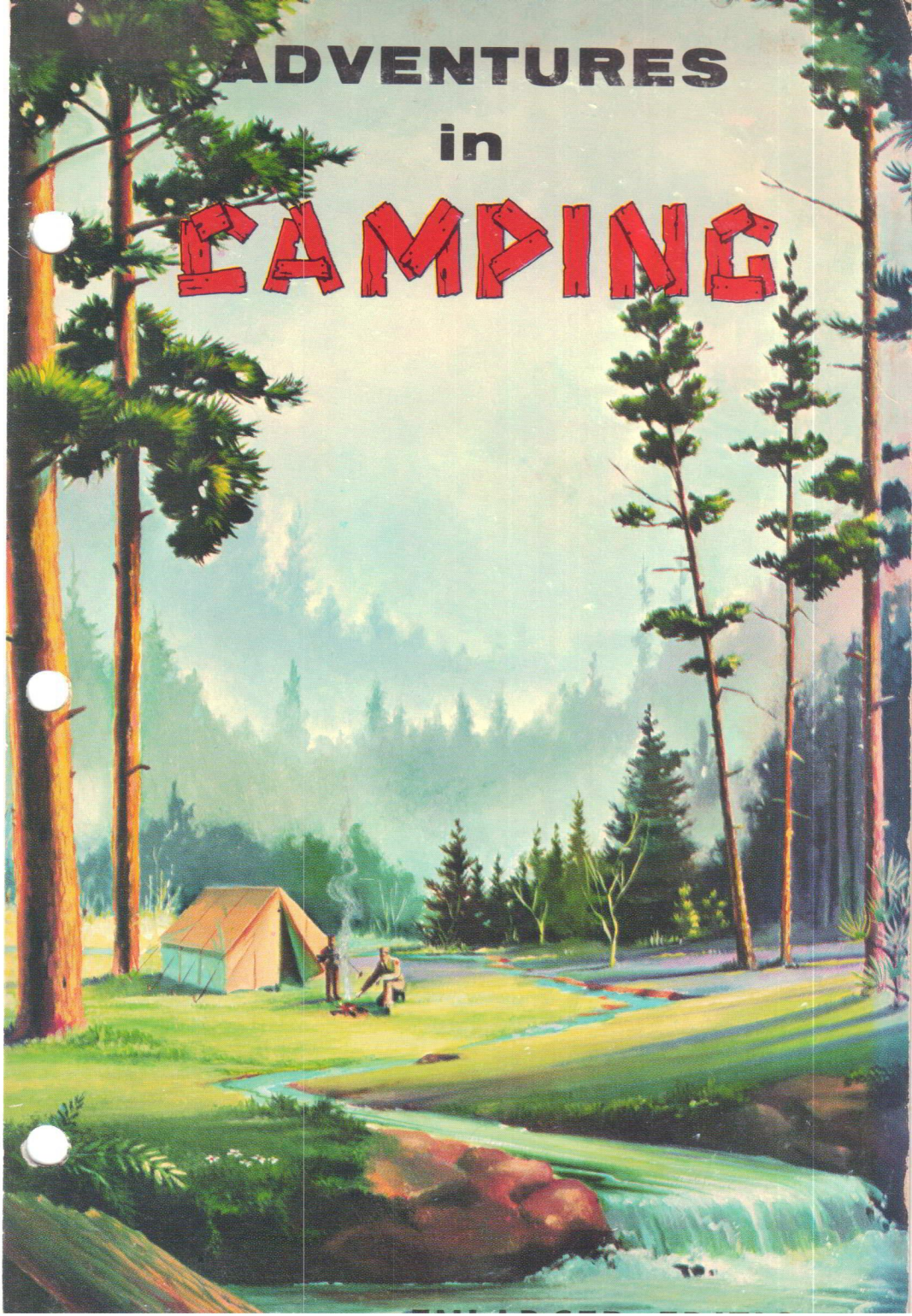
ADVENTURES in CAMPING



ADVENTURES in CAMPING

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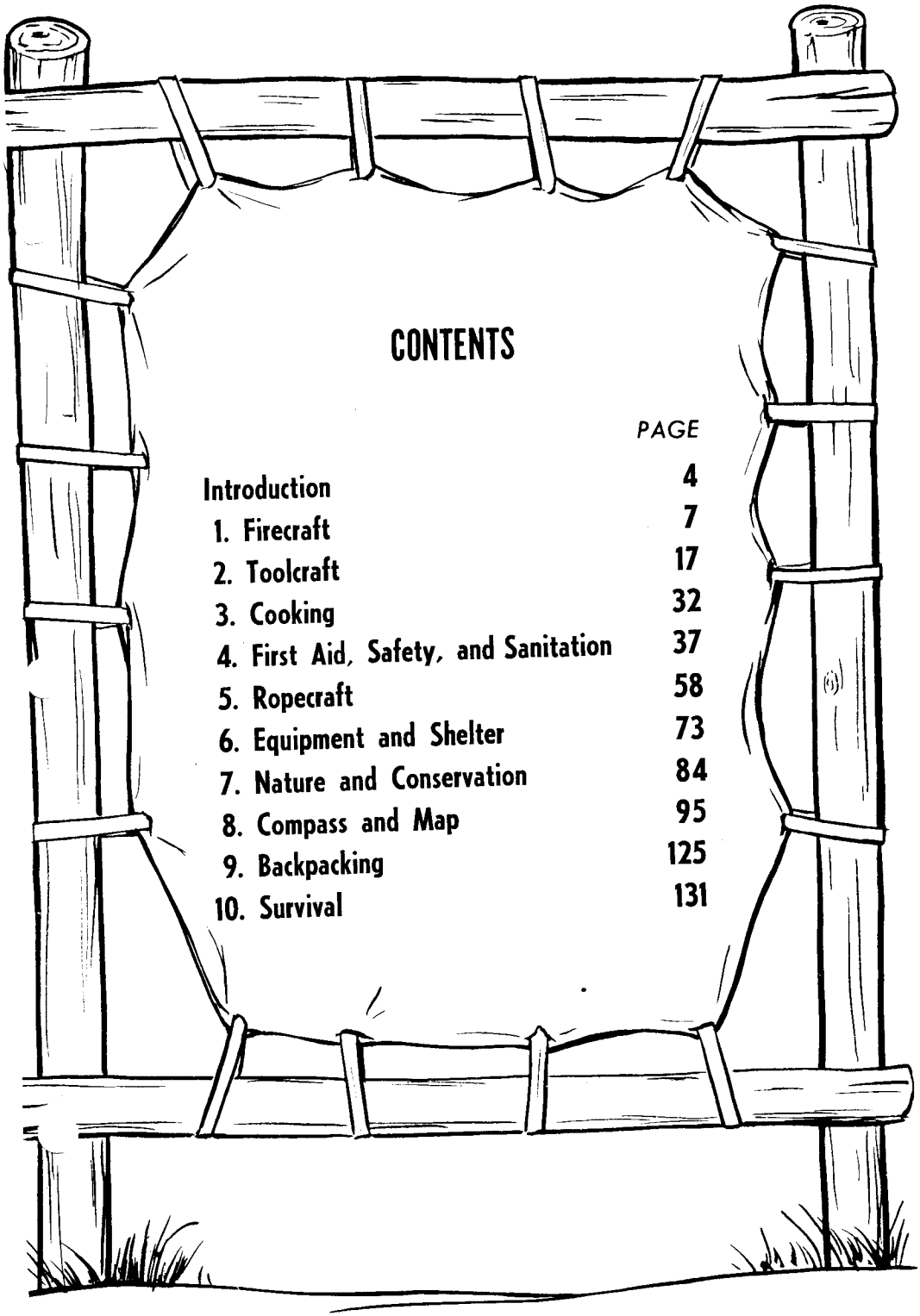


CONTENTS

INTRODUCTION

The first rays of sunlight fall over the ridge to rouse you from sleep as you greet a new day. You stretch and worm your way out of your sleeping bag to dress. Outside your tent you pause to look at the sunrise, and fill your lungs with the clean morning air.

It is breakfast time. You build a fire and fry bacon and flip flapjacks. Camp cleaned up, you and your buddies hit the trail with a light pack and silent step. You see birds, animals, insects, and fish—at home in their natural haunts.

Leaving a trail behind you, you chuckle together as you recall the lost Indian who, when found by his friends, said: "Ugh! Me no lost. Wigwam lost!" However, you have no fear of being lost. You can find your way with your map and compass, and by reading the signs of the woods.

As evening falls, you sit around the campfire with the other fellows. You sing songs together, and plan big things for tomorrow. You don't know why, but you feel good all over.

* * *

Yes, it is fun to hike, to camp, to live in the open . . . to swim and to paddle a canoe . . . to follow in the footsteps of pioneers who led the way into the wilderness. BUT YOU MUST BE READY FOR THIS ADVENTURE.

Too often a group will leave on a camping trip with poorly made plans and no preparation. Trouble usually starts the first day. Some will arrive at the camp site with blistered feet. Others sleep poorly. Backs are sunburned. Poorly

cooked foods cause stomach upsets. They return home tired, hungry and discouraged with camping. Doesn't sound like much fun, does it?

Knowing **how** to camp makes a difference. To enjoy camping fully, one should learn skills in firecraft, cooking, shelter, safety, first aid, ropecraft, compass reading, and sanitation. That is the reason this book was prepared. "Adventures in Camping" is designed to help young campers take care of themselves safely, healthfully, and comfortably in the out-of-doors, and to get joy and inspiration from their experiences. Read this book carefully. Learn each skill. Then, when you hit the trail for a camping trip, you will be "READY."

Johnnie Barnes

CAMPER'S PRAYER

Our Father. We thank thee for the beauty of this unspoiled world; for the lake and the trees, the rocks and the stars which chart the way to heaven. May we appreciate it to such an extent that our presence here shall not detract in any way from the beauty that was here before we came.

Grant us health, that we may be able to get the most out of this camping experience. Give us the willingness to do our full share of the work of the day.

Give us, our Father, the physical courage to meet whatever emergency may arise; to bear pain bravely, if necessary. Give us the moral courage to say "No."

Guard us from boastfulness, intolerance and deceit—and never permit us to forget that we are here under peaceful skies because other boys, not much older than we, died to make it so.

Protect us, dear God, through the hours of the day and the darkness of the night, that we may return at the conclusion of this happy experience, better than when we left, to those who love us.

We ask this in the name of Christ Jesus.

Amen

Chapter 1

FIRECRAFT

8

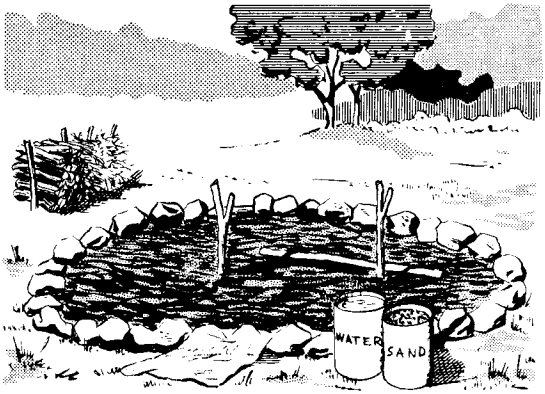
Select an open place where you can see the sky. Build your fire only on solid earth, scraping aside all moss, leaves, roots, or trash. Clear at least a six-foot circle.

Before starting your fire have:

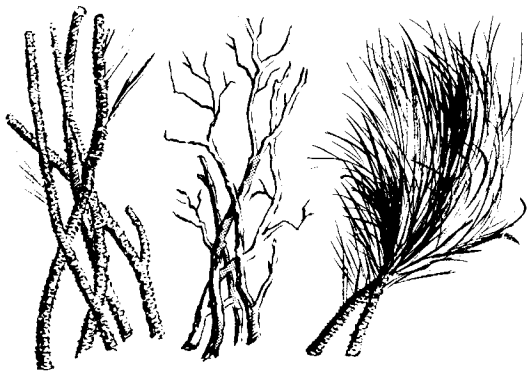
A. Rocks or trench around the cleared circle.

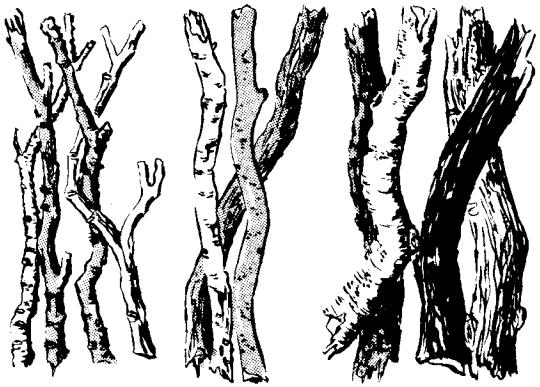
B. Materials for preventing the spread of fire such as: wet burlap bag, sand, dirt or water.

C. A large wood pile with plenty of tinder, kindling and fuel.

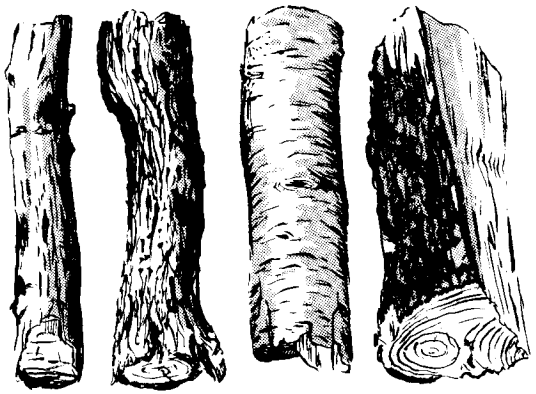


Tinder is material that catches on fire easily, such as dead twigs the size of a match, shavings of soft woods, peelings of cedar, birch bark or pine splinters.

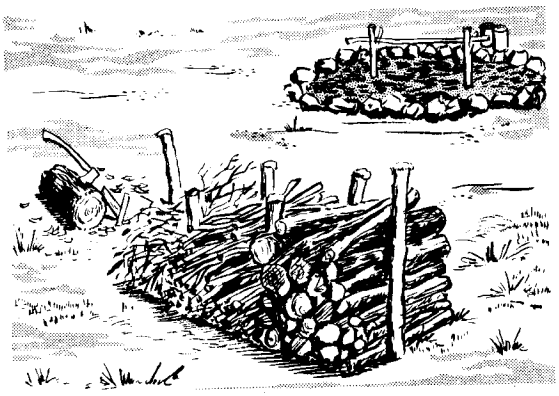




Kindling is larger dead twigs and dry soft wood up to finger thickness. Use sticks that bend and snap.

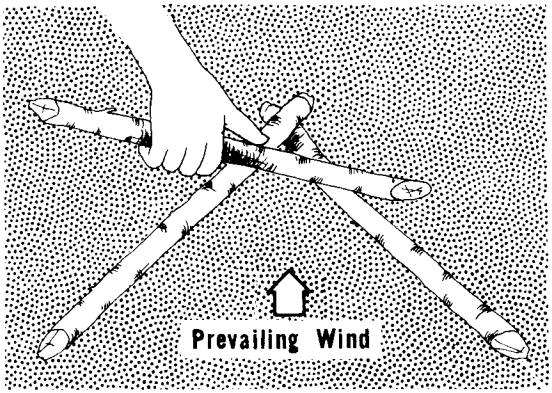


Fuel is generally hard woods such as hickory, oak, maple and ash. These woods make steady, hot fires and burn into good hot coals. Fuel ranges from good size branches to logs.

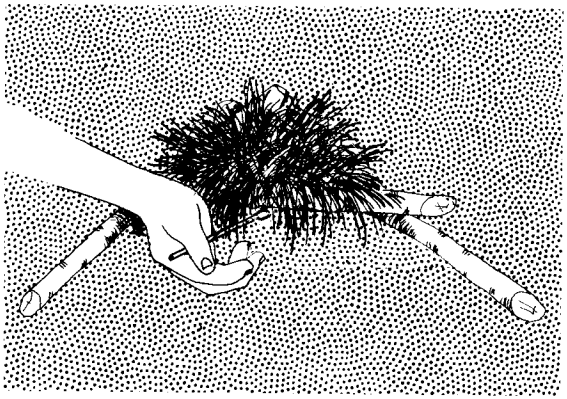


Remember! For a quick hot fire use soft woods such as pine. For a long burning fire with lasting coals use hard wood such as oak, maple, hickory and ash. **Always have plenty of wood before starting your fire. Pile wood where wind will not blow sparks toward it.**

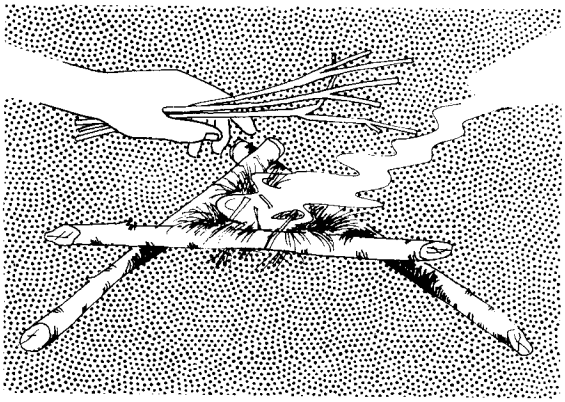
An easy basic fire is begun by forming an "A" of small sticks. Place open end toward the prevailing wind.

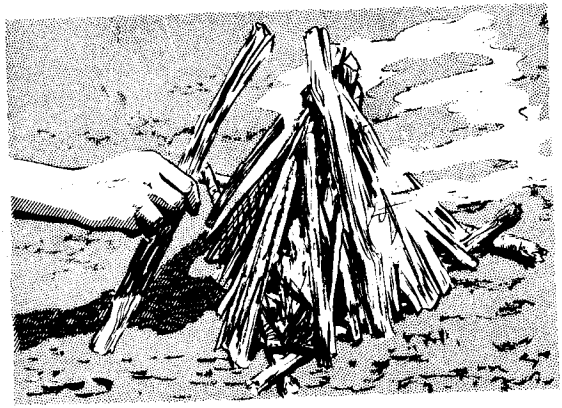


Place a handful of tinder on the cross piece. Strike your match with the tip down, then cup your hands around it to shield the match from the wind. Hold under the tinder.



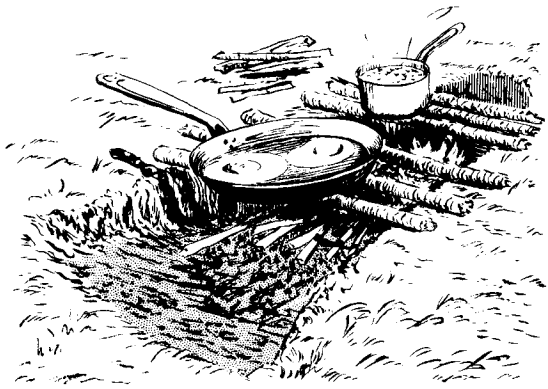
Add pieces of tinder to the flame and gradually increase the size until you have kindling burning with a good flame. **Caution! Do not add tinder or kindling too fast. Fire must have air. Flames burn upward.**





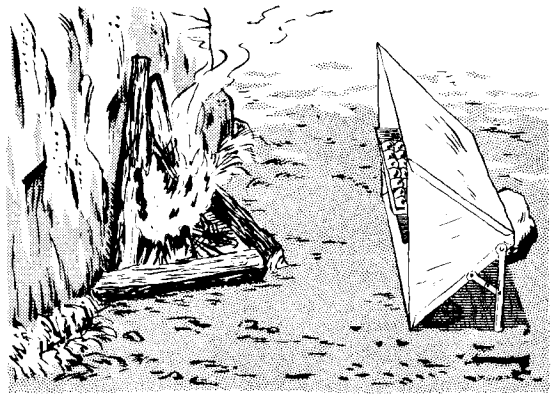
Build your fire into the type you need. The **Teepee Fire** gives a quick hot fire. Add sticks the same length, leaving plenty of air spaces. Remember! Build a fire only large enough for your needs. It is poor stewardship to waste extra wood on big fires.

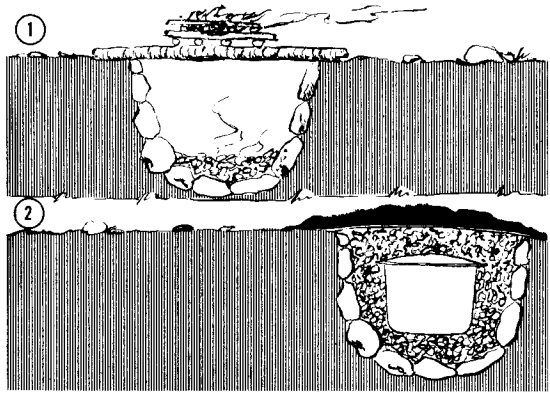
The Hunter's Fire is often called the best. It is built between two green logs or two rows of stones which support the cooking pots. Build a small fire and feed wood only as needed. Coals are best for cooking on the Hunter's Fire.



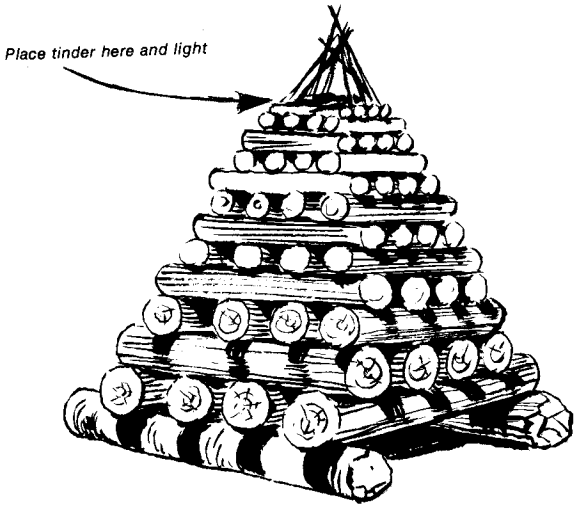
The Trench Fire is another kind of Hunter's Fire. It is safest in windy weather and more comfortable in hot weather. Dig a trench wider at one end, sloping from three to twelve inches deep. Make the narrow end deeper.

The Reflector Fire is built against flat rock, logs or rocks stacked one on top of the other against a sheet of tin. Place a reflector oven about one to two feet from the fire. Be sure oven is level.

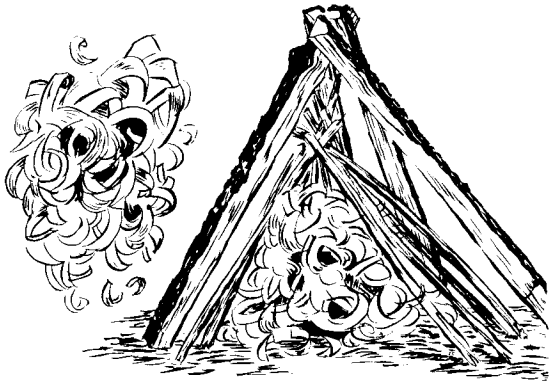




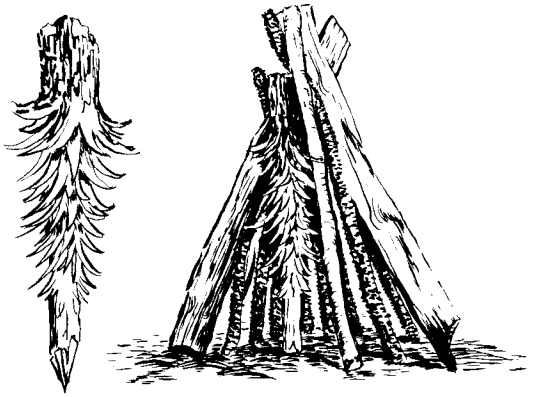
Beanhole or Imu (E-Mu) Fire. Dig a large hole with plenty of room for a pot. Line the hole with stones if possible. Build a fire across the top. As the fire burns, coals will drop in the hole. Add kindling and fuel until hole is filled with hot coals. Remove enough coals for the pot to fit into the hole. Place rest of coals over and around the pot. Cover with damp burlap and pack dirt on top. After four to six hours your meal is ready. (Be sure to check in your area for possible restrictions on digging holes for a fire.)



The Criss-Cross Fire is useful for a lasting bed of coals and for a campfire program. Build a teepee of soft wood or kindling. Place heaviest logs or split wood around teepee. Criss-cross others over these. Build up about two feet then place tinder and kindling. Finish with more smaller split wood. Light the fire at the top.

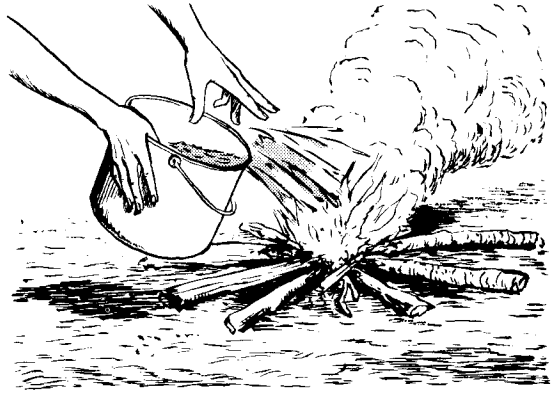


A good way to build a quick hot fire is to whittle shavings and build a teepee around them. Leave an opening for air and an opening to light the shavings.

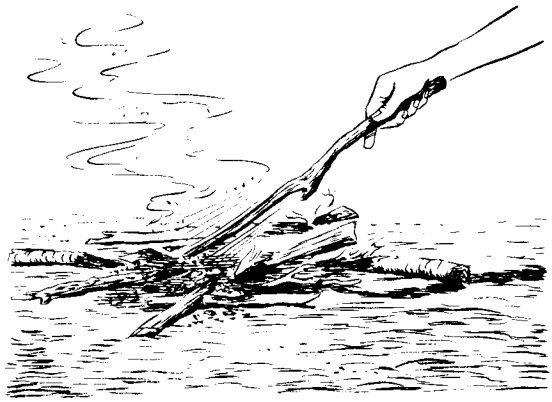


Another good way is to whittle a fuzz stick and drive into the ground. Light the fuzz stick after building a teepee around it.

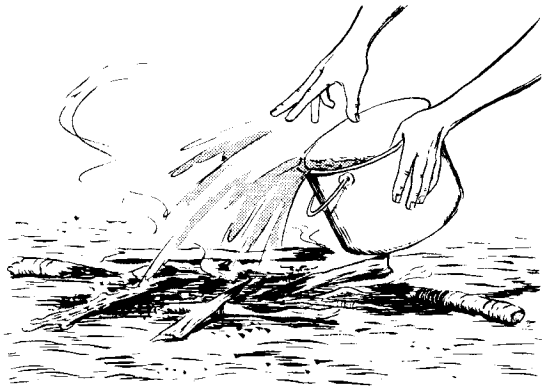
To put the fire out, sprinkle with water or dirt. For best results sprinkle with the fingers. Do not pour.

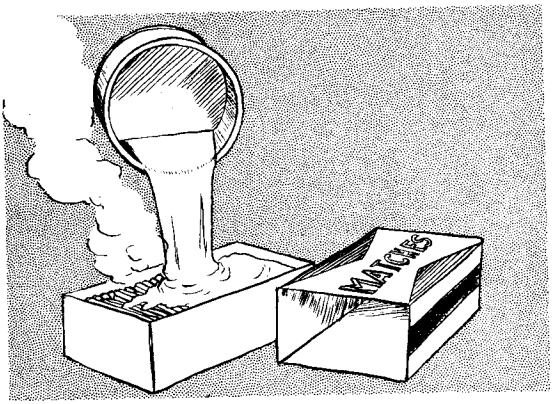


Scatter the logs and coals.



Sprinkle again. Test with hands to be sure fire is out. **A good camper leaves the site as he found it.**

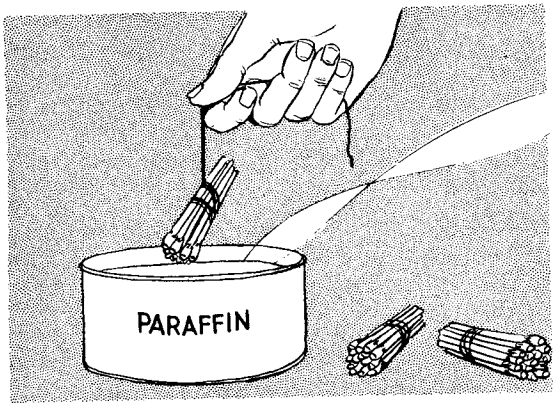




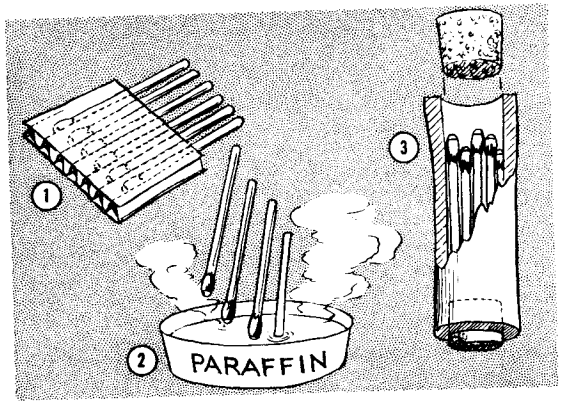
CARE OF MATCHES

Use only large wooden matches that will strike anywhere.

You can waterproof your matches by pouring melted paraffin over the box.



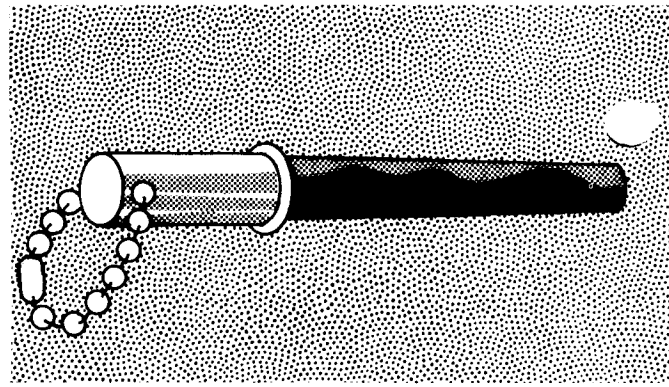
You may want to tie some in bundles and dip them in the melted paraffin. Carry two or three bundles of these in your pack or in your pockets.



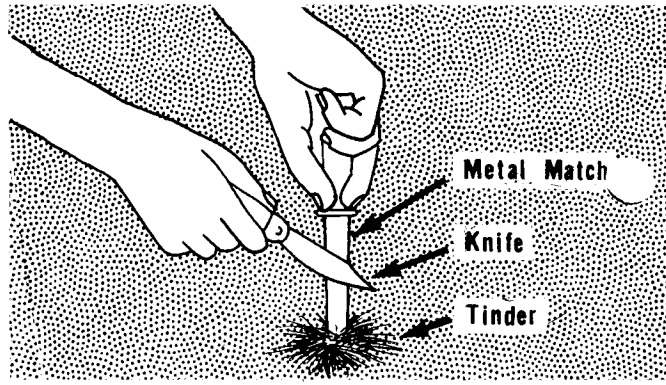
Dip individual matches in melted paraffin and stick the ends in corrugated paper. Place waterproof matches in this simple waterproof match box made from a joint of bamboo with cork in each end.

METAL MATCH

An ideal addition to an outdoorsman's gear is the metal match. This match has the potential of starting over 2,000 fires, and it is far superior to the old flint and steel.



Place end of match against tinder (cotton, cloth or other highly flammable material may be used for tinder). Carefully scrape off a few particles of the match with the knife into the tinder. Place edge of knife blade under handle of match. Scrape sharply downwards along edge of match toward tinder. Sparks should ignite tinder. If not, repeat, making sure sparks are striking tinder.



"And when Paul had gathered a bundle of sticks, and laid them on the fire..." (Acts 28:3).

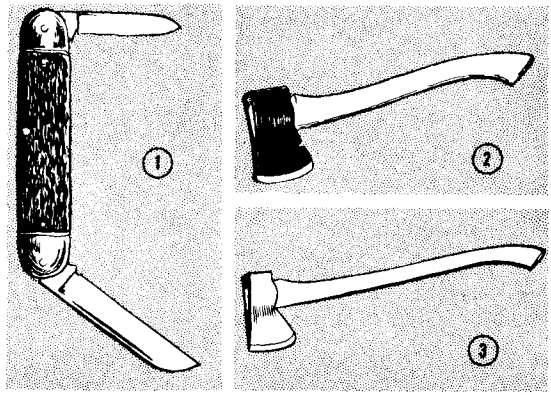
Chapter 2

TOOLCRAFT

The pocket knife (1) is your best tool. Choose the type you can use easily.

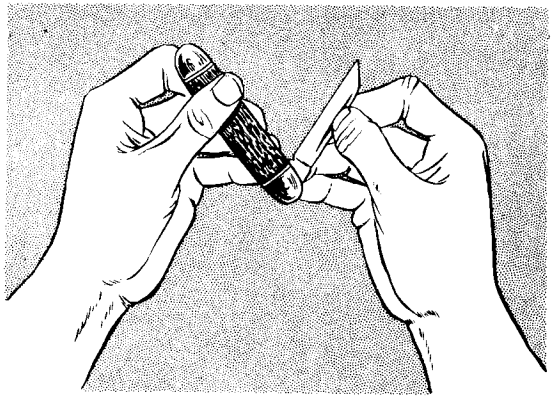
The hand ax (2) is a very useful tool for light work. It is not good for cutting logs or trees.

The long handled ax (3) can be used for all practical camp purposes such as chopping logs or cutting trees.

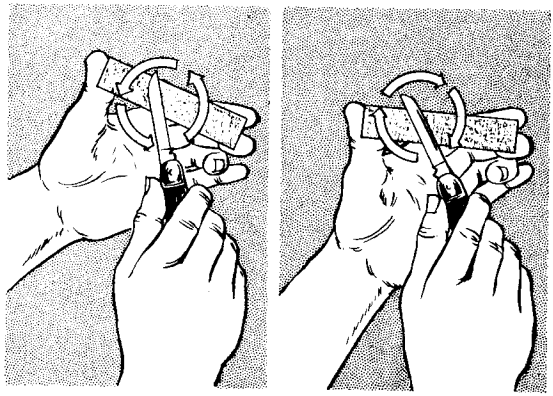


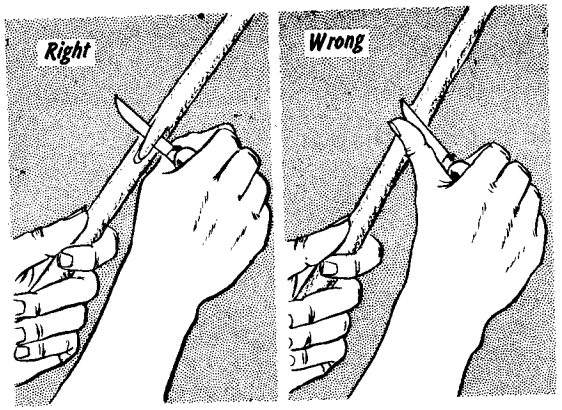
To Open A Knife: Hold it in one hand and with the thumb and forefinger of the other hand pull out the blade.

To Close: Hold the back edge of the open blade and close carefully.

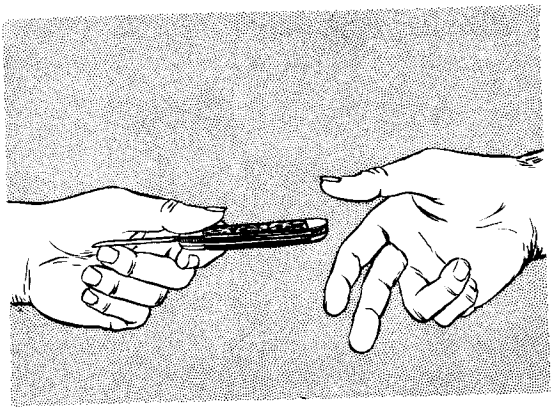


How to Sharpen Knife: Press blade firmly on stone. Move with a circular motion. Keep pressure to back of blade. Turn blade over and repeat in opposite direction. Test sharpness on a twig from time to time.

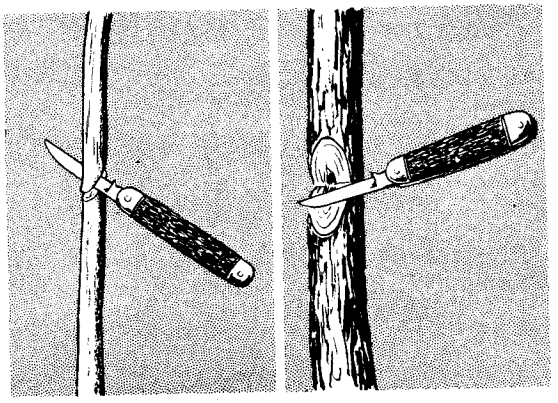




How to Hold Knife: Grasp knife firmly around handle. Always cut away from you. Do not place thumb on blade.

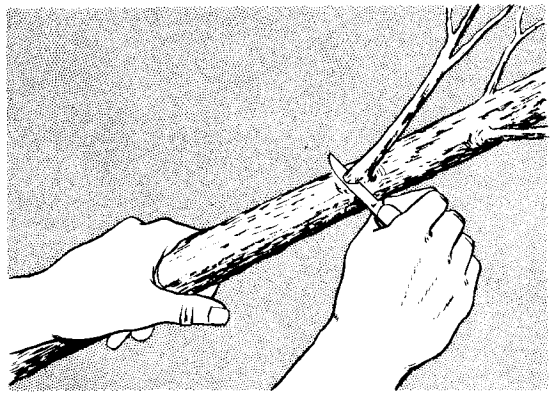


How to Pass Knife: Grasp knife with thumb and forefinger just above blade. Keep sharp edge out.



Using Knife: To cut a stick in two parts, slant the cut. To cut thick stick in two parts, make a **V** on top and then underneath.

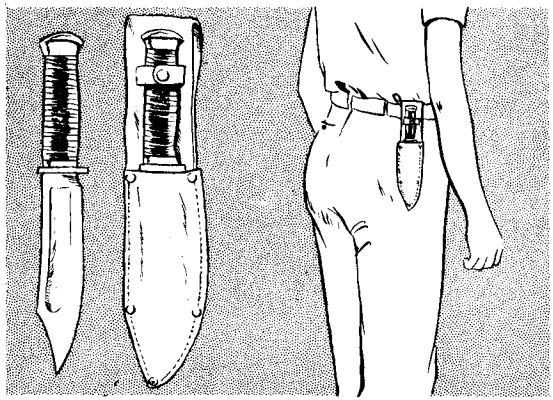
To trim a branch, grasp thick end and cut toward twigs. Remember! A good sharp knife cuts evenly and smoothly.



The sheath knife is good for heavier work such as limbing small branches, skinning and cutting up game and fish.

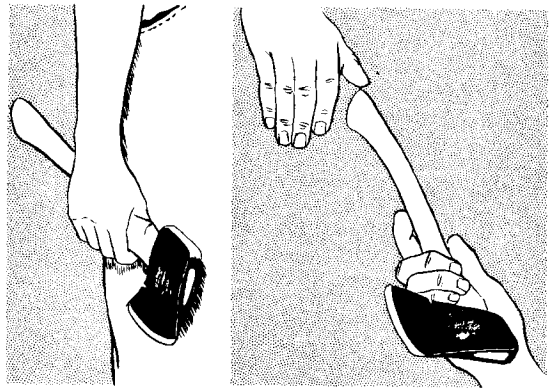
It should always be carried in a sheath in which there are at least five metal rivets.

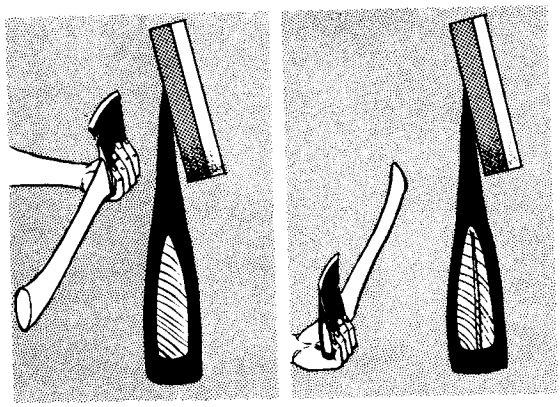
To Carry: Fasten on the side of the rear of the body.



To Carry Hand Ax Without Sheath: Hold handle close to the head with blade tilted away from you.

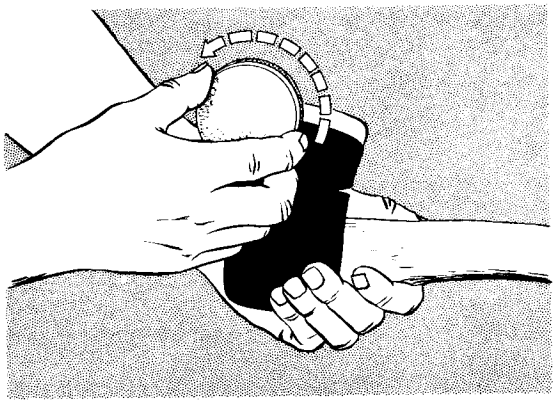
To Pass Hand Ax: Grasp the handle close to the head with handle pointed away from you and blade tilted to the side.



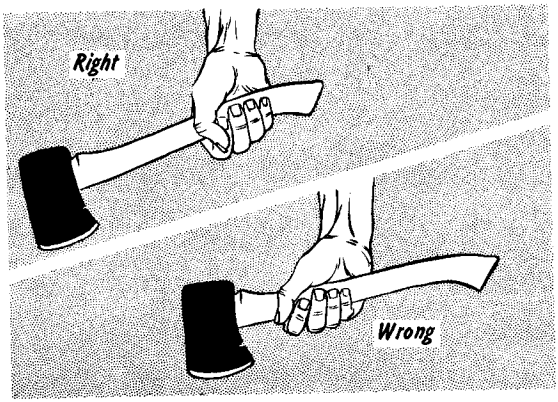


To Sharpen Hand Ax: Hold the head of the ax firmly in one hand. Use the other hand to move the coarse side of the stone against the blade in a circular motion. After a few motions on one side of the blade, change hands and repeat on the opposite side. Repeat same procedure with the fine side of the stone.

Move the stone with an even, circular stroke or motion.

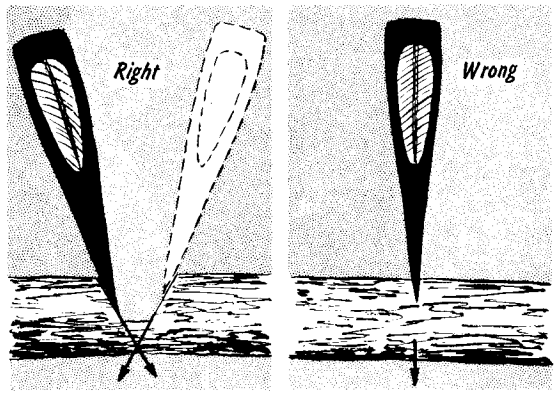


For gapped or very dull hand axes, use the same method with file as used for long-handled axes on page 24.

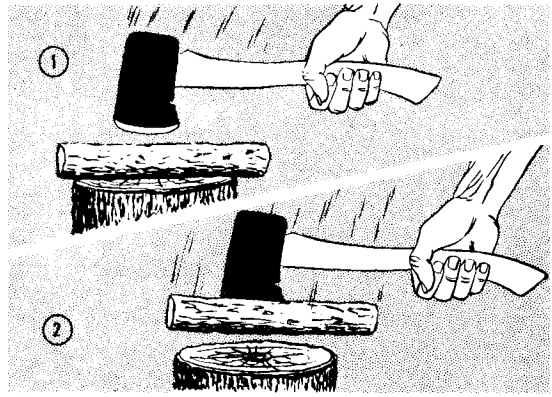


Using Hand Ax: Always hold the handle firmly toward the end of the handle. Never hold the ax close to the head.

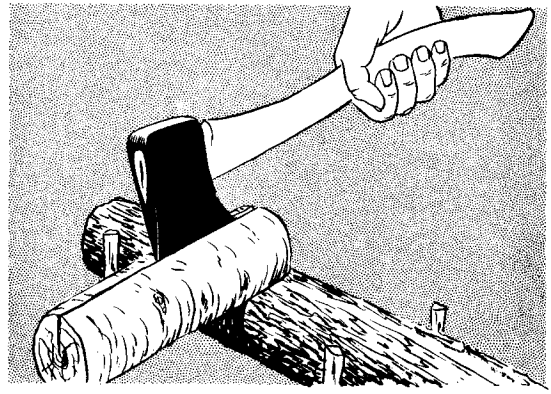
To Cut Small Branches: Slant the ax and make a **V** cut in the wood. If wood is not in two on the first stroke repeat the same cut. Never strike wood with a straight, downward motion.

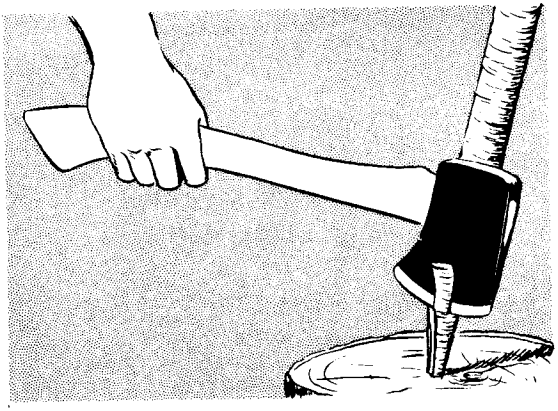


Splitting Small Logs: Place a log on a chopping block. Bring ax (1) down firmly on the log. If it doesn't split the first time, raise ax and log (2) and bring both down firmly on the chopping block.

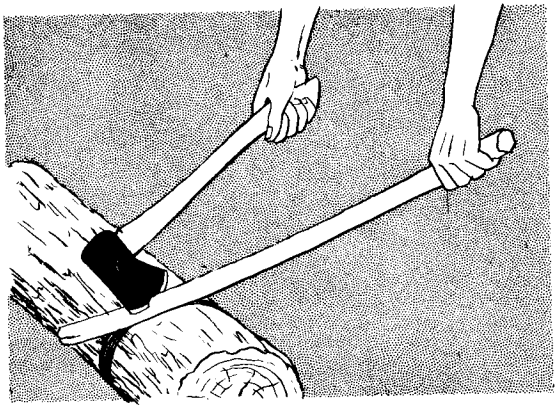


You may place a log against a log which is pegged down. Strike the center.

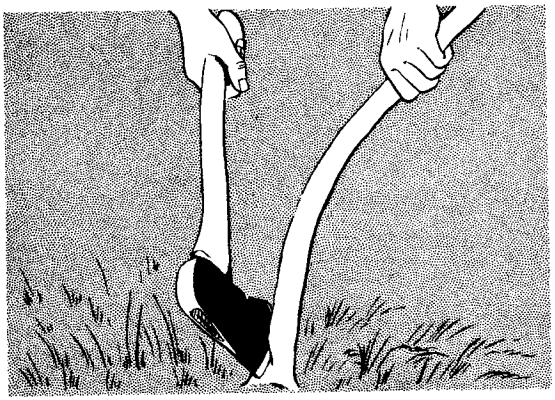




To Make Pointed Stick: Hold stick in one hand and cut at an angle. Turn the stick and repeat until the point is made.



To Cut Long Branch In Pieces: Hold the end of the stick in one hand. Lay end to be cut on the chopping block. Bring ax down slanted across the limb. If it does not split the first time, raise ax and wood and bring both down firmly against the block.

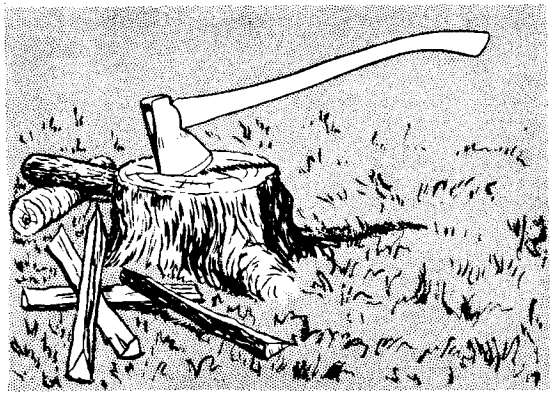


To Cut Small Tree: Bend tree with one hand. Bring ax down near the base of the tree.

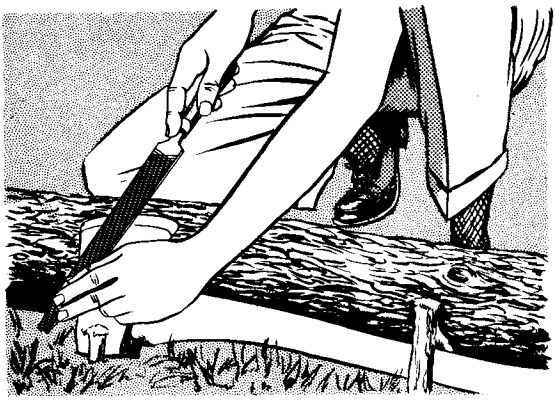
LONG HANDLED AX

Use the long handled ax for felling trees and cutting or splitting logs.

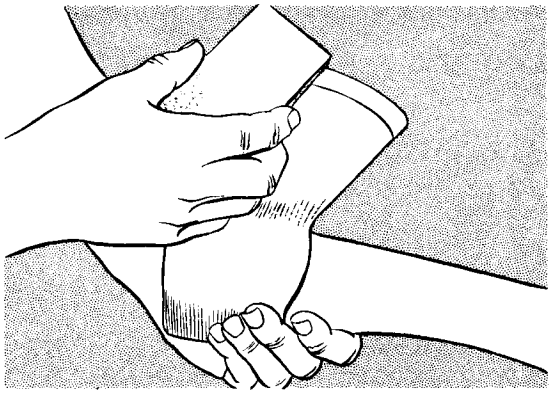
When ax is not in use, leave it in chopping block. Never leave the ax head lying exposed.

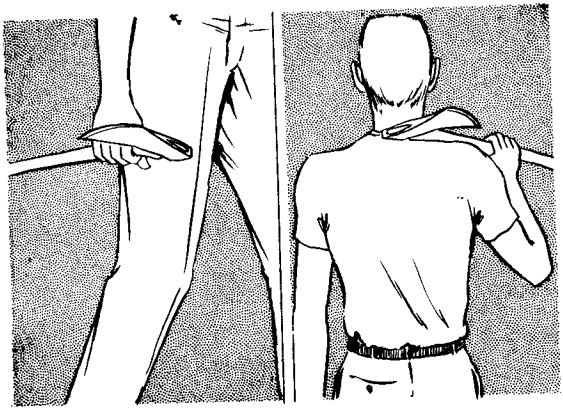


To Sharpen Ax: Peg the ax against a log or large piece of wood. Slant the file so that it lies firmly against the top of the blade. File evenly down and along the blade in a rolling motion. Turn the ax to expose the opposite side and repeat filing.

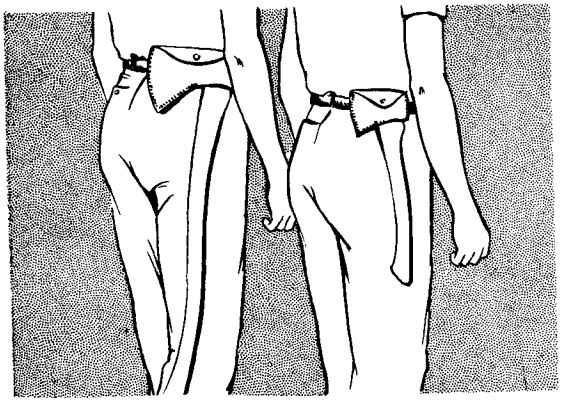


After filing the ax, use stone on both sides of the blade. Grasp the head firmly and follow the same procedure as sharpening a hand ax.

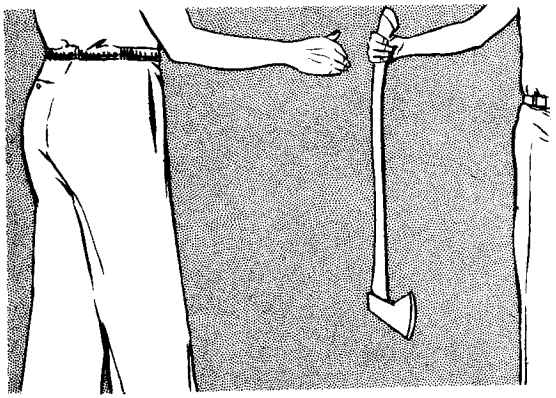




To Carry Ax Without Sheath: Grasp the ax close to the head. Keep the blade away from the legs. If carried on the shoulder, keep the blade pointed away from the body.

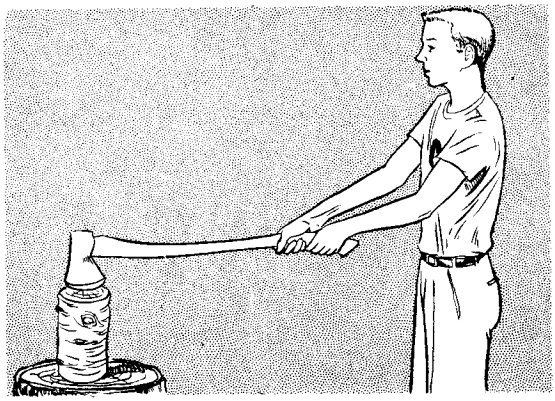


To Carry Ax In Sheath: Place to the rear of the belt above the back pocket.

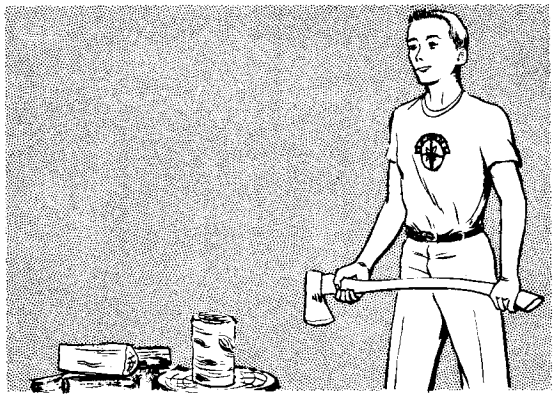


To Pass Ax: Grasp the handle at the end. Pass with the blade away from you and one to whom you are passing the ax.

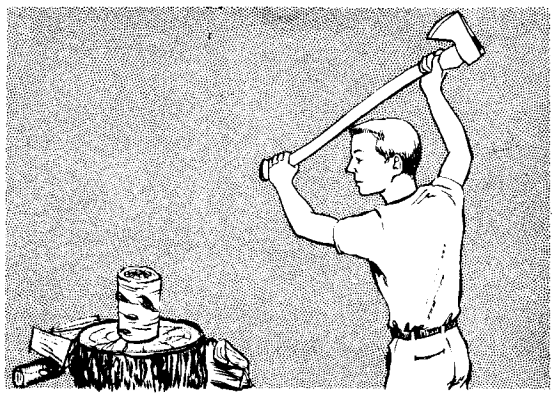
Splitting Wood: Place the log on a chopping block. Stand with feet apart. Measure a comfortable distance from which to cut with the ax.



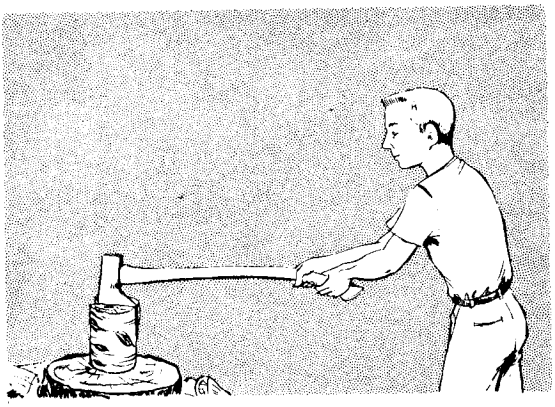
Bring the ax back to the body, grasping under the handle near the head with right hand.



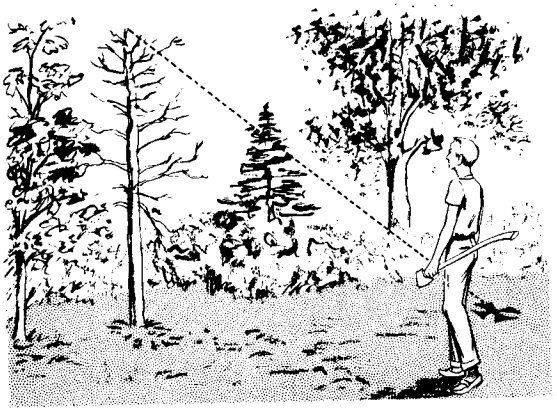
Raise the ax with the right hand over your shoulder.



Lower the ax sharply with right hand slipping down the handle stopping just above the left hand.

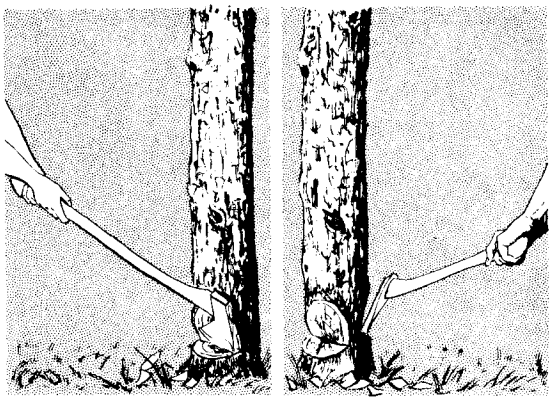


Guide the ax as it falls. Let the weight of the head do the work. Do not force head into the wood.



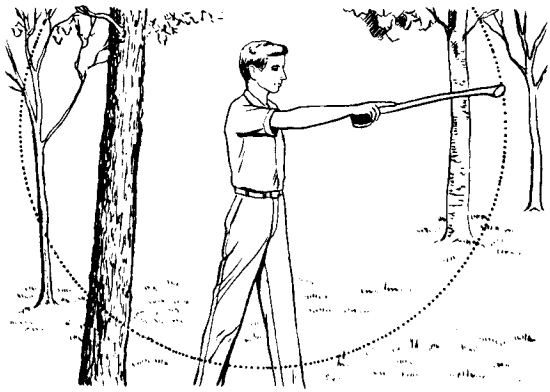
Felling Tree: Decide the best direction for the tree to fall. **Make the first cut on the side the tree is to fall.**

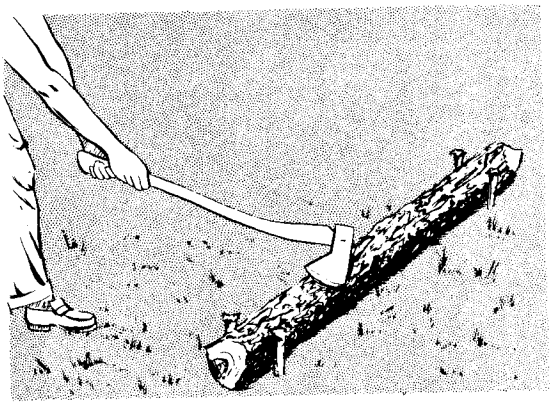
Make a **V** about half way through the trunk. Switch to other side and make the same **V** cut just above the first one. Tree will fall in direction of the lower cut.



A good axman always makes a smooth, clean cut. Keep the ax sharp. Remember! It is a true woodsman's most important tool. Take care of your ax!

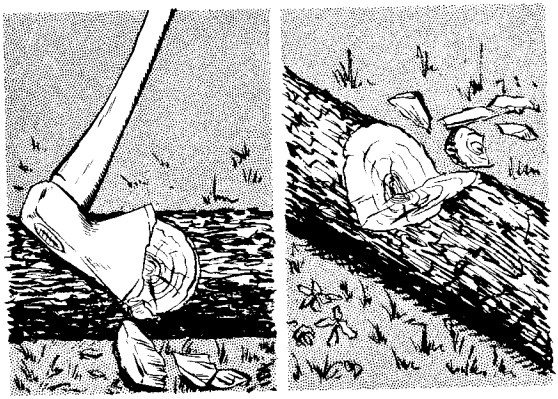
Cutting Up Log: Always be sure you have plenty of room to swing. Check overhead and to the sides by measuring with your ax.





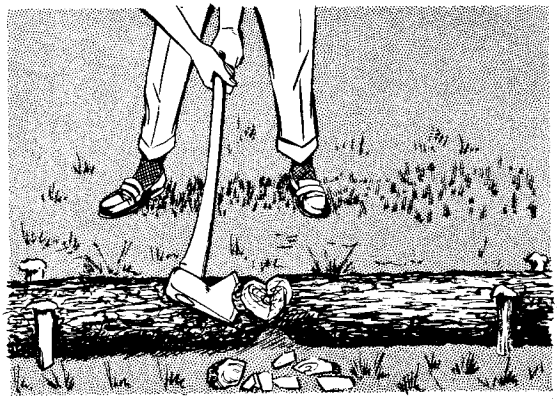
Unless the log is very heavy, peg it in four places. Stand with feet apart. Measure distance for a comfortable, easy swing.

Slant the first cut. Guide the head in the proper place. Let weight of the ax head do the work.



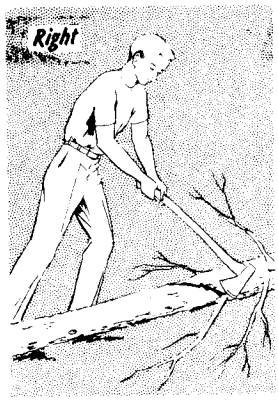
Make another cut to form a **V** shape.

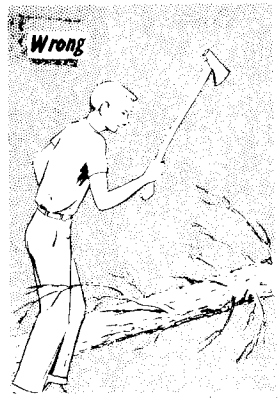
Make the **V** larger by cutting from side to side on the **V.** Turn heavy logs over and repeat on other side until the log is cut in two.



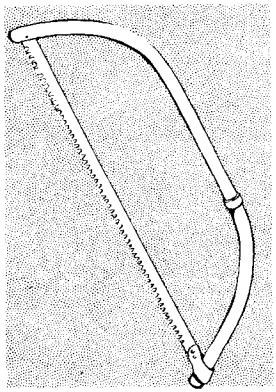
To Limb Tree: Stand to the left of the trunk with limbs pointed toward you. Swing ax at base of limb with both hands. Always stand on one side of trunk and cut limbs on the other side.

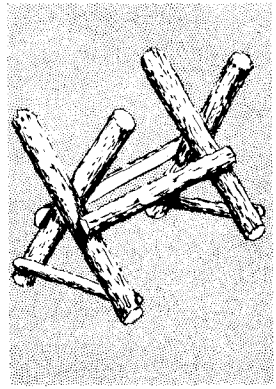
Use both hands on the ax.

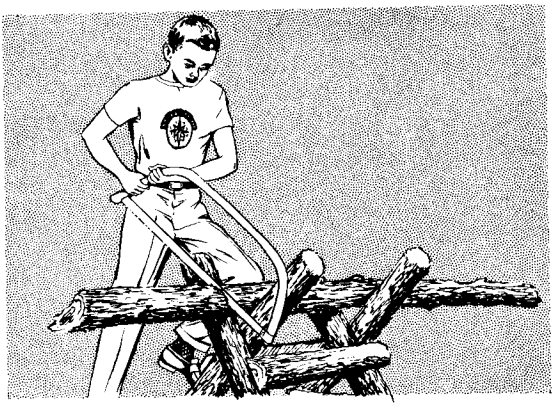




Using the bowsaw and sawbuck is one of the easiest methods of cutting logs. It is one of the simplest ways for younger boys to cut wood safely. Large amounts of wood can be cut in a short time.





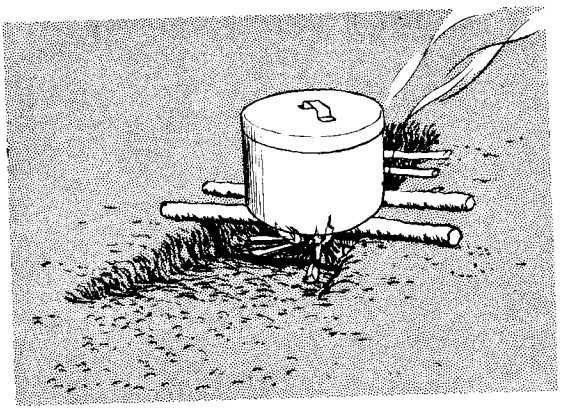


Be sure the sawbuck is steady. The bowsaw can be used by one or two persons.

"I know that thy servants can skill to cut timber" (II Chronicles 2:8).

Chapter 3

COOKING

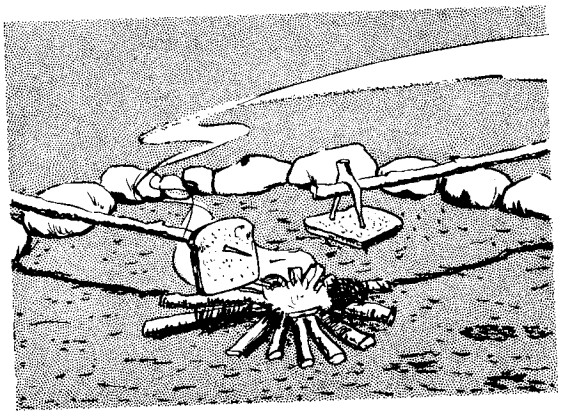


Learn to cook in easy stages.

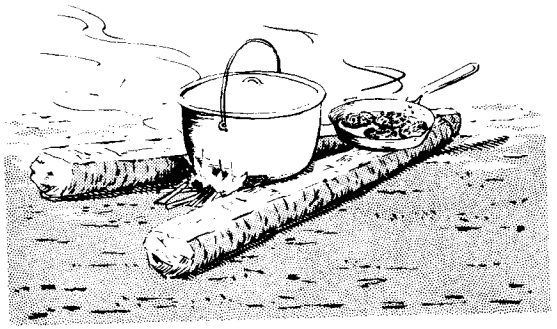
Boiling: Begin by making soup or cocoa.

Place a package of soup mix in a pot. Add water and bring to a boil.

Add cocoa to hot water or milk and simmer.



Toast bread over coals.



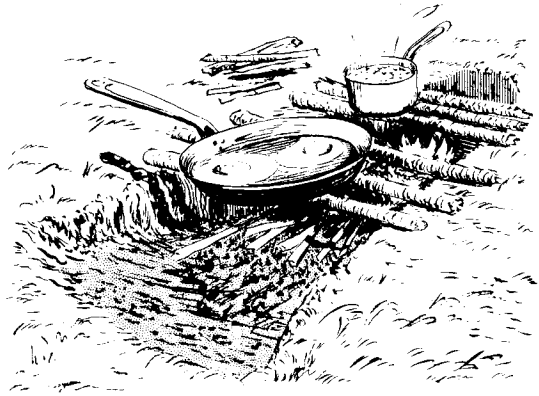
Cook something for a group:

Boiling: Make pot stew. Empty one can of vegetable soup into a pot. Fill the empty can with water and add to soup. Stir. Place over heat and gradually add ½ pound of chopped beef just before boiling. Continue to stir.

Cook for 15 minutes. Serves four persons.

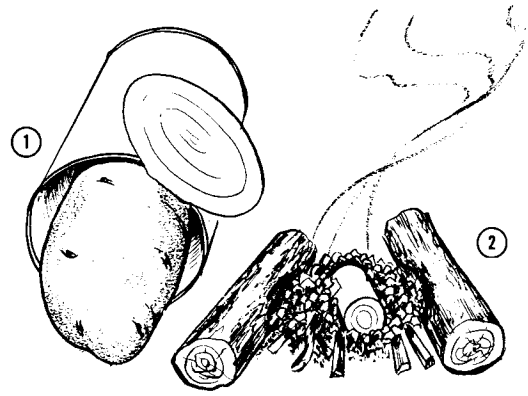
Boiling may be also used to cook beans, eggs, and potatoes.

Frying: Cook eggs, ham, bacon, steaks, chops, fish, or hamburgers in a skillet.

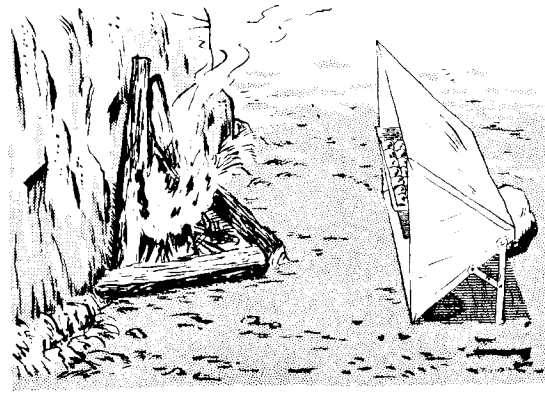


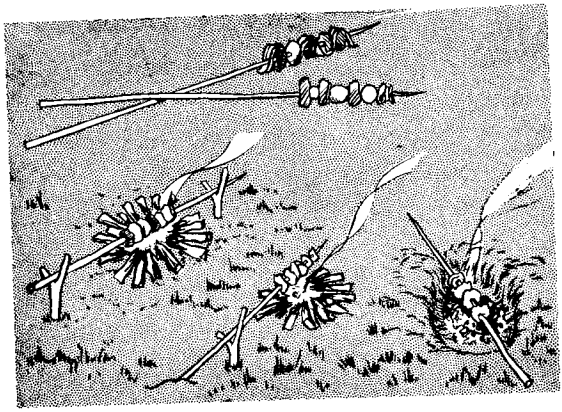
Baking: Wash a potato and stick holes in the skin with a fork. Place potato in a tin can and fold lid shut.

Set can in a bed of coals and bake 40 to 50 minutes.



Reflector baking: Make biscuits in a reflector oven. Use a fire built against rocks or green logs. Make dough by adding water to biscuit mix following directions on box. Biscuits are done when light brown.





Kabobs: Make spits of green hickory, oak, or other wood.

Cut onions in thick slices.

Cut thick slices of tomato or use strips of bacon.

Place beef, onions and tomatoes on spit. Weave bacon strips between ingredients.

Set spits over the fire on low forks or over trench fire. Turn constantly and broil until done. Push food onto plate and serve.

COOKING WITH ALUMINUM FOIL

(1) Baked Apples: Cut a thin slice from top and core. Put teaspoon of sugar in center, add cinnamon or raisins. Wrap loosely in foil. Bake for 15 minutes.

(2) Biscuits: Use biscuit mix following directions on box.

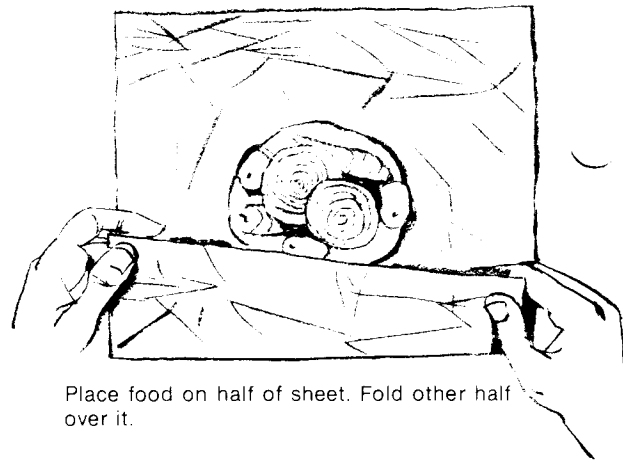
Shape dough into biscuits ½ inch thick. Wrap dough loosely in foil and set in hot coals. Cook 10 minutes.

Full Meal in Foil: Place ½ pound of ground beef in foil and add a sliced onion, carrot, and small potato, salt and pepper. Top with large slice of oleo or butter and wrap loosely. Bake in coals for 15 to 20 minutes.

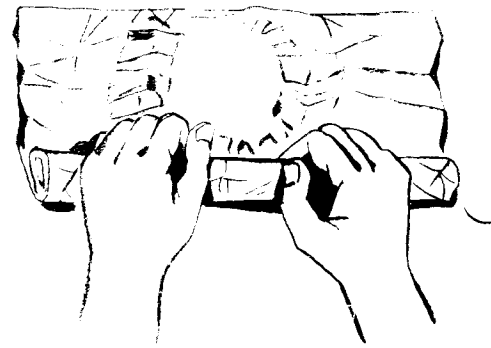
Baked Potato: Wrap in foil and cover with coals. Bake from 30 to 45 minutes.

Roast Corn Ears: Smear with butter, sprinkle with salt, and wrap whole ears in foil. Bake about 10 minutes.

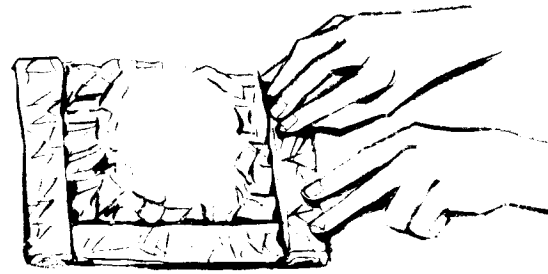
Broiled Steak: The steak is not wrapped but placed on piece of foil directly on top of hot coals. Cook each side 8-10 minutes



Place food on half of sheet. Fold other half over it.



Crimp long edges in a tight seal.



Crimp the remaining ends with a firm double crimp. Be sure the package is sealed completely.

Place foil directly on hot coals and cook. Do not place foil on open flame.

Chapter 4

FIRST AID, SAFETY, AND SANITATION

FIRST AID KITS

A first aid kit is a necessity for each outpost. Having on hand the things you need when you need them is as important as knowing how to treat a wound.

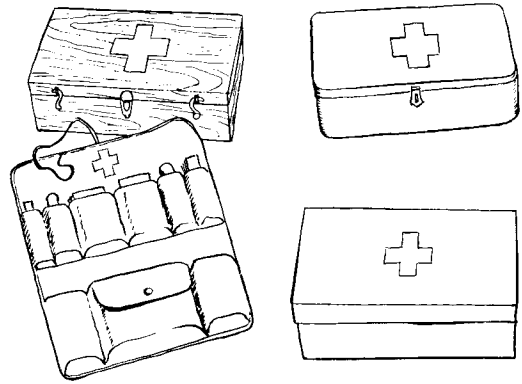
Any type of box will do to hold first-aid supplies. The box should be sturdy and well marked. Each boy should know where the kit is located.

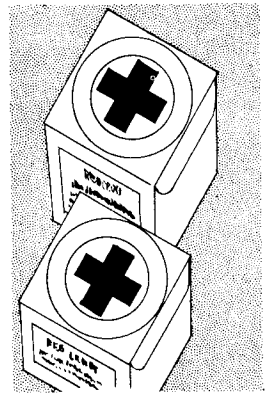
The following items should be included in an outpost first aid kit. First, a roll or two of 1" or wider gauze bandage. Place a gauze pad on wounds and spiral wind the bandage around it.

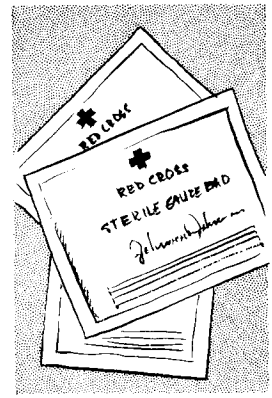
Two to four-inch gauze pads are handy for larger wounds. Place on wound and wind bandage around it.

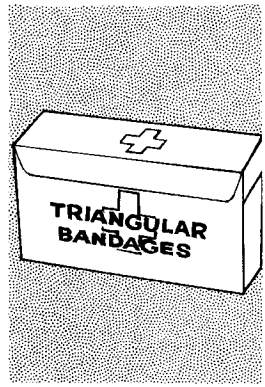
Triangular bandages are useful as an emergency cover, arm sling, dressing, and for other purposes.

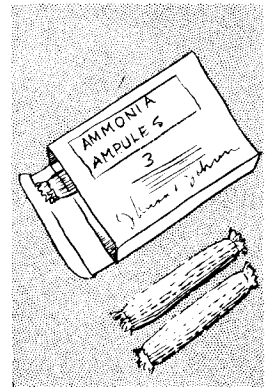
Ammonia ampules will revive a person who has fainted.





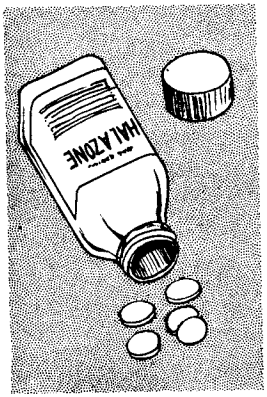


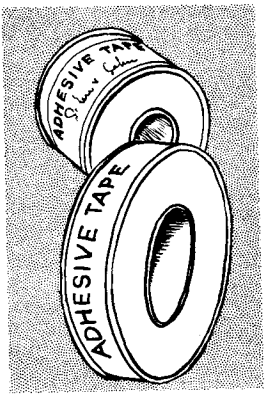




Calamine lotion is good for insect bites or stings.

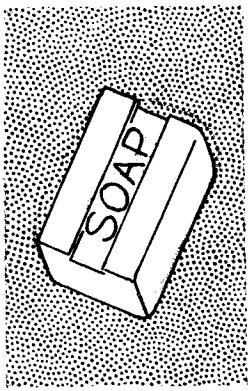
Rubbing alcohol is good for sponging skin exposed to poison ivy.

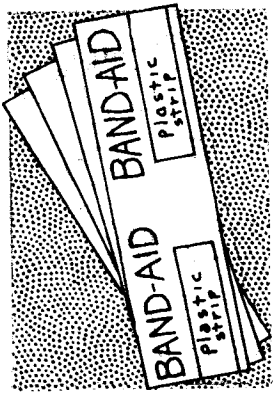




If your drinking water is not guaranteed to be pure, boil it. Treat it with a purifier or iodine or use halazone tablets.

One or two-inch adhesive tape has many uses in first aid work.



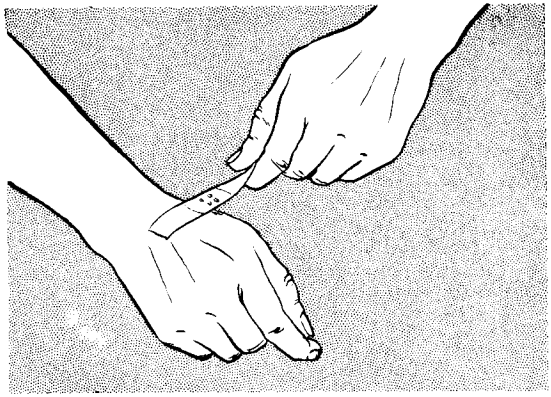


A bar of soap should be used to wash wounds.

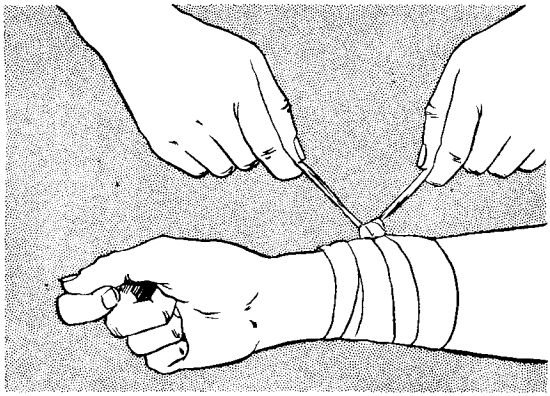
Band-Aids are good to use on small cuts or wounds.

SIMPLE FIRST AID

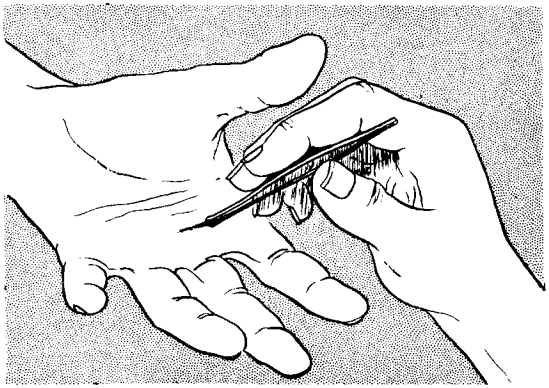
Wash a small wound with soap and water. Dry the skin and cover the wound with a band-aid or handitape.

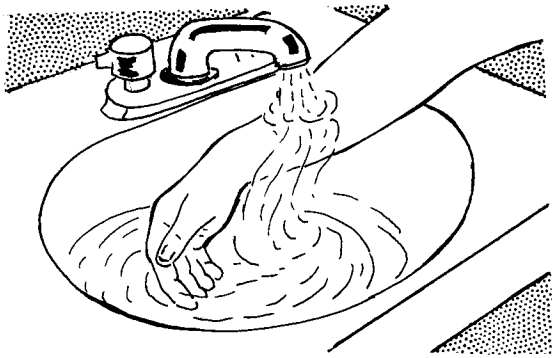


Cover a large wound with a sterile compress and wrap with bandage. Use a square knot to tie end of bandage.

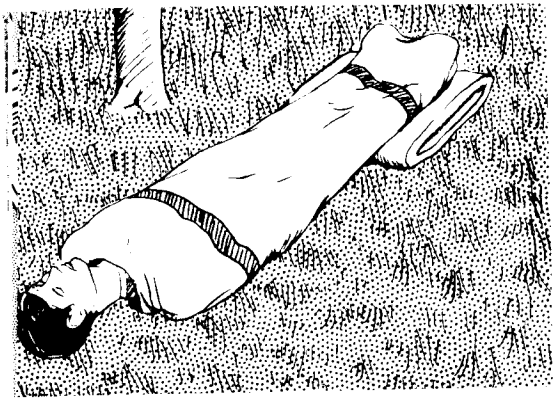


Use a pair of tweezers to pull a splinter from under the skin. Then wash well with soap and water.

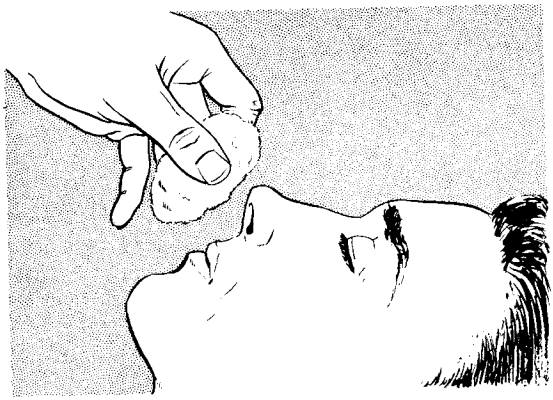




Flush or submerge the injured part in cold water. Apply a dry dressing if it is necessary.

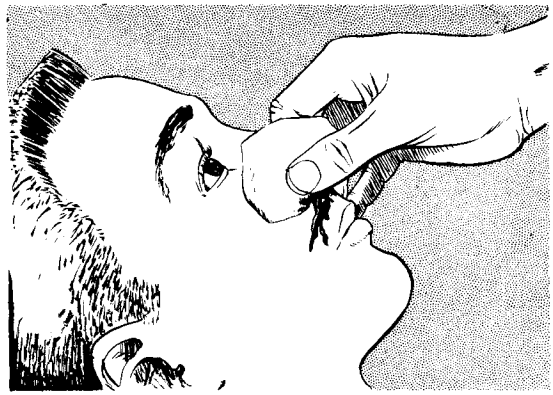


Where there is an accident, there may be shock! Lay the person down. Keep him warm. Place something under the feet. If the person is having breathing difficulty, lower the feet and elevate the head and shoulders.

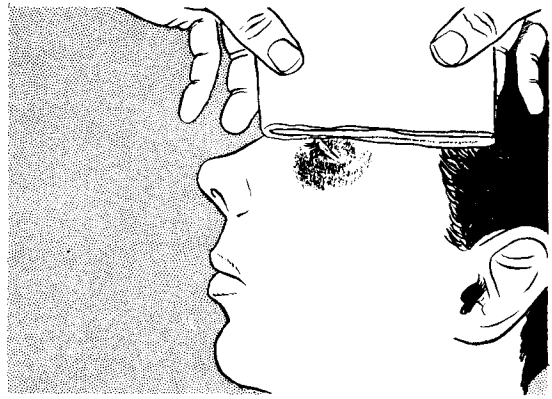


When a person faints, lay him down with the feet raised higher than the head. Pour a few drops of aromatic spirits of ammonia on cotton cloth and place it near the nose.

For nosebleed, bend the head back. Place a cold compress over the nose. Press the nostrils together.



A black eye is a bruise. A cold compress will relieve pain and prevent swelling.



". . . And went to him and bound up his wounds" (Luke 10:34).

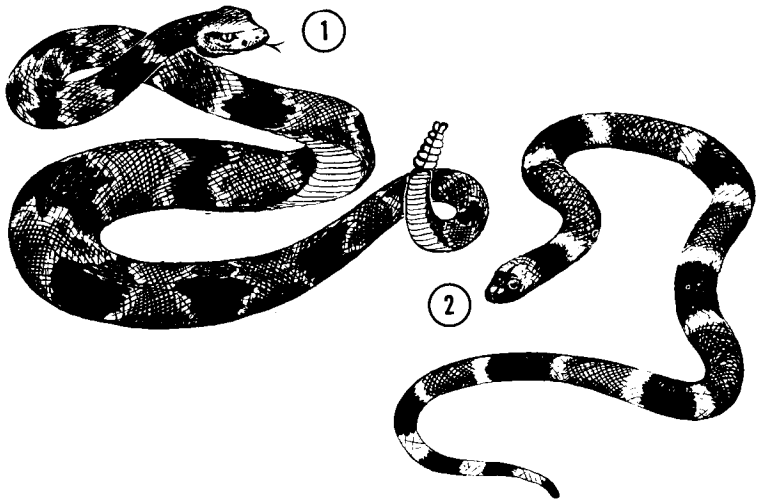
POISON PLANTS

Poison ivy is found in almost every part of the United States. Its leaves are divided into three shiny leaflets. It may be a climbing vine or a standing bush. Sometimes its leaves resemble oak leaves. It has white berries in clusters.

Poison oak is a western form of poison ivy. Its leaves are oak leaf shaped. It usually grows as a shrub and has many white berries.

Poison sumac is usually found in the eastern part of the country. It grows in swampy areas. Its leaves are divided into 13 leaflets. It also has white berries.

POISONOUS SNAKES AND INSECTS

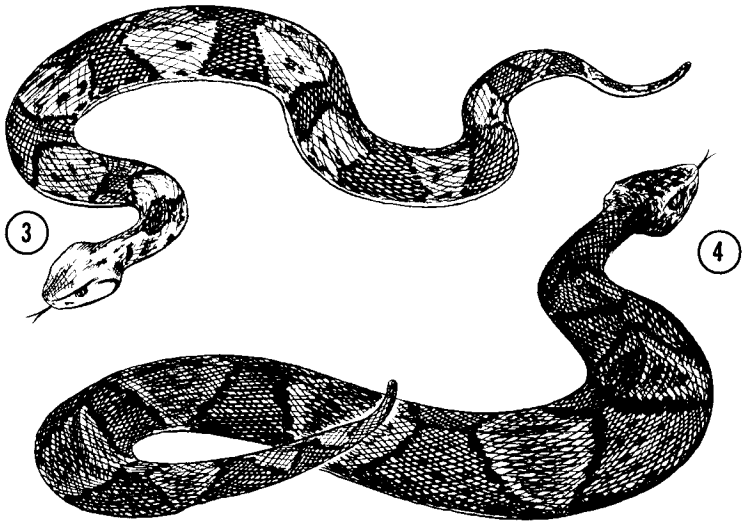


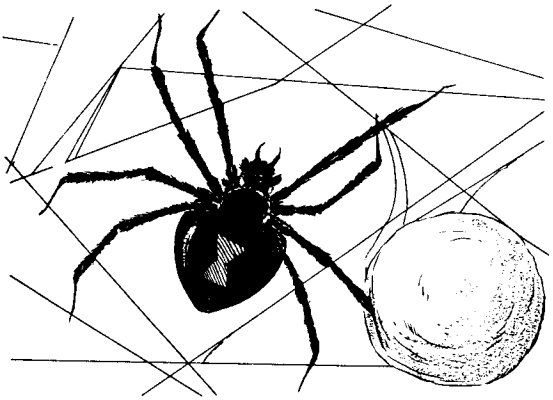
(1) Rattlesnakes have tail rattles and usually give warning with them. There are many varieties in all parts of the country.

(2) The coral snake is found in Florida and other coastal states in that region. It has alternating wide bands of black and red separated by narrow bands of yellow.

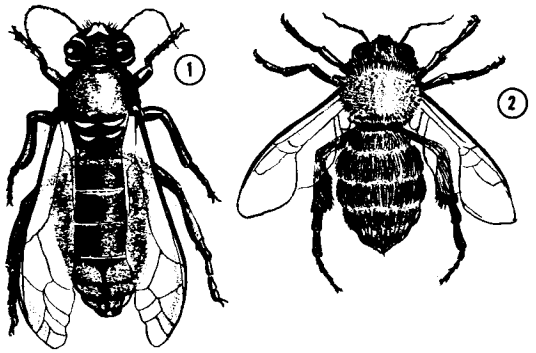
(3) The copperhead moccasin is found in the eastern part of United States mostly in rocky, wooded areas.

(4) The cottonmouth moccasin is found in southern streams and lakes. It gets its name from white inside of its mouth.



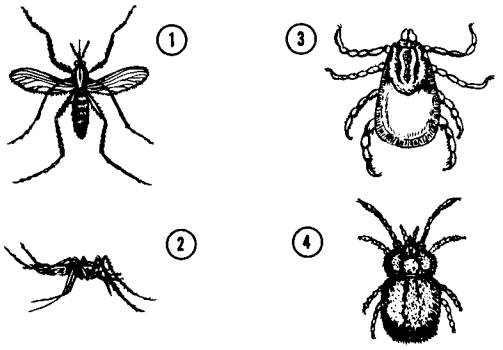


Most spiders are helpful. Only a few are dangerous. The dangerous female Black Widow is shown with her egg case. She is easily identified by the hour glass on her stomach.



(1) The hornet sting can be serious, so leave it alone.

(2) The bee is a busy, hard worker. Leave it alone and it will let you alone.



(1) Only lady mosquitoes buzz and bite. But they're still bad pests. Use spray or repellent.

(2) She's ready to bite.

(3) The wood tick can cause a serious wound. Watch for it on the body if it has bitten into the skin. Hold a lighted match near tick until it lets go. Then apply iodine.

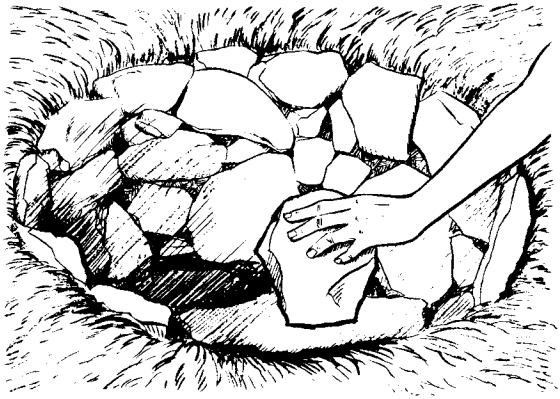
(4) Chiggers or red bugs are pests. Use repellent before walking in tall weeds or grass.

SANITATION

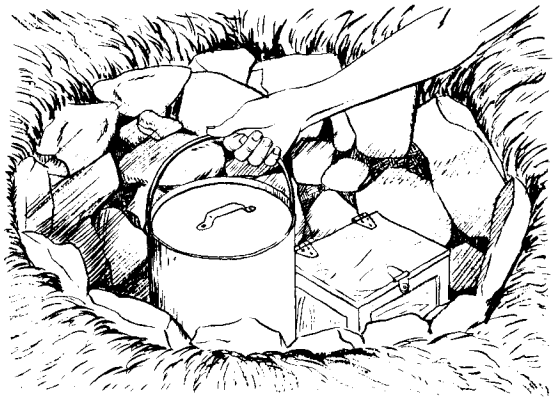
Safe, comfortable outdoor living depends on learning how to make simple caches, latrines, and dishwashing and garbage disposal aids.

CACHES

A cache is a place to store food to keep it fresh.

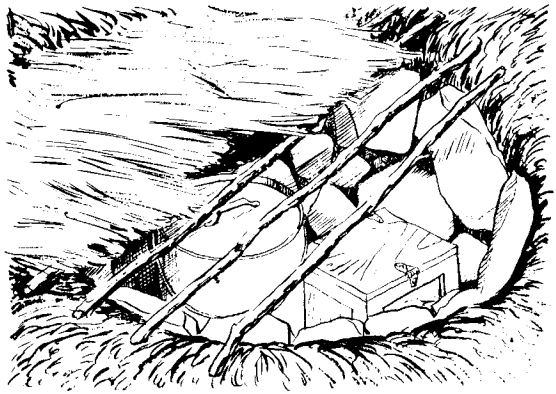


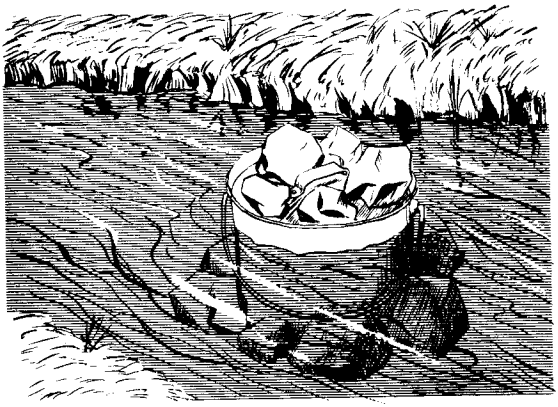
Hole In Ground: Dig a hole in the ground about twice the size of your food container. Line with stones or tin.



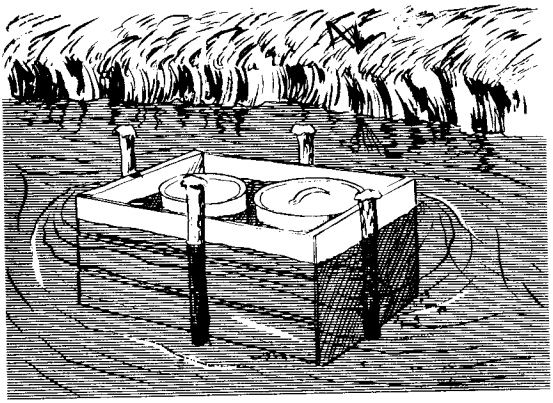
Wrap each perishable item in wax paper. Place these in a container and cover tightly. Place in the hole.

Stretch limbs across top. Spread wet grass, leaves or canvas across the top, leaving an air space at one side.

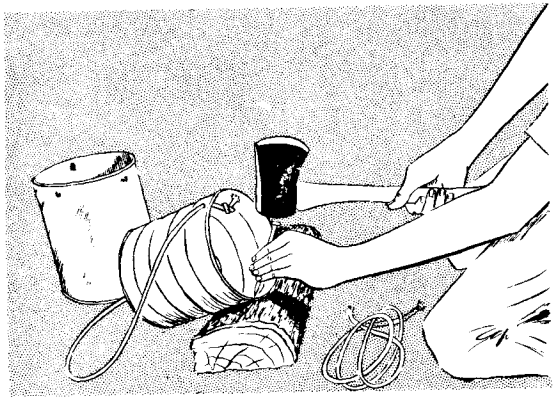




Cache In Stream: Place metal container in water. Surround the container with heavy stones. Place heavy stones on top of container.

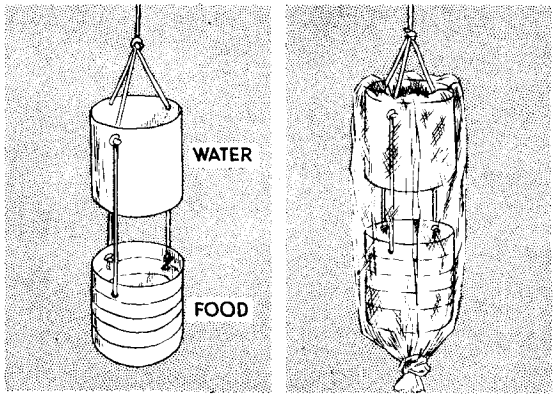


Cache In Stream: Place containers of food in a wooden box or crate. Anchor in water with stakes or stones. Cover with tree limbs if not in shade.

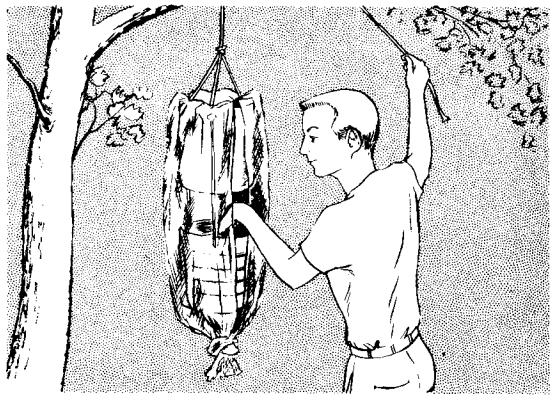


Tin Can Tree Cache: Use two No. 10 cans. Punch holes near top. Knot rope inside the holes. Fasten cans about six inches apart.

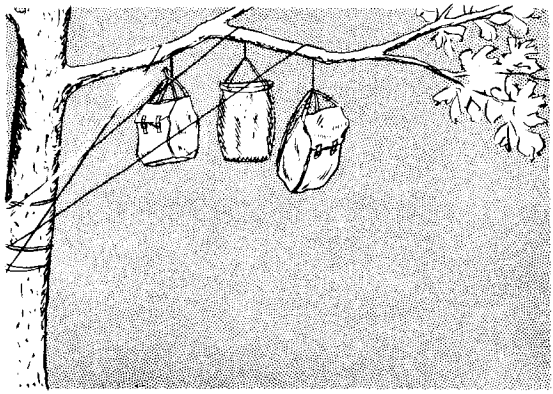
Place water in top can. Place food in bottom can. Anchor cheesecloth in top can with rock or metal weight. Tie bottom ends of cheesecloth.

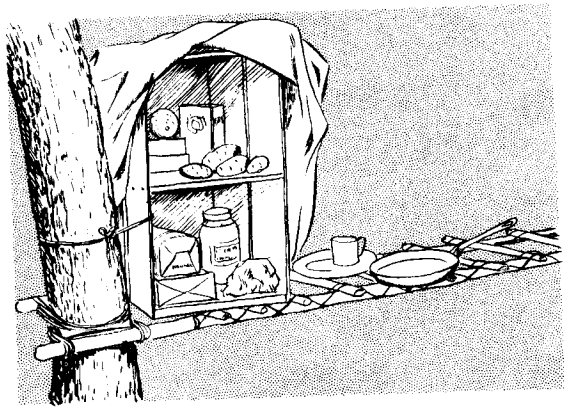


Hang from a tree. Food is cooled by evaporation. Lower cache with rope to remove or add food.

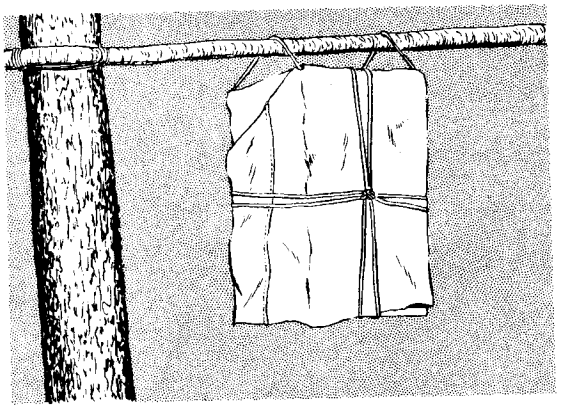


Pack Caches: Attach ropes to packs. Throw rope over limb of tree and tie to the trunk. Lower and raise with rope.

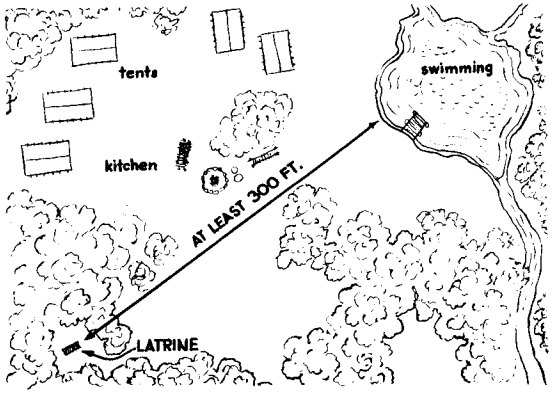




Place orange crate or apple box on a lashed table. Store food and cover with a heavy cloth or canvas.

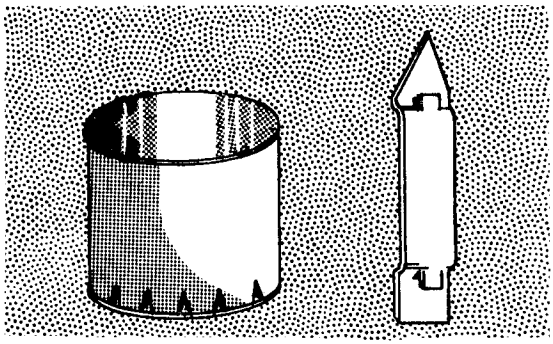


Tie the cover down. Hang up when not in use to keep away from insects and animals.



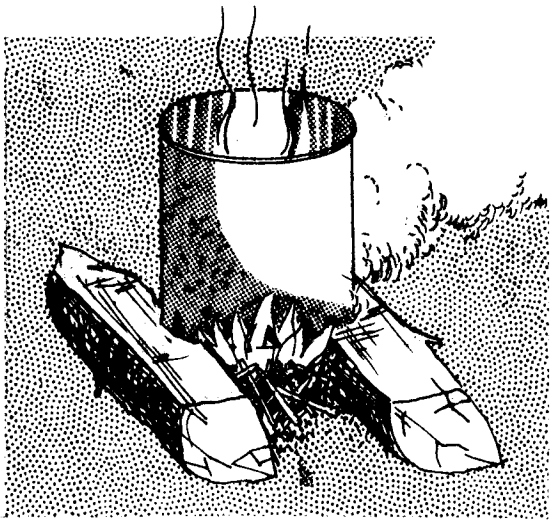
Latrines: One of the first jobs upon arrival at the site is to dig a latrine if one is not available. Dig latrine below and at least 300 feet from water supply and swimming area.

Food Dehydrator: Make a food disposal dehydrator from a ½- or one-gallon can. Punch holes around the can near the bottom with a bottle opener equipped with a can punch.

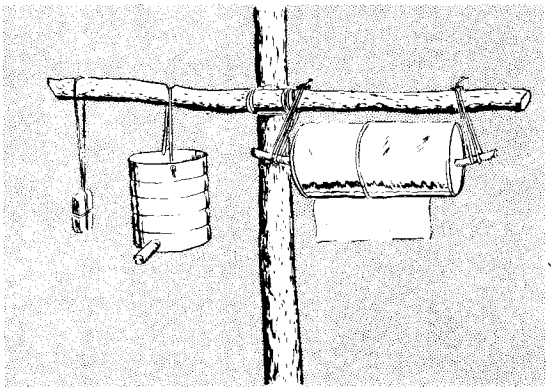


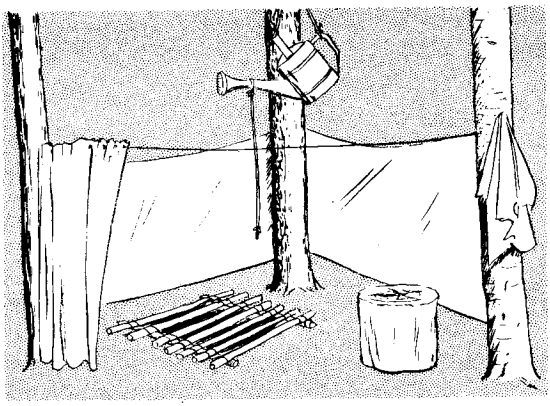
½ Gal. or 1 Gal. Can Bottle/Can Opener

Place can over a fire and drop in leftover food scraps. The heat will dehydrate food particles to a powder state. The holes allow all moisture or liquid to escape.

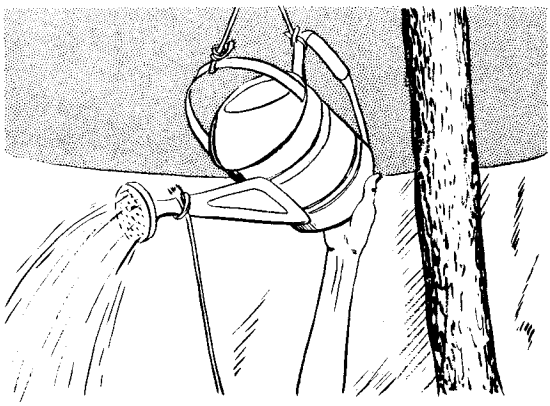


Handy Wash Stand: Use tin cans to hold water for washing your hands and face. Use one to hold paper towels. Dig hole under water supply and line with rocks for drainage.

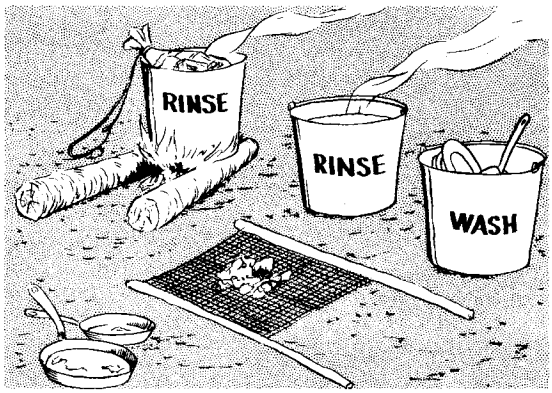




Shower: Build a handy shower. Stretch cloth or canvas around stakes or trees. Lash sticks and place over pit filled with rocks.



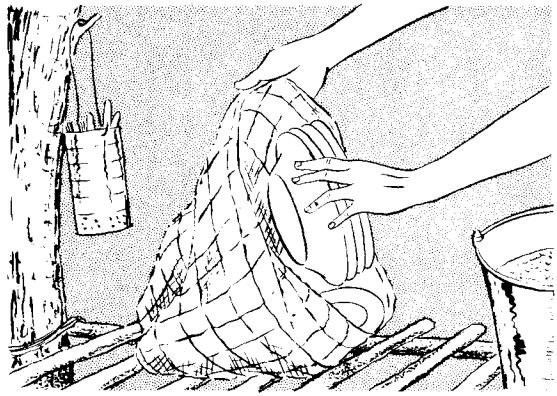
Tie a water can or bucket to a limb. Pull rope or string for water. Steady the bucket with your hand.



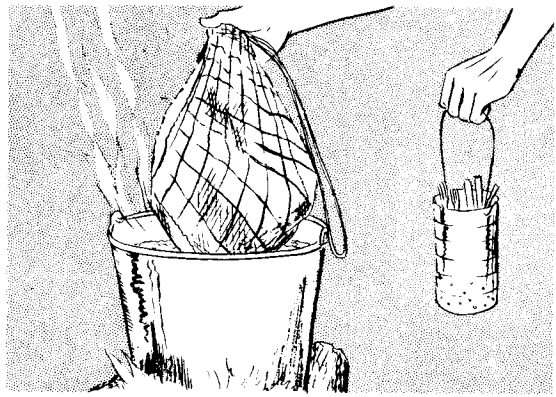
Washing Dishes:

1. Scrape out excess food
2. Wash with soapy hot water
3. Rinse in hot water
4. Rinse again in boiling water
5. Hang in air to dry.

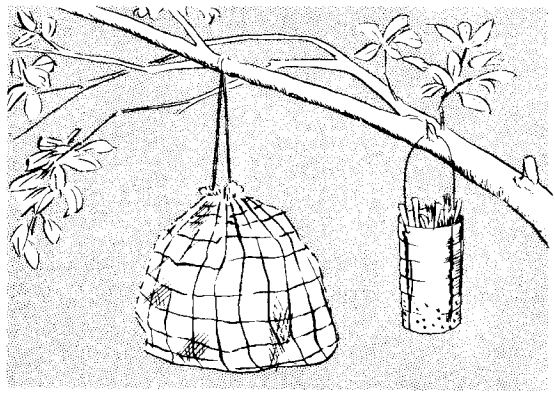
The last rinsing can be done easily by placing dishes in a mesh or cloth sack. Place knives, forks, and spoons in a tin can with holes punched near bottom.

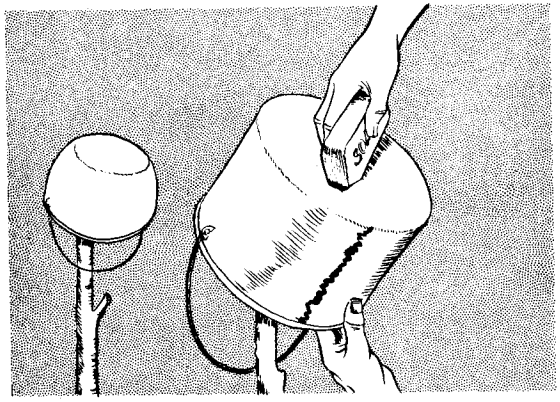


Dip dishes and utensils in boiling water for at least two minutes.

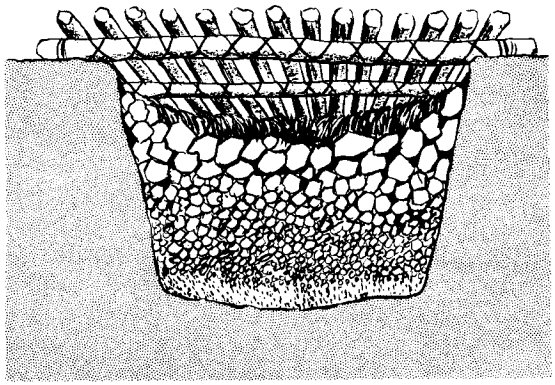


Hang up to dry.

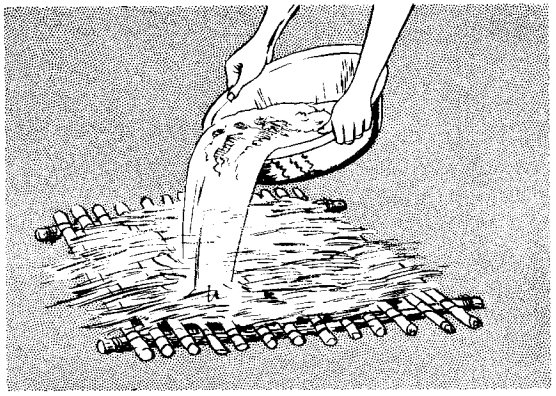




Dishwashing can be easier if you will rub soap over the bottoms of skillets, pots, and pans before placing on fire.

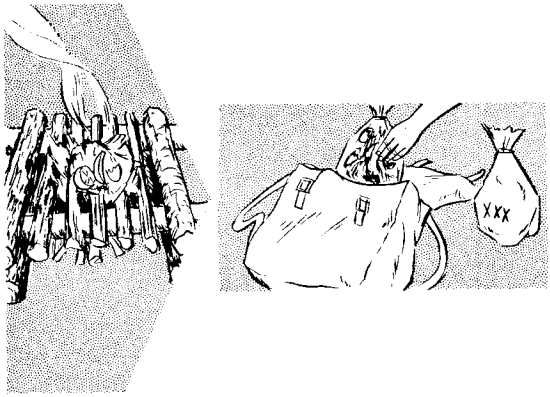


Dishwater Disposal: Dig a drain and grease pit at least two feet deep. Line with rocks or gravel. Place lashed sticks over pit.

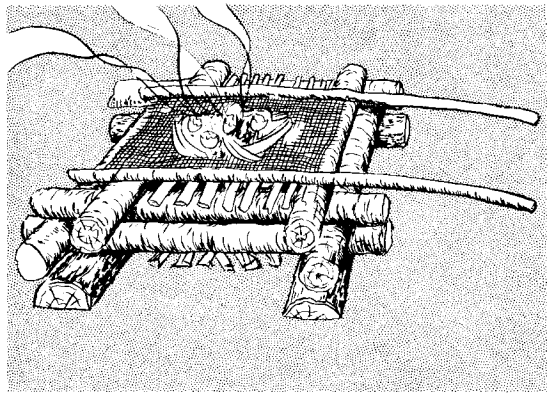


Place grass or leaves on lashed sticks to strain particles of food from water. Burn leaves or grass each day and loosen gravel in the pit.

Garbage Disposal: Burn, or carry away all garbage and waste.

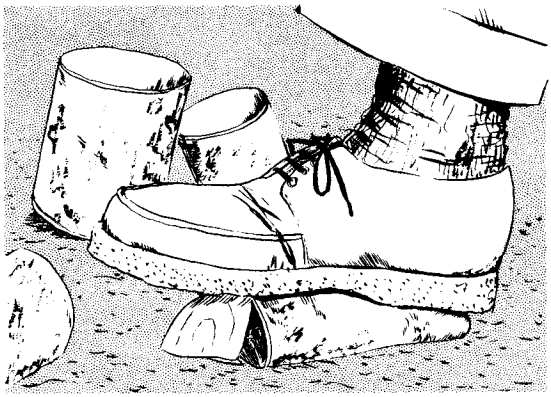


Burn garbage on a screen placed over fire. Be sure to leave air space. Garbage can also be burned in a food dehydrator can.



Carry — don't bury. All litter should be carried out and disposed of properly. Plastic garbage or leaf bags are ideal litter bags to carry out trash.

Where garbage cannot be burned, place in a separate plastic bag or a discarded bottle with top and place in your tote litter bag.



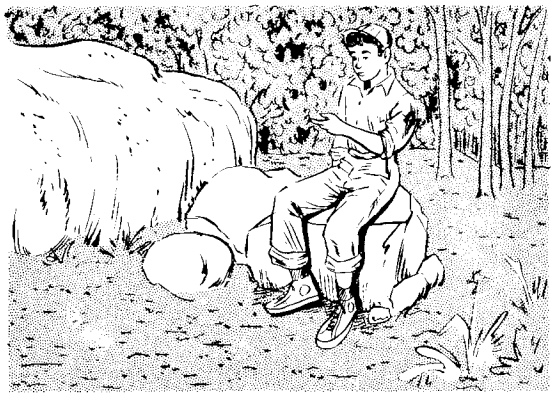
Burn excess food from tin cans, flatten and carry away.

Fill all holes and pack to level of ground. Mark spot as a warning to others. Remember! Good campers leave a site in the same condition they found it—or better.

WHAT TO DO WHEN LOST

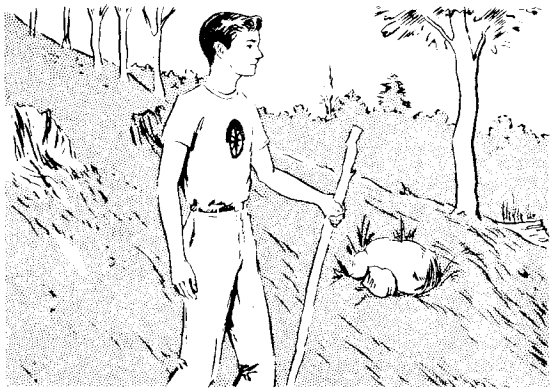
Finding yourself when lost depends upon a clear head. Loss of mental control is more serious than lack of food, water, or clothing.

When you think you are lost, **stop and sit down. Try to figure where you are.**

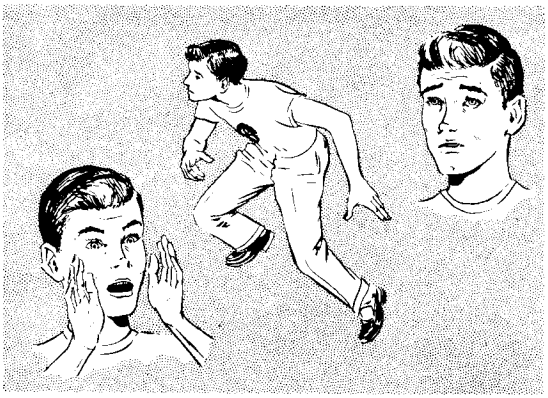


If caught by night, fog, or storm, **stop at once and make camp in a sheltered place.** Gather plenty of fuel. Build a fire in a safe place.

Stay in one place. Do not wander around.



If injured, choose a clear place on high ground. Make a signal with smoke. Build a good, hot fire and then add green grass or leaves.



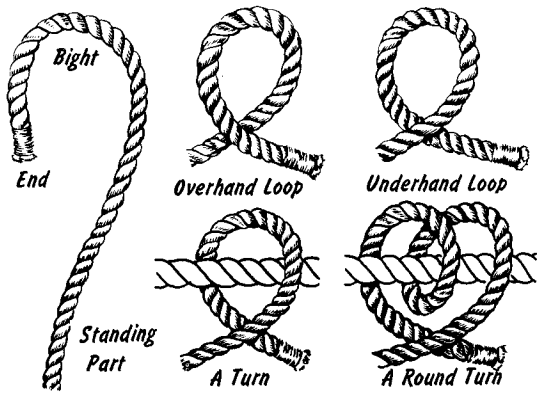
Don't yell, don't run, don't worry and above all, do not quit.

For more information see Chapter 10, SURVIVAL, beginning on page 131.

"As a bird that wandereth from her nest, so is a man that wandereth from his place" (Proverbs 27:8).

Chapter 5

ROPECRAFT



KNOT TYING

In knot tying a rope has three parts:

The **end** is the end of the rope with which you are working when you tie a knot.

The **standing part** is the length of the rope not being used.

The **bight** is the central part of the rope between the working end and the standing part.

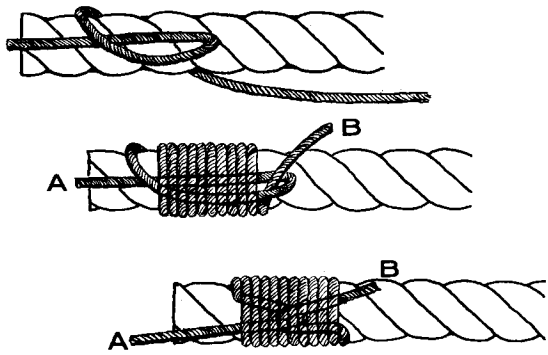
An **overhand loop** is made by crossing the end under the standing part.

A **turn** is made by looping the rope around any object—often another section of itself.

A **round turn** is taken by looping the rope twice around an object. Always tighten a knot slowly and evenly. Quick, careless tightening may mean a tangle.

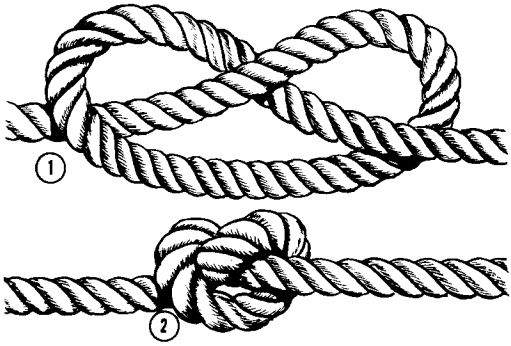
A good rope deserves good care. One way to keep your rope in good condition is to "whip" the ends to keep them from unraveling.

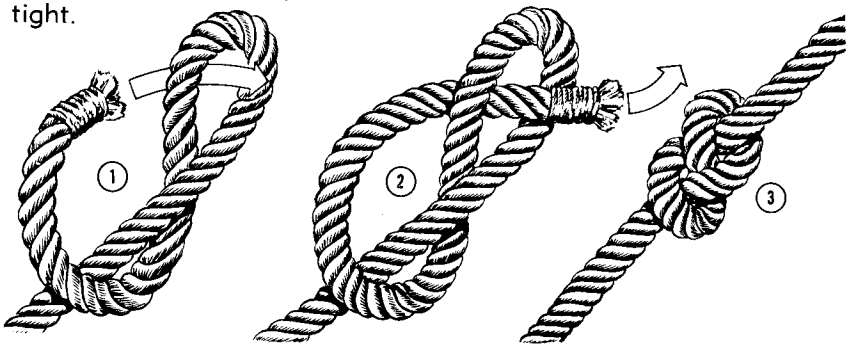
To make the whipping use a fine yarn, cord or thread. Place the end of the yarn at the end of the rope and then lay a loop along the rope. Then wind the yarn tightly around the loop and rope, thus binding them together. Wind to a distance roughly equal to the thickness of the rope you are whipping.



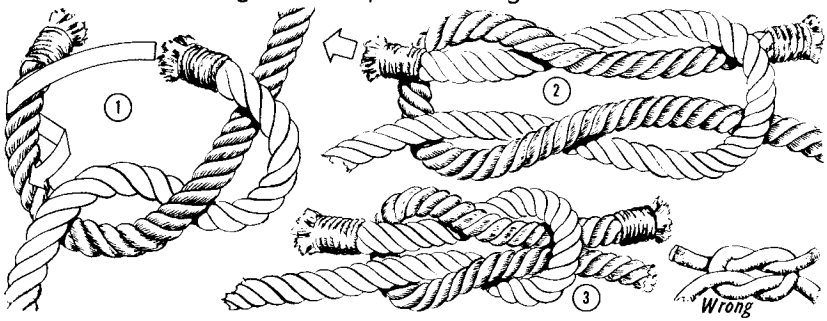
Finish the whipping by putting the winding end **B** through the loop and pull end **A** tight, until the loop is drawn back out of sight. Cut both ends short to make a neat finish.

The **Overhand Knot** is the simplest and smallest stopper knot and is used to begin many more difficult ones. It is generally used on small cord or twine, since it jams and is hard to untie. To tie: Make an **overhand** loop. Pass the end under and up through the loop. Draw up tight.





The Figure Eight Knot is a stopper knot and is easier to untie than the overhand knot. To tie: Make an underhand loop. Bring the end around and **over** the standing part. Pass the end under and then up through the loop. Draw tight.



The **Square Knot** is a joiner knot used to tie parcels or bundles and bandages in first-aid and to join two ends of rope or string of the same thickness. To tie: Pass the left end **over** and under the right end. Curve what is now the left end towards the right. Cross what is now the right end over and under the left. Draw tight.

The Eye Splice

(The strongest rope loop)

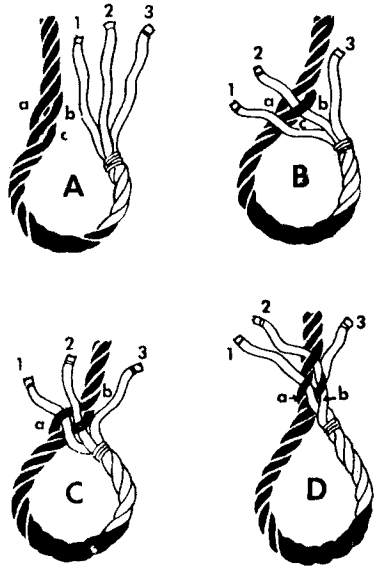
A. Unlay end.

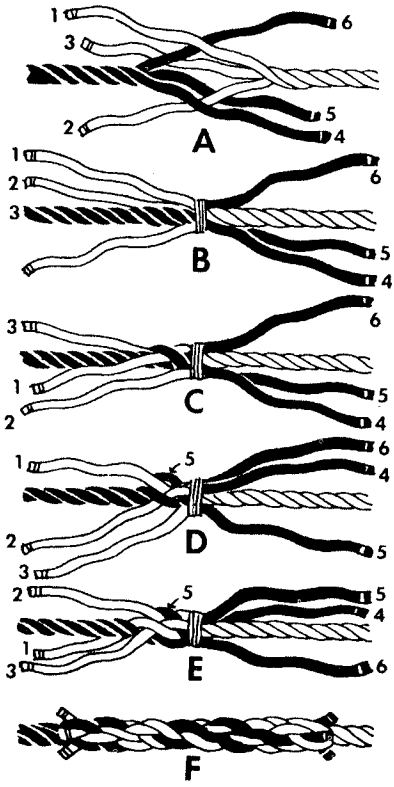
B. Strand 2 is tucked over strand c, under b, and out between a and b.

C. Strand 1 is tucked once over b and under a.

D. Tuck strands twice, as strand 2.

E. 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)

A. Unlay each rope a few turns and alternate the strands.

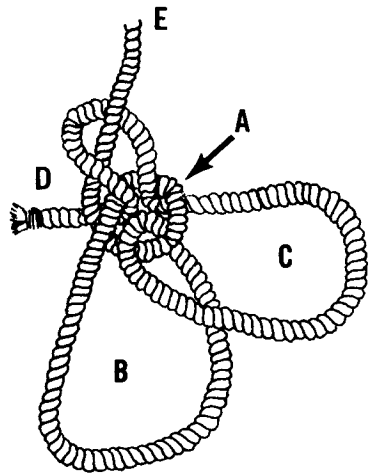
B. Tie the strands down to prevent further unlaying.

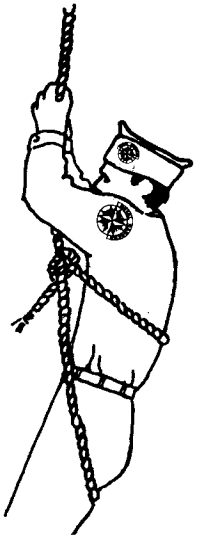
C. Tuck one strand (1) over an opposing strand, and under the next strand.

D. The tuck of strand 2 goes over the first strand 5, under the second, and out between the second and third.

E.. Repeat operation with the other two strands (1 and 3) from same rope end.

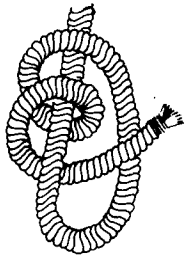
F. Remove tie and repeat operation on other rope end. Make two more tucks for each strand, roll tucks, clip ends.





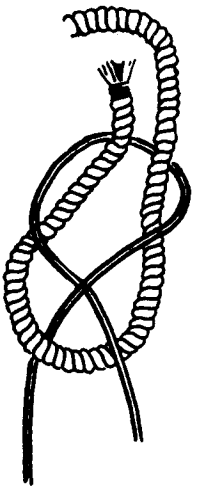
French Bowline

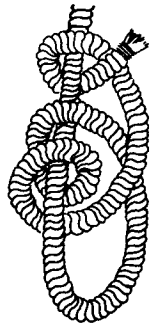
The French bowline is formed the same as the bowline, except that the end D, instead of going about the standing part E, is given a round turn about the gooseneck A, then knot is finished off as before.



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.

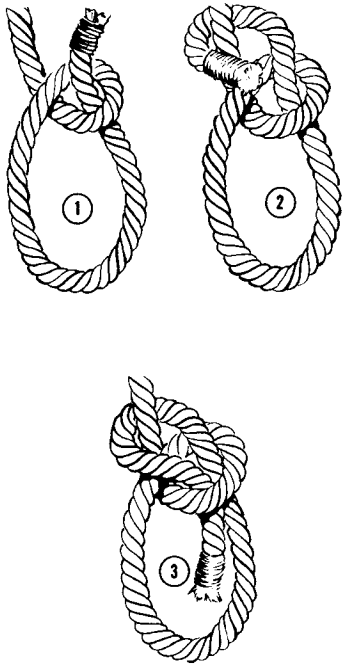




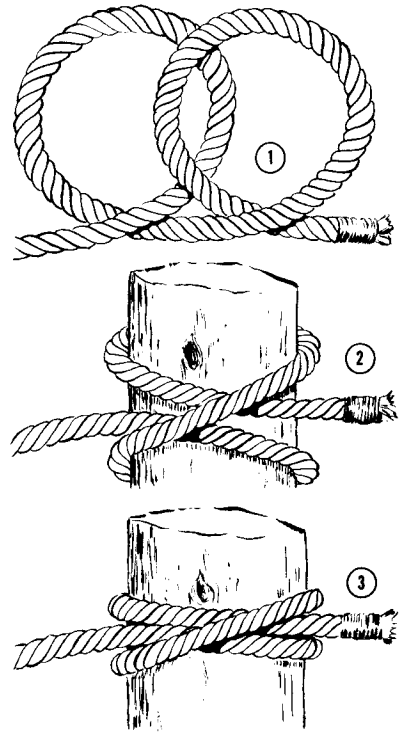
Taut-Line Hitch

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.

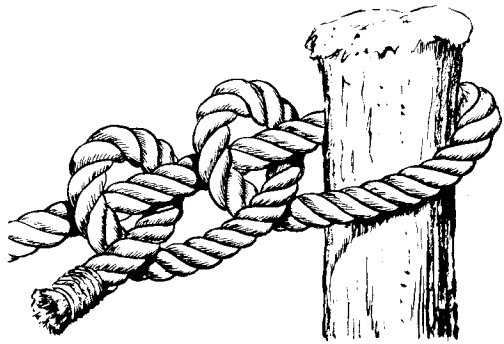


The **Bowline** is a loop knot and is used to tie a boat, hitching, or lifting. It is often called the King of Knots because it never jams or slips if tied right. To tie: Make an overhand loop with the end held toward you. Pass the end up through the loop, then up behind the standing part, then down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



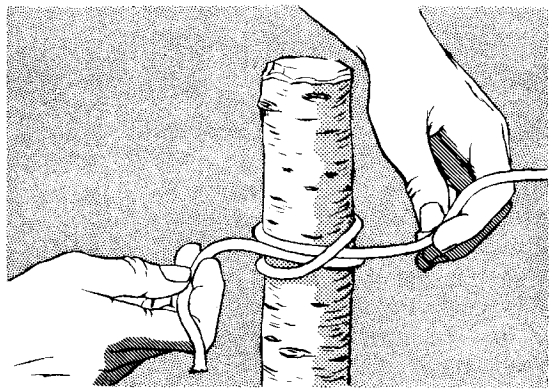
LASHING

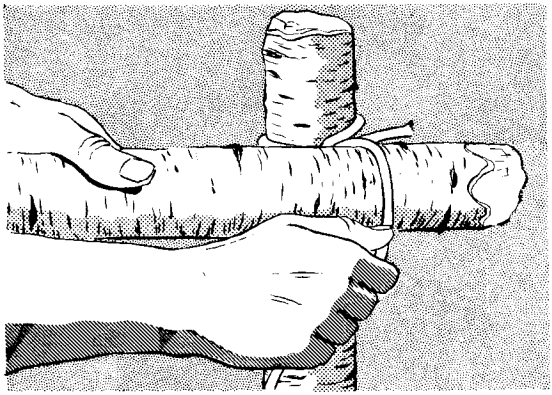
Lashing is a way of joining sticks or poles together with cord or twine. Simple outdoor equipment can be quickly made to make outdoor living easier.

You will need:

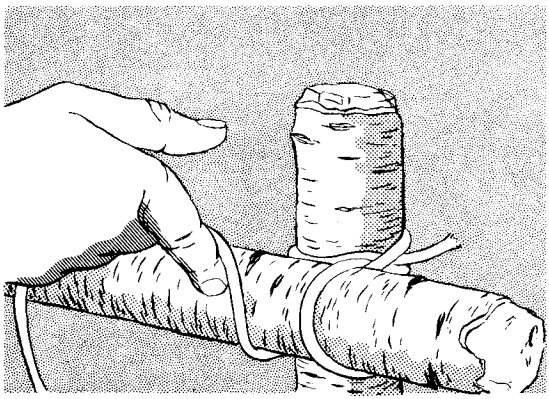
Binder twine
Knife, ax, or saw
Sticks or poles.

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.

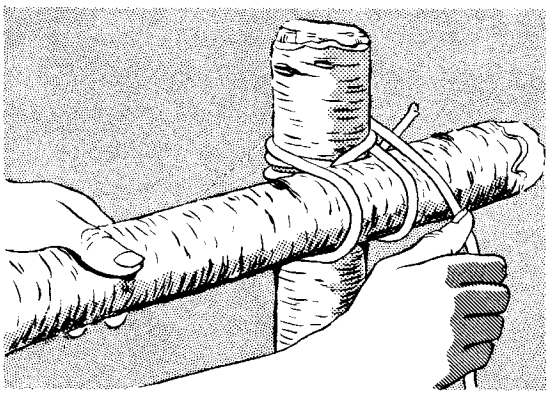




Pull a long piece of twine forward and over the front of the horizontal stick.

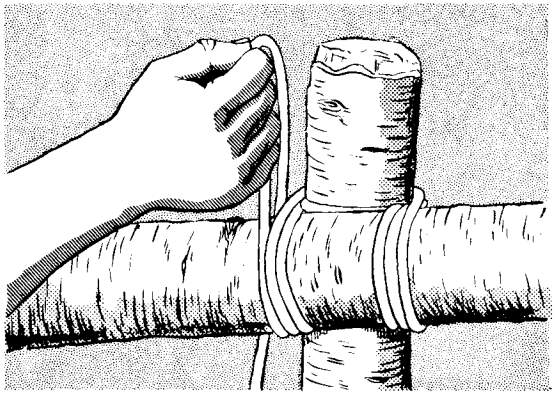


Pull the twine behind and around to the front. Next, pull up in front of horizontal stick.

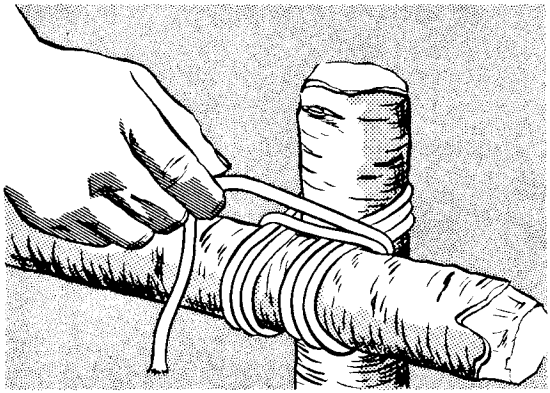


Pull the twine around upright and to the front to the starting point.

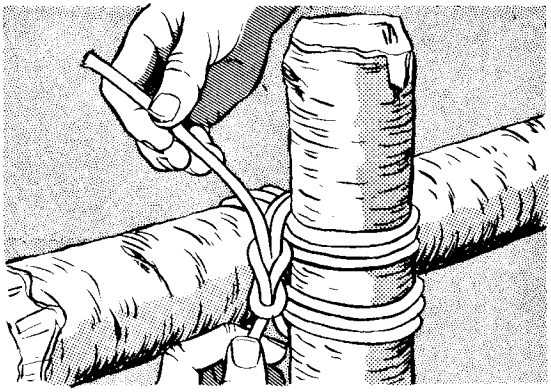
Repeat the same pattern three or four times, pulling tightly each time.

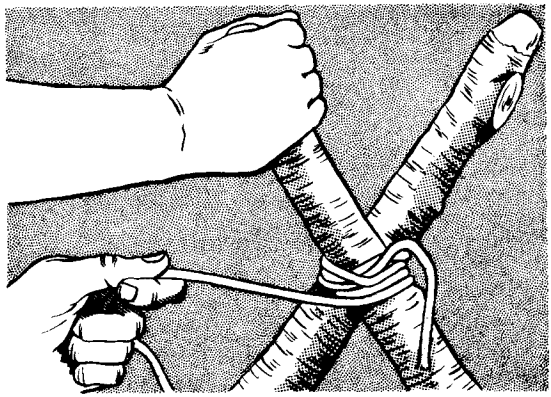


When the sticks are tightly wrapped then tighten the binding by **frapping** —this is done by winding the twine between the two sticks three or four times, pulling each wind tight.

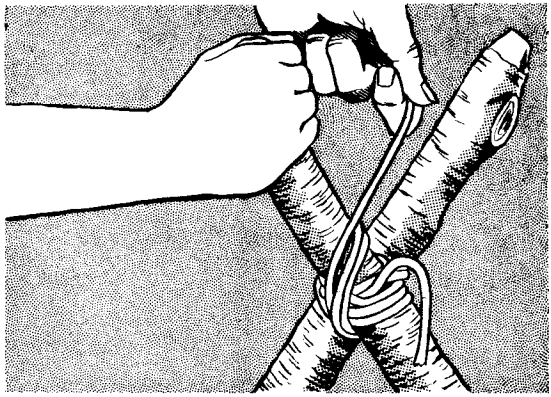


End with a square knot in the back. Cut off ends and tuck them under the lashing.

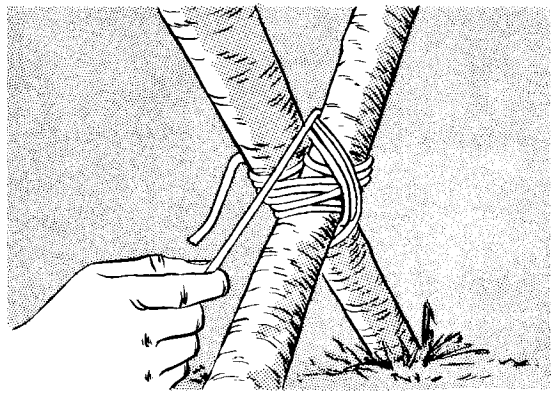




Diagonal lashing is used to make racks and braces. Begin with a clove hitch around two or three sticks at the point where they cross. Make two or four horizontal winds.

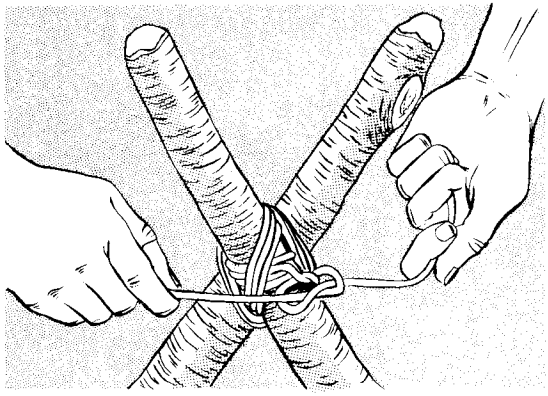


Make the same number of winds in the opposite direction. Pull each turn tight.

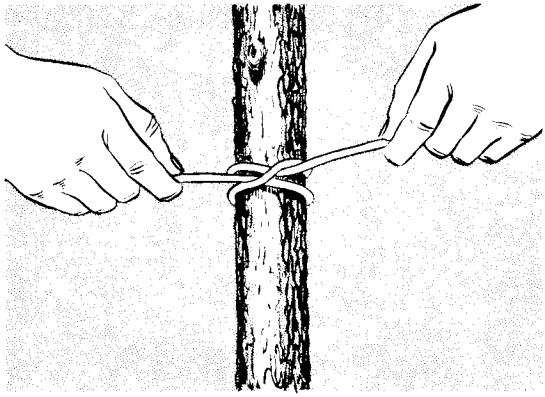


Frap between the sticks as in square lashing, winding two to four turns.

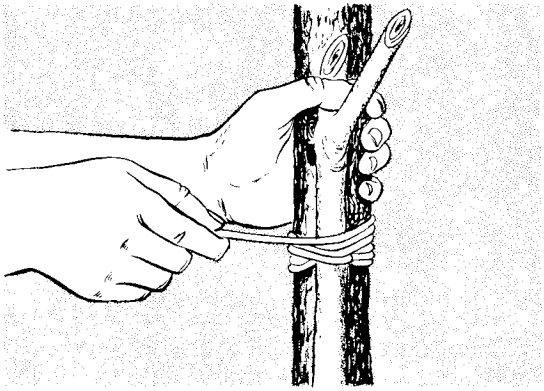
Pull windings tight and end with a square knot.

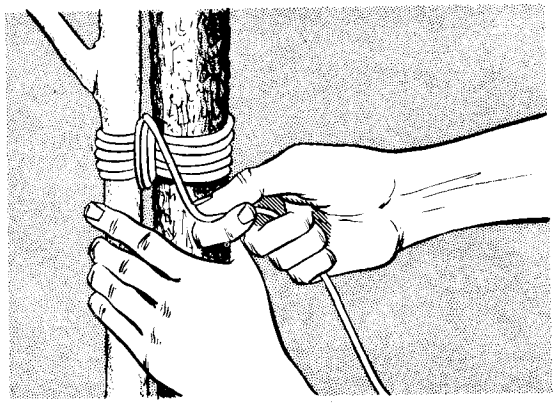


Round or sheer lashing is used to join two parallel sticks. It is used to make pot hooks and to attach sticks to trees. Begin with a clove hitch on one stick.

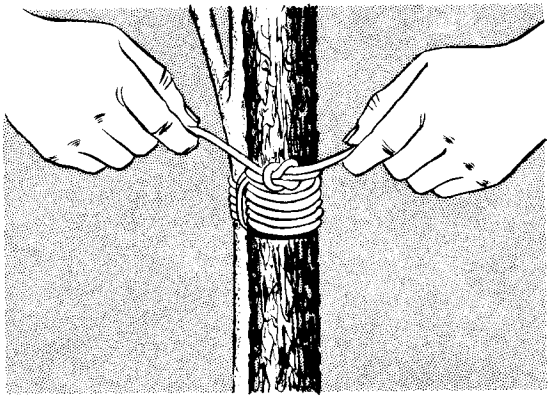


Place the other stick parallel and make parallel winds until the sticks are bound firmly.

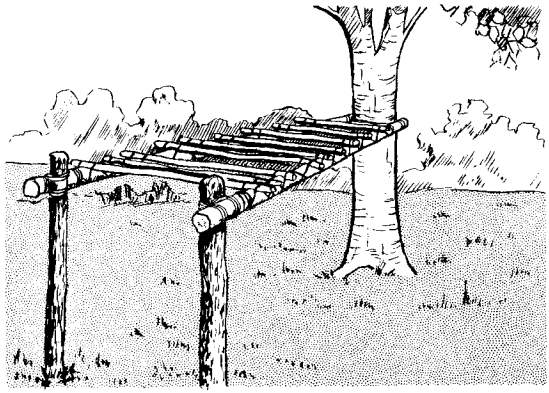




Frap by pulling twine to the front and between the sticks. Make two to four winds and pull each wind tight.

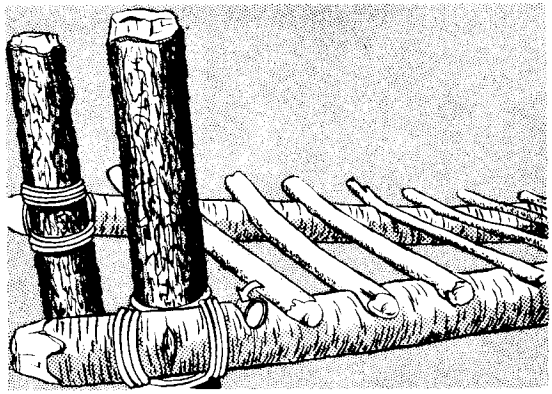


End with a square knot.

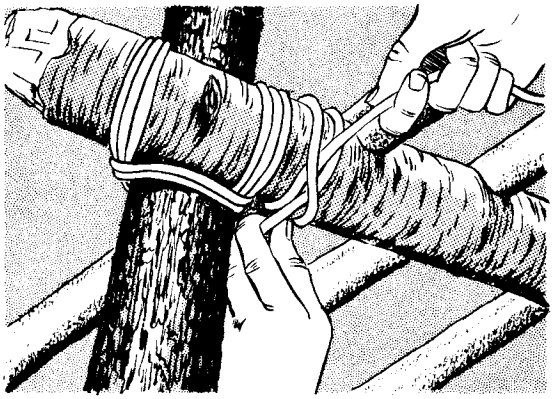


Continuous lashing is used to make a table top or seats.

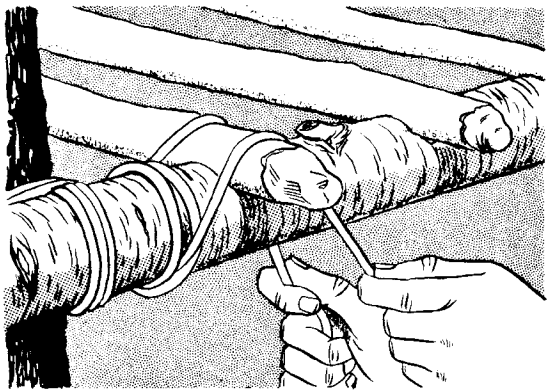
Make your frame first. Cut and trim sticks to be used as cross pieces.

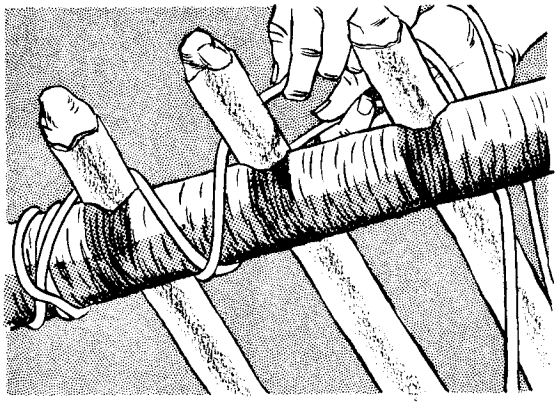


Make sure you have a long piece of twine to lash completely along one side. Tie a clove hitch in the middle of the twine. Tie knot underneath.

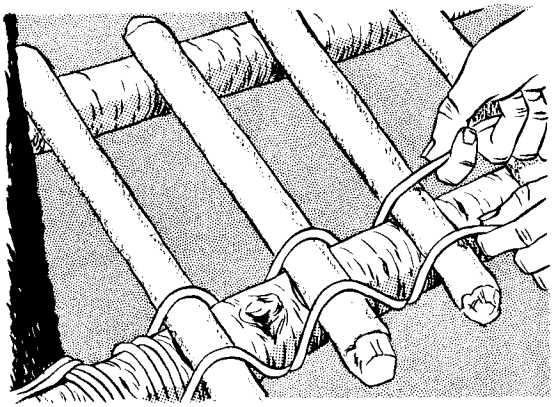


Take an end of twine in each hand and pull it up and over the first cross piece. Then pull it down under the frame.

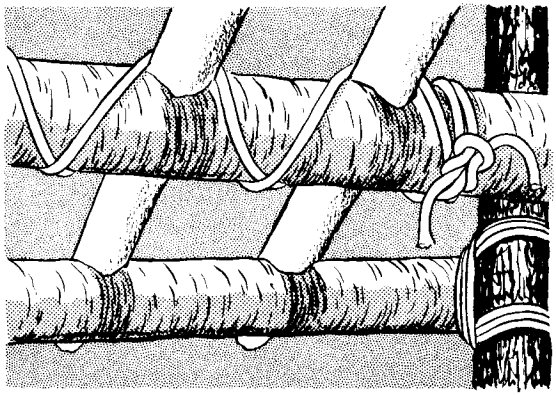




Cross the twine under the frame making an X. Pull tight.



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:

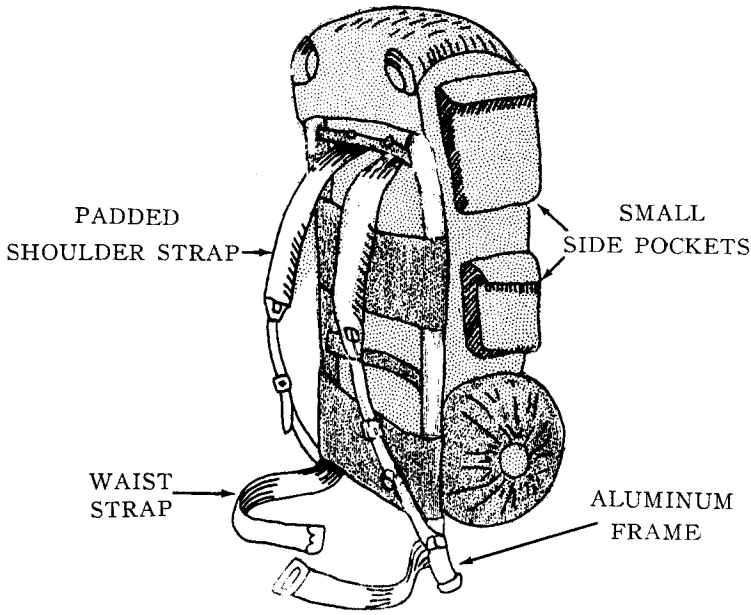
2 water pails
2 long handled dish mops or scouring pads
3 plastic garbage cans

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



RUCK SACK WITH FRAME

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.

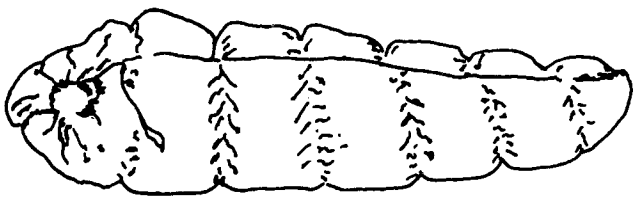
SELECTING YOUR BEDROLL

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.

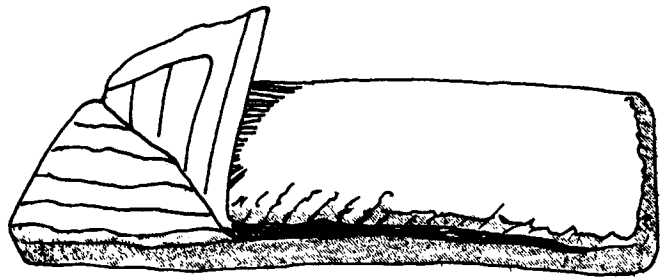


MUMMY—TYPE BAG

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 backpacking. 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.

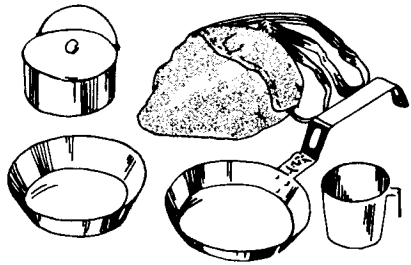
TOILET KIT

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.

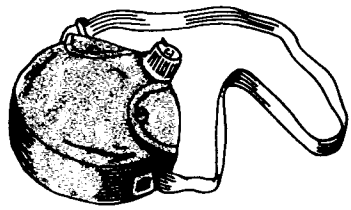


COMPACT COOK KIT

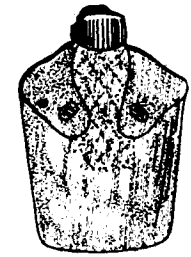
SILVERWARE KIT

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

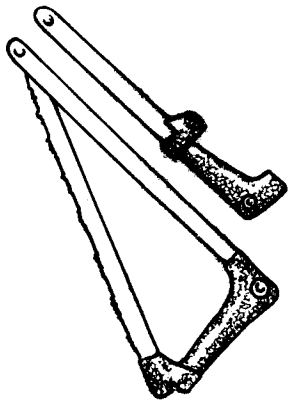
A good camp-type pocketknife is usually all you need for a backpacking trip.

CAMP SAWS

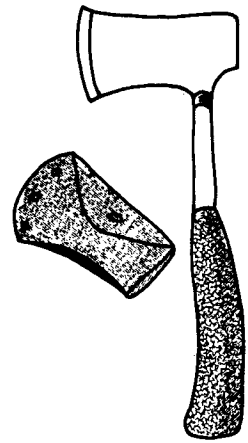
If you are planning an extended trip and you plan to make various gadgets in camp, a folding, portable camp saw is a handy tool to have along.

FILE

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



FOLDING CAMP SAW



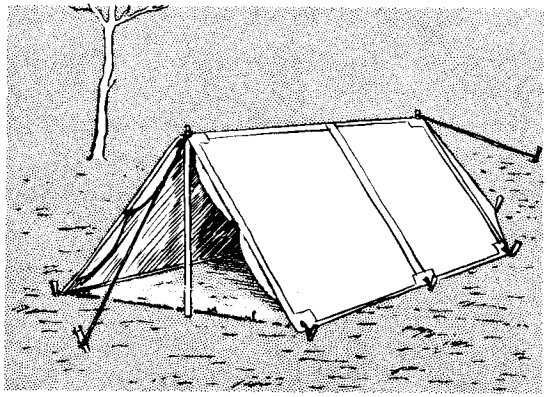
FORGED HANDLE AX WITH SHEATH

FLASHLIGHT

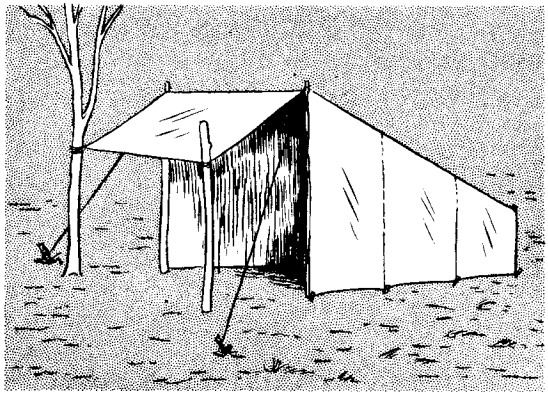
Be sure you have a reliable flashlight with fresh batteries. If you plan to be gone several days it is wise to carry extra batteries.

TYPES OF TENTS

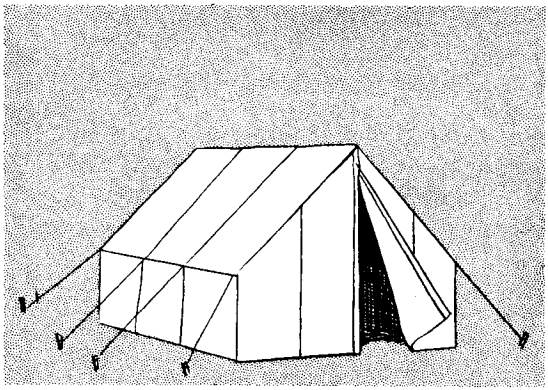
This pup tent makes good shelter for one or two in fair weather.

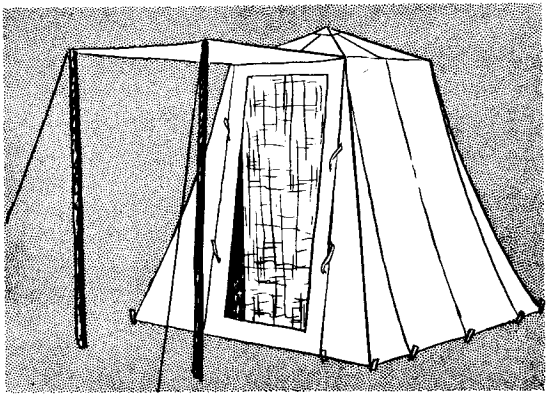


This is a baker tent which is good for use with a fire. It is hard to erect and will not stand a strong wind.

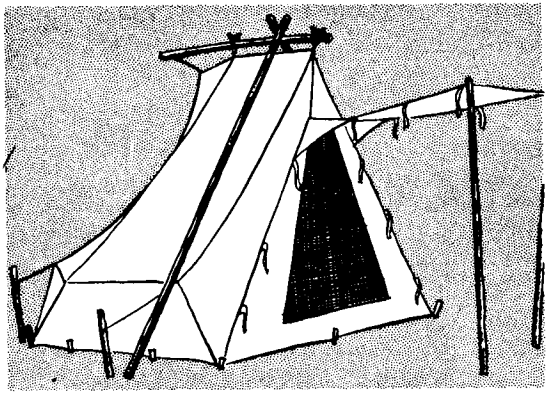


This is a wall tent. It is best as a semi-permanent shelter. It is more difficult to put up.

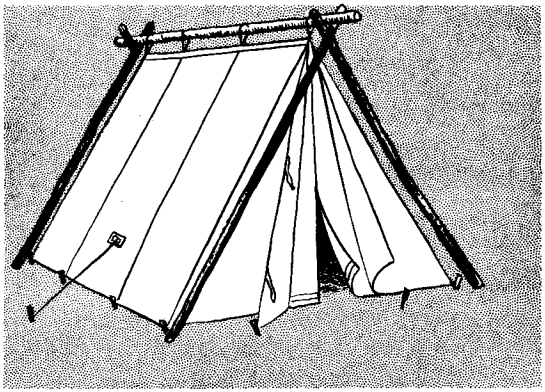




This is an umbrella tent. It is easy to erect and requires little space. It does not stand strong winds and in hot weather, ventilation is not good.



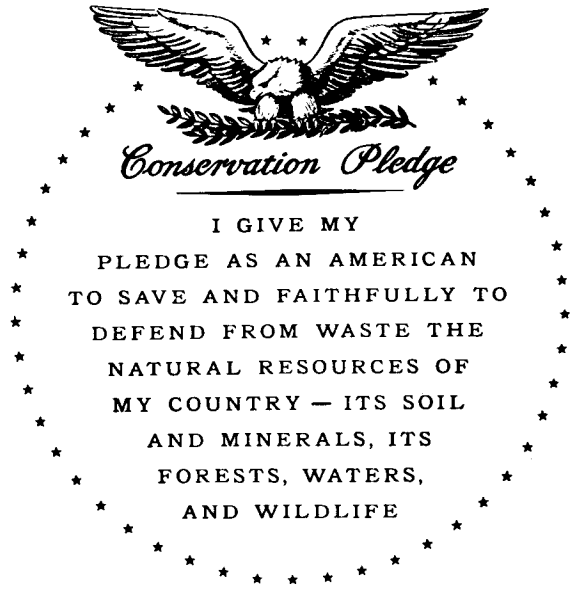
This is an explorer tent. It is considered by many to be the best all purpose tent.



This is an "A" or wedge tent. It is a good lightweight shelter.

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.

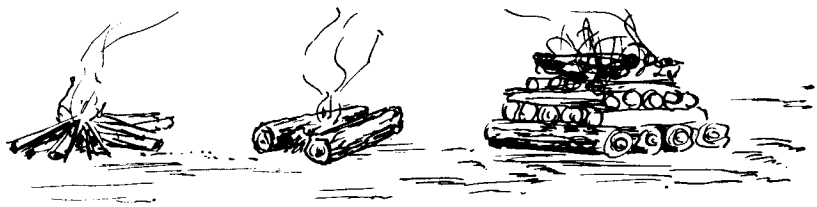
. . . Keep it in operating condition.

. . . 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 of 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.

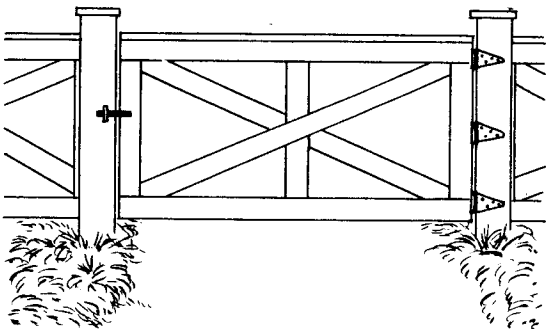
The National Wildlife Federation, 232 Carroll Street, N.W., Washington 12, D. C., will send you a list of free and inexpensive materials. Be sure to see the "Let's Build" series.

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."

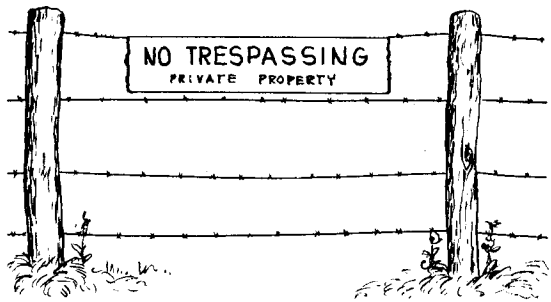
OUTDOOR MANNERS



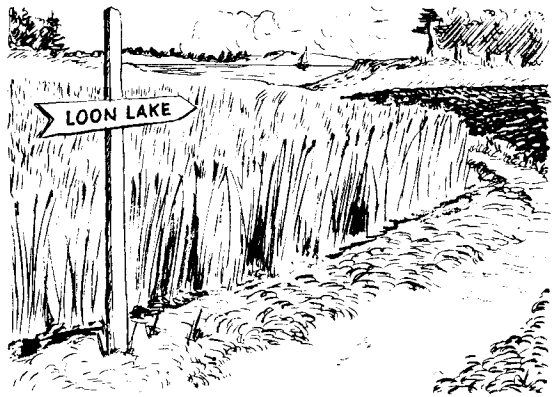
There is such a thing as manners in the out of doors. All campers should know and discuss rules of hiking and camping before beginning a trip.

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

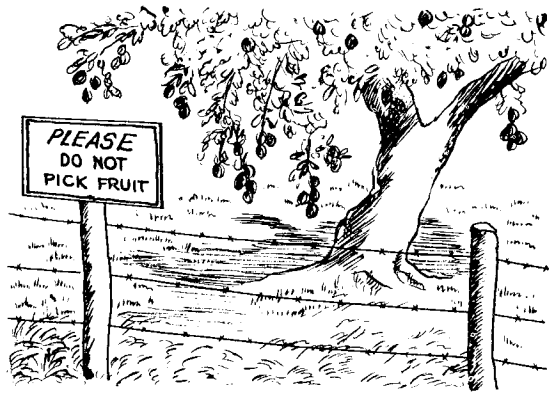
Don't make short cuts across private property without permission.

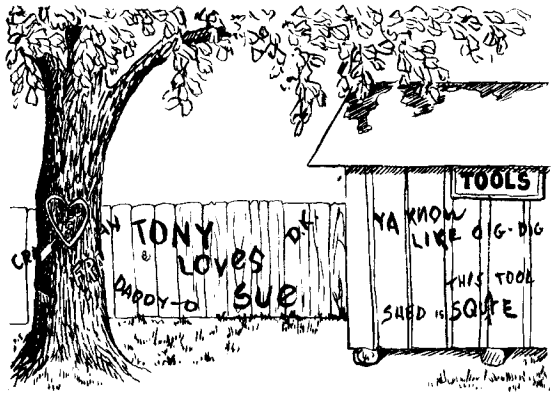


Stay on paths or roads. Don't cut across fields of grain. Go around the edge of any planted field when there is no road or path.

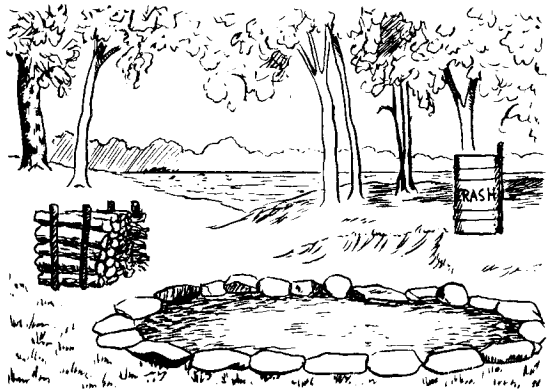


Do not pick fruit or vegetables without permission.





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



Remember to follow the rules you learned about 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

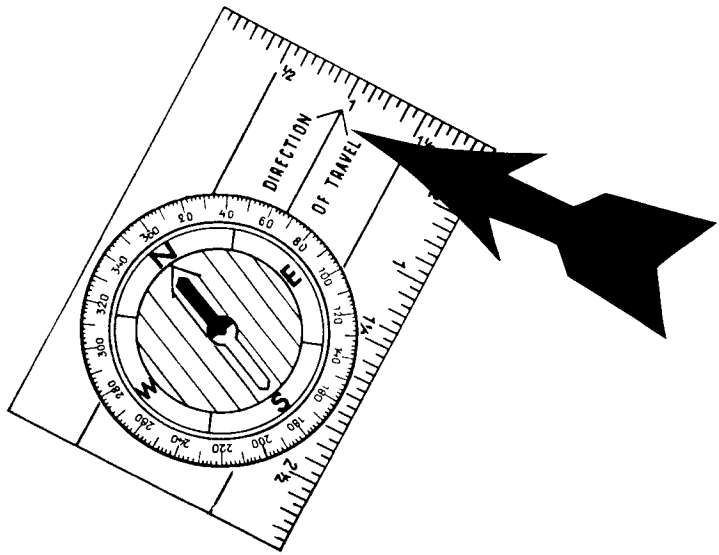
The first compass was a magnetized, ore-bearing rock or stone which, when suspended on a thong or vine, would always point in the same direction.

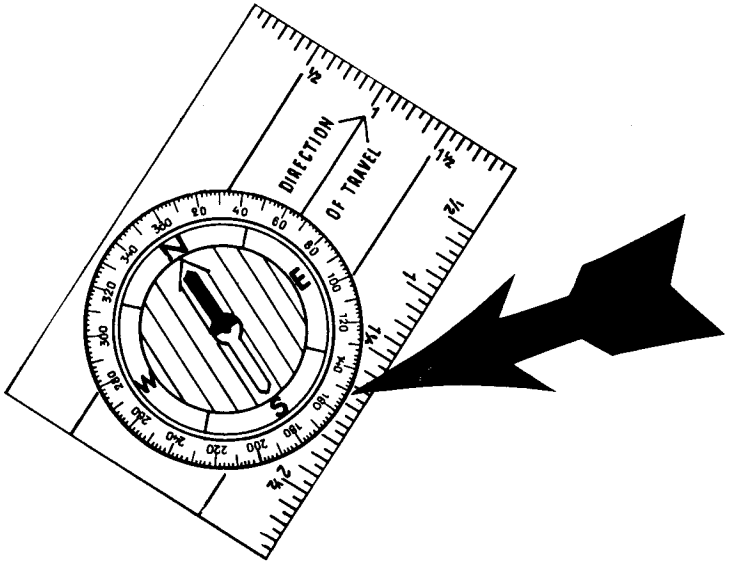
No one knows who first discovered the compass. The Chinese seem to have understood its secrets 3,000 years before Europeans learned to navigate without the aid of the sun and the North Star. According to some authorities, Marco Polo brought back a knowledge of the compass from Cathay in 1260.

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

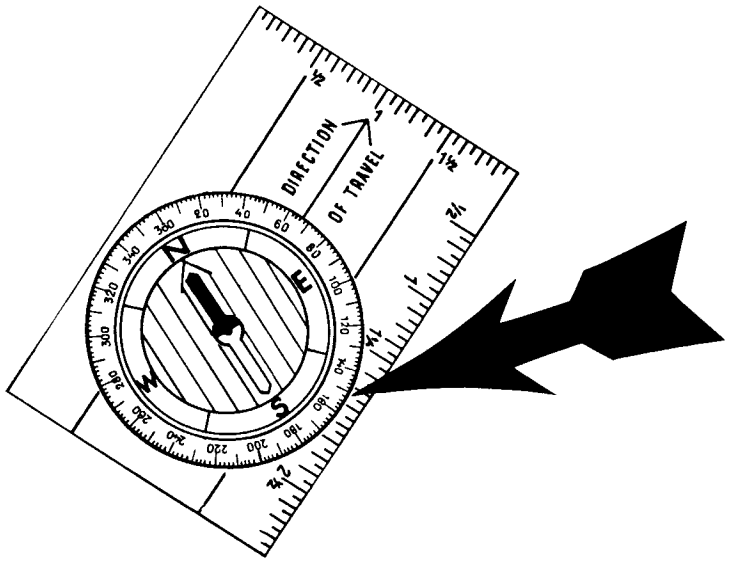
There are several important parts to the compass. First, the **direction of travel** arrow is on the plastic base. This is the arrow that shows which way to walk after the compass is set.

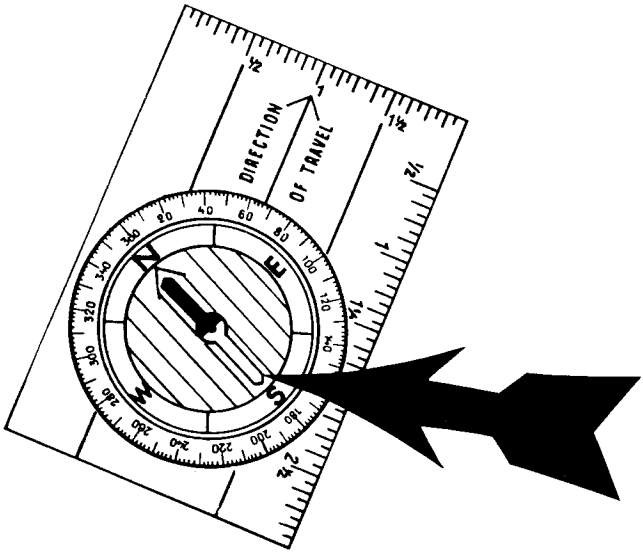




This is the **housing.** It turns—try it.

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.



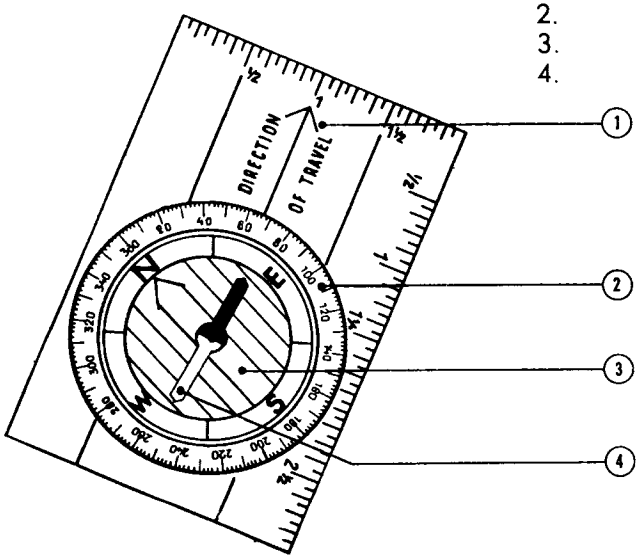


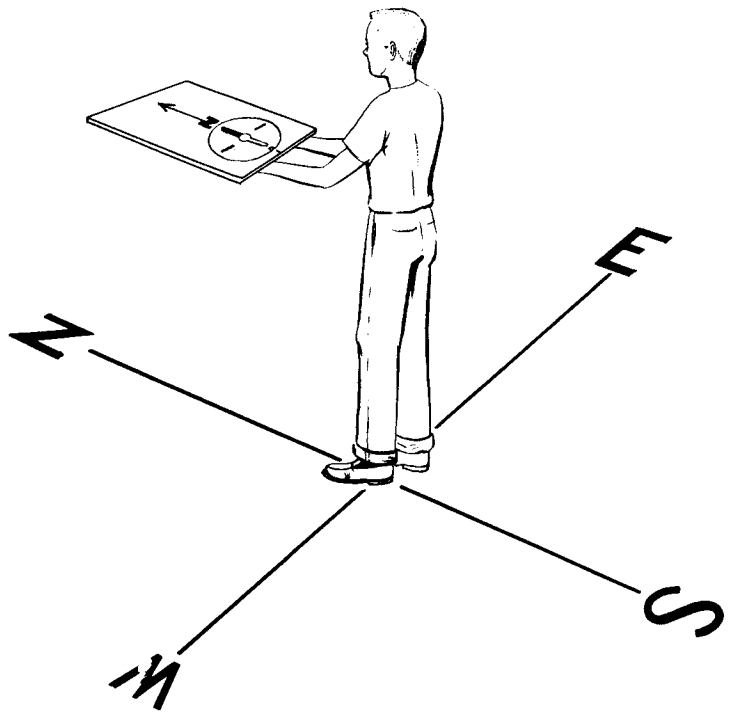
Inside the housing is a needle which swings on a pin. It is the **magnetic needle.** It always points north and is NOT the way to go. The direction of travel arrow points the way to go.

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.

1.
2.
3.
4.



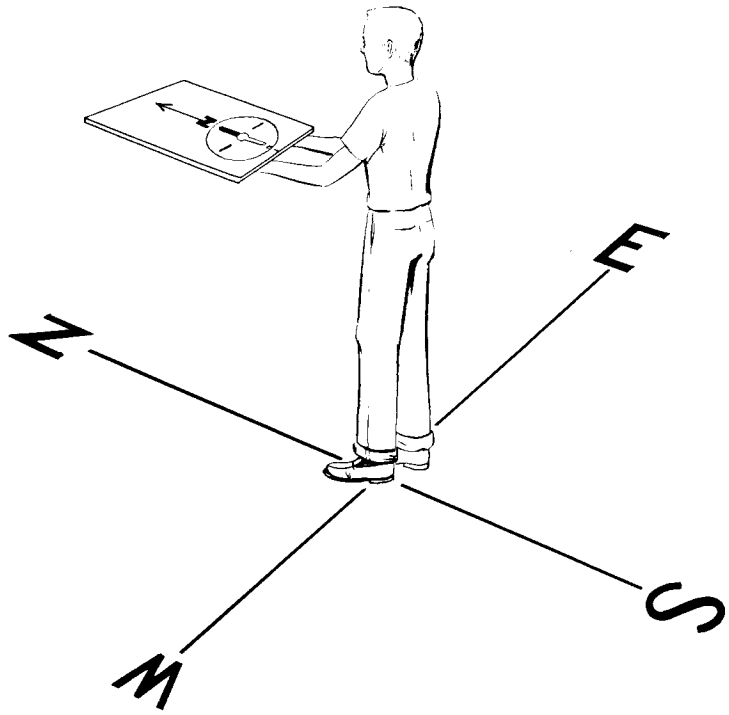


ORIENTING YOUR COMPASS

1. Turn the housing of the compass, so the orienting arrow is in line with the direction of travel arrow.

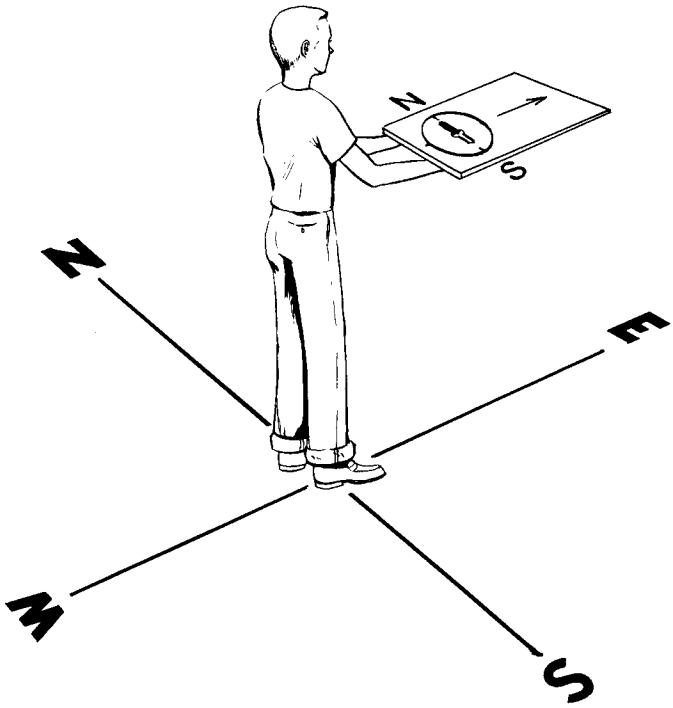
2. Hold the compass with both hands, keeping your elbows tight against your sides.

3. Move around until **N** on the housing is over the north or red end of the needle. The compass is now oriented and you are facing NORTH.



To walk north—

1. Orient the compass following directions on page 123.
2. Follow the direction of travel arrow which is pointed north.
3. As you walk, keep the magnetic needle in line with the orienting arrow.



To walk east—

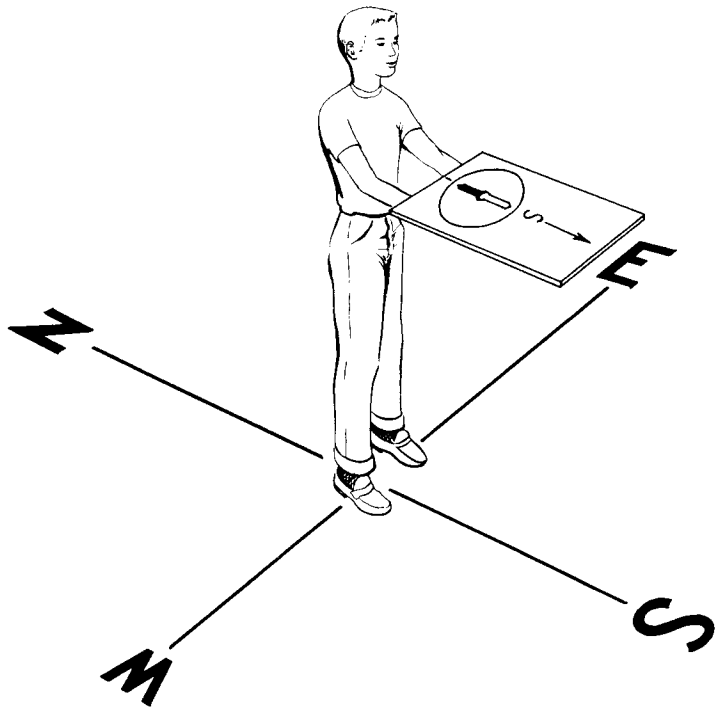
1. Turn the compass housing until the **E** on the housing is in line with the direction of travel arrow.

2. Hold the compass level with the direction of travel arrow pointing straight (not pointing back toward yourself).

3. Pivot around until **N** on the housing is over the north or red end of the needle. The compass is now oriented and you are facing east.

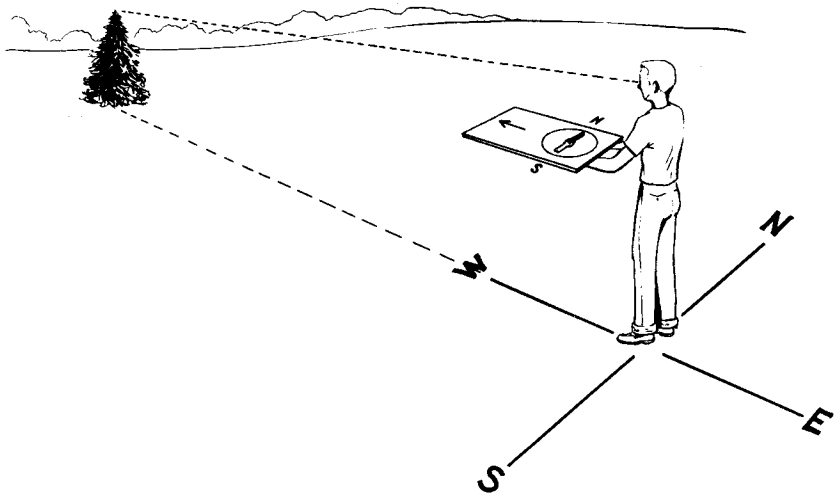
4. To walk east, walk in the direction in which the direction of travel arrow is pointed. That is east.

5. As you walk, keep the magnetic needle in line with the orienting arrow.



To walk south—

1. Orient the compass and face north.
2. Turn toward the south, holding the compass steady.
3. Turn the compass housing until the **S** on the housing is in line with the direction of travel arrow.
4. Walk in the direction in which the direction of travel arrow is pointed. That is south.
5. As you walk, keep the magnetic needle in line with the orienting arrow.



To walk west—

1. Orient the compass and face north.

2. Turn toward the west holding the compass steady.

3. Turn the compass housing until the **W** on the housing is in line with the direction of travel arrow.

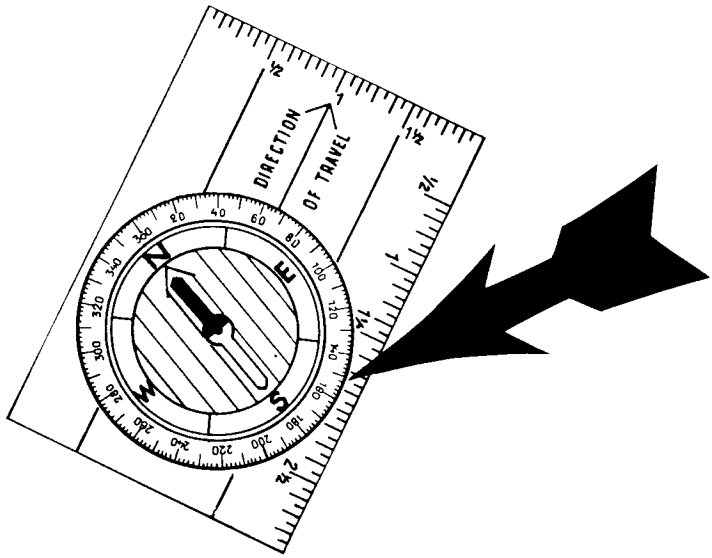
4. Walk in the direction of the direction of travel arrow which is pointed west.

5. Keep the compass oriented by keeping the magnetic needle in line with the orienting arrow.

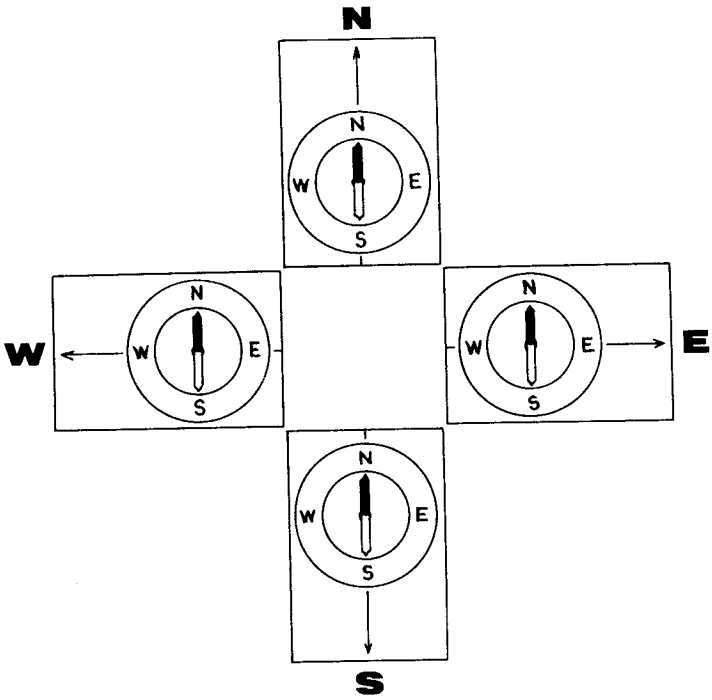
CHOOSING A SIGHTING POINT

1. Set your compass for a desired direction such as west, for example.
2. Choose a sighting point—that is a tree, rock, house, post, or other object which is in line with the direction of travel arrow between you and east.
3. Walk to this sighting point.
4. Choose another sighting point which is in line with the direction of travel arrow and walk to it.
5. Do this each time until you reach the place you want to go.

FINDING COMPASS BEARINGS



Look at the compass housing. You see numbers around the base. These numbers represent degrees. There are 360 degrees in this or any circle.



Next—take your compass and set it so that **N** on the housing is in line with the direction of travel arrow. Notice the number of **degree reading** is 360.

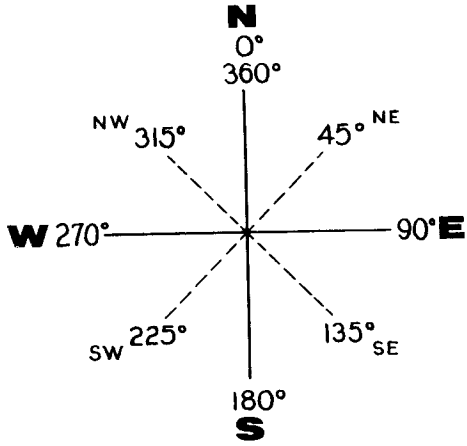
Now—turn the housing until **E** is in line with the direction of travel arrow. You see the number of degree reading is 90.

Next turn the housing until **S** is in line with the direction of travel arrow. The degree reading is 180.

Now turn the housing until **W** is in line with the direction of travel arrow. The degree reading is 270.

Each of the numbers or degree readings is called a **bearing.**

A bearing is an angle measured by degrees.



This illustration shows the main directions with the bearing for each. Practice moving the housing to each direction until you know the bearing for each.

Practice with a friend and answer these questions using the compass:

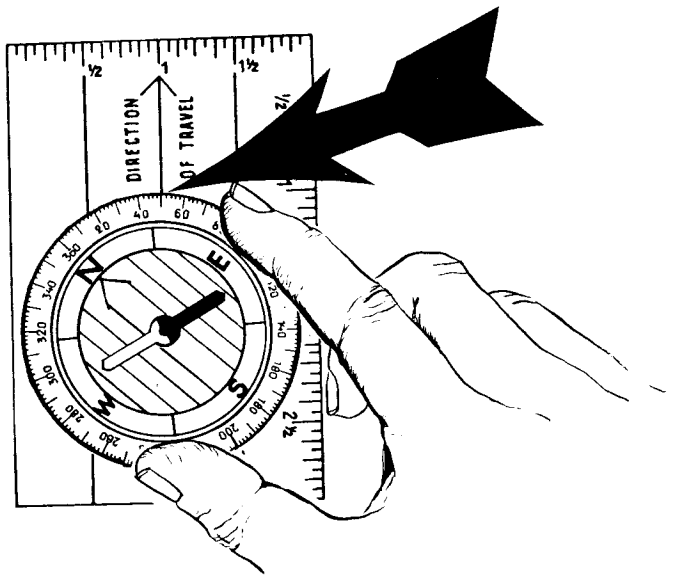
Which bearing is E?
Which bearing is NE?
Which bearing is W?
Which bearing is SE?
Which bearing is N?
Which bearing is SW?
Which bearing is NW?
Which bearing is S?

Then try answering these questions with a friend.

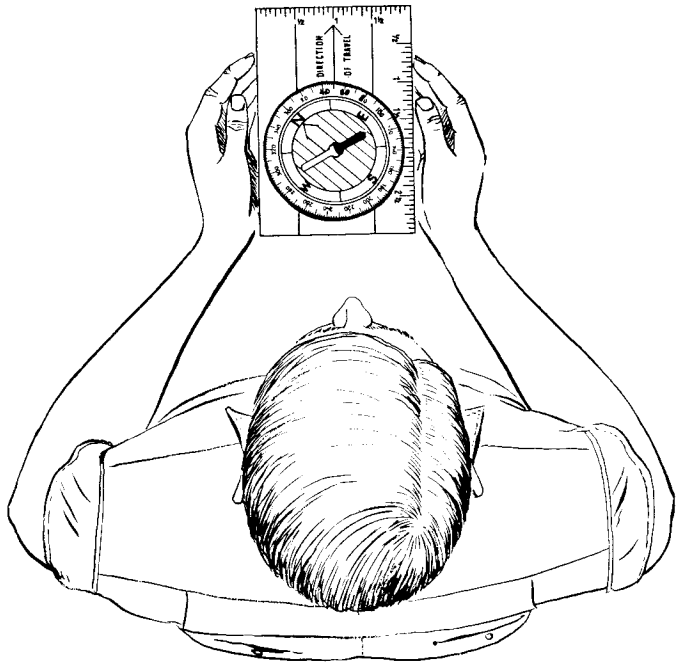
Which point of the compass is at 180°?
Which point of the compass is at 350°?
Which point of the compass is at 225°?
Which point of the compass is at 360°?
Which point of the compass is at 315°?
Which point of the compass is at 270°?
Which point of the compass is at 45°?
Which point of the compass is at 90°?

Now let's practice what we have learned. We will suppose that an airplane crashed in a near-by woods and your chapter was asked to rush there to help out. In the woods there are no street signs or road markers to show the way so your counselor simply says that the wreckage is 50 degrees, 1,000 feet from the entrance gate to the Jones farm.

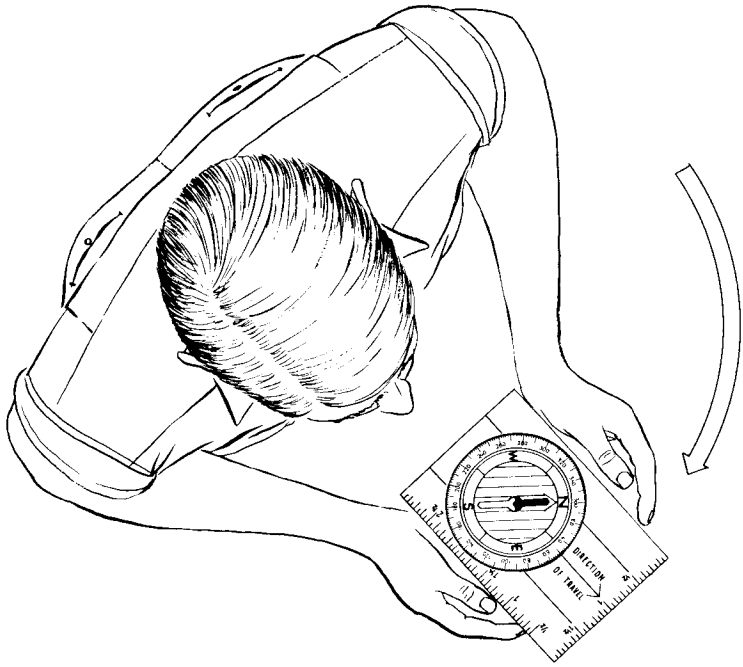
First, let's determine which way 50 degrees is—the way we want to go.



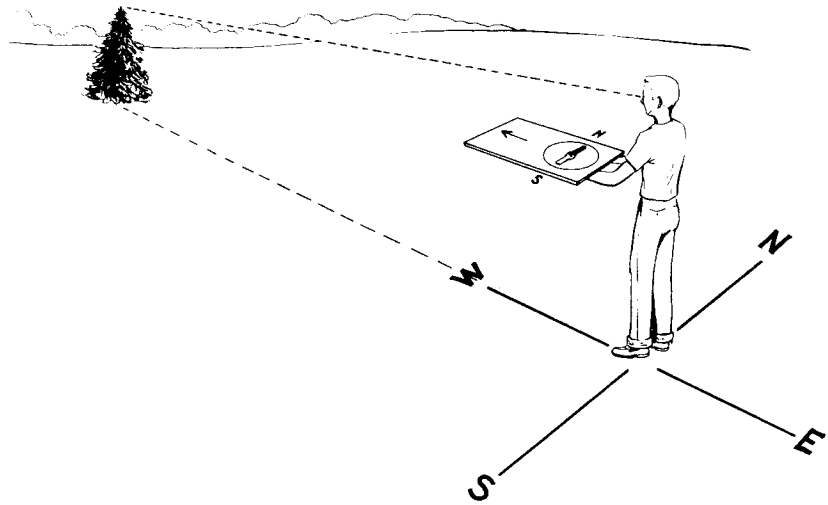
Turn the housing until the figure "50" is at the direction of travel arrow. Now the compass is set—do not turn the housing any more.



Second, hold the compass level, about waist high—or a little higher—and be sure the direction of travel arrow points straight ahead of you—not toward you or to one side. If you hold the compass with both hands and keep your elbows tight against your sides, you hold it steadier.



Third, rotate your body and watch your compass. Keep turning until the red end of the magnetic needle points to the letter N on top of the housing. As you turn, do not twist the compass in any way. Keep the direction of travel arrow pointed straight in front of you at all times. When you have turned so that the red end of the needle points to N, you are facing the correct direction to walk.



Look up and sight an object straight ahead, such as a tree. Then forget the compass and walk to that object. When you arrive there, repeat the process and pick out a new objective. Repeat until you reach your destination.

Practice this until you can set the compass to a degree reading and determine your direction of travel.

MEASUREMENT OF DISTANCE

The compass shows the direction of travel but usually it is also desirable to know how far to travel. Therefore, you should learn to measure and judge distance accurately.

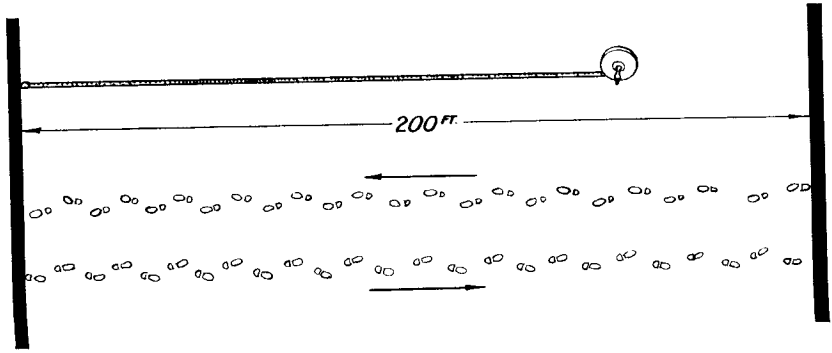
Timing. One method is by timing your walk. If you normally walk 4 miles per hour, and your destination is two miles away, you will reach it in a half hour of normal walking speed. In woods or places where walking speed is slower, you must estimate, whether your speed is retarded and how much. If, for example, you think you are walking about one-half normal speed, you will allow yourself an hour to reach the destination two miles away.

Mental Measurement. Another method is by estimating or judging actual distances. Use several distances with which you are acquainted and apply them to unfamiliar places. For example, if you know that your home is ¼ mile from the main road or street, you probably have a very good idea how far away ¼ mile would be. Then use it as a mental measuring stick when judging distances. Almost everyone knows how far the length of a football field looks. It is 100 yards and you can also use that as a mental measuring stick.

Stepping. For shorter distances, stepping is ideal and can be one of the most accurate methods to estimate distances. Measurement is done by walking at your normal speed and counting your strides (two steps) as you walk. Then if you know the length of your stride, you can convert into feet, yards, or miles as desired. For example, if the distance is 200 strides, and your stride is five feet long, the distance would be approximately 1,000 feet.

Finding the Length of Your Step. Measure off a straight distance of 200 feet with a tape measure, marking each end of the distance with stones or stakes. A trip down and back will be 400 feet or 4,800 inches. Now walk down the course and back again at your normal speed, counting your total steps.

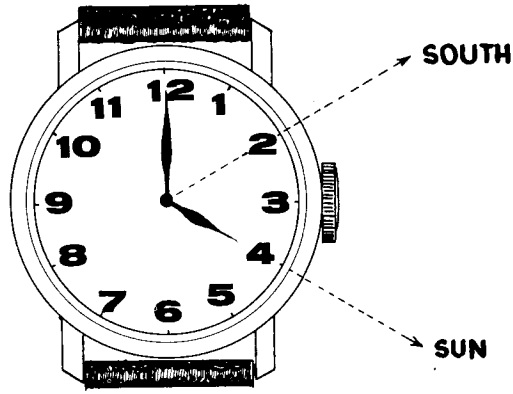
Divide 4,800 by the number of strides you counted. This will give you the length of your steps in inches. For example if you counted 160 steps, then your step is 30 inches long, because 4,800 divided by 160 equals 30. (A stride of two steps would be 60 inches or five feet.)



FINDING DIRECTIONS WITH YOUR WATCH

You know the sun rises in the east, sets in the west, and is straight or due south just at noon.

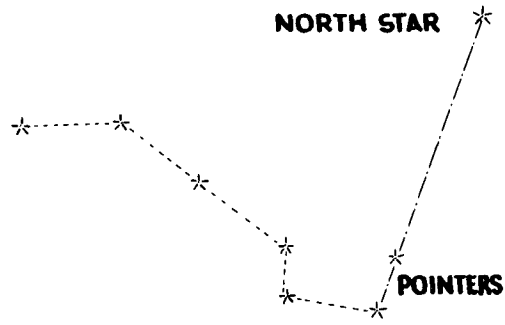
Now if you have a watch, here is a way to find the direction of south. Lay the watch flat with the hour hand pointing toward the sun. South is then midway between the hour hand and 12.



FIND NORTH BY THE STARS

Here is an easy method to find the North Star. First find the Big Dipper. Then look at the two stars that form the side of the dipper away from the handle. These two stars are called the pointers because they point to the North Star.

When you have found the North Star you know its direction is north.



★ The American Orienteering Service is a service division of Silva Industries, Inc., P. O. Box 345, La Porte, Indiana.

This service has prepared many valuable training aids for instruction on the use of map and compass.

For a complete list of training aids and price list, write to the above address.

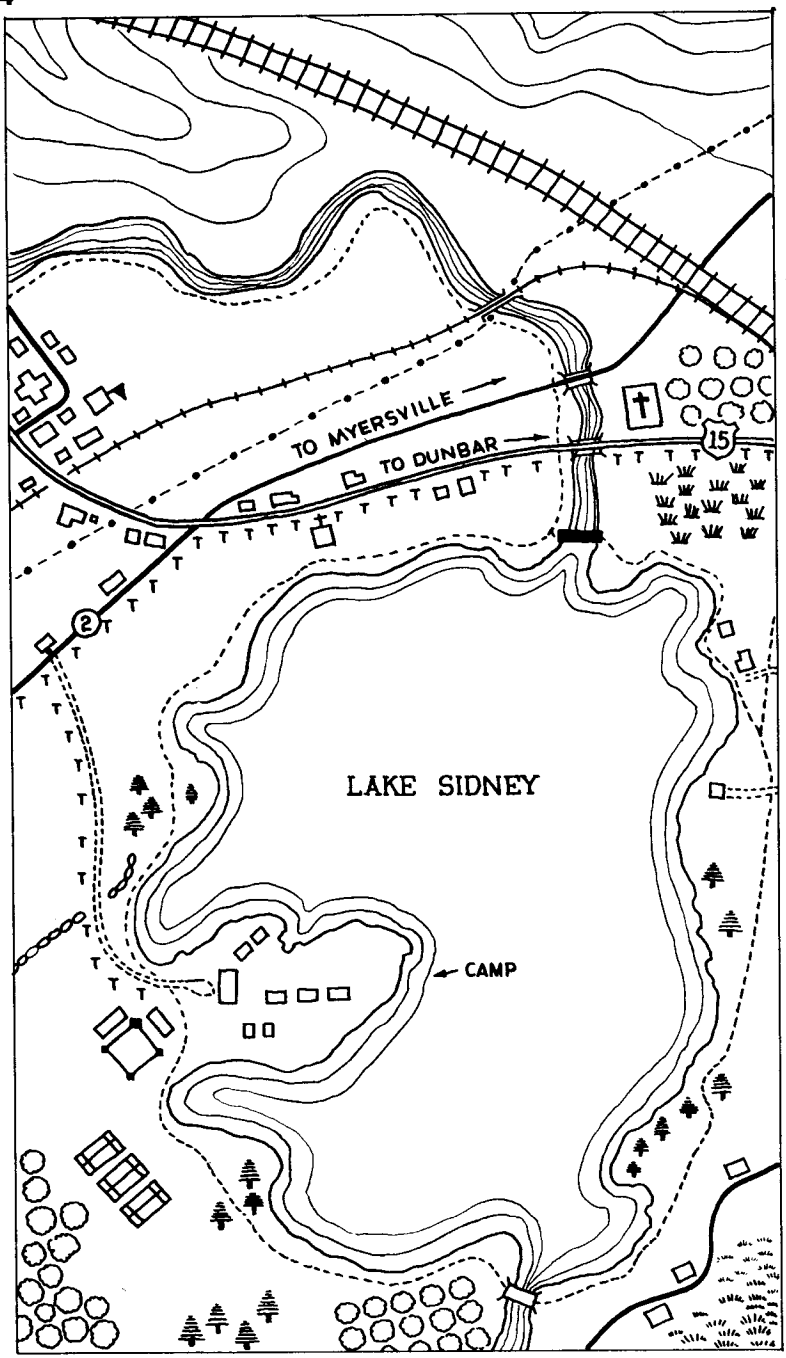
THE VALUE OF A MAP AND COMPASS

☞ Pathfinding in the old days was an art. There seemed to be a great mystery behind the ability of the Indian, the pioneer scout, the guide, the tracker or the explorer, to find his way without using a map. The old timer knew how to read the signs of mountain ridges, rivers and vegetation. He watched wind directions and cloud movements. He noticed continually the position of the sun, moon and stars.

☞ Where the old timer learned his skill the hard way over a great number of years, the outdoorsman of today can learn the secrets of pathfinding easily with a good map and compass.

☞ Knowledge of how to use the map and compass will help you on all your outdoor activities. You will feel safer in wilderness territory. You can cut down travel distance and time with shortcuts. You can explore out-of-the-way places. You can find the way to new camp sites, lakes and exploring grounds. You can also get satisfaction from helping others in their cross-country travel.

☞


TO MYERSVILLE
TO DUNBAR
15
2
LAKE SIDNEY
CAMP

COMBINING USE OF MAP AND COMPASS

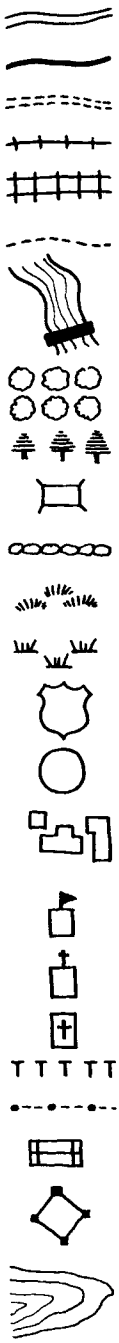
THE MAP

Everyone knows what a map is, and yet, a simple definition may make map study easier.

A map is a picture of the terrain viewed from above. In fact, if we photograph the ground from an airplane, we get a photo-map. But photographs do not always show everything we want to know. For example, hills are not clearly visible. Roads and streams sometimes disappear beneath trees, and reappear going in a different direction. On the other hand they may show too much detail and becoming confusing to read. Consequently, drawn maps are often better!

DRAWN MAPS

A drawn map still is a picture view from above. Keep that in mind. It may emphasize the things we want to show and omit unimportant details. For example, road maps ordinarily show roads, towns, and cities, but not houses, woods, and marshes. Other maps such as topographical maps may emphasize the country-side itself. A very simple map like this one may be sufficient.

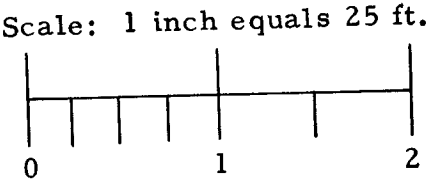


MAP SYMBOLS

Because pictures use much space and are sometimes hard to draw, most maps use symbols to designate buildings, streams, roads and other details. These symbols have become standardized and now almost everyone drawing maps uses the same set of symbols. Most of them are very suggestive of the objects they represent. For example, a house is a black rectangular or square marking; a school is the same but has a flag on it; a church has a cross; railroads have ties; power lines have dots like poles. A contour line is a line drawn to represent a given altitude, say 1,000 feet above sea level. Because this line is representing a given height, it would wind around and eventually connect itself as it gets around the hill. Your map will tell the difference in altitude between the various contour lines. So contour lines of the map will reveal not only the height of a hill but also its shape. Where contour lines are close together, the hill is steep; where they are far apart, the land is more level.

MAP SCALE

Another important part of the map is the map scale. It is the device to tell "how far." A map scale is a rule located on the map or its border. It is usually divided into segments and at the end of each segment a certain distance will be written, for example, 25 feet or 1,000 yards or a mile. If, for example, the distance of one mile is written at the end of the segment, that means that the length of that segment on the map represents one mile on the ground.



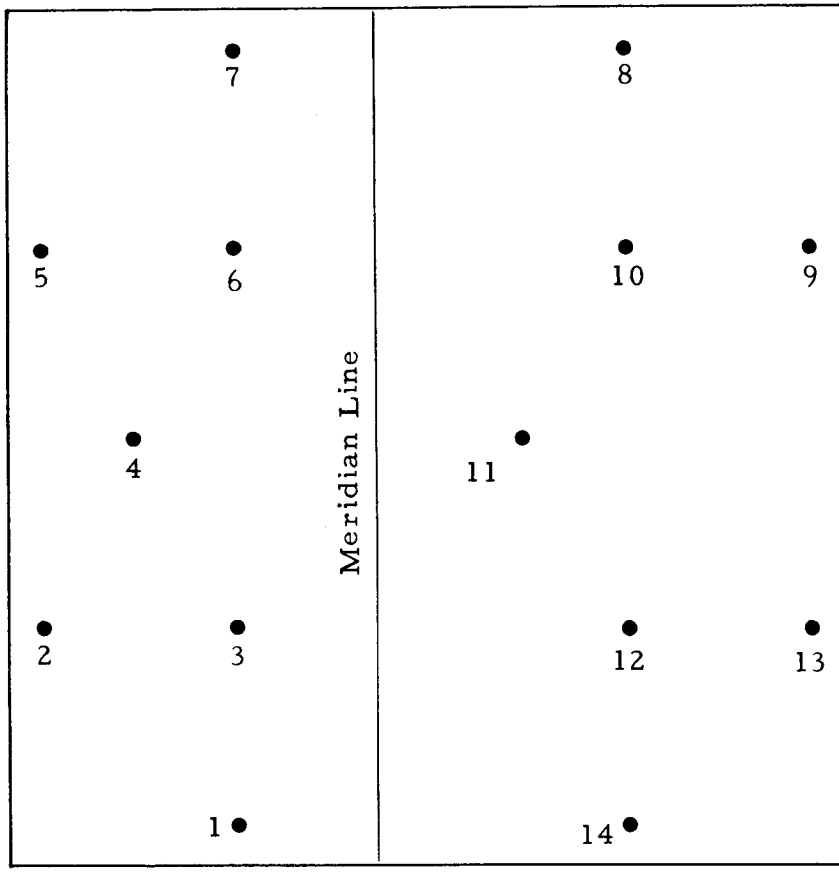
When using a compass, it is usually best to start by learning to "walk by compass" and to become familiar with its parts. That is the type of compass instruction given thus far. However, when we are in the wilderness, there usually is no one to tell us to go 70 degrees or 110 degrees. We must somehow determine that ourselves. That can be done by combining the use of map and compass.

ORIENTING THE MAP

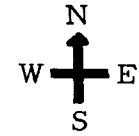
It is sometimes desirable to orient the map. Orienting a map simply means placing the map so that the northerly direction on the map coincides with **magnetic** north. An oriented map usually gives a better understanding of the relationship between ground and map because the directions are then the same. There are two ways to orient a map—by inspection and by compass.

BY INSPECTION simply means to look at the terrain with the map directly ahead of you. This can be done when you recognize on the map objects that you see on the ground. Then just turn your map until the roads or other visible objects line up with those same objects on the map.

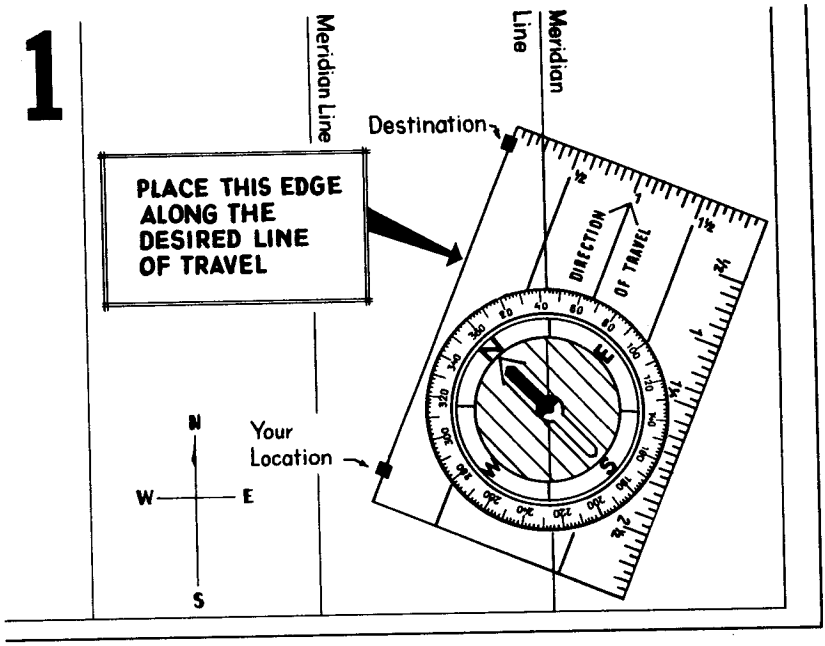
BY COMPASS is usually a much easier and more reliable method, especially if you haven't yet identified on the map the objects you see on the ground. The top of your map points in the general direction of north. Your map should show a north-south line in the margin or on the map itself. Lay your compass on or near this line and then turn your map and compass together until the compass needle—or N-S line of the compass card—is parallel with the N-S line of your map, and the north end of the needle is pointing towards the top of the map. Try this.



Scale: 1 inch equals 25 ft.



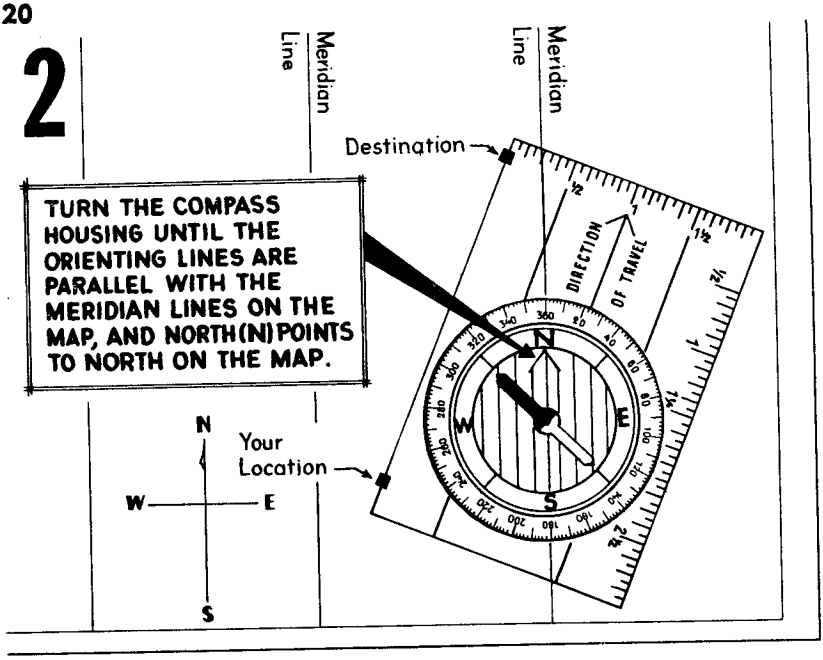
PRACTICE MAP



GETTING THE COMPASS DEGREE READING FROM THE MAP

Let us suppose that we are now located at #1 and we wanted to go to #11 on the practice map.

First, lay your compass so that the edge of the transparent base is along the line of travel. It should intersect the #1 and #11 spots. In doing so, make certain the direction of travel arrow is pointing in the direction of travel.



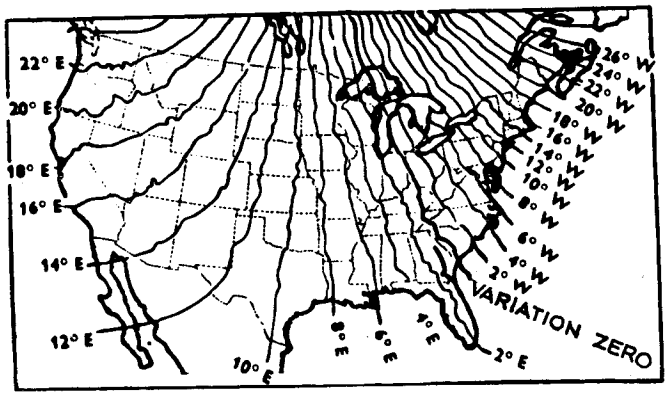
Second, hold the compass firmly against the map so the transparent plate will not move from the line of travel. Then turn the housing so that the arrow underneath the needle inside the housing points to the top—north—of the map. Notice, too, that we do not pay any attention to the needle itself. The arrow underneath the needle is the one we are concerned with and is the one that should point to the top—north—of the map.

Now remove your compass from the map and tell the degree reading of your compass. Repeat this.

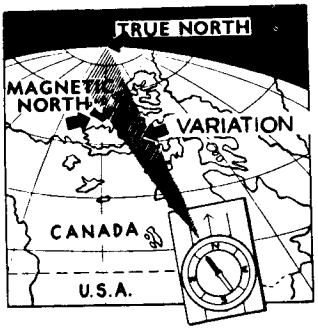
Then take two or three bearings from the map, from and to different points, until you are able to give correct degree readings.

ADJUST FOR VARIATION

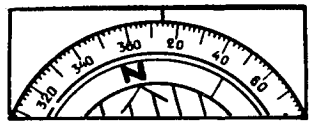
We have now learned how to take a bearing from a map. However, a slight readjustment of the degree reading must be made in most areas if we wish to be perfectly accurate. This readjustment is necessary because the compass needle does not necessarily point to the true North Pole. It points to the magnetic North Pole which is the Hudson Bay region.

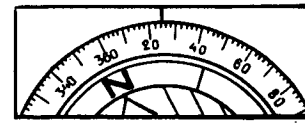


The difference between True North and Magnetic North is usually called magnetic variation and the amount of this difference for any specific area is often shown, in degrees, on your map. If you happen to be on an extension of a line connecting the true and magnetic North Poles, there would be no variation and it is called the zero variation line. The zero line is not perfectly straight, but runs approximately along the eastern coast of Lake Michigan, through southeastern Indiana, through central Kentucky and Tennessee, then into northern Georgia and hits the Atlantic Ocean about two thirds of the way up the Georgia coast line. If you are located east of this line the compass needle points west of True North and is called westerly variation. If you are located west of the line, you have an easterly variation. The farther away from the line you get, the greater is the variation. When adjusting the compass for this variation, first find out the number of degrees of variation in your vicinity and also whether it is easterly or westerly. If you have an easterly variation, you note the degree reading of your compass, then subtract from that reading the amount of variation and reset your compass housing accordingly.

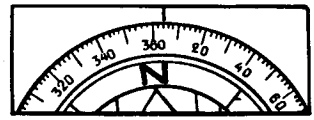


Suppose your degree reading is 14. Now suppose the westerly variation is 10 degrees, you reset your compass to 24 degrees.





If you have an easterly variation you subtract the amount of variation from the degree reading of your compass. If your compass setting is 14 degrees and you have a 10-degree easterly variation, you reset your compass to 4 degrees.

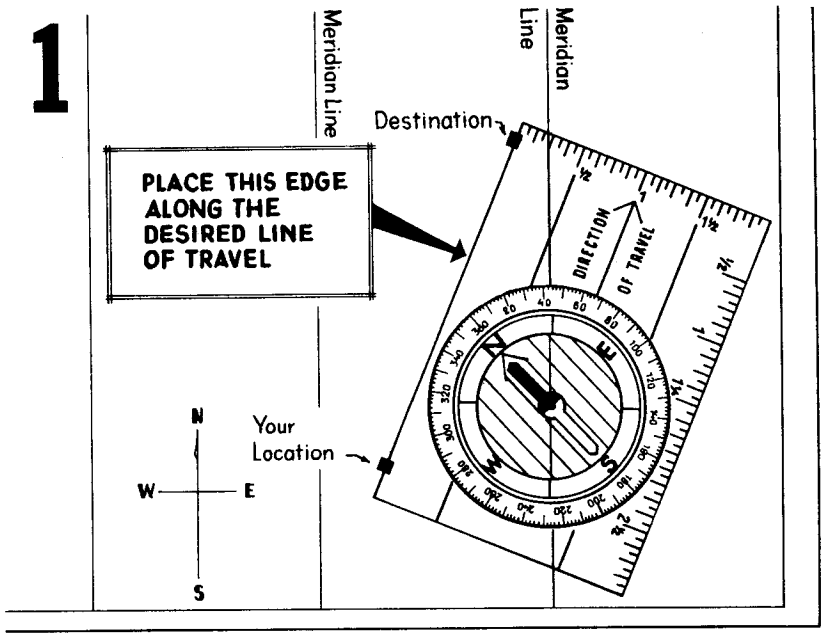


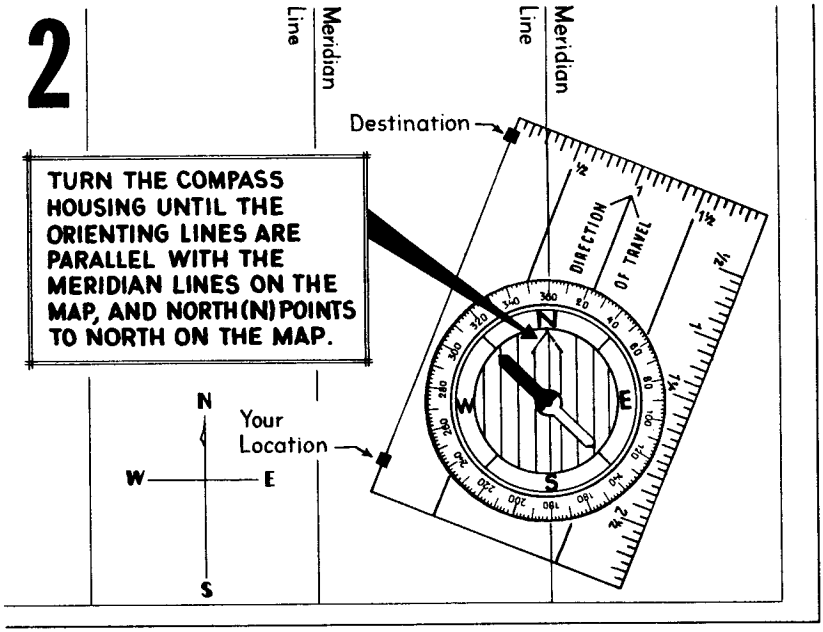
Now go back to step 2, using your practice map. Determine your magnetic variation for your area. Your county surveyor can tell you this or you can secure a topography map of your area and it will designate it.

Make the necessary variation and tell the degree reading. Do this two or three times from various points on the practice map.

STEPS TO GET DIRECTIONS FROM A MAP

Secure a topography map of your area. Determine your location on it. Determine where you want to go on the map. Follow the illustrated instructions

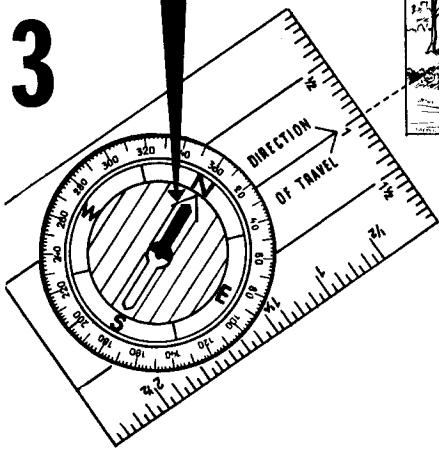


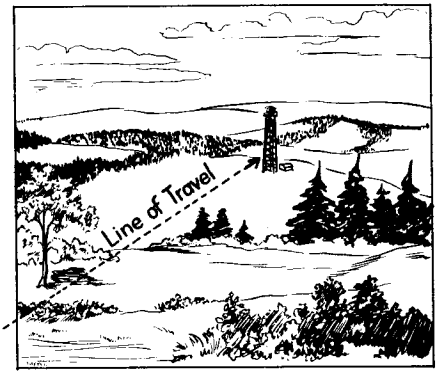


After this step adjust for magnetic variation.

TURN THE ENTIRE COMPASS HORIZONTALLY UNTIL THE RED END OF THE MAGNETIC NEEDLE POINTS TO NORTH (N) AND IS PARALLEL TO THE ORIENTING LINES.

3





JUST FOLLOW THE ARROW!

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

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

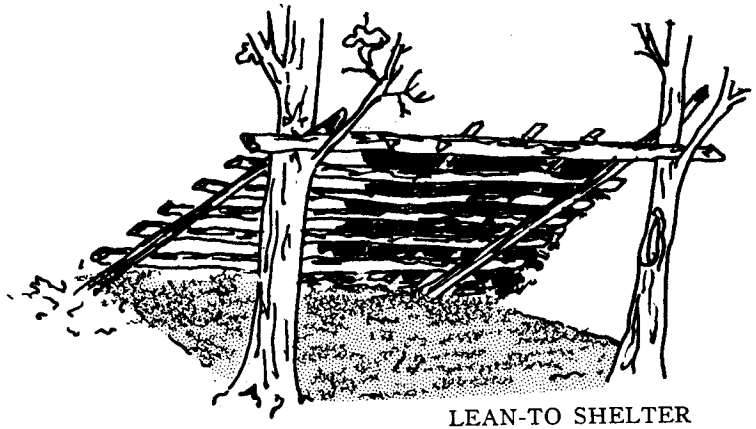
reaction to feel panic when lost. The important thing is to know how to handle this feeling when it happens to you. When the sudden realization hits you that you are lost, stop dead in your tracks. If you are standing, sit down. Fight off any urge to run or to keep going. Take out your survival kit and 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

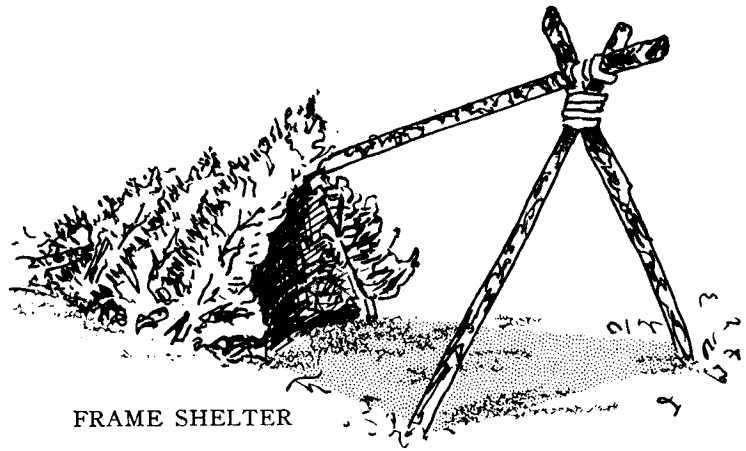
If you cannot find a solution and you know you are really lost, start immediately to build a shelter. Don't wait until too late in the day. By beginning early you can take it easy and conserve your energy. The shelter will not only protect you from the elements, but there is also something reassuring 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.

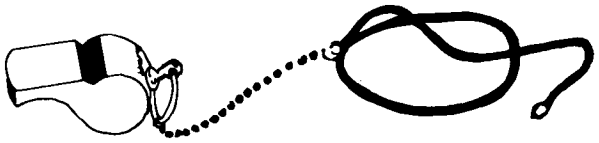
If water is scarce, avoid dehydration from wind, sun, and loss of body moisture through sweating. Keep your body covered with clothing and stay in the shade. Limit activities that might cause sweating.

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.
SCURY 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.

CURRANTS: 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

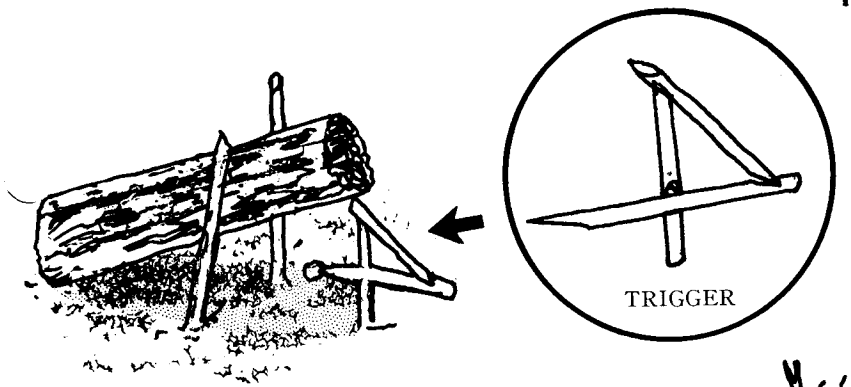
Conserve your energy by resting as much as possible. Avoid unnecessary exertion. Limit your activities to doing only those things necessary. If you feel you must do something to pass the time, engage in activities that will use only a minimum of energy.

USE YOUR HEAD

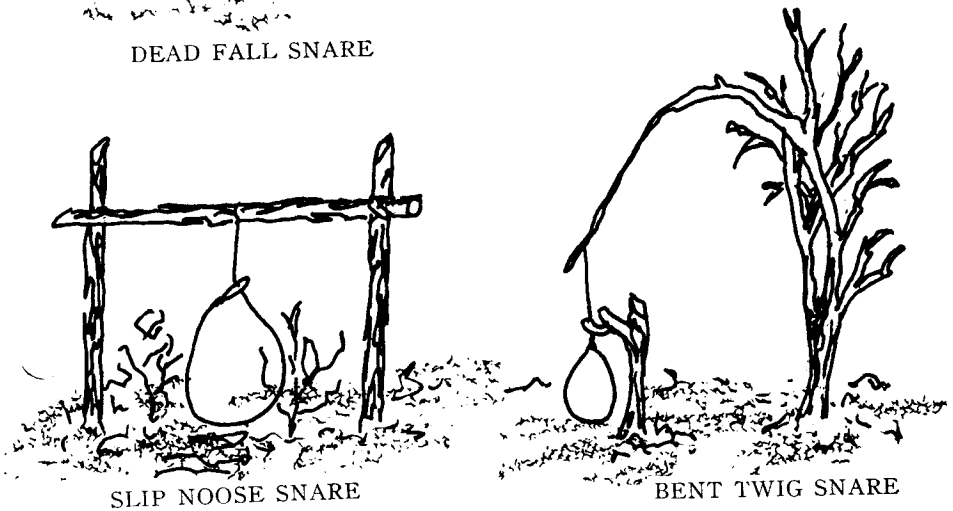
Sometimes survival and comfort depend upon simple, sound thinking. Some people call this "horse sense."

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-

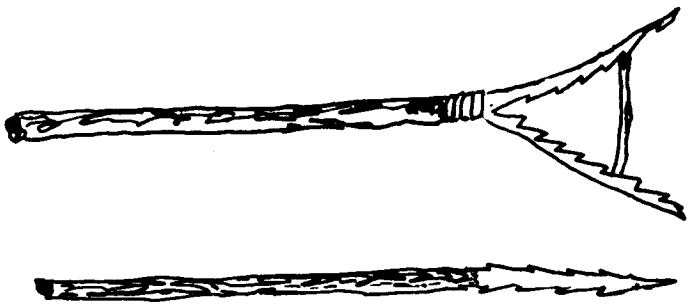


DEAD FALL SNARE



SLIP NOOSE SNARE

BENT TWIG SNARE



FISHING SPEARS

fered 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.