw or cooked.

GROUND CHERRY (sometimes called strawberry tomatoes): Fruit eaten raw.

HAWTHORN (sometimes called haws): Eat fruit raw or cooked.

WILD CHERRIES: Rum cherries, chokecherries, and pin cherries.

WINTERGREEN: Fruit eaten raw.

CURRENTS: Raw or cooked.

PAW PAWS: Eat ripe fruit raw.

WILD ROSES: Eat the rose hips (green or dried); they are rich in vitamin C. In fact, dried rose hips are sold in health food stores at a premium price.

MUSTANG GRAPES: Eat ripe fruit.

WILD PLUMS: Should be ripe.

PERSIMMONS: If not completely ripe, leave them alone.

PRICKLY PEARS: Be very careful in gathering the fruit of prickly pears. Slice off the ends, split lengthwise and eat the pulp. They are well worth the effort if you don't get stuck by the spines and bristles.

OTHER CACTI

BARREL CACTUS: Plant should be carefully broken open to avoid spine; then the moist pulp is eaten for food and moisture content.

CENTURY PLANT: Spines are chopped away from pulpy base. This is boiled or roasted.

NUTS

PECANS, BLACK WALNUTS, HICKORY NUTS, HAZELNUTS, and **BEECH NUTS** are all good survival foods. Break the shell and eat the inside meat.

BARKS

The inner bark of evergreen pine tree family and also the willow may be boiled or eaten raw as an emergency food if nothing else is available.

EMERGENCY DRINKS

SASSAFRAS: A good tea may be made by brewing the roots of sassafras. This drink was used by many pioneer families. It is also the flavor base for old-fashioned sarsaparilla, now called root beer.

SWEET BIRCH: The dried leaves of a sweet birch tree may be brewed into a tea.

CHICORY: An emergency coffee may be made by roasting and then pounding chicory roots into powder.

WILD COFFEE (or tinker's weed): Roast dried seed and grind into a coffee.

SWEET FERN: The dried leaves are brewed into a tea.

SUMAC: The red berries may be brewed fresh or dried to make a punchlike drink.

HEMLOCK: The young green needles are brewed into a tea rich in vitamin C. (The needles of other trees in the pine tree family may also be used.)

EMERGENCY MEAT

In a real emergency situation, anything that walks, flies, swims, or crawls is acceptable food. This includes such things as insects, grubs, lizards and snakes. If we are hungry enough and our life depends on it, we should forget our prejudiced value of the food. A visitor once described a meal he had with natives of a certain country. Among the items that he described were the cooked unborn embryo of an animal, strips of meat from the stomach muscles of another animal, and a paste made from the secretion of the mammary glands of an animal. The paste was spread over burned bread made from the seeds of a plant. Doesn't sound very appetizing does it? In reality, what has just been described is a breakfast of eggs, bacon, and buttered toast. So you see, some of our ideas about food are psychological. However, there are usually many other meats available more to your liking. The following are some methods you may use to secure these foods.

BY HAND: Some items such as shellfish and crawfish, and sometimes frogs may be had by picking up or grabbing them with your hands.

CLUBBING: Some slower animals such as the porcupine can be killed with a club.

SNARES: One of the best methods for the more evasive small an-

imals is to snare them. The snare may be made from the small flexible wire or line in your survival kit. See illustrations for several possibilities. Snares will work for you while you are resting or sleeping. Check snares each morning. Also be sure to remove all snares when you are rescued or you permanently leave the area. **SPEARING:** Such game as frogs and some fish may be gigged with a spear. (See illustration on how to make a spear.)

FISHING: If you are near a stream or lake, use your emergency fish gear to catch fish. Try your fly or plug. If this doesn't work, use live bait on a fishhook. Try various places and methods until you are successful.

SLINGSHOT or BOW AND ARROWS: Some woodsmen have suggested making emergency slingshots and bow and arrows. However, unless you are real good with the use of these items, it is a waste of time.

COOKING GAME: Most of the meat may be broiled on a spit or over coals, or thinly sliced meat can be fried on a hot rock. Or, meat may be boiled; by adding some of the roots from plants listed you can make an acceptable stew. Fish may also be smoked.

MARK YOUR TRAIL

It is usually better to stay put; however, if you do leave your temporary site, always leave a marked trail that can easily be followed.

CONSERVE YOUR ENERGY

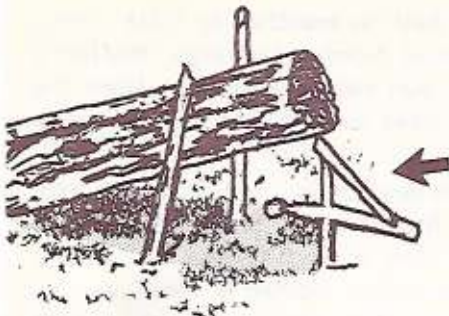
Conserve your energy by resting as much as possible. Avoid unnecessary exertion. Limit your activities to doing only those things necessary. If you feel you must do something to pass the time, engage in activities that will use only a minimum of energy.

USE YOUR HEAD

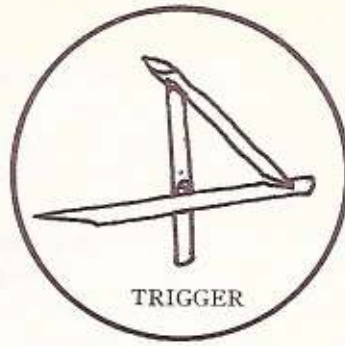
Sometimes survival and comfort depend upon simple, sound thinking. Some people call this "horse sense."

Two young men were stranded in a remote desert when their pickup truck broke down. They almost died of thirst, yet the pickup had a radiator full of water untreated with antifreeze. It may have tasted a little rusty, but it was still usable water. This never occurred to the boys.

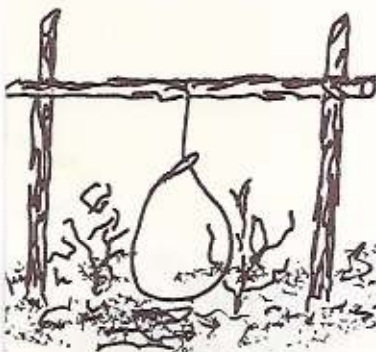
A hunter was lost in a blizzard. He found shelter under an overhanging rock. Even though plenty of wood was available he spent several miserable hours in freezing temperature and suf-



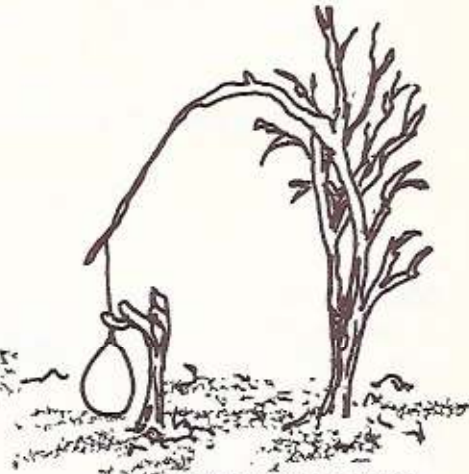
DEAD FALL SNARE



TRIGGER



SLIP NOOSE SNARE



BENT TWIG SNARE



FISHING SPEARS

ferred minor frostbite because he had no matches to start a fire. Yet he could have removed the lead from a cartridge, stuffed a piece of cloth in the end of the gun barrel, and then fired the gun in the air. The cloth would have caught fire and he could have started a fire with it.

A pilot with engine trouble crash-landed his plane on an isolated, snowbound mountain. He almost froze waiting to be rescued because he too had no matches to start a fire. Yet he could have soaked a cloth in the gas tank and then crossed a spark wire in the motor and caught the rag afire. (This can also be done with any type motor vehicle.)

By using your head you may find many logical solutions to your needs when you are trying to survive.

SOLAR STILL. Dig a pit 4 feet wide by 3 feet deep. Put a shallow container in the center. If possible, rig a tube from this up to the edge of pit. Stretch clear plastic over pit, with a rock in the center to form a cone directly over container.

