

Survival

Table of Contents

Tracking Awareness	2
Winter Camping Checklist	15
Four Lines of Defense Against Hypothermia	17
Rules of Survival / Energy Conservation/Individual Demands on Survival	19
Always Carry With You	20
What to do if lost or in case of emergency	21
All Weather Fire Lighter	22
Types of Fires	23
Take Inventory	25
Around your Campfire – Food Sources	26
2 nd St Luke's Survival Kit	27
Emergency Plants – Food Sources	29
Some Edible Plants and how to eat them	30
Shelter	35
Edibility Rules	41
Snares	42
Personal Welfare	44
Attracting Attention	46
Lost In the Bush	47
Fire Starters / Emergency Kit	48
Survival Kit	49
Survival	50
Another Survival Kit	51
Trail Signs	53
Taking and Stalking	55
Preventive Survival	57
Survival Booklet	59
Weather Signs	70
Measuring Rainfall	71
The Weight of Air	73
Determining Wind Direction	75
Measuring the Wind Speed	77
Is Lightning Dangerous?	79
Woodcraft Trail Signs	81

TRACKING AWARENESS:

"TRACKING IS LIKE LEARNING TO READ ALL OVER AGAIN"

TECHNIQUES:

1. TRACK PATTERN RECOGNITION
TO FOLLOW A SET OF PRINTS WITH A PARTICULAR SIZE, SHAPE,
OR TREAD PATTERN.
2. STRIDE, PITCH, AND STRADDLE
TO FOLLOW A SET OF PRINTS USING TRACK PATTERN RECOGNITION AND
STRIDE, PITCH, AND STRADDLE MEASUREMENTS.
3. PRESSURE RELEASE TRACKING
THE USE OF A SYSTEM OF 85 INTERNAL, AND 85 EXTERNAL PRESSURE
RELEASES AND 65 INDICATORS IN ADDITION TO THE ABOVE
TECHNIQUES.

"EVERY MARK ON THE GROUND IS A TRACK, BECAUSE NATURE TRIES TO BE
FLAT"

DUE TO SHOE WEAR, PRESSURE RELEASES, ETC - NO TWO PEOPLE ON THE
FACE OF THE EARTH WILL MAKE THE SAME FOOTPRINT, EVEN IF THEY WEAR
THE SAME PAIR OF SHOES!

A PERSONS FOOTPRINT GIVES MORE INFORMATION THAN HIS FINGERPRINT

RIGHT HANDED PERSON:

RIGHT TRACK IS LARGER
RIGHT STRIDE IS SHORTER - LEFT STRIDE IS LONGER
WILL USUALLY CIRCLE TO THE RIGHT IF LOST
WILL TAKE THE RIGHT TURN OR FORK IN A TRAIL WHEN POSSIBLE

LEFT HANDED PERSON:

LEFT TRACK IS LARGER
LEFT STRIDE IS SHORTER - RIGHT STRIDE IS LONGER
WILL USUALLY CIRCLE TO THE LEFT IF LOST
WILL TAKE THE LEFT TURN OR FORK IN A TRAIL WHEN POSSIBLE

HUMAN STRIDE IS MEASURED HEEL TO HEEL
ANIMAL STRIDE IS MEASURED TOE TO TOE

FROM THE MOMENT A TRACK IS MADE, IT BEGINS TO DETERIORATE
TAKE THE TIME TO STUDY THE WEATHERING AND DETERIORATION OF PRINTS

"THUMB AGING" A PRINT WILL GIVE YOU A CONSTANT

TRACKING ON HARD SURFACES:

ON ANY SURFACE THERE IS DUST AND GRIT
USE A "SIDE HEAD" METHOD OF LOOKING AT SUSPECTED PRINTS,
KEEPING THE PRINT BETWEEN YOU AND THE SOURCE OF LIGHT.

EXTENDED TRACKING BOX:

A LARGE FRAME BOX 3FT WIDE, 6-8FT LONG, AND 1FT HIGH
FILL WITH "PLAY SAND" (KEEP SAND DAMP)

FIELD TRACKING BOX:

LARGE SQUARE AREA OF SOFT GROUND USED TO PRACTICE READING ANIMAL
TRACKS.

PUSHDOWNS AND ESCAPE ROUTES:

DISTURBANCES IN VEGETATION
VEGETATION IS BENT DOWN IN THE DIRECTION OF TRAVEL OR ESCAPE

SIGNS ON TWIGS, STICKS, AND LOGS:

ABRASIONS, BREAKS, CHEW MARKS, ETC ON TWIGS, STICKS, LOGS, AND
VEGETATION.
THESE CAN BE AGED.

STONE ROLL:

ANY SIZE STONE THAT IS DISTURBED FROM ITS BED
DISTANCE INDICATES FORCE USED

SHININGS:

WHEN GRASS IS DRY, IT APPEARS DULL (LIGHT GREEN) IN DIRECT
SUNLIGHT, WHEN THIS GRASS IS COMPRESSED OR PUSHED DOWN, IT TURNS
A DARKER GREEN.

DULLINGS:

WHEN GRASS IS WET WITH DEW, IT APPEARS TO SHINE (SILVERY), WHEN
IT IS COMPRESSED, IT WILL APPEAR DULL (DARKER) GREEN BECAUSE THE
DEW OR WATER IS KNOCKED OFF.

SEARCH TRACKING:

LOST PERSONS ONLY!!!

ASK A LOT OF QUESTIONS!

BELIEVE NOTHING AS "GOSPEL TRUTH"

BE A "FENCE WALKER"

REMEMBER THAT HYSTERIA DISTORTS THINKING

ROLE PLAY (WHAT WOULD HE/SHE DO?)

AFTER 24 HOURS A CHILD WILL NOT ANSWER TO THEIR OWN NAME, AND WILL SOMETIMES RUN AND HIDE FROM SEARCHERS.

ADULTS MAY DISPLAY THIS SAME COMPLEX AFTER 48 HOURS.

WHEN LOOKING FOR A CHILD, YOU MUST GET DOWN ON YOUR HANDS AND KNEES, AND LITERALLY LOOK EVERYWARE.

A CHILD 4 TO 6 YEARS OLD WILL USUALLY WALK UP A HILL, AN ADULT WILL WALK DOWNHILL.

WHERE THERE IS RUNNING WATER NEARBY, THE LOST PERSON MAY GO AND SIT NEAR IT. THEY MAY ALSO "WALK DOWNSTREAM".

START LOOKING FOR TRACKS OUTSIDE OF THE "TD" OR "LKP" AREA.

Total distraction

NEVER NEVER NEVER WALK ON PRINTS!!!

YOU ARE A CLUE FINDER, SO LOOK FOR CLUES, ANYTHING THAT CAN BE ASSOCIATED WITH THE MISSING PERSON, FOOD WRAPPERS, ITEMS OF CLOTHING, ITEMS OF EQUIPMENT, BITS OF CLOTH OR HAIR CAUGHT ON BRANCHES OR PICKER BUSHES. ALSO LOOK AND LISTEN FOR SIGNALS LIKE A WHISTLE, GUNSHOTS, OR MIRROR FLASH.

TRACKERS:

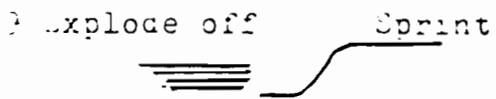
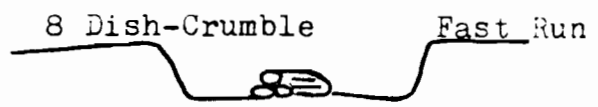
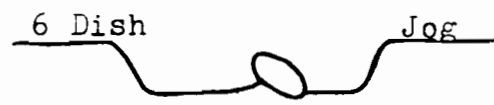
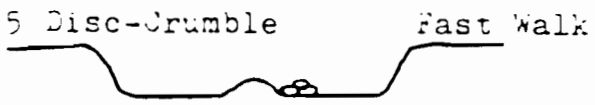
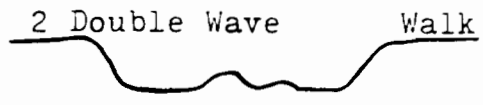
LORD BALTIMORE (NATIVE AMERICAN) - OKLAHOMA
JOE LAFOURSE (SHERIFF) - WYOMING
TOM HORN
PAT GARRETT
GEORGE WYATT
P.T. KELLER

TOM BROWN JR. - NEW JERSEY
AB TAYLOR
ROLAND ROBBINS
JACK KIERNEY
BERNIE LAWRENCE - KINGSFIELD ARIZONA

FIELD TRACKING KIT:

FIELD GUIDE ON TRACKS
TAPE MEASURE (10 FT)
FLEXIBLE RULER (6 IN)
MAGNIFYING GLASS (SMALL)
KITE STRING
POPSICLE STICKS
ADHESIVE LABELS
WIRE CUTTING PLIERS
3 X 5 CARDS
TWEEZERS
SCOTCH TAPE
FILM CANISTERS
SMALL ZIP TOP PLASTIC BAGS
SMALL THERMOMETER
SMALL FLASHLIGHT
COMPASS
MAP OF AREA
PLASTER-OF-PARIS AND CARDBOARD
CLEAR SPRAY VARNISH
SKI SPRAY WAX (RED)
SNOW OR SUN GLASSES
SMALL PACK
NOTE PAD AND PENCIL (WATER PROOF)
KNIFE
CUP CAKE
CANTEEN
TRACKING STICK

Forward Motion



ANIMAL SPEED INDICATORS

WAVE - STALK

DOUBLE WAVE - WALK

DISC - FAST WALK

DISC FISSURE - FASTER WALK

DISC CRUMBLE - TROT

DISH - BOUND

DISH FISSURE - MORE SPEED

DISH CRUMBLE -

EXPLODE OFF -

ANIMAL STRIDE IS MEASURED TOE TO TOE

CLEAR ANIMAL PRINTS

4 TOES FRONT + 4 TOES REAR + NO CLAW MARKS = CAT
FRONT PAWS LARGER THAN REAR
VERY "ROUND" PRINTS
ONLY FAMILY THAT DIRECT REGESTERS
ALL OTHER ANIMALS INDIRECT REGESTER

HOUSE CAT (FERAL)
ALL FOUR TOES ARE THE SAME SIZE
MOUNTAN LION - SAME SIZE
BOB CAT - INNER TOW TOES ARE SMALLER
LYNKs - INNER TWO TOES ARE LARGER
HEAL PADS ARE VERY ROUND

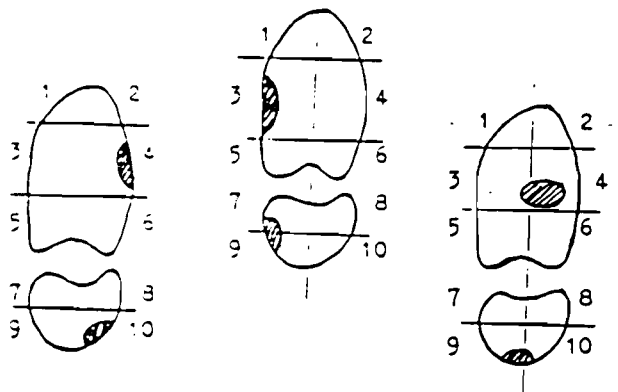
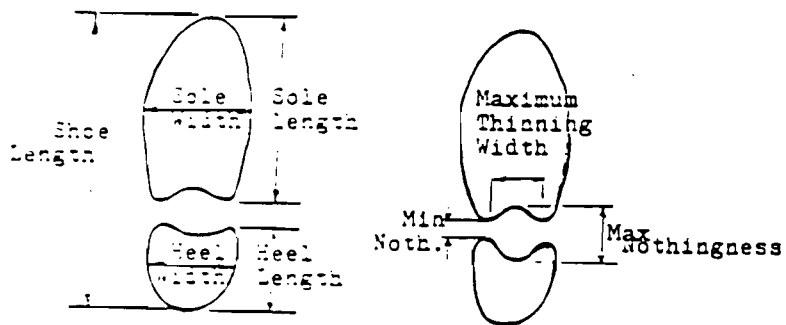
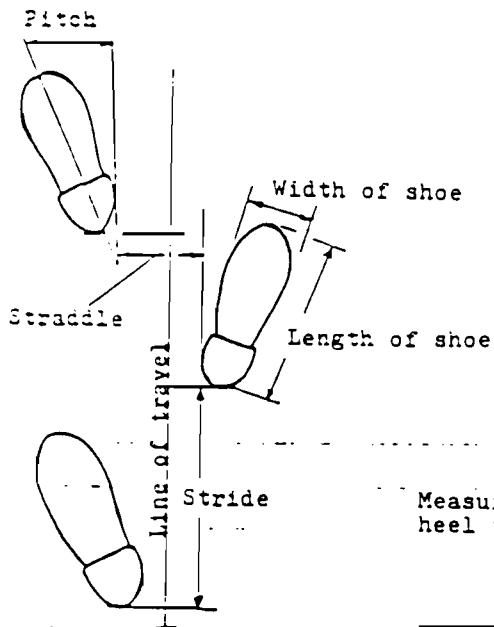
4 TOES FRONT + 4 TOES REAR + CLAW MARKS = DOG
WOLVES, COYOTE, AND FOX
TEAR DROP OVERALL FOOTPRINT
FRONT IS 1/4 LARGER THAN REAR
CLAW MARKS ARE ALWAYS VISABLE
FOX - DIRECT REGESTERS
FOXES AND WOLVES - TOES ARE THE SAME SIZE
COYOTE - INNER TWO TOES ARE SMALLER
DOG - INNER TWO TOES ARE LARGER

5 TOES FRONT + 5 TOES REAR + CLAW MARKS = WEASEL
WOLVERINE, SKUNKS, OTTERS, BADGER, PINE MARTEN, AND FISHER
PAD WALKERS

5 TOES FRONT + 5 TOES REAR + CLAW MARKS + HUMAN LIKE SHAPE
OPOSSUM, RACCOON, AND BEAR
FLAT AND LARGE

4 TOES FRONT + 5 TOES REAR + CLAW MARKS = RODENT
MICE, RATS, PORKUPINE, BEAVER, MUSKRAT, SQUIRREL,
AND GROUNDHOGS.
BEAVER AND MUSKRATS WILL REGESTER 4 + 5 BUT WILL
SOMETIMES REGESTER 5 + 5 IN SOFT DIRT

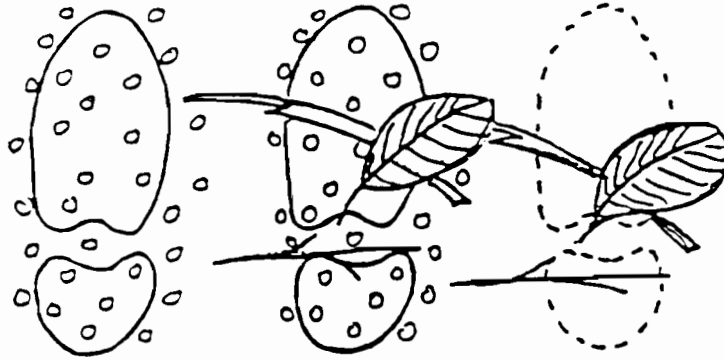
4 TOES FRONT + 4 TOES REAR (REAR MUCH LARGER THAN FRONT)
RABBIT AND HARE



Weathering



Monday
Fresh

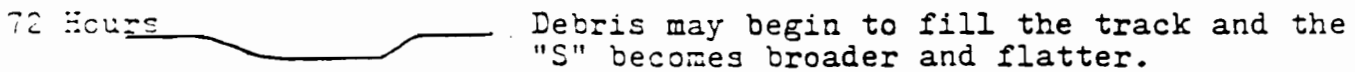
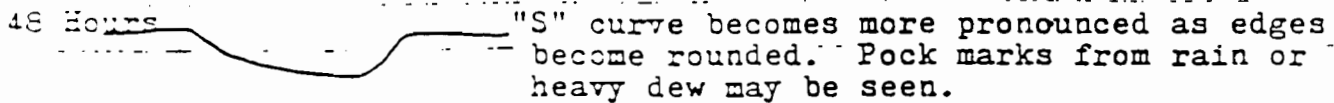
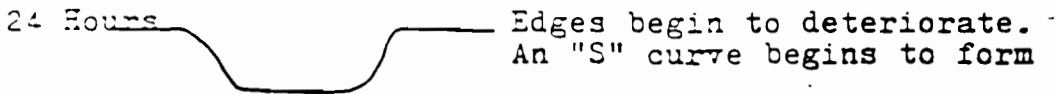
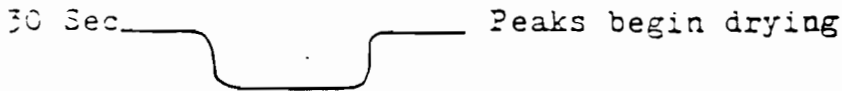


Tuesday
Rain pock
marks

Wednesday
Wind debris

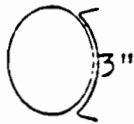
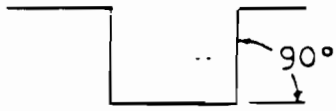
Thursday
Sunny, top of
leaves dry.
Print is very light

PEAK Deterioration

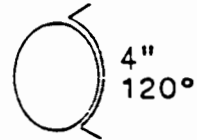


Wind deterioration may be slowed by an obstruction
next to the print such as a log or rock.

Cliff

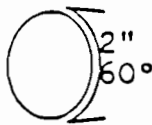
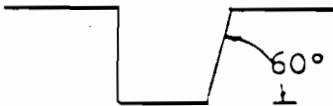


Overhang



Sudden stop or sidestep

Slope



Where foot came in or out, front or back Side-Sharp turn or sidestep or lean

Rounded Slope



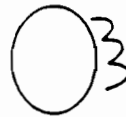
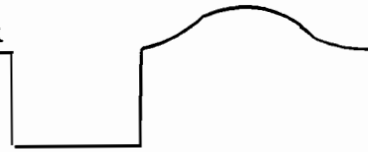
Turn or old track

Dome



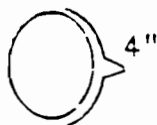
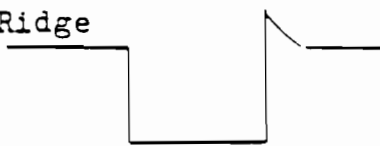
Behind print- result of a sudden pushoff (jump)

Mound



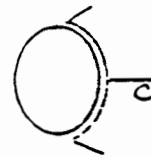
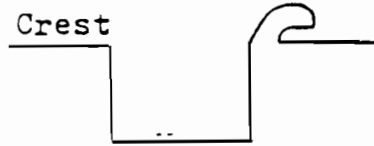
Twist or turn

Ridge



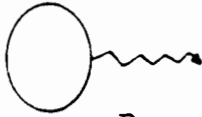
Caused by pressure exerted to one side, as in a turn

Crest



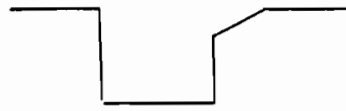
Caused by sharp turn to one side, or a lot of pressure against front wall

Crevasse



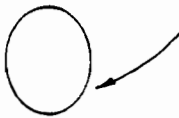
Sharp impact during a run, sudden stop, or twisting turn
Pressure pulled away from the wall violently

Gouge



Drag mark at front or back indicating heavy weight, fatigue, injury or high speed

Slide



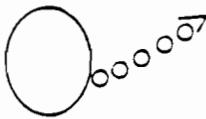
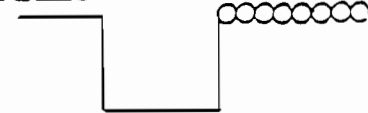
Gouge mark made by an intentional skid (Trying to stop from a fast run)

crumbling



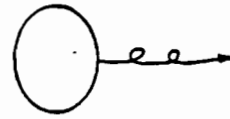
A crevasse under even more stress

Plume



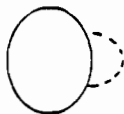
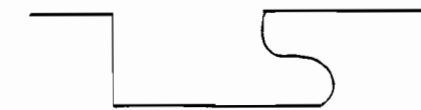
Dirt spreading out from the track.
In front-Fast Gait
Behind-Rapid acceleration
All around-Sudden Pivot

Slip



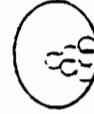
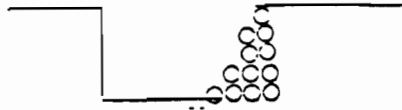
Unintentional skid in mud etc.

Cave

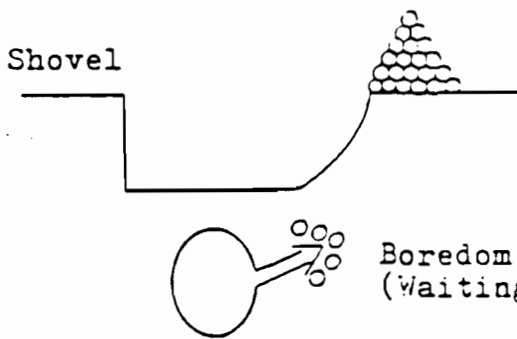


Sudden stop or a jump to one side.

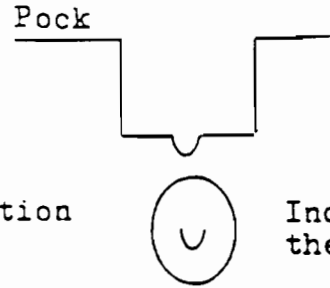
Cave In



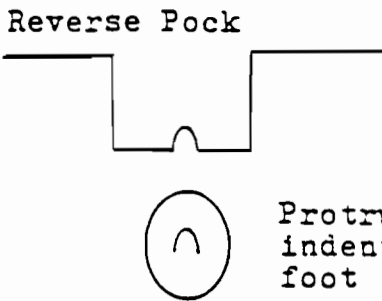
Violent Impact such as kick



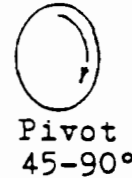
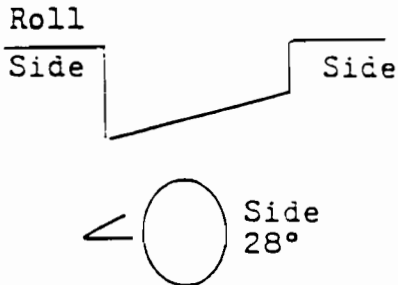
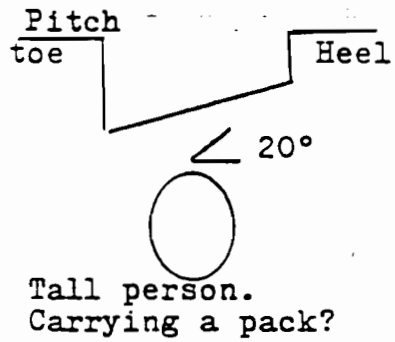
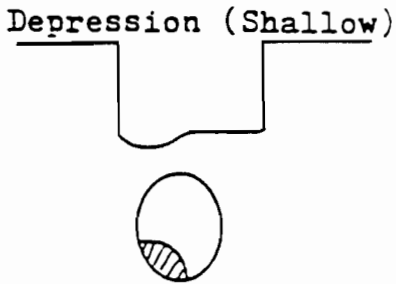
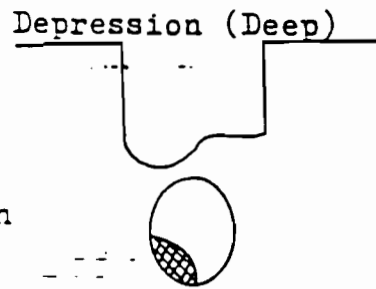
Boredom or frustration
(Waiting)

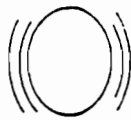


Indentation within
the track. (Cleats)



Protrusion caused by an
indentation in shoe or
foot

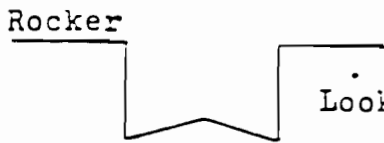




Repeated sideways movement. Loss of balance, indecision, or hesitation. Looking side to side



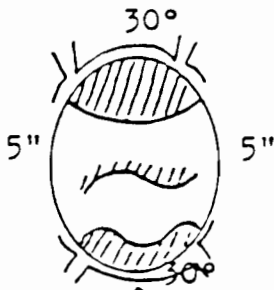
Extreme anxiety, fear, or excitement.



Looking up and down

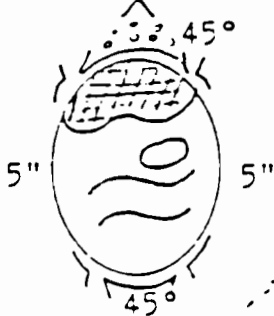


extreme indecision with force-stomping "Fred Astair"



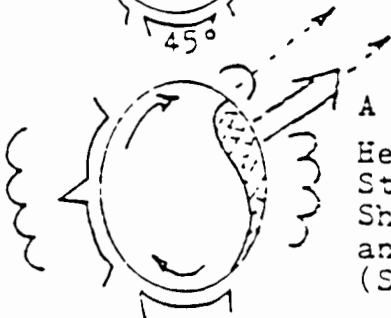
Normal walking step

Heel came in at a 30° angle, toe was lifted out at a 30° angle, single wave.



A very fast walk

Greater angles of entry and exit. Clipping shows no turns, double wave, a disk, and a deep toe pushoff.



A twisting turn to the right

Heel came in at a 20° angle, slow speed, no wave. Stopped momentarily, sharp twist to the right. Shift of weight to right front of foot. Gouge and plume indicate the next step taken rapidly. (Sudden decision)

WINTER CAMPING Checklist

By Donald H. Swanson, Program Services



Planning a winter camp? The following equipment checklist should facilitate preparations for your camp.

WHAT TO WEAR

The key to keeping warm is to wear several layers of loose-fitting clothing, avoid overheating and keep out the wind.

Underwear

Flannelette pyjamas are the best type of underwear as they are loose fitting and provide air space.

Shirt

Wool or flannel are ideal.

Sweater

A pullover or cardigan style, worn over the shirt.

Parka

This should be windproof and long enough to protect the kidneys from the cold. A drawstring at the waist helps to control body temperature. Loosening the drawstring allows air to circulate more freely.

Slacks

Wool trousers or wind-and-water-repellent ski slacks, tucked into the tops of the footwear.

A change of slacks should be carried in the pack.

Socks

Two pairs of woollen socks should be worn. The outer pair should be a half-size larger.

Two EXTRA pairs of socks in the pack.

Footwear

Selection of footwear must take into account the weather, temperature, nature of the country and method of travel.

Your choice should allow room for the two pairs of socks. Tight footwear leads to cold feet and increases the chance of frostbite.

A good combination for those who don't own moc-casins, larrigans or high-cut boots is a pair of over-shoes worn over running shoes.

Headwear

It's a good idea to wear a tuque or ski cap under the parka hood.

Mitts

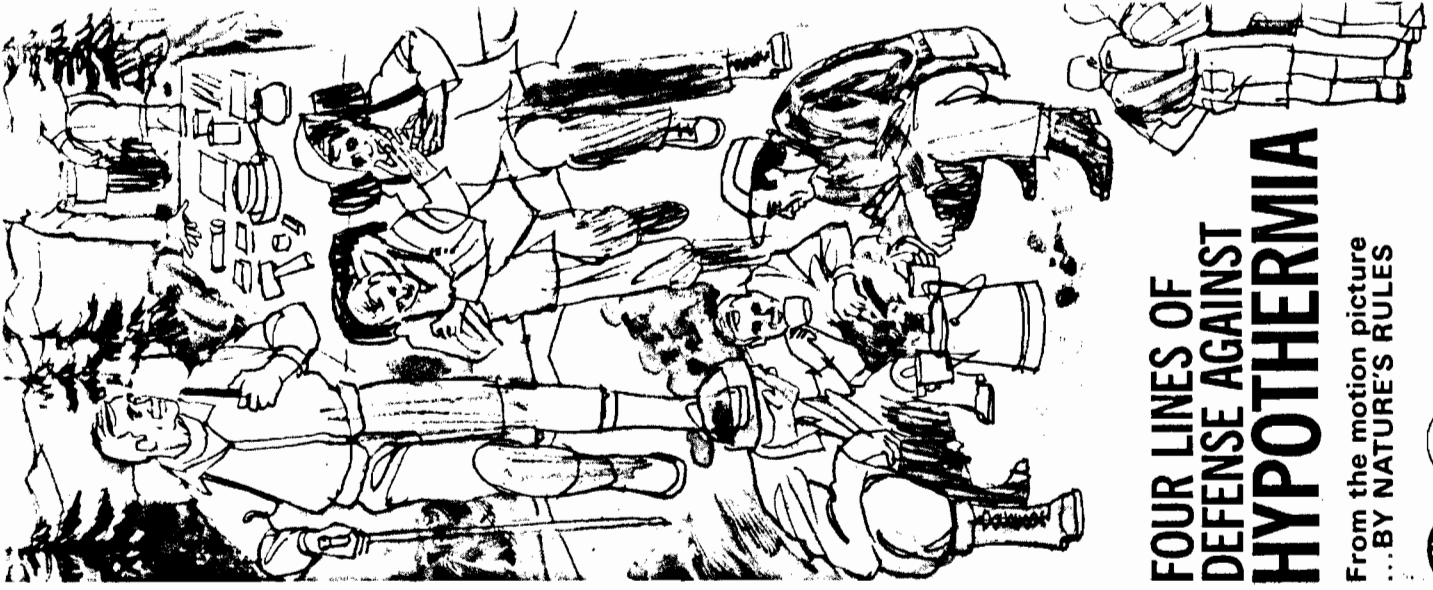
Woollen mittens with a pair of water-repellent over-mitts are best. Gloves are an invitation to frozen fingers.

A pair of lined gloves can be useful in camp for doing camp chores.

Sunglasses

Eyesight should be protected from the glare of the sun on the snow. Polarized or amber-coloured sunglasses or ski goggles provide good protection. An excellent project would be making a pair of Eskimo snow goggles.





FOUR LINES OF DEFENSE AGAINST HYPOTHERMIA

From the motion picture
...BY NATURE'S RULES



A public service of SAFECO Insurance Companies

NOTES ON EQUIPMENT

Choose rainclothes that are proof against wind-driven rain and cover head, neck, body, and legs. Polyurethane coated nylon is best. The coatings won't last forever. Inspect carefully and test under a cold shower before you leave home. Ponchos are poor protection in wind.

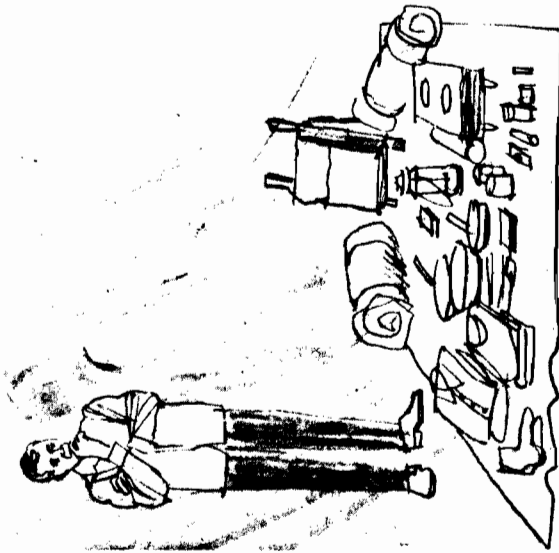
Take woolen clothing for hypothermia weather: 2-piece woolen underwear... or... long wool pants and sweater or shirt. Include a knit cap that can protect neck and chin. Cotton underwear is worse than useless when wet.

A stormproof tent gives best shelter. Take plastic sheeting and nylon twine for rigging additional foul-weather shelter.

Carry trail food... nuts, jerky, and candy... and keep nibbling during hypothermia weather.

Take a gas stove or a plumber's candle, flammable paste, or other reliable firestarter.

- **DON'T WAIT FOR AN EMERGENCY. USE THESE ITEMS TO AVOID OR MINIMIZE EXPOSURE.**



The film

BY NATURE'S RULES

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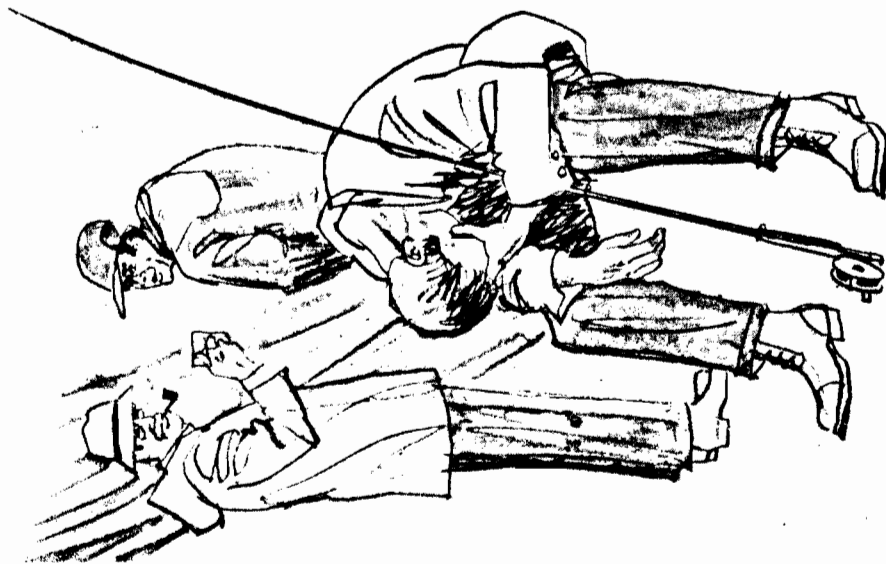
THINK HYPOTHERMIA

If you are outdoors for recreation, you presumably do not intend to jeopardize your life.

Hypothermia may be a new word to you, but it's the *only* word that describes the rapid, progressive mental and physical collapse accompanying the chilling of the inner core of the human body.

Hypothermia is caused by exposure to cold, aggravated by wet, wind, and exhaustion. It is the #1 killer of outdoor recreationists.

- TAKE HEED OF "HYPOTHERMIA WEATHER."
- WATCH CAREFULLY FOR WARNING SYMPTOMS.
- CHOOSE EQUIPMENT WITH HYPOTHERMIA IN MIND.
- THINK HYPOTHERMIA.



COLD KILL..... IN TWO DISTINCT STEPS

STEP ONE: EXPOSURE AND EXHAUSTION

The moment your body begins to *lose heat* faster than it produces it, you are under-going exposure. Two things happen:

1. You voluntarily *exercise to stay warm*.
 2. Your body makes involuntary adjustments to preserve *normal temperature in the vital organs*.
- Either response drains your energy reserves. The only way to stop the drain is to reduce the degree of exposure.....

● THE TIME TO PREVENT HYPOTHERMIA IS DURING THE PERIOD OF EXPOSURE AND GRADUAL EXHAUSTION.

STEP TWO: HYPOTHERMIA

If exposure continues until your energy reserves are exhausted:

1. Cold reaches the brain depriving you of judgment and reasoning power. *You will not realize this is happening*.
2. You will lose control of your hands.

This is hypothermia. Your internal temperature is sliding downward. Without treatment, this slide leads to stupor, collapse, and death.

YOUR FIRST LINE OF DEFENSE: AVOID EXPOSURE

1. **STAY DRY.** When clothes get wet, they lose about 90% of their insulating value. Wool loses less; cotton, down, and synthetics lose more.
2. **BEWARE THE WIND.** A slight breeze carries heat away from bare skin much faster than still air. Wind drives cold air under and through clothing. *Wind refrigerates wet clothes* by evaporating moisture from the surface. **WIND MULTIPLIES THE PROBLEMS OF STAYING DRY.**
3. **UNDERSTAND COLD.** Most hypothermia cases develop in air temperatures between 30 and 50 degrees. Most outdoorsmen simply can't believe such temperatures can be dangerous. They fatally underestimate the danger of being wet at such temperatures.
 - 50 degree water is unbearably cold. The cold that kills is *cold water* running down neck and legs, *cold water* held against the body by sopping clothes, *cold water* flushing body heat from the surface of the clothes.



● DON'T ASK, "HOW COLD IS THE AIR?" ASK INSTEAD, "HOW COLD IS THE WATER AGAINST MY BODY?"

4. **USE YOUR CLOTHES.** Put on raingear *before* you get wet. Put on wool clothes *before* you start shivering.

YOUR SECOND LINE OF DEFENSE: TERMINATE EXPOSURE

If you cannot stay dry and warm under existing weather conditions, using the clothes you have with you, *terminate exposure*.

1. **BE BRAVE ENOUGH TO GIVE UP REACHING THE PEAK OR GETTING THE FISH OR WHAT-EVER YOU HAD IN MIND.**
2. Get out of the *wind and rain*. Build a fire. Concentrate on making your camp or bivouac as secure and comfortable as possible.

NEVER IGNORE SHIVERING

Persistent or violent shivering is clear warning that you are on the verge of hypothermia. **MAKE CAMP.**

FORESTALL EXHAUSTION

Make camp while you still have a reserve of energy. Allow for the fact that exposure greatly reduces your normal endurance.

You may think you are doing fine when the fact that you are exercising is the only thing preventing your going into hypothermia. If exhaustion forces you to stop, however briefly:

1. Your rate of body heat production instantly drops by 50% or more.
2. Violent, incapacitating shivering may begin immediately.
3. You may slip into hypothermia in a matter of minutes.

APPOINT A FOUL-WEATHER LEADER

Make the best-protected member of your party responsible for calling a halt before the least protected member becomes exhausted or goes into violent shivering.

YOUR THIRD LINE OF DEFENSE: DETECT HYPOTHERMIA

If your party is exposed to wind, cold, and wet, **THINK HYPOTHERMIA.** Watch yourself and others for symptoms.

1. Uncontrollable fits of shivering.
2. Vague, slow, slurred speech.
3. Memory lapses. Incoherence.
4. Immobility, fumbling hands.
5. Frequent stumbling. Lurching gait.
6. Drowsiness (to sleep is to die.)
7. Apparent exhaustion. Inability to get up after a rest.

YOUR FOURTH AND LAST LINE OF DEFENSE: TREATMENT

The victim may deny he's in trouble. Believe the symptoms, not the patient. Even mild symptoms demand immediate, drastic treatment.

1. Get the victim out of the wind and rain.
2. Strip off *all* wet clothes.
3. If the patient is only mildly impaired:
 - a. Give him warm drinks.
 - b. Get him into dry clothes and a warm sleeping bag. Well-wrapped, warm (not hot) rocks or canteens will hasten recovery.
4. If the patient is semi-conscious or worse:
 - a. Try to keep him awake. Give warm drinks.
 - b. Leave him stripped. Put him in a sleeping bag with another person (also stripped). If you have a double bag, put the victim between two warm donors. *Skin to skin contact* is the most effective treatment.
5. Build a fire to warm the camp.

Rules of Survival

1. Tell someone where you are going and when you expect to return.
2. Prepare for the worst and hope for the best. Be mentally prepared, and admit to yourself, "It can happen to me".
3. If by fate you have been placed in a survival situation stay put and wait for rescue.
4. Start collecting firewood and start a fire.
5. Get out of the wind and wetness by constructing a shelter of some kind.
6. Keep full control over your mind. Don't let fear and panic get the better of you. If you feel that the fear is getting at you sit down and think the situation over. If that will not help hug a tree and scream and you will realise how silly you look and this thought will quickly bring you back to normal thinking again.
7. Do not worry about food. You can live for 30 days or more without food, if you allow your body to break down its stored fats into a usable form of energy.
8. Do not ration water. Remember that you need a quart of water every day. Never consider water safe to drink without purification.
9. Cancel and reschedule a trip if the weather is bad.
10. Practice energy conservation. An old survival rule says, "Never stand when you can sit down, never sit down when you can lie down".

Energy Conservation

Energy conservation plays a major role in keeping the body warm. Loss of body heat leads to mental and physical inefficiency which can lead to death. Always keep the following points in mind.

1. Wear proper clothing suited for season and area where you intend to carry out your activity. Always wear a hat.
2. Always carry emergency spare gear. Spare socks, sweater, etc.
3. Always provide adequate insulation between you and the ground.
4. Always try to get a comfortable sleep whenever possible.
5. Don't let fear consume vital energy.
6. Always perform the most important tasks first.
7. Always carefully weigh all activities on your energy scale before you execute them. Take a close look if the activity is worth performing in regard to the energy loss you will experience.

Individual Demands on the Survivor

1. A person must have the ability to make up his mind and stick to it.
2. Imagination and ability to improvise are a great benefit.
3. Be able to live with yourself and accept loneliness.
4. Keep cool and collected at all times.
5. An infinite amount of patience is a must in all cases.

When You Enter The Woods

Always Carry With You:

1. **MATCHES** . . . in a waterproof container, sealed, for use in an emergency situation. It is recommended that you carry at least two containers . . . one on your person and one in your pack. The matches should be of "strike anywhere" type.
2. **KNIFE OR AXE** . . . a good strong jackknife or a hunting knife with a 4 to 6 inch thick strong blade with blade guard. Best of all, a small axe or hatchet with a strong blade guard.
3. **SURVIVAL KIT** . . . a small survival kit weighing less than 2 pounds, containing food and drinks for 10 days.
4. **MEDICAL KIT** . . . a small medical kit containing bandage and band-aids, sterile compresses, insect repellants, safety pins, etc.
5. **MAP AND COMPASS** . . . a detailed map of the area you are entering and a reliable compass is a must.
6. **OPTIONAL EQUIPMENT** . . . sun glasses, in winter time - snow glasses, mosquito head net, sheet of heavy plastic or a rain cape - for use as a shelter, candles, canned heat or fire tablets, etc. The number of items that could be listed under optional equipment is almost unlimited, and is left up to you to decide what you like to carry.

What To Do If Lost Or In A Case Of Emergency

1. **STAY PUT** . . . if you are not absolutely sure of the way out or if it is getting late in the day. Remember, if you told someone where you were going and when expected back out, someone will start looking for you, real soon.
2. **EVALUATE THE SURROUNDING AREA . . .** is it suitable for a shelter? Can you collect enough fire wood? Do you have an open spot for your signal fires? Remember, CAF Search and Rescue organization have aircrafts and highly trained personnel on a 24-hour standby alert. Also remember, 3 fires is the international distress code. Build them in a triangle about 60 feet apart.

3. **COLLECT WOOD AND START A FIRE . . .** as soon as you can. Remember to collect three times the amount of fire wood you think you need. Make a reflector to reflect the heat toward your camp. Standing dead trees are the best fire wood. Scrape away the snow on the ground or build your fire on a platform of green wood. Dry, dead spruce twigs on the lower part of a tree makes good tinder. The underlayers of the birch bark is an excellent fire starter in wet weather.

swap shop

All Weather Fire Lighter

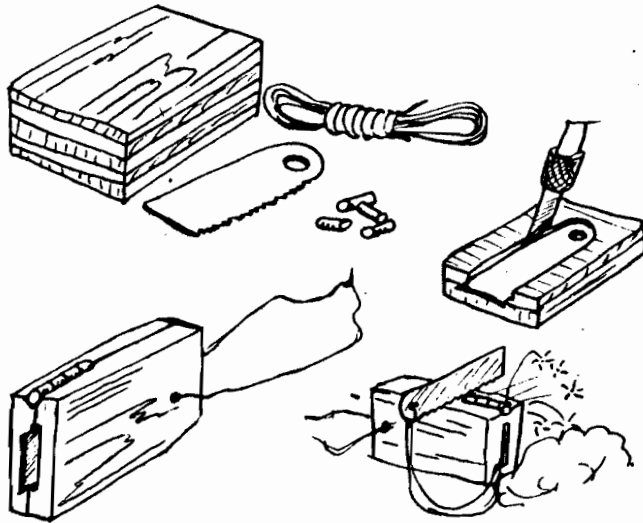
by Jim Lloyd

Scouts can make this craft in one evening if you use the Court of Honour before, or they can do it over two or three weeks. I wouldn't take any longer as they will get bored.

My guys had lots of fun doing it. My thanks to Glenn Barned, the New Brunswick field executive who came to troop night to show us how it worked because Scouter (me) couldn't get it to light anything. The cotton ball was the trick!

MATERIALS

- one small block $\frac{1}{2}$ " plywood $3" \times 1\frac{1}{2}"$
- one small piece broken hack-saw blade
- 24" string or leather lacing
- 4 small flints like those used in Coleman stove lighters



Cut the plywood in half and, in one half, carve out a section that the hacksaw blade will fit into. Keep it a loose fit.

Drill a $\frac{1}{8}$ " hole through the block to line up with the hole in the blade.

Glue together the two halves of plywood.

Cut a notch into one side of the block and glue in the four flints.

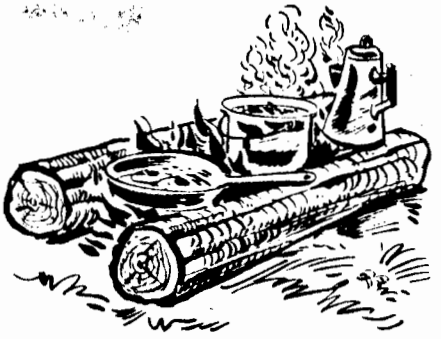
With the blade fitted inside, run string or lace through the hole in the block. You can now sand and paint the starter if you want. We left it rough. You pull the blade out to use; pull the string to retract the blade.

TO START A FIRE

Fluff up a cotton ball (have boys carry these in their personal first aid kits). Hold the starter over the cotton and strike the flint with the blade. Bingo!

Boys can carry the starter around the neck at camp and use it to meet their B.P. Woodsman requirements.

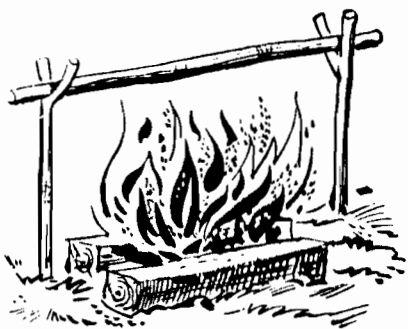
Trappers Fire



TRAPPER FIREPLACE

The main purpose of this fire is cooking.
Put two large green logs together close enough to support pots over the fire.
Use the teepee fire lay to start the fire.
Keep the fire away from trees and brush for safety.

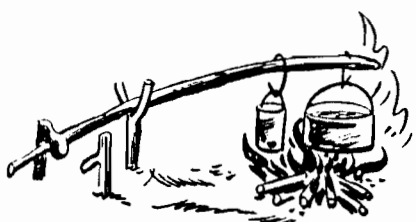
Hunters Fire



HUNTERS FIRE

The Hunters Fire is basically the same as the Trappers except that it has a pole resting on forked sticks across the fire, this is handy for hanging pots over fire and drying clothes. Standard safety precautions apply.

Crane



CRANE FIREPLACE

A quick fire for one meal when hiking.

TYPES OF WINTER FIRES

Building a quick fire

Depending on the area, if the snow is deep, use green logs as a base. If snow is not too deep you can kick snow aside, and build fire on the ground

Next get a good supply of tinder. Birch bark makes an excellent starter as it will flame even when wet. Dead leaves and dry grass are also good tinder. Find a good supply of small dead twigs from living trees. Build a teepee fire using progressively bigger sticks. Be sure to have enough wood on hand for the length of fire you need. Be sure your fire has good draft. Do not build your fire under a tree as it may catch fire or melting snow may drown your fire.



TEEPEE
FIRE

Reflector Fire



REFLECTOR TYPE FIREPLACE

Begin with greenlogs using as many as necessary for size of fire. Use the Teepee Fire lay to start your fire. Once fire is going use hardwoods as they burn longer and better. Poplar is a good wood for the back wall of the reflector as it does not burn well. Keep fire two to three feet from shelter for safety. Note, a reflector can be used for cooking by using a crane to hold pots.

Take Inventory

After your signal fires have been built and are ready to light, your fire and shelter is complete, you should spend some time taking a complete inventory of everything around you and everything in your possession. See what useful purpose the different articles

On Your Person

Empty your pockets and by using your imagination try to figure out how your belongings can be used. For instance, spoons, keys and coins can be used for fishing lures and weights. Bits of colored cloth or plastic, even the silver paper in your empty cigarette pack, make excellent lures and flies. Safety pins or wire can be shaped and sharpened into fish hooks. Needles or wires, etc., can be sharpened on a stone.

Paper or cloth can be used for lighting fires or as a torch to carry from one fire to the next and in this manner, saving matches.

Birch bark or any other large pieces of bark can be used as shingles on your shelter, or can be fastened into snow glasses by cutting a narrow slit for the eyes.

Thread from clothing or unravelled wool can be used as a cord or fish line.

Magnifying glass in your compass, or just a pair of lenses from your eye glasses, taped together can start a fire.

Any shiny object, like the ends of beer cans or a piece of aluminum foil, can serve as a heliograph mirror to signal an aircraft.

Around Your Campsite

Try to fish in nearby streams and lakes with a bent pin as a hook or just shape a stick in both ends and tie a line in the middle. Use grasshoppers, worms, bugs or even small berries or roots as bait.

Look for signs of birds, rabbits, porcupines or other animals who can supplement your food diet.

All fish found in Canadian waters are edible.

All birds found in the Canadian forest are edible.

Porcupine, the survivors emergency meat, can often be spotted by chewed off bark on the tree trunks. Look for this animal up in the branches of trees. Never climb a tree to get him down, cut the tree down. On the ground the porcupine can easily be overtaken and with a blow on the snout with a stick, rendered unconscious and killed.

Do as the Indian does, sear the quills off over an open fire, but be careful to avoid injury from the quills.

BUGS, GRUBS AND ANTS . . . roasted on a piece of aluminum foil are edible and have a nutty flavour and are nourishing.

PREPARATION OF MEAT AND FISH . . . any meat and fish prepared in the wilderness should be cooked for at least 30 minutes per pound, and the cooking fluid consumed. (The cooking fluid holds all the minerals and vitamins removed by the boiling.) In cold weather eat plenty of fat to produce a lot of heat calories.

2ND ST. LUKE'S SURVIVAL KIT PART I

ITEMS

- WHISTLE
- FISHING LURE
- FISHING LINE - NYLON - 25 lb. test
- RAZOR BLADE
- WATERPROOF MATCHES
- Bouillon cubes or sugar cubes
- Compass
- Wire - 5-10 ft. - light & flexible for snares
- Adhesive tape - 1 inch wide & 12 inches long
- Pencil & paper for messages
- Aluminum foil - two sheets - 12 inches square
to make cooking & drinking utensils
- Halazone tablets to purify water
- Adhesive bandages
- Mirror

N.B. - THESE ITEMS FIT VERY NICELY IN A
TUPPERWARE SANDWICH CONTAINER OR SIMILAR
CONTAINER.

2ND ST. LUKES SURVIVAL KIT

PART II

ITEMS

- 1 triangular bandage for slings
- 1 shell dressing for applying pressure on a deep wound.
- 1 roll gauze bandage for dressing wounds.
- 1 tube antiseptic creme.
- a supply of large telfa adhesive pads.
- 1 space blanket for warmth or shelter
- 1 small pair swissers

N.B.

All this equipment can be kept and carried in an army gas mask case (bought at B; B surplus) or a small haversack.

Emergency Plants

ASPEN OR POPULAR TREE . . . the bast or the soft succulent layer, under the bark can be eaten as an emergency food and was often used by the Indians as such. Scrape off the succulent layer on the trunk, making sure that you don't get any of the wood, as the wood makes the porrage bitter. Boil in water and eat. Don't be surprised if it has a laxative effect on you.

WILD ROSE . . . some 35 or more varieties of wild roses are found on this continent, and they are all edible. The part we eat is the flowers in the early summer, and later the bright red fruits. The fruit or the "rose hip" has one of the richest vitamin contents of all our wild edibles. The juice is 25 times richer in vitamin C than orange juice. If you crush the stones you will release vitamin A and E.



SOME EDIBLE PLANTS

...and How to Eat Them

By Bruce Hopson

"What's for lunch?"

"Burdock stalks marinated in birch sap with a side order of dandelions."

"Yech."

Well, like caviar, it IS an acquired taste. Next time you want to go on a really lightweight, weekend camp or hike, leave the ground beef, potatoes and tinned-this-and-that at home, and feast on the profusion of wild plants, commonly referred to as weeds, which you will find in the bush, or even in your own backyard. You never know when the lowly weed may save your life. Then, paradoxically, they are no longer weeds.

There are literally thousands of species of edible plants in this country and no attempt will be made within the confines of these pages to list them. Rather, I would like to share with you some of the plants I have tried and enjoyed.

1. CAT-TAILS offer a year-round source of food, and all parts of the plant can be eaten in one form or another. It will be found in most marshy places, often in roadside ditches. Here are some things you can try.

Take the inner stalks, clean them in water and boil them in salted water. They are something like asparagus. You can also add them to that ordinary, bland, tinned stew which often crops up at camp, to produce a rather more succulent meal. For a breakfast, take the roots, scrape and clean them with your knife and cut them into itty-bitty-size chunks. Put them in a pot with some water and boil until they acquire a thick, porridge-like consistency. It's not quite like "Good Olde Porridge," but then, nothing is, is it?

The pollen which forms that brown cigar-shaped clump at the top of the stem is delicious. You can eat it raw or grind it between two stones into a flour. To gather the pollen, hold the flower spike over a pot and give it a few sharp knocks with a spoon or your hand. The pollen will fall off into the pot. You can make a "damper" with cat-tail-flower flour by assembling 40 parts ground pollen with one part salt, one part baking powder and 12 parts of water. Mix it all together with a knife and then work it with your hands, quickly and lightly, or the dough will not rise. Pull off portions of dough about egg size and, between your hands, mold a pancake about one-eighth of an inch thick. Put this onto a hot, dry stone and bake it in front of the fire. If you must, you may use an iron frying pan in place of the hot stone. The dough will rise to about an inch and will take about five minutes to cook. If it does not rise, you may rename the product "Cat-tail Crumpets" and eat them with hemlock tea, which you can make by steeping a handful of hemlock needles in a pot of hot water for about ten minutes. By the way, hemlock — the tree — is NOT poisonous.

The pollen also makes an excellent soup thickener for those who take dehydrated soups to camp. Cat-tails also make good torches because the pollen is very inflammable. In a pinch, you can use it for firefighting.



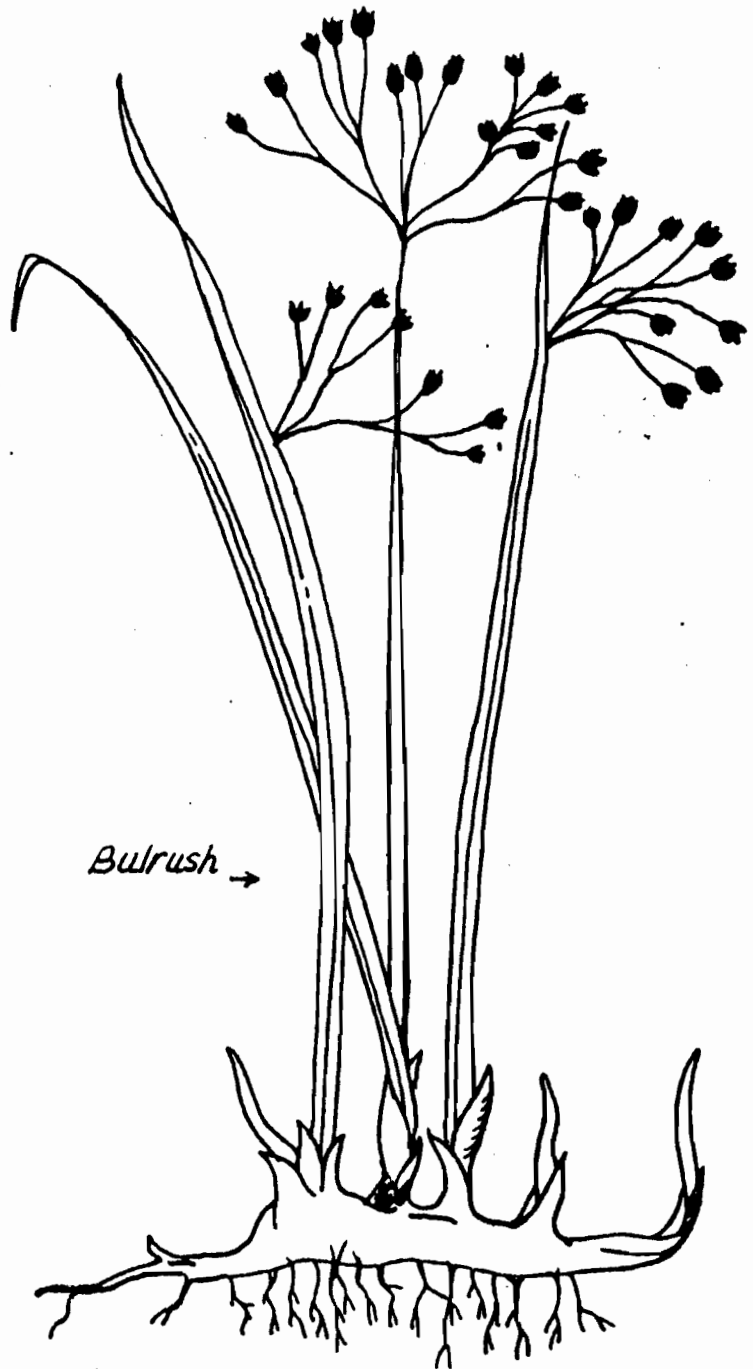
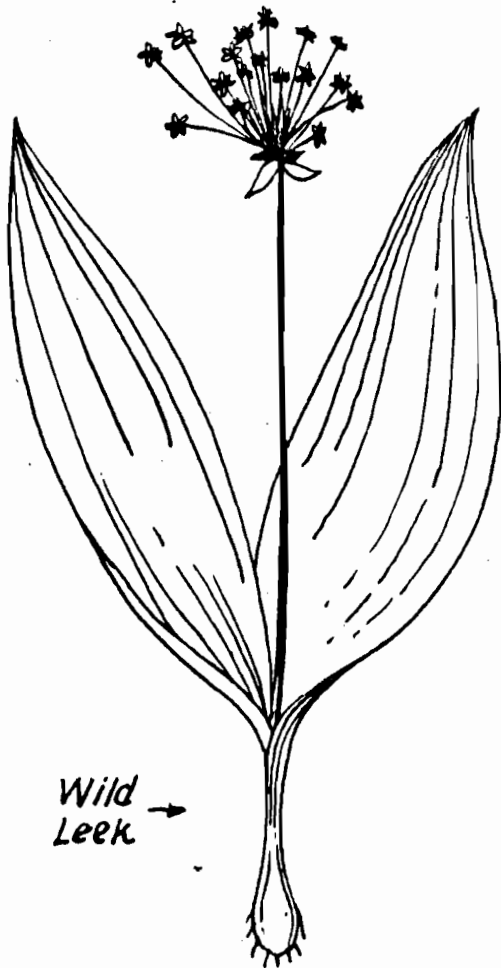
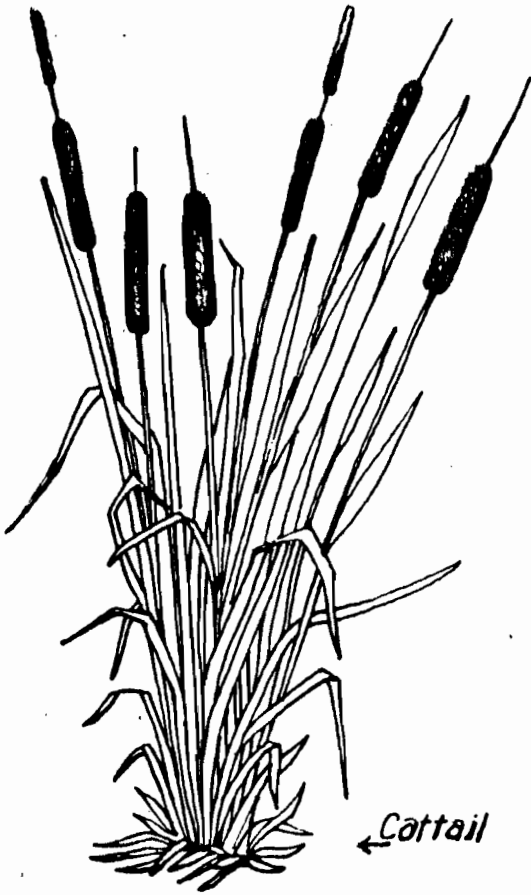
Wild Onion

2. **BULRUSH** is another year-round food found in marshes and around the margins of lakes and rivers. The tender new shoots found at the base of the stalks are excellent either raw or cooked.

You may roast the roots like potatoes. Clean them, wrap in foil or big basswood leaves and place them in hot coals for a couple of hours. Remember to remove the little root hairs; otherwise they get annoyingly stuck between the teeth. Hardwood slivers make good tooth-picks.

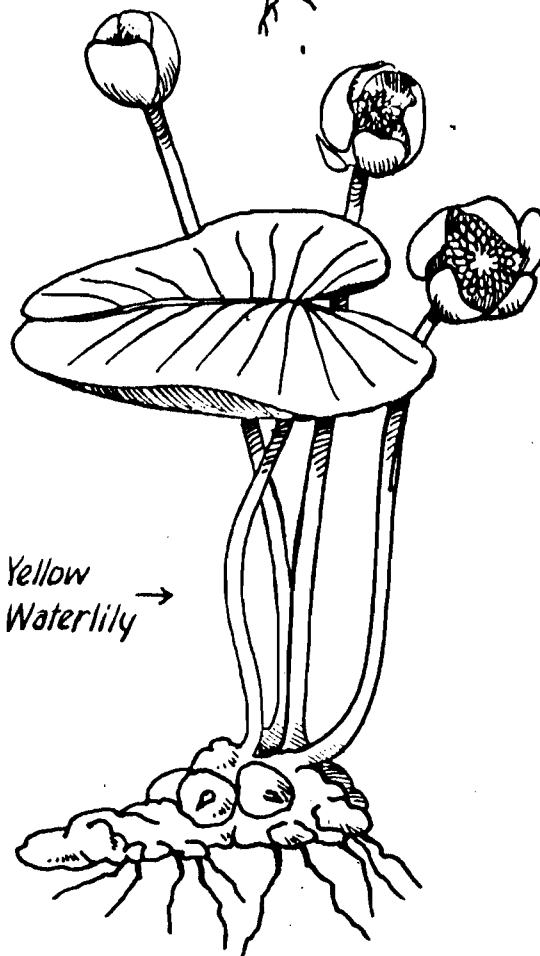
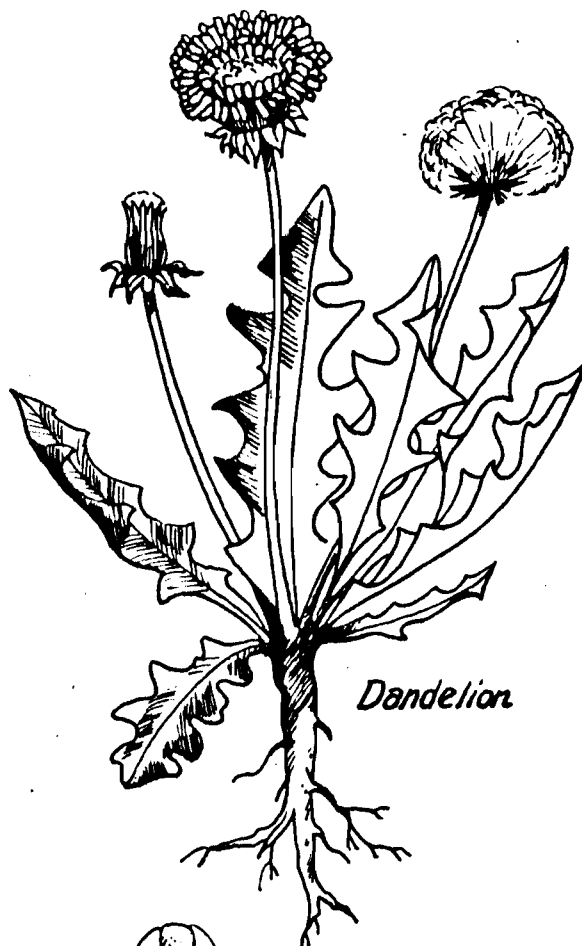
A lovely, sweet flour can be made by scraping the roots and drying them in the sun. Pound the roots into a flour and use it as a cat-tail-flour substitute.

3. **DANDELIONS** can be found everywhere and are delicious little pests. The young leaves can be eaten raw. Old leaves are quite bitter but you can boil the bitterness away and add them to stews or anything that requires



resurrecting from the realms of blandness. You can use the roots to make a coffee substitute. Dry and grind the roots between two stones and use a level teaspoon per cup of coffee.

4. **YELLOW WATERLILIES** — go out to the local marsh in your canoe and find some waterlilies. Yank them up from the water, roots and all. The roots are edible when boiled or roasted. The flavour may be quite strong but this can be remedied by changing the water while boiling. You may also scrape them thoroughly and bake them with meat, in foil or basswood leaves. By far the most enjoyable use of this plant is the luscious popcorn you can make from the seeds. Remove the seeds from the flower and put them in a pot with some fat. Cover the pot and put it close to the fire. Alternatively, wrap the seeds in foil. They will be ready in minutes and are absolutely scrumptious.



5. **THISTLES** are everywhere and plentiful. After the prickles have been removed from the leaves, they can be punched raw or cooked. The stems are covered with a tough skin but can be quite tasty after this has been peeled off. Cut the stems into pieces and boil in salted water.

6. **WILD ONION** — both the root and stem can be eaten and are very nutritious. My favourite recipe is for onion rings. Slice the onions about one-quarter of an inch thick and immerse them in ice-cold water to keep crisp. Grind some bulrush flour and take each onion ring, dip it in the flour and fry in a pan of hot fat. The flour gives the onion a sweet flavour. They can, of course, be eaten raw, added to stews and soups or boiled whole with thistle stems and cat-tail roots.

7. **WILD LEEKS** smell much like wild onions but are much stronger in flavour. The leaves are best added to a salad of dandelion and thistle leaves. The bulbous root can be used in any recipe calling for chopped garlic or onion. This plant is most easily found in the early spring just after the snow has gone. It grows densely in patches of moist, shady soil.

This is a mere smattering of the edible plants available in Canada. Concentration has been placed on plants rather than berries, nuts and seeds. Mushrooms have been omitted because they are in a realm of their own and choosing the right mushroom is somewhat of a skill. With leafy plants, very few are poisonous. When in doubt, test it by boiling and then placing a small amount in your mouth for a few minutes. If it tastes unpleasant or acrid, don't eat it.

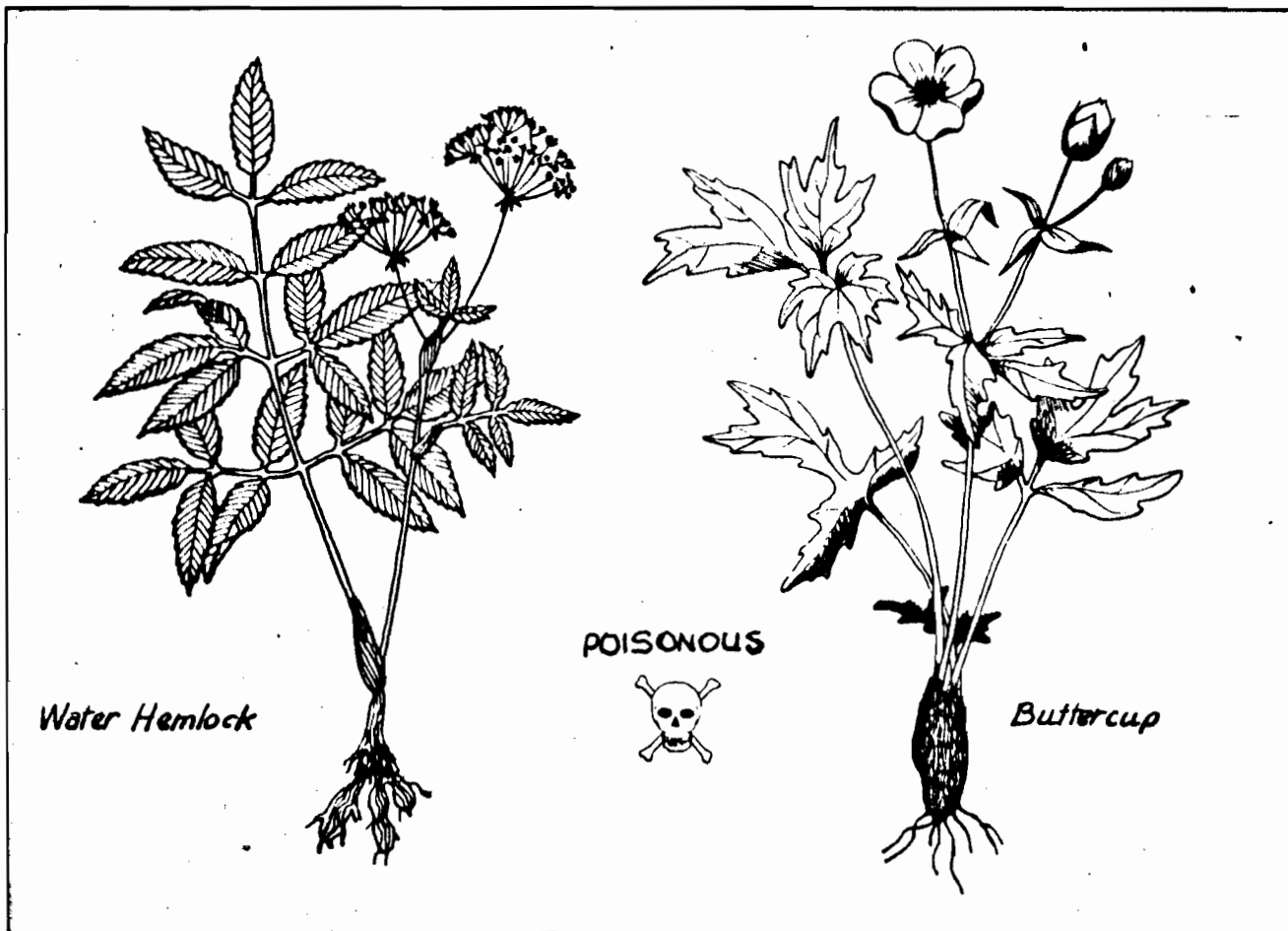
There are two common **poisonous plants** which merit some attention because of their profusion. First is the **buttercup** which contains a strong alkali that can severely inflame the digestive tract.

The second plant is the **water hemlock**, a most deadly and dangerous plant. There is no known antidote for the poison which is found throughout the plant. A quarter-inch piece of the root, which contains the highest concentration of the poison, is sufficient to kill a cow. The plant is a member of the parsnip family.

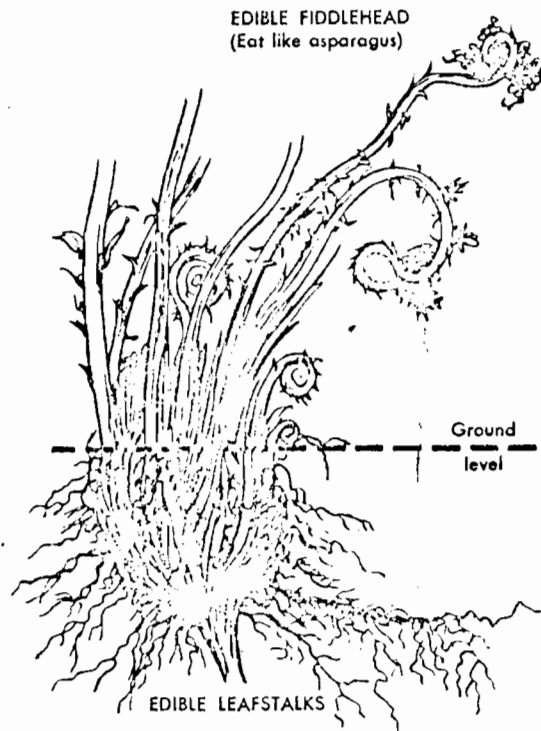
"Living off the land" is included as a requirement for both the Silver and Gold stages of the Campcraft Badge but, apart from knowing how to survive in an emergency situation, living off the land can become an integral part of your weekend expeditions and summer camps. It does not cost anything and it certainly provides an adventure in cookery and eatery.

Wild plants are also very good for you in terms of nutrition. For example, dandelions contain over 20 times the Vitamin A that is contained in a glass of tomato juice. Rose hips from the wild rose contain over 20 times the Vitamin C found in orange juice. The roots of most plants contain high amounts of carbohydrates and incomplete proteins in the starch which the roots store. You could live a long time on cat-tails and dandelions alone, although it might become a little boring.

If you are interested in pursuing the subject of edible plants, there is an excellent book on the market entitled *The Edible Wild* by Berndt Berglund and Clare Bolsby, published by Pagurian Press, 10 Whitney Avenue, Toronto 5, Ontario. This book provides a guide to over fifty wild plants, trees, mushrooms and shrubs found in Canada and there are many excellent recipes which can be used both in camp and in the home kitchen.



—Spreading Wood Fern (*Dryopteris spinulosa*)—



The spreading wood fern is a northern fern, especially abundant in the Alaskan and adjoining Siberian areas. This fern occurs in woodland areas and mountainous regions.

APPEARANCE. This fern sprouts from stout underground stems (rhizomes), which are covered with old leafstalk bases that resemble a bunch of small bananas.

WHAT TO EAT. Roast the OLD LEAFSTALKS from the underground stem, remove the shiny brown covering and eat the inner portion. Natives have used these ferns for centuries as a source of food.

The YOUNG FRONDS, or fiddleheads, may be collected in early spring and boiled or steamed and eaten like asparagus.

WHERE FOUND:

Temperate—Coniferous forest.

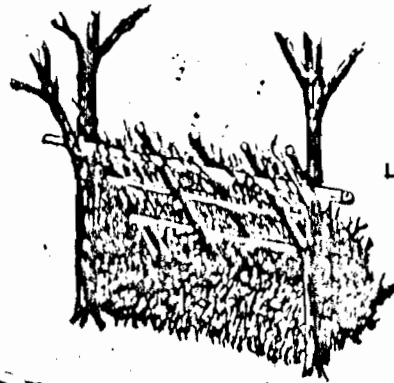
Temperate—Mountainous area (undifferentiated highland).

Building Shelters

Many different kinds of shelters can be erected. Shelters made out of natural material like the lean-to made out of evergreen branches as a roof and sides, or a snowshelter dug into the snow covered with either a sheet of plastic or evergreen boughs, or the typical Ojibwa Indian shelter which can be used both summer or winter. There are few things that will do as much for the morale as a good fire and a warm comfortable shelter, with a properly constructed mattress, to protect you from the cold on the ground.

Mattress Making

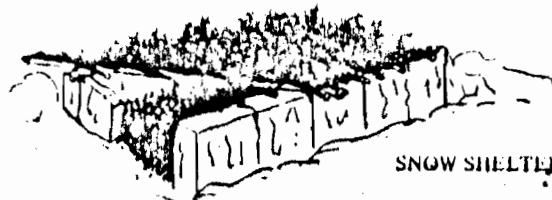
Remember if there is snow on the ground do not clear away all the snow in the shelter area. Leave 2 to 4 inches of snow on the ground as an insulation. Stick evergreen boughs with the butt end into the snow or in the ground at a 45° angle toward the rear of the shelter. Place the boughs in rows across the shelter and place the rows as close as you can. This will make an excellent spring mattress 6 to 8 inches thick, and you don't have to worry about replacement of the boughs for at least 15 to 20 days.



LEAN TO

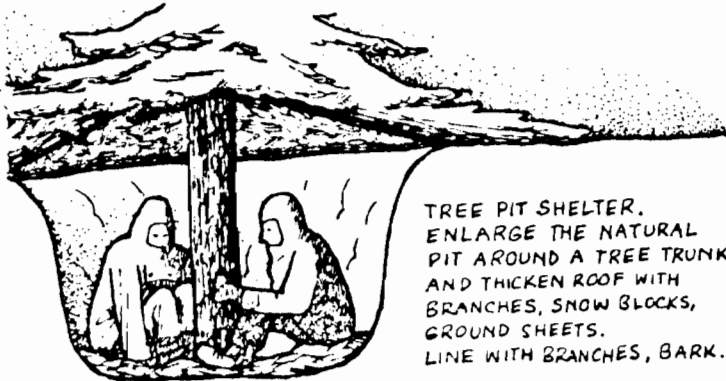


OJIBWA BENT TREE SHELTER



SNOW SHELTER

The fourth key to preventing hypothermia is to carry some form of "emergency shelter." A plastic tube tent or an aluminum rescue or space blanket can fulfill this key to prevention.



TREE PIT SHELTER.
ENLARGE THE NATURAL
PIT AROUND A TREE TRUNK
AND THICKEN ROOF WITH
BRANCHES, SNOW BLOCKS,
GROUND SHEETS.
LINE WITH BRANCHES, BARK.



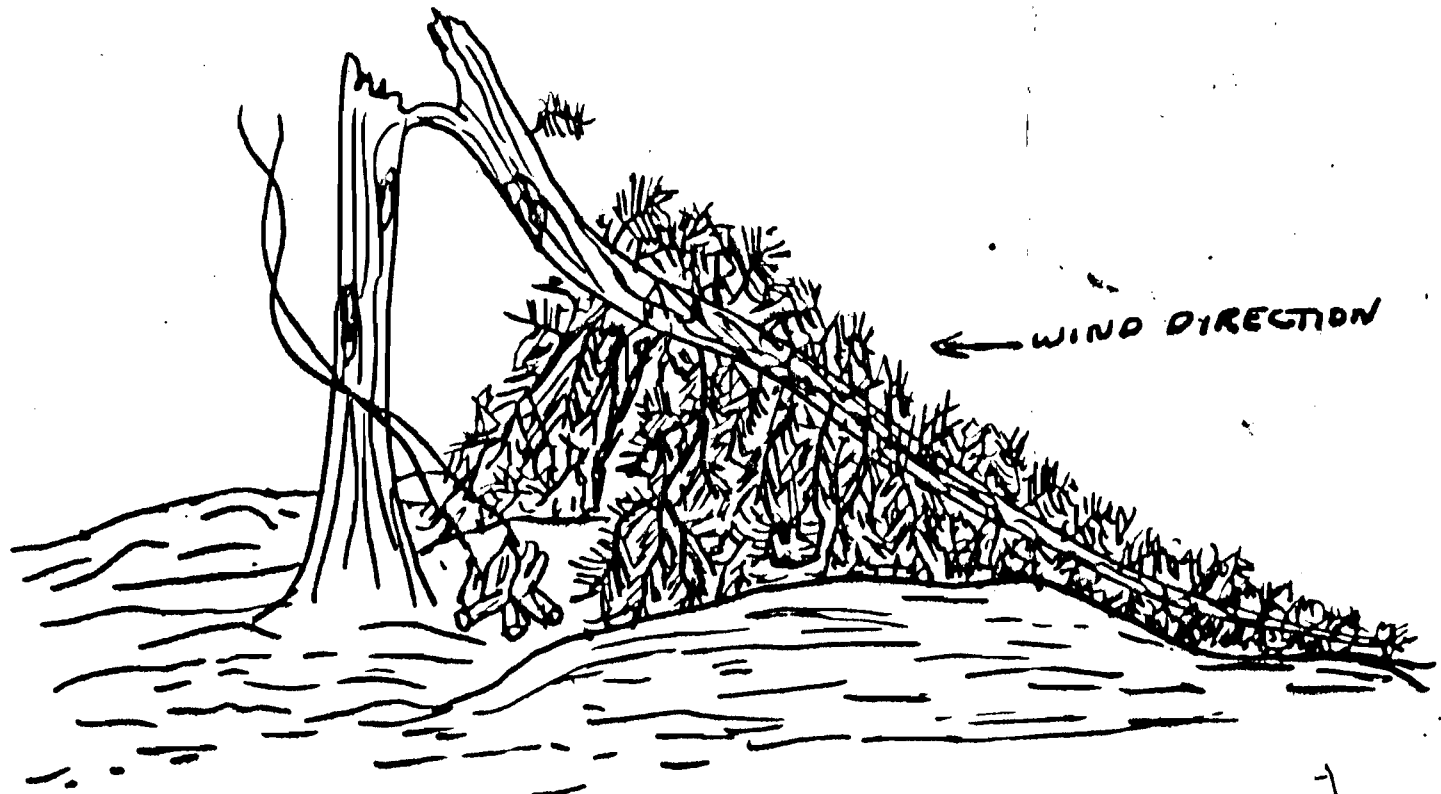
A SNOW BANK IS AN EXCELLENT
WINDBREAK. WHEN IN DANGER
OF FREEZING, DIG A HOLE IN THE
SNOW, LARGE ENOUGH SO THERE'S
AIR SPACE AROUND YOU



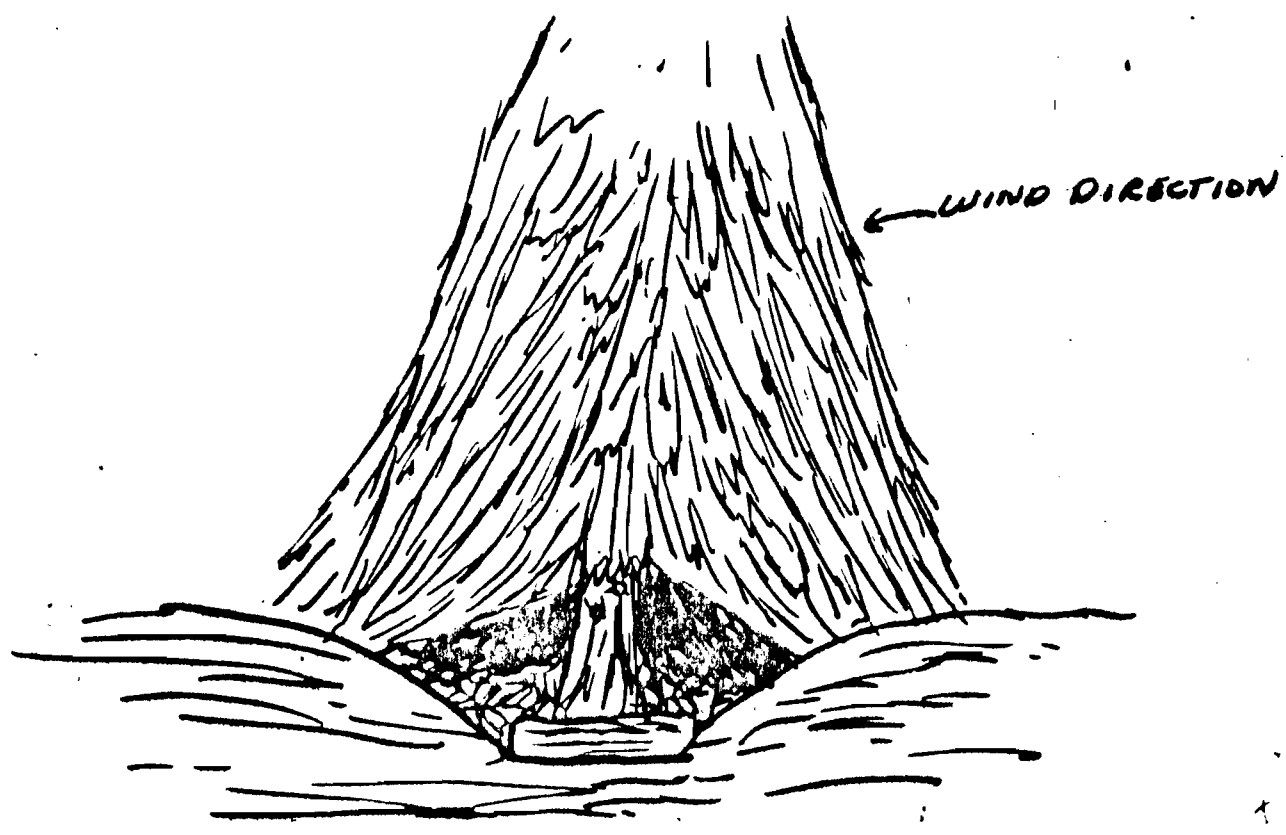
GET OUT OF THE WIND,
PUT ON SPARE CLOTHING,
SIT ON SOME INSULATION,
PUT FEET IN RUCKSACK,
TAKE ARMS OUT OF
ANORAK SLEEVES AND
PUT HANDS IN ARMPITS.
HUDDLE TOGETHER IF
MORE THAN ONE.

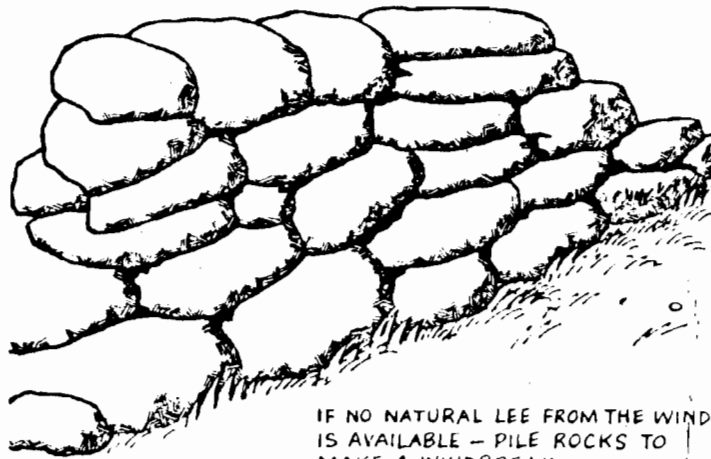
EMERGENCY BIVVY BAG
FOR SITTING OUT THE NIGHT.

FIGURE 12



NATURAL SHELTER





IF NO NATURAL LEE FROM THE WIND
IS AVAILABLE - PILE ROCKS TO
MAKE A WINDBREAK.
THIS CAN BE USED TO CONSTRUCT
A BIVOUAC USING A PLASTIC SHEET.

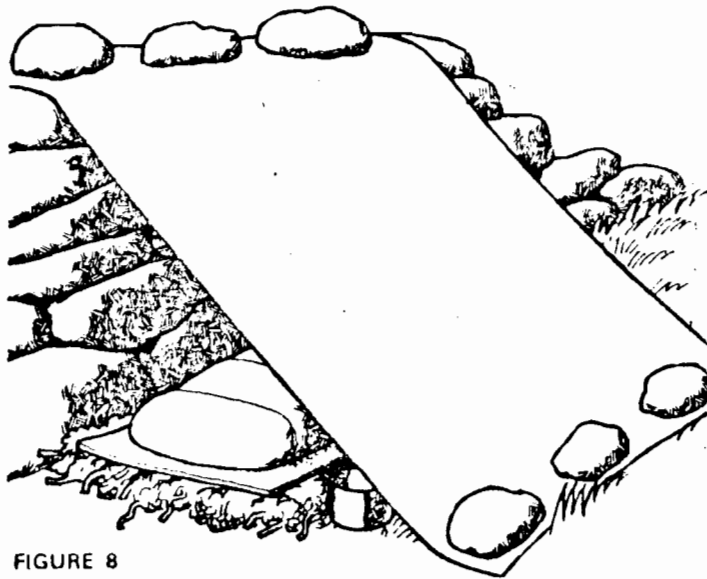
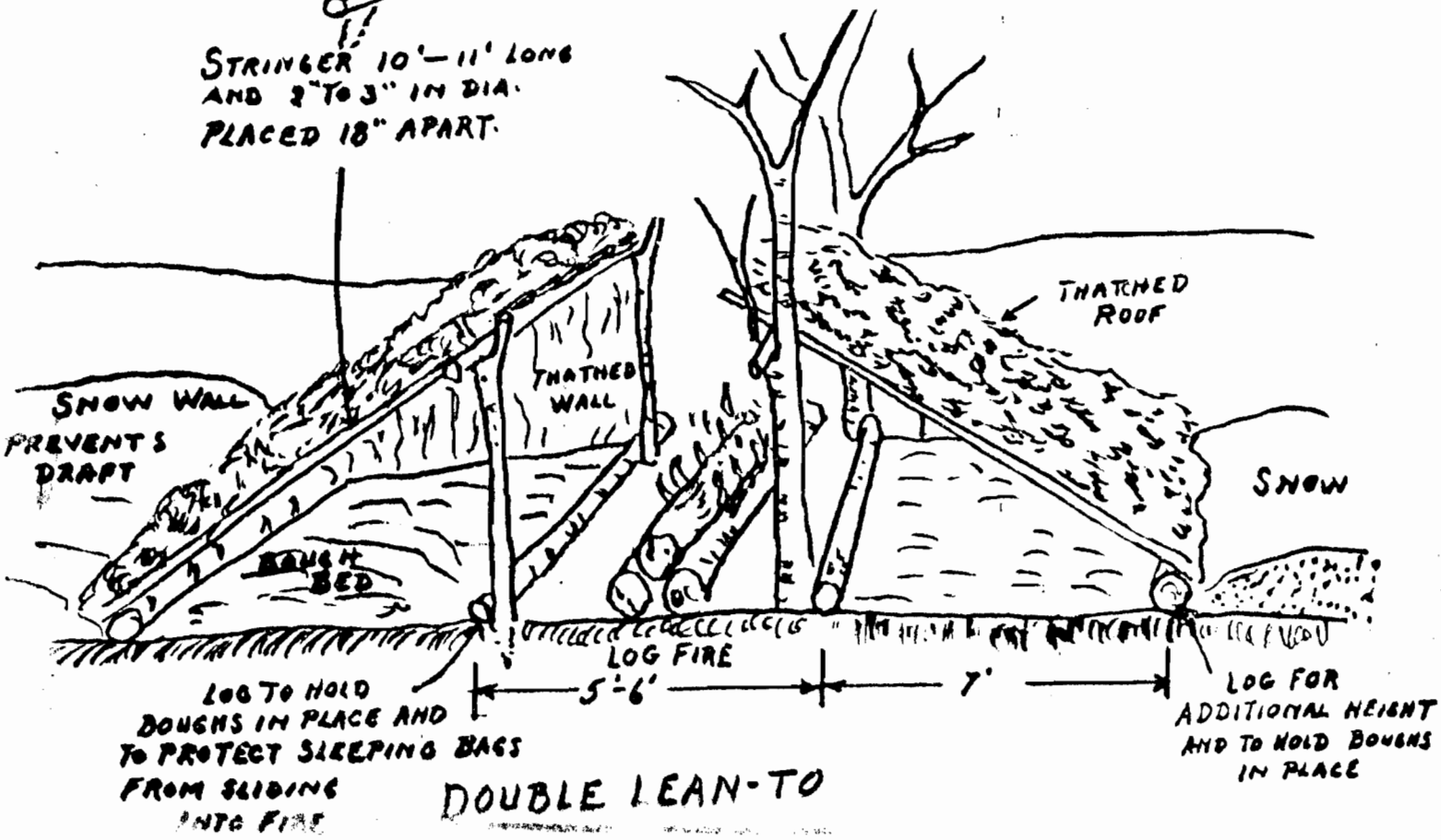
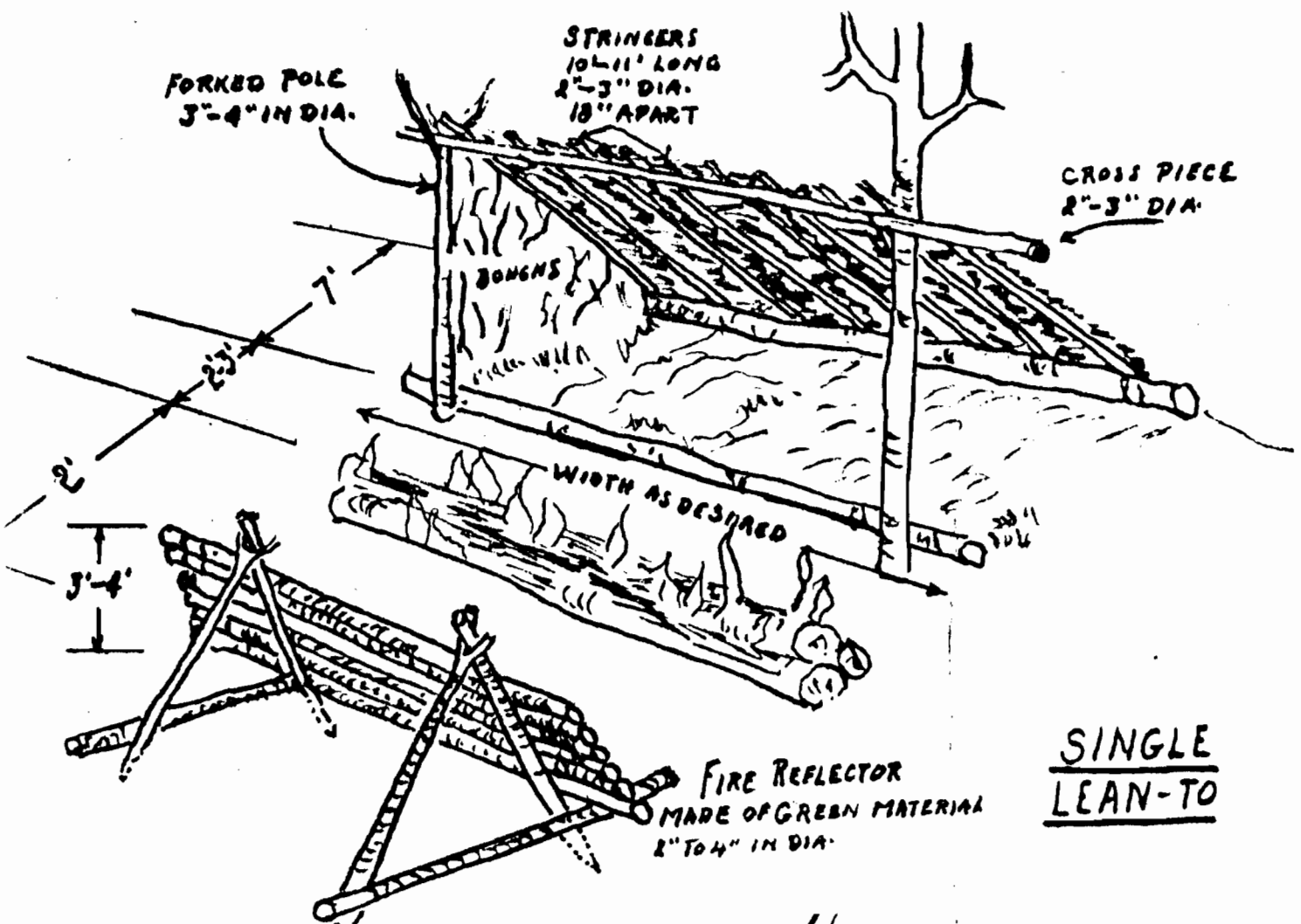
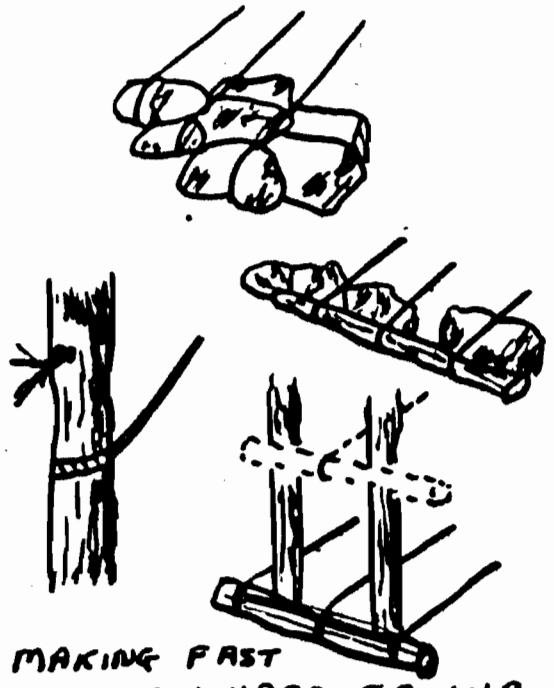
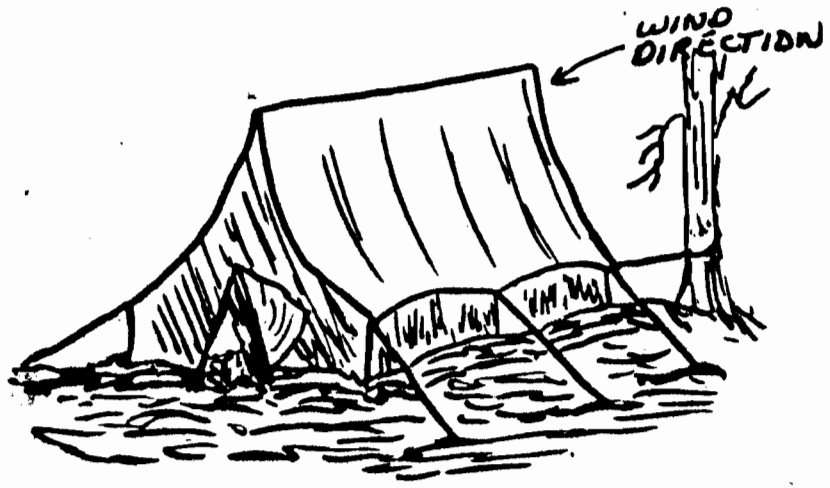


FIGURE 8

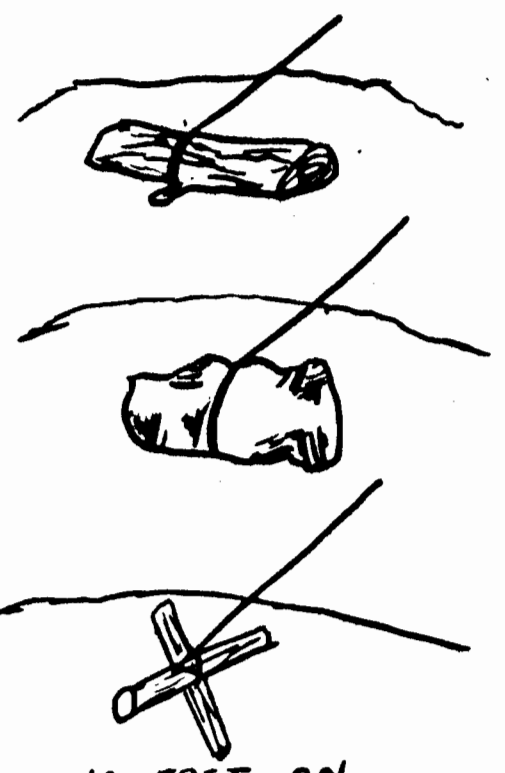
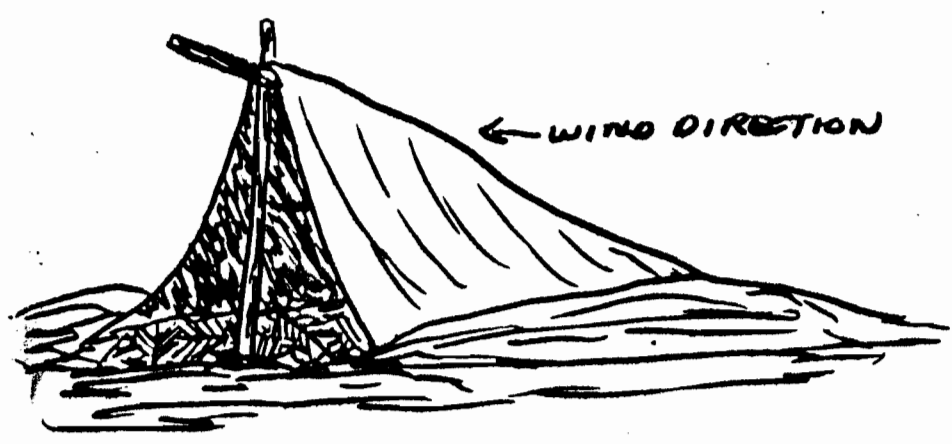


TENT



MAKING FAST ON HARD GROUND

GROUND CANVAS OR PLASTIC



MAKING FAST ON SNOW

EDIBILITY
RULES

1

Never eat large quantities of a strange plant food without first testing it.

2

When cooking facilities are available:

a. Get rid of any disagreeable taste by boiling the plant in water for 5 to 15 minutes.

b. Take a teaspoonful of the plant food, prepared in the way it will be used, hold it in your mouth for 5 minutes.

3

If, by this time, no burning sensation occurs, swallow it. Wait 8 hours. If no ill effects such as nausea, cramps, or diarrhea result, eat a handful and wait 8 hours. If no ill effects show up at the end of this time, the plant food may be considered edible. Remember that olives are bitter and grapefruit is sour, and that you are trying a new food, so that an unpleasant taste does not always mean the plant is poisonous or even unpalatable.

4

When cooking facilities are not available; follow instructions in rule 2b.

In general, it is considered safe to try foods that you observe being eaten by birds and mammals. Food eaten by rodents (mice, rats, rabbits, beavers, squirrels, muskrats), or by monkeys, boboons, bears, raccoons, and various other omnivorous animals (meat and plant eaters) is usually safe for eating.

CAUTION

1. Cook all plant foods when in doubt about the edibility (see illustration of poisonous plants, attachment 1.)

2. Small quantities of a poisonous plant are not necessarily dangerous. A noteworthy exception is the death angel mushroom (*Amanita phalloides*), which may prove fatal after eating a few spoonfuls. Avoid mushrooms and other fungi.

3. Cooking will not dissipate the poisonous properties of mushrooms.

4. Avoid eating untested plants that have a milky juice. Also avoid letting the juice contact your skin. Exceptions to this include wild figs, breadfruit, and ripe papayas, all of which contain milky juice but which are quite harmless and nonpoisonous, cooked or uncooked.

5. To avoid ergot poisoning from eating infected heads of cereal grains or other food grasses, discard all grain heads having black spurs in place of normal seed grains.



HEALTHY

ERGOT
INFECTION
IN RYE



INFECTED



GERMINATING
SCLEROTIA
(FUNGUS)

BLACK
DISEASED
GRAINS

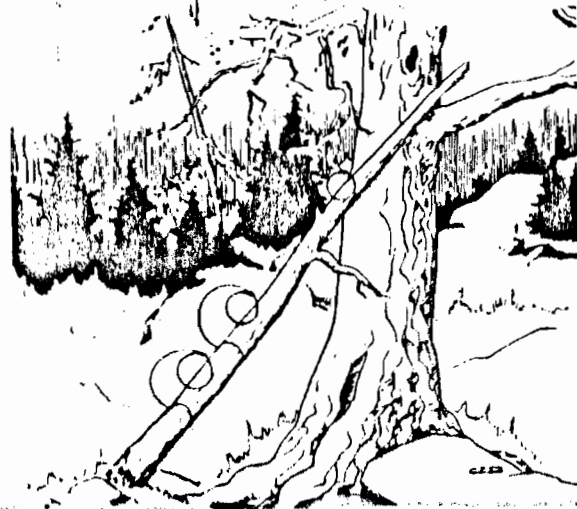
Spring Up A Rabbit Snare

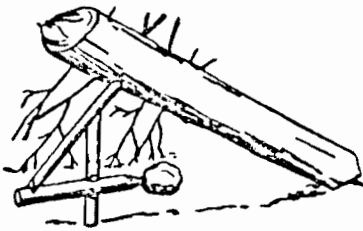
A simple rabbit or squirrel snare can be constructed from a fish line, shoe lace or wire if you have it. Set as many snares as possible, but always on game runways.



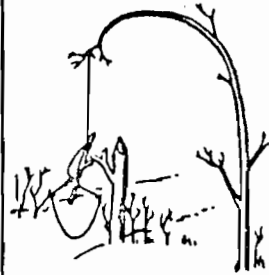
17

LEANING POLE SQUIRREL SNARE . . . this snare is simple and very effective. Always set at least 3 or 4 loops on the same pole, located near the squirrels food cache or nest.

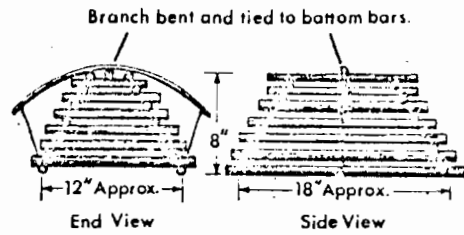




DEADFALL WITH
FIGURE 4 TRIGGER

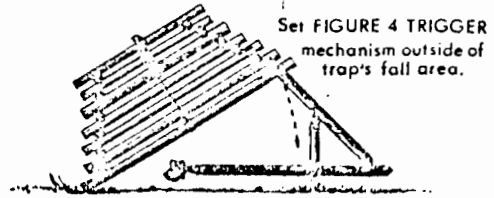


"TWITCH-UP" SNARE



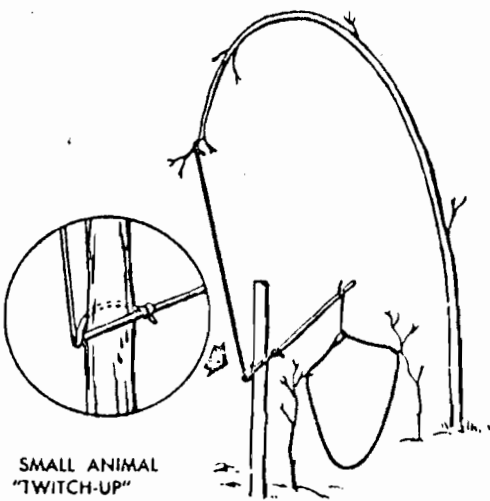
End View

Side View

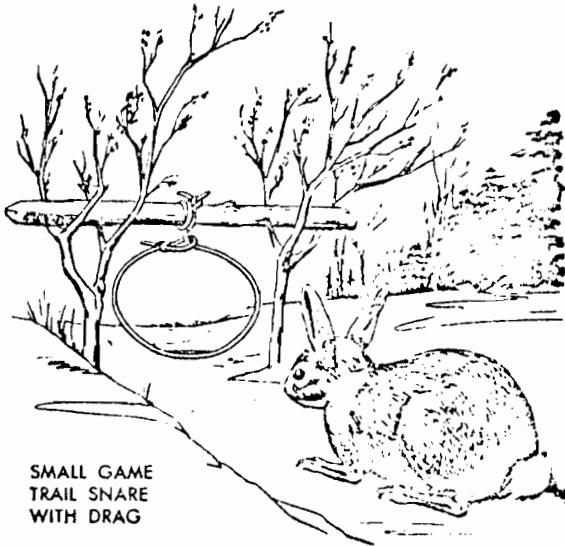


Set FIGURE 4 TRIGGER
mechanism outside of
trap's fall area.

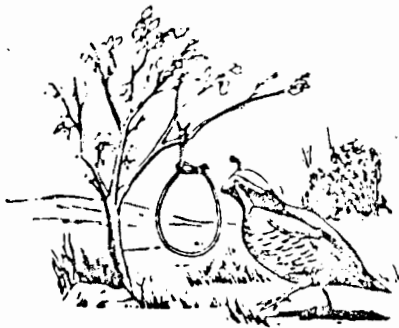
SMALL ANIMAL TRAP



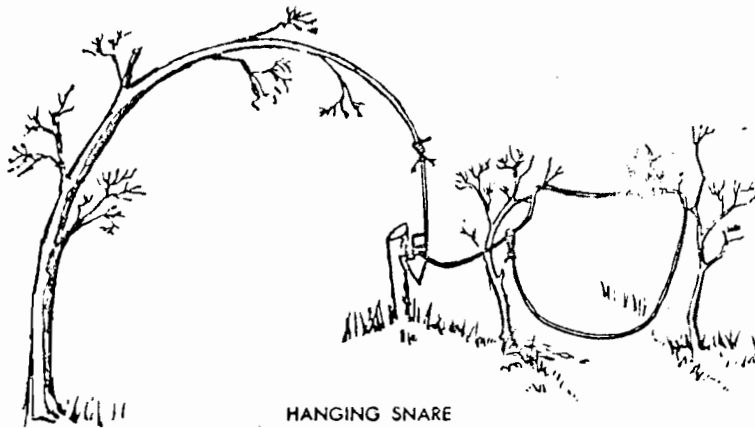
SMALL ANIMAL
"TWITCH-UP"



SMALL GAME
TRAIL SNARE
WITH DRAG



PTARMIGAN OR
SMALL GAME SNARE



HANGING SNARE

WATER . . . a man can go a long time without food but only 3 to 4 days if all fluid intake is stopped. A man's normal fluid intake is about one quart a day and this amount should be maintained under all circumstances. Water is considered unsafe to drink in a survival situation without first having been purified. There are several ways to purify water.

1. Boil vigorously for at least 10 minutes.
2. Treat the water with halazone tablets.

13

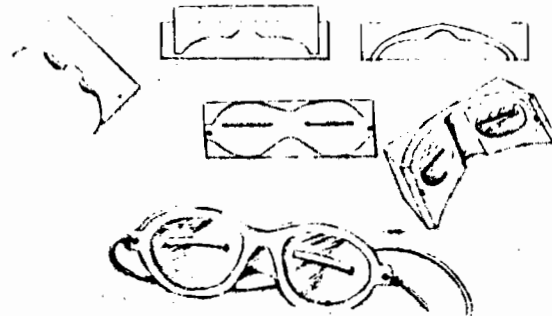
3. Use ordinary household bleach, 8 to 10 drops to a gallon of water.
4. Use Tincture of Iodine, 12 to 15 drops to a gallon of water.

Remember any chemically treated water should stand for at least an hour before use.

Do not eat snow. It tends to dehydrate the body.

Personal Welfare

Severe sunburn and windburns may be present both winter or summer. Always keep your head covered if at all possible with a wide brimmed hat. Take advantage of any shade. Be sure to use snowglasses in snow and ice conditions. The bright sun reflection of snow and ice can result in snowblindness.



INJURIES . . . even minor injuries are potentially dangerous in the wilderness. Treat all cuts, sprains or bruises carefully, with antiseptic powder or wash with plain soap and water.

BLEEDING . . . to stop bleeding in most cases use direct pressure over the site of bleeding.

BURNS . . . submerge in cold water and treat with sterile vaseline compresses and elastic bandages from your first aid kit.

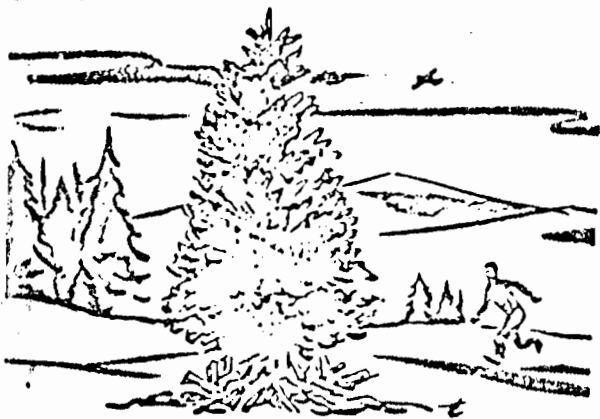
FOOT BLISTERS . . . tender-foots should be aware of blisters between toes and on the heels of the foot. To forestall this condition, keep your socks dry even if it means to stop and dry them over an open fire every so often. This same method is followed to prevent frost bite of the feet. If blisters do form do not puncture them, cover with antiseptic and apply a dressing.

INSECTS . . . can drive a person out of his mind in a short time. The black flies and the mosquitos usually are the most troublesome, and even a short exposure to them can make life almost unbearable.

There are three methods of protection from them available to you. None of them offers complete protection, but at least they give you some protection for a short while.

1. Make a smudge fire of green wood or leaves. —

2. Cover your exposed parts of your body with a thin layer of pliable clay or mud.
3. Use insect repellent. Use extreme care in the area of the eyes as it may cause permanent damage to the eyes.



Torch tree. Spruce tree.
Tinder, birch bark, etc., piled at base and in lower branches of a spruce tree.
Pick an isolated, conspicuous tree.

19. The helio mirror used directly is an excellent signalling device on sunny days. Follow directions on the mirror.

ATTRACTING ATTENTION

Any of the following methods may be used to attract attention of an aircraft to these ground signals and to indicate the location of survivors:

- (a) Wireless telegraphy or radio telephony.
- (b) Smoke produced by any means whatsoever.
- (c) Flames produced by any means whatsoever.
- (d) Any pyrotechnical light.
- (e) Any signal light (e.g. AIGis lamp, hand torch or flashing on aircraft navigation or other lights).
- (f) Flashes from a heliograph or any other shiny object reflecting the rays of the sun.
- (g) Signalling strips on ground or signalling panel spread out and shaken in the air.
- (h) Signals in snow, sand, tundra, etc.

DISTRESS SIGNALS

When survivors are threatened by grave and imminent danger and require immediate assistance, any of the following distress signals may be used in addition to those listed above:

- (a) SOS (. . . - - - . . .) calls by W/T or "MAYDAY" calls by R/T.
- (b) Heliograph, etc., as in (f) above, sending SOS.
- (c) Any signal light as in (e) above, sending SOS.
- (d) Single red pyrotechnical lights fired singly or in succession.
- (e) SOS in snow, sand or tundra.

CODE

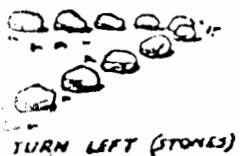
1.	I	10.	▷
2.	II	11.	└┐
3.	X	12.	△
4.	F	13.	L
5.	∇	14.	LL
6.	□	15.	Z
7.	I	16.	Y
8.	I	17.	└┐
9.	K	18.	W

Space of 10 feet between elements wherever possible.

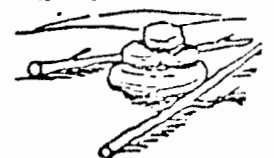
KEY

1. Require Doctor, Serious Injuries
2. Require Medical Supplies
3. Unable to Proceed
4. Require Food and Water
5. Require Firearms and Ammunition
6. Require Map and Compass
7. Require Signal Lamp with Battery, and Radio
8. Indicate Direction to Proceed
9. Am Proceeding in this Direction
10. Will Attempt Take-Off
11. Aircraft Seriously Damaged
12. Probably Safe to Land Here
13. Require Fuel and Oil
14. All Well
15. No
16. Yes
17. Not Understood
18. Require Engineer

TRAIL MARKERS



DIRECTION OF TRAVEL



MARKERS WITH STONES

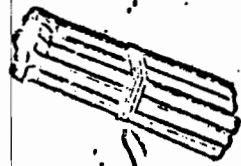
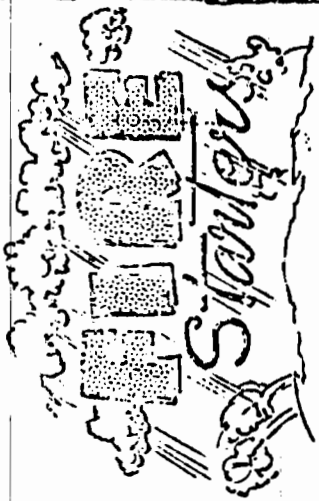
LOST IN THE BUSH

Regardless of where you go the possibility of becoming lost is ever present. In the event you become lost there are a number of things to consider. This first and most important rule to remember is do not panic. Stop, sit down and consider carefully your situation. The worst thing you can do is walk on aimlessly with no plan for getting out.

We previously talked about telling someone responsible where you were going and when you return. When it is realised that you are late in returning, steps will be taken by the people at camp to locate you. The worst thing you can do is wander around aimlessly. Stay together in a group. Remember the universal distress signal or call is any kind of signal given three (3) times - ie. three blasts of a whistle, three shouts, three columns of smoke from fires. If using fires make sure that they are far enough apart that there will be three separate columns of smoke easily recognisable from a distance. Grass or leaves thrown on a small fire will immediately yield tremendous volumes of smoke. Remember also the signal given by the persons searching for you is two shouts or blasts from a whistle when they locate your smoke column or hear your signals.

If it appears that rescue will not come before nightfall gather wood for a fire to last all night, prepare a shelter. If you don't have anything with you use for a shelter, make one using a framework of branches covered with leafy boughs. Use leaves and grass piles for a bed. Take stock of what supplies you have with you. You should consider always carrying a safety or survival kit. Even a hot drink made with a bullion cube is welcome if you are tired and cold. Two handouts will assist you in consideration of the lost problem -

SURVIVAL DRILL and **SURVIVAL KIT** - the kit list can easily be expanded to include other items you think you require.



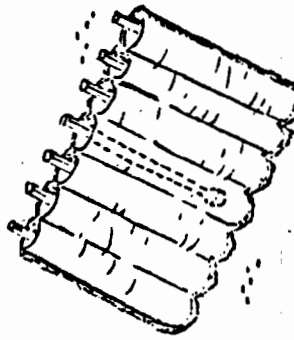
TIE HALF DOZEN MATCHES TOGETHER WITH STRING, DIP IN PARAFFIN



CANDLE STUB WORKS NEATLY, PLACE CANDLE IN CENTER OF TWIGS, LIGHT & PUT ON MORE TWIGS. ADD LARGER STICKS.

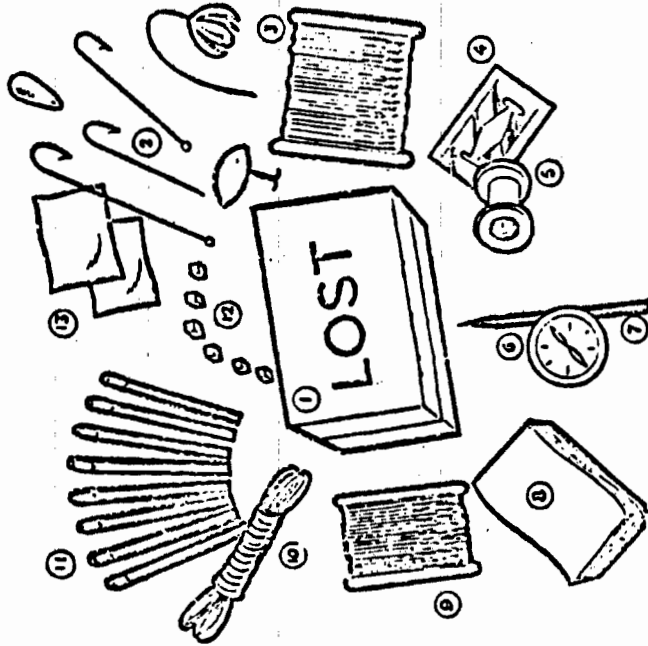


SAW CELOTEX INTO BLOCKS. SOAK THESE IN PARAFFIN. ONE PLACED IN KINDLING IS ENOUGH FOR EACH FIRE.



STICK MATCHES IN PIECE OF CORRUGATED CARDBOARD. DUNK IT ALL IN PARAFFIN.

"Lost Kit" A Dandy Patrol Project



As you can see the kit takes up very little room, being almost small enough to stuff into your watch pocket. It comprises the following:

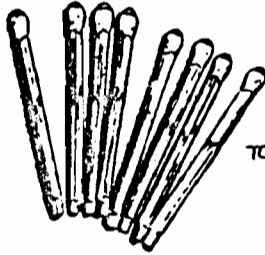
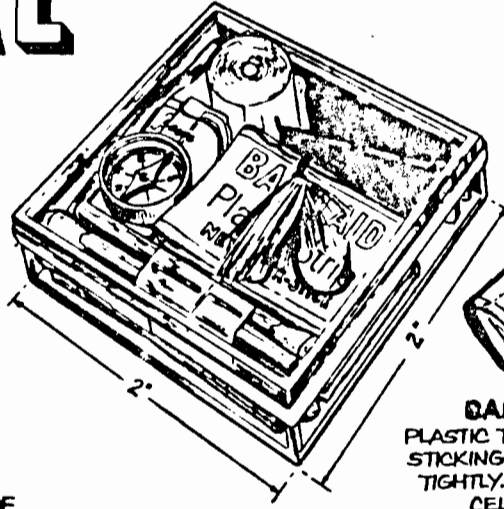
1. Small metal or plastic box.
2. Fish hooks and lures.
3. Fish line.
4. Razor blade.
5. Adhesive tape.
6. Compass.
7. Pencil lead.
8. Paper.
9. Spare wire.
10. Picture wire.
11. Waterproof matches.
12. Sugar cubes.
13. Tea bags.

Be careful, as you make your own kit, to keep it small.

SURVIVAL

KIT

YOU CAN FIT ALL THESE VITAL SURVIVAL NECESSITIES INTO A 2-INCH SQUARE PLASTIC OR METAL CONTAINER.



MATCHES
IMPORTANT!
THE CAMPER'S
NUMBER ONE
TOOL! WATERPROOF
THEM WITH
SHELLAC OR
NAIL-POLISH.



BAND-AIDS
PLASTIC TYPE FOR BETTER
STICKING. ROLL OR FOLD
TIGHTLY. SECURE WITH
CELLOPHANE.



GAUZE PAD
2"X2" SQUARE. FOLD TO
FIT, BUT DON'T BREAK PAPER.
KEEP THIS STERILE.

COMPASS
THIS WON'T FIND YOUR CAMP FOR
YOU—BUT IT WILL KEEP YOU ON
A STRAIGHT LINE.



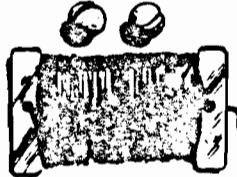
FISH HOOKS AND LURE
MEDIUM SIZE TROUT FLY
OR STREAMER OR FOIL
FOR LURE. HOOKS WILL
INFLUENCE COMPASS.



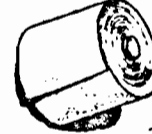
SNARE WIRE
FIFTEEN FEET
OF NO. 32 SOFT
COPPER WIRE
FOR SNARES.



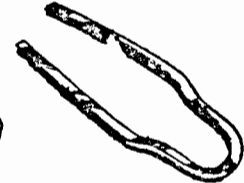
**FISH LINE AND
SINKERS**
ABOUT 20 FEET OF
15-POUND LINE. WIND
TIGHTLY. SPLIT-SHOT
SINKERS.



ADHESIVE TAPE
EIGHTEEN INCHES OF
1/2 INCH TAPE. ROLL
TIGHTLY ON A
MATCHSTICK.



RAZOR BLADE
NOT MEANT TO REPLACE
YOUR KNIFE, BUT USEFUL.
SINGLE BLADE TYPE.



TWEEZERS
MAKE FROM A BIG
COTTER PIN. CUT TO FIT,
THEN FILE SHARP, AND
SPREAD POINTS.

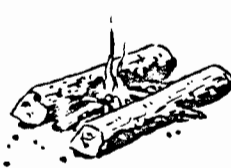
FIREMAKING...AN ESSENTIAL FOR SURVIVAL

SCOUT FIRE



A SIMPLE AND EFFICIENT
FIRE, GOOD WITH ALMOST ANY
KIND OF WOOD. START AS TEEPEE—
FINISH AS CRISS-CROSS.

HUNTER'S FIRE



A GOOD LASTING
FIRE. USE GREEN LOGS
FOR SIDES. LINE UP
INTO WIND.

ROCK FIRE

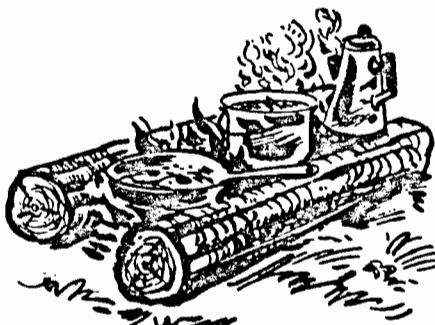


EXCELLENT FOR A SEMI-FIXED
CAMP. ONE OF THE BEST
TYPES OF FIRES.

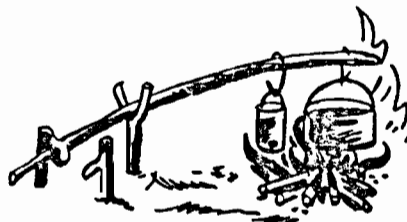
TRENCH FIRE



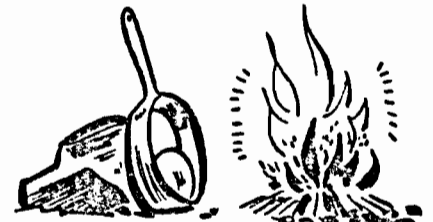
FINE FOR WINDY PLACES
OR AREAS OF HIGH FIRE
DANGER. DRAWBACK—IT
FLOODS EASILY.



TRAPPER FIREPLACE



CRANE FIREPLACE



REFLECTOR FIRE

SURVIVAL



Panic can kill you! Stay alive and try to keep control. Lose your cool, and you're on the run!

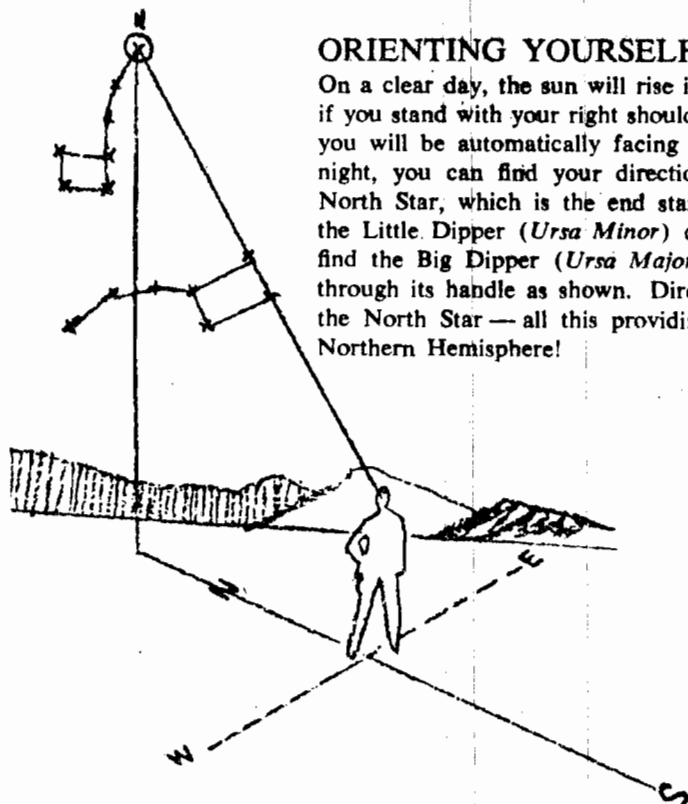


Park someplace and think! Think about food and water. Think about shelter. Think it all out!



Thinking before you start hiking is even better. Carry a few little things, in case of survival!

Okay, you're lost in the bush. Now what? Find out where you are, set up some way of signalling for help.

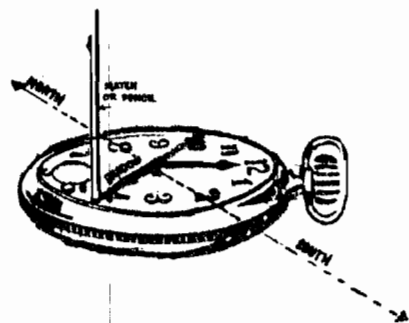


ORIENTING YOURSELF

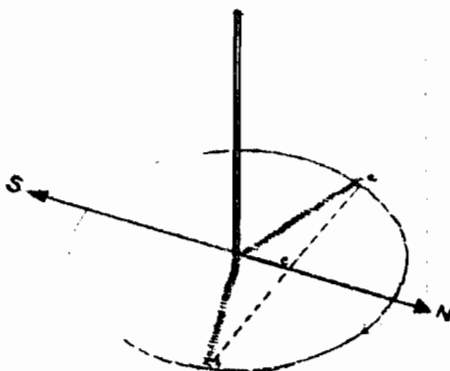
On a clear day, the sun will rise in the northeast, so if you stand with your right shoulder toward the sun you will be automatically facing north. On a clear night, you can find your direction by locating the North Star, which is the end star in the handle of the Little Dipper (*Ursa Minor*) constellation. First find the Big Dipper (*Ursa Major*) and take a line through its handle as shown. Directly above will be the North Star — all this providing you live in the Northern Hemisphere!

Finding Your Way

Stand a 6-ft. stick upright on level ground. In the morning, using a piece of string tied to the stick's base, mark a circle on the ground so that it just touches the end of the stick's shadow. Mark *a*. As the sun rises, the shadow will get shorter. Watch until it touches the circle again, and mark this point *b*. Draw line *ab* and find its middle point, *c*. Draw a line from *c* to the base of the stick. This is the north-south line. North is on the same side of the stick as line *ab*.



Your watch can also tell you north. Stand a small stick over the end of the hour hand. Turn the watch until the stick's shadow falls along the hour hand. Half-way between the hour hand and 12 o'clock is the south point.



THE SURVIVAL KIT

Materials Needed

1. 1-Film can, 35 mm type
2. 1-3" X 5" rectangle of aluminum foil
3. 2 aspirin tablets
4. 2 Malted Milk tablets wrapped in foil
5. 2 bandaids 3/4" width
6. 1 Gauze Bandage 2" X 2" size (Sterile Pad)
7. 1-12" length 1/2" wide Adhesive Tape
8. 1 single edge razor blade
9. 2 Water Purification Tablets (Halezone or Iodine)
10. 2 Small split shot
11. 1 Small fish hook
12. 1-12 foot length of 10 lb. test fishing line
13. 1-30 foot length of carpet thread
14. 2 Safety Pins 1 1/4" long
15. 1 sewing needle
16. 1-1" X 1 1/4" rectangular cardboard
17. 2 Wooden kitchen matches (waterproofed)
18. 1 Compass 1/2" diameter
19. 1-6 foot thin snare wire
20. 1 Curtain ring
21. 1 dime (provided by scout)

THE SURVIVAL KIT ASSEMBLY INSTRUCTIONS

1. Fold gauze pad in half and put into film can so it fits around the inside.
2. Put two bandaids into film can so they fit around the inside of the gauze pad.
3. Attach fish hook to fishing line.
4. Attach two split shot sinkers to line about 8" above the hook.
5. Wrap fishing line around cardboard piece and put it into the center of the film can.
6. Take two matches and break off 1" of end of match. Take a piece of aluminum foil and put the matches on the foil at the end and in the center. Fold sides of foil over inch end of match. Roll matches into foil one turn.
7. Now take two aspirin and place them next to the matches on the foil. Roll foil over aspirin the same way it was done for the matches.
8. Now take two Halezone tablets and follow the same way as the aspirin. Make sure you keep the foil good and tight. Now roll aluminum foil all the way, being sure to keep it tight.
9. Take the carpet thread and wrap it around the razor blade. (Razor blade in cardboard) Now put razor blade in center of film can.
10. Put aluminum foil which was wrapped in steps # 6, 7, and 8 into center of can along side of razor blade.
11. Put two safety pins into center of film can along side of the aluminum foil.
12. Put a sewing needle along side of the safety pins.
13. Put a dime into the film can.
14. Put two malt tablets into film can.
15. Now put a compass into the film can and screw the lid on tight.
16. Take the snare wire and a curtain ring and wrap the snare wire around the film can, making sure you go through the curtain ring each time you wrap the snare wire around the can.
17. Now wrap some adhesive tape around the film can making sure that the tape is over the snare wire.

YOU NOW HAVE A POCKET SURVIVAL KIT WHICH CAN BE USED AS A NECKER-CHIEF SLIDE, WHICH CAN BE WORN ON YOUR SHIRT OR JACKET BUTTON OR CARRIED IN YOUR POCKET. LET'S HOPE THAT YOU NEVER HAVE TO USE IT.

THIS IS THE TRAIL



THIS TRAIL NOT TO BE FOLLOWED



GONE HOME



HIDDEN MESSAGE



MESSAGE HIDDEN ANY GIVEN NUMBER OF PACES IN THIS DIRECTION

CHANGE DIRECTION



scout trail signs

Here we come to one of the most interesting and useful features of Scouting, — trail marking and trail reading. It's real fun, and it means using your brains.

You start with the simple trail signs while hiking and playing games, then you go on to the greater adventure of following and reading the tracks of birds, animals, and human beings — interpreting the story they tell. (B.-P. called this sporing.)

Track signs may be made with chalk, stones, twigs or grass as shown in the accompanying sketches.

Here is what B.-P. says of woodcraft and trailreading: "Woodcraft, amongst other things, means learning about wild animals by following their foot tracks and creeping up on them so you can watch them. Woodcraft includes, besides the ability to discover tracks and other small signs, the ability to read their meaning, — at what pace an animal was going, whether undisturbed or alarmed, and so on."

some tracking hints

An old rule of trackers is to "look into the eye of the sun". That is, face the sun so you will have the full benefit of the sun's shadow across the imprint. Otherwise you may not get the true value of the shadows.

When an animal track has been identified, put your mind, as it were, into that of the animal. Why was it going in this direction? Was it in a hurry, or was it taking its time? Was it watching for a possible attack from an enemy on the ground or a flying enemy?

The condition of overturned pebbles or stones (damp or dry) may indicate the time since they were disturbed — the weather being allowed for, that is, whether cloudy, sunny, or windy.

In winter a light fall of damp snow provides the best tracking conditions. In very light snow the wind will soon erase tracks, so on such a day a start should be made immediately the snow has ceased falling.

tracking

As B.-P. pointed out to us, "one of the most important things a Scout has to learn is *to let nothing escape his attention*; he must notice small points and signs and then make out the meaning of them; but it takes a good deal of practice before a Scout can really get into the habit of really noting everything and "letting nothing escape his eye."

As well as being able to recognize tracks you must get to know how old they are. This requires a great amount of practice and experience, before you can really judge well. A lot depends on the state of the ground and the recent weather. To tell the age of tracks, look in damp ground where the sun has not dried up the track, and the wind has not affected it. Often the greatest clue to the age of tracks will be in spots where rain has fallen on them since they were made — where it has, the track is often less distinct and the edges have been worn round by the rain-drops. In areas where the track is difficult to see, such as on hard ground, or in grass, note the direction of the last footprint you can see and look on in the same direction, but well ahead of you. In grass, you will often see the blades bent or trodden, and on hard ground stones moved or scratched. These small signs, when seen in a line behind each other, give a kind of track which would not be noticed if you only looked immediately in front of you.

If you lose sight of a track you must make a search to find it again. To do this, put your handkerchief or hiking stick at the last footmark noticed, then work around it in a wide circle choosing the most favourable ground, soft ground if possible, to find signs of the outward track. Often if you still can't find it, put yourself in the position of the person or animal you are tracking and say "where would I go from here?." This will often give you the hint of where to look for the track again.

Tracking and stalking

KNOWLEDGE OF THE ANIMALS THEMSELVES IS ESSENTIAL... KNOW HOW TO FOLLOW TRACKS AND HOW TO STALK TO GET CLOSE ENOUGH.



1 KEEN OBSERVATION IS IMPORTANT.

2 A SKILLED OBSERVER'S EYES MOVE IN SEMI-CIRCULAR RINGS FROM LEFT TO RIGHT AS HE SEARCHES FOR SIGNS AND TRACKS, UP AS WELL AS DOWN - OCCASIONALLY BEHIND.



3 TRACKS ARE EASIER TO FOLLOW WALKING INTO THE SUN - THEIR SHADOWS ARE LONGER AND TRACKS LOOK DEEPER.



4 REMEMBER TO STALK SLOWLY AND SILENTLY,

5 LIFT FEET HIGH SO GRASS WON'T BE RUSTLED NOR STONES KICKED.



6 ON GRASS OR LEAVES... THE HEEL FIRST... THEN TOE SLOWLY AND EASILY -

7 ON ROCKY GROUND... TOE FIRST.

8 NEVER APPROACH DOWN WIND. AN ANIMAL CAN HEAR AND SMELL BETTER WITH THE WIND COMING TO HIM -

9 MAKE GOOD USE OF COVER

IN WOODS WALK UPRIGHT
IN LOW SHRUBBERY... CROUCH.
IN DEEP GRASS - CREEP OR CRAWL.

10 BE SURE YOU BLEND WITH BACKGROUND.



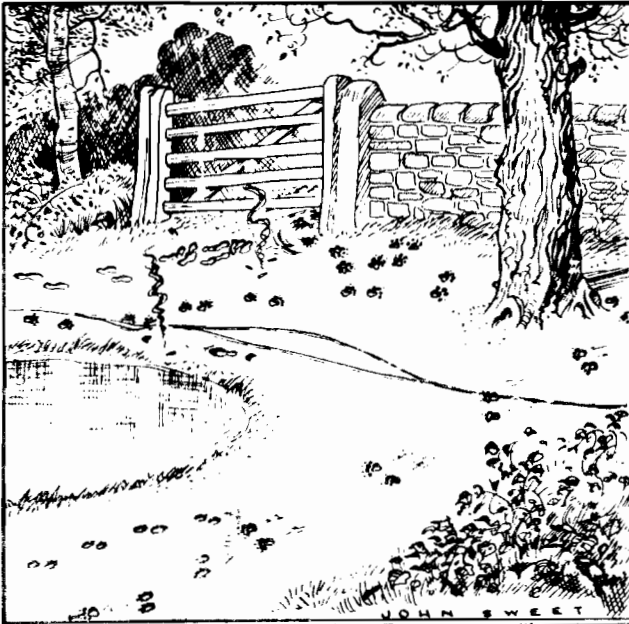
11 AVOID BEING SILHOUETTED AGAINST THE SKYLINE

12 WATCH YOUR SHADOW - IT MAY GIVE YOU AWAY.

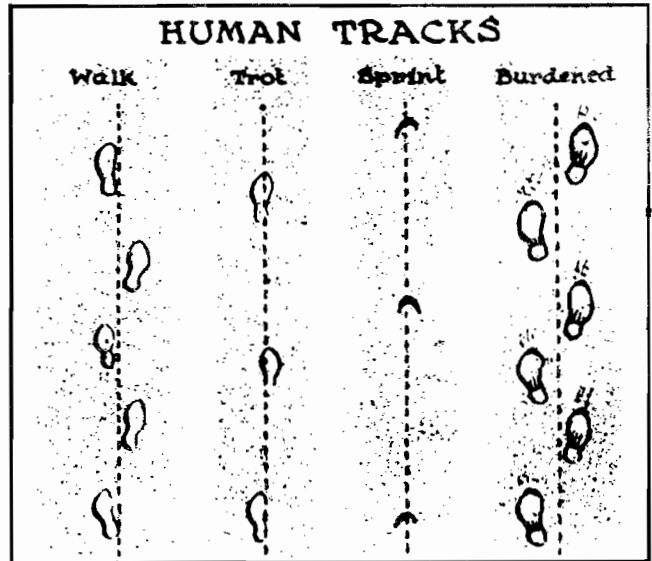
13 WATCH YOUR QUARRY CONSTANTLY - AT SLIGHTEST SIGN OF ALARM - FREEZE!

Remember an animals life depends on his cleverness - his sense of smell, sight and hearing.
To 'leg your game' you must match wits with your quarry.
Early Canadian Pioneers and Indians' very existence depended upon their cleverness of leg in tracking and stalking the food they ate.
NOW CLEVER ARE YOU?

TRACKS & TRAILS

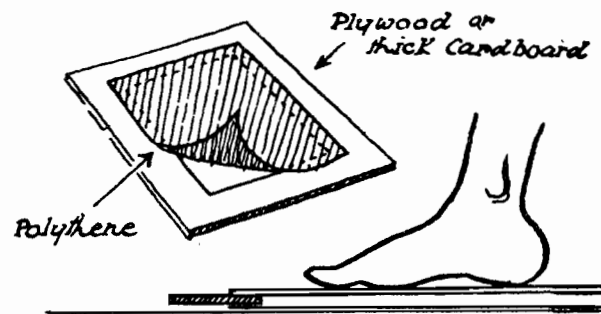


A COUNTRY STORY IN ONE CHAPTER.
CAN YOU READ IT?

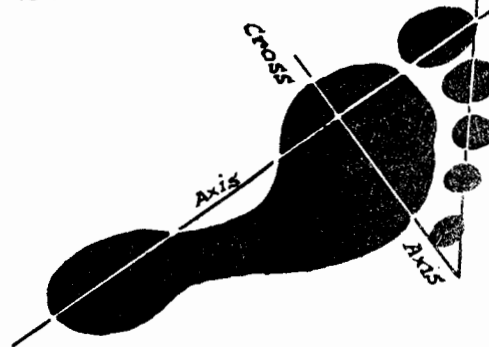


HOW TO MAKE A FOOT-PRINTING FRAME

CUT A "WINDOW" 18" x 12" IN A SHEET OF PLYWOOD OR THICK CARDBOARD, AND "GLAZE" IT WITH A POLYTHENE SHEET



THE UNDERSIDE OF THE POLYTHENE IS COATED WITH DUPLICATOR INK AND A SHEET OF PAPER PLACED BENEATH IT.



ANIMAL TRACKS

ANIMALS OF THE KINGDOM OF ANIMALS ARE DIVIDED INTO THREE GENERAL CLASSIFICATIONS

1: Sole Walkers

2: Toe Walkers

BIRD TRACKS

THERE ARE FOUR GENERAL CLASSIFICATIONS

1: Tree Perchers

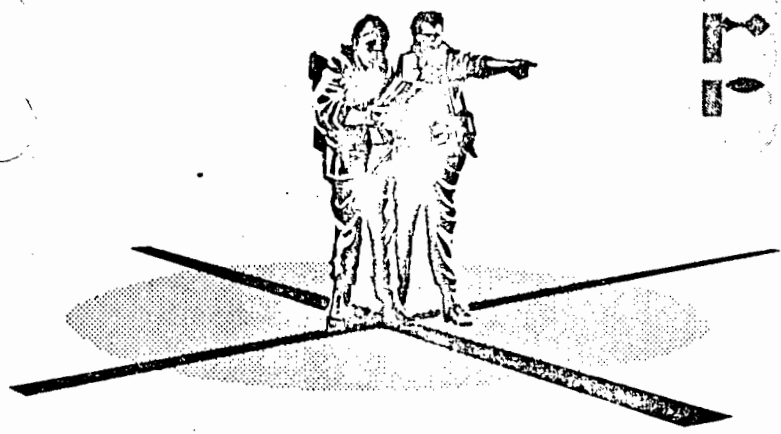
2: Ground Walkers

3: Waders

4: Swimmers

3: Nail Walkers

COW
GOAT
ROE DEER
SHEEP



PREPARATION

survival

(i) DEVELOP SURVIVAL SKILLS

Things you must know

- Orientation
- Map reading
- First aid
- Distress signals

Things you should know

- Food-finding
- Shelter-building
- Fire-lighting
- Fishing
- Traps and snares
- Dangerous plants

Knowledge which might help

- Outdoor cooking
- Knots and lashings
- Weather
- Snow-shoeing
- Snake identification
- etc.

(ii) CARRY SURVIVAL EQUIPMENT

Carry attached to person
or in pockets which zip
or button.

Things you must have

- Compass
- Knife
- Matches (waterproof)
- First aid dressing
- Whistle

Things you should have

- Torch
- Space blanket
- Cord
- Fishing line
- Fish hooks
- First aid kit
- Snares wire
- Emergency food
(bouillon cubes, candy)

Things which might be useful

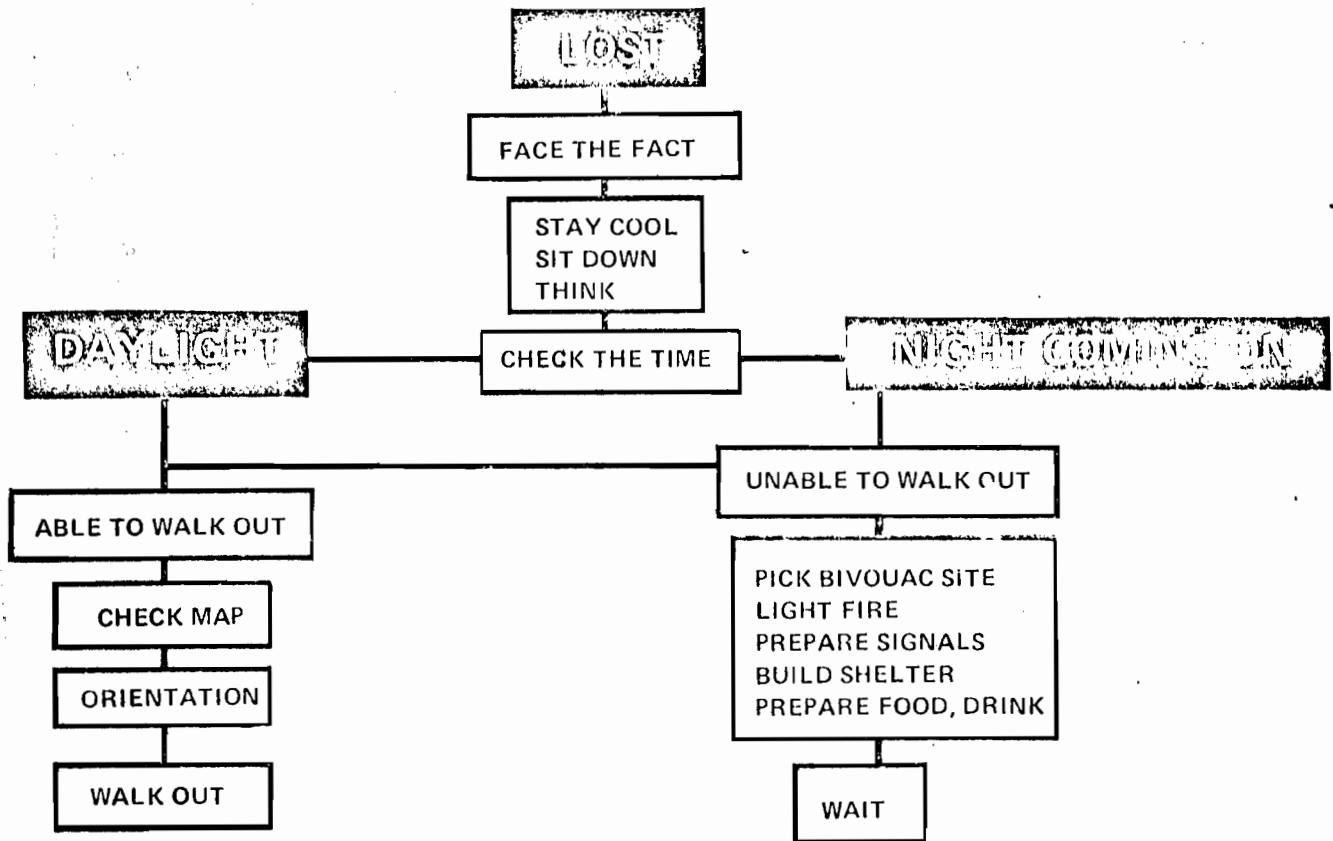
- Axe or Svea saw
- Bug repellent
- Polythene sheet
- etc.

55

survival drill



TELL PEOPLE AT CAMP WHERE YOU'RE
GOING AND WHEN YOU'LL BE BACK



CHECK MAP—Carry a large scale map of the area if possible. Otherwise fix the position of local rivers and roads, etc., in your mind before starting out from camp so that you have a good "mental map".

ORIENTATION—Carry a compass, but you can also check direction by using a watch (point hour hand at sun; bisect angle between hour hand and "12" to find South), stars (mark direction of pole star with line on ground to provide basis for next day's navigation), woodpeckers (they drill for grubs on South side of tree), snow (melts soonest on South-facing slopes), prevailing winds (sometimes distort growth of exposed trees).

REMEMBER—Fear is the only real enemy. Searchers will be out looking for you as soon as you are missed--make things easy for them.

Introduction

This booklet has been prepared by the staff of National Wilderness Survival Inc. School of survival. Not as a complete Survival manual but as a help and primer in case that you get lost in the wilderness.

People today are so far removed from living off the land that if anything goes wrong and they have to take care of themselves in the wilderness, they don't know where to begin. But with the current widespread interest in traveling and camping in the wilderness, as well as increased air travel over desolate country and the increased use of the snowmobile in the bush, the chances of getting lost or being stranded in the wilderness are very real.

This booklet has been written with the thought that anyone can be lost in the wilderness. Thus, everyone should be familiar with the basic techniques and methods of taking care of oneself if the need arises.

The cost to the public searching for lost people runs into millions every year. Also consider the anguish caused to the relatives and friends.

Don't be a wise guy. Make careful preparations for all your outdoor trips, and return safely.

The Staff of the survival school.

Rules of Survival

1. **Tell someone where you are going and when you expect to return.**
2. **Prepare for the worst and hope for the best.** Be mentally prepared, and admit to yourself, "It can happen to me".
3. If by fate you have been placed in a survival situation stay put and wait for rescue.
4. **Start collecting firewood and start a fire.**
5. **Get out of the wind and wetness by constructing a shelter of some kind.**
6. **Keep full control over your mind.** Don't let fear and panic get the better of you. If you feel that the fear is getting at you sit down and think the situation over. If that will not help hug a tree and scream and you will realise how silly you look and this thought will quickly bring you back to normal thinking again.
7. **Do not worry about food.** You can live for 30 days or more without food, if you allow your body to break down its stored fats into a usable form of energy.
8. **Do not ration water.** Remember that you need a quart of water every day. **Never consider water safe to drink without purification.**
9. **Cancel and reschedule a trip if the weather is bad.**
10. **Practice energy conservation.** An old survival rule says, "Never stand when you can sit down, never sit down when you can lie down".

Energy Conservation

Energy conservation plays a major role in keeping the body warm. Loss of body heat leads to mental and physical inefficiency which can lead to death. Always keep the following points in mind.

1. Wear proper clothing suited for season and area where you intend to carry out your activity. Always wear a hat.
2. Always carry emergency spare gear. Spare socks, sweater, etc.
3. Always provide adequate insulation between you and the ground.
4. Always try to get a comfortable sleep whenever possible.
5. Don't let fear consume vital energy.
6. Always perform the most important tasks first.
7. Always carefully weigh all activities on your energy scale before you execute them. Take a close look if the activity is worth performing in regard to the energy loss you will experience.

Individual Demands on the Survivor

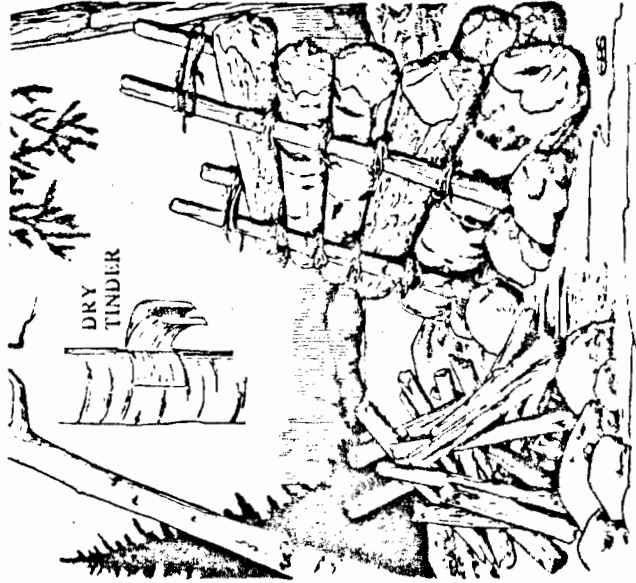
1. A person must have the ability to make up his mind and stick to it.
2. Imagination and ability to improvise are a great benefit.
3. Be able to live with yourself and accept loneliness.
4. Keep cool and collected at all times.
5. An infinite amount of patience is a must in all cases.

When You Enter The Woods, Always Carry With You:

1. **MATCHES** . . . in a waterproof container, sealed, for use in an emergency situation. It is recommended that you carry at least two containers . . . one on your person and one in your pack. The matches should be of "strike anywhere" type.
2. **KNIFE OR AXE** . . . a good strong jackknife or a hunting knife with a 4 to 5 inch thick strong blade with blade guard. Best of all, a small axe or hatchet with a strong blade guard.
3. **SURVIVAL KIT** . . . a small survival kit weighing less than 2 pounds, containing food and drinks for 10 days.
4. **MEDICAL KIT** . . . a small medical kit containing bandage and bandaids, sterile compresses, insect repellants, safety pins, etc.
5. **MAP AND COMPASS** . . . a detailed map of the area you are entering and a reliable compass is a must.
6. **OPTIONAL EQUIPMENT** . . . sun glasses, in winter time - snow glasses, mosquito head net, sheet of heavy plastic or a rain cape - for use as a shelter, candles, canned heat or fire tablets, etc. The number of items that could be listed under optional equipment is almost unlimited, and is left up to you to decide what you like to carry.

What To Do If Lost Or In A Case Of Emergency

3. COLLECT WOOD AND START A FIRE . . . as soon as you can. Remember to collect three times the amount of fire wood you think you need. Make a reflector to reflect the heat toward your camp. Standing dead trees are the best fire wood. Scrape away the snow on the ground or build your fire on a platform of green wood. Dry, dead spruce twigs on the lower part of a tree makes good tinder. The underlayers of the birch bark is an excellent fire starter in wet weather.



1. STAY PUT . . . if you are not absolutely sure of the way out or if it is getting late in the day. Remember, if you told someone where you were going and when expected back out, someone will start looking for you, real soon.

2. EVALUATE THE SURROUNDING AREA . . . is it suitable for a shelter? Can you collect enough fire wood? Do you have an open spot for your signal fires? Remember, CAF Search and Rescue organization have aircrafts and highly trained personnel on a 24-hour standby alert. Also remember, 3 fires is the international distress code. Build them in a triangle about 60 feet apart.

TEA SICK



CAMP FIRE



SEMIWALK STAR FIRE

TEA SICK



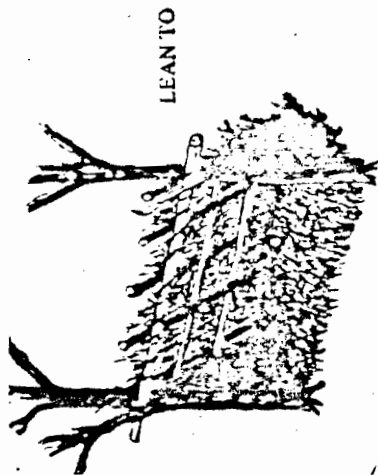
TEA SICK

Building Shelters

Many different kinds of shelters can be erected. Shelters made out of natural material like the lean-to made out of evergreen branches as a roof and sides, or a showshelter dug into the snow covered with either a sheet of plastic or evergreen boughs, or the typical Ojibwa Indian shelter which can be used both summer or winter. There are few things that will do as much for the morale as a good fire and a warm comfortable shelter, with a properly constructed mattress, to protect you from the cold on the ground.

Mattress Making

Remember if there is snow on the ground do not clear away all the snow in the shelter area. Leave 2 to 4 inches of snow on the ground as an insulation. Stick evergreen boughs with the butt end into the snow or in the ground at a 45° angle toward the rear of the shelter. Place the boughs in rows across the shelter and place the rows as close as you can. This will make an excellent spring mattress 6 to 8 inches thick, and you don't have to worry about replacement of the boughs for at least 15 to 20 days.



LEAN TO



OJIBWA BENT TREE
SHELTER



SNOW SHELTER

On Your Person

Empty your pockets and by using your imagination try to figure out how your belongings can be used. For instance, spoons, keys and coins can be used for fishing lures and weights. Bits of colored cloth or plastic, even the silver paper in your empty cigarette pack, make excellent lures and flies. Safety pins or wire can be shaped and sharpened into fish hooks. Needles or wires, etc., can be sharpened on a stone.

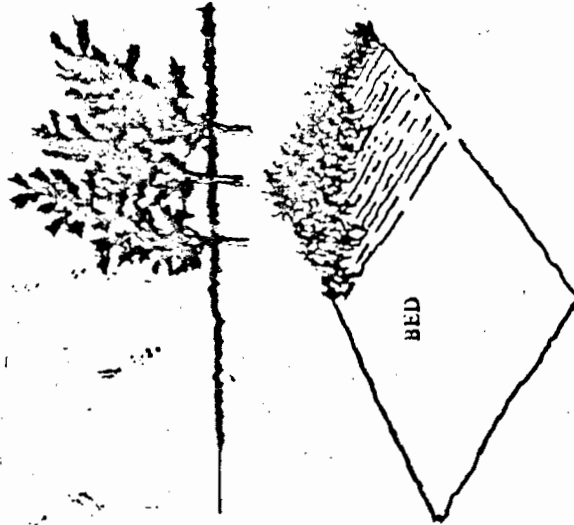
Paper or cloth can be used for lighting fires or as a torch to carry from one fire to the next and in this manner, saving matches.

Birch bark or any other large pieces of bark can be used as shingles on your shelter, or can be fastened into snow glasses by cutting a narrow slit for the eyes.

Thread from clothing or unravelled wool can be used as a cord or fish line.

Magnifying glass in your compass, or just a pair of lenses from your eye glasses, taped together can start a fire.

Any shiny object, like the ends of beer cans or a piece of aluminum foil, can serve as a heliograph mirror to signal an aircraft.

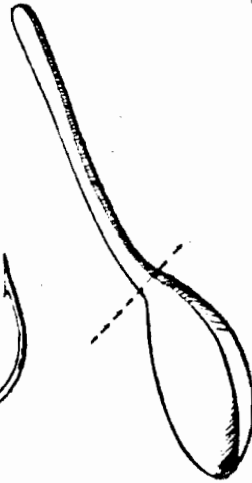


Take Inventory

After your signal fires have been built and are ready to light, your fire and shelter is complete. You should spend some time taking a complete inventory of everything around you and everything in your possession. See what useful purpose the different articles have for you.

Around Your Campsite

Try to fish in nearby streams and lakes with a bent pin as a hook or just shape a stick in both ends and tie a line in the middle. Use grasshoppers, worms, bugs or even small berries or roots as bait.



Look for signs of birds, rabbits, porcupines or other animals who can supplement your food diet.

All fish found in Canadian waters are edible.

All birds found in the Canadian forest are edible.

Porcupine, the survivor's emergency meat, can often be spotted by chewed off bark on the tree trunks. Look for this animal up in the branches of trees. Never climb a tree to get him down, cut the tree down. On the ground the porcupine can easily be overtaken and with a blow on the snout with a stick, rendered unconscious and killed.

Do as the Indian does, sear the quills off over an open fire, but be careful to avoid injury from the quills.

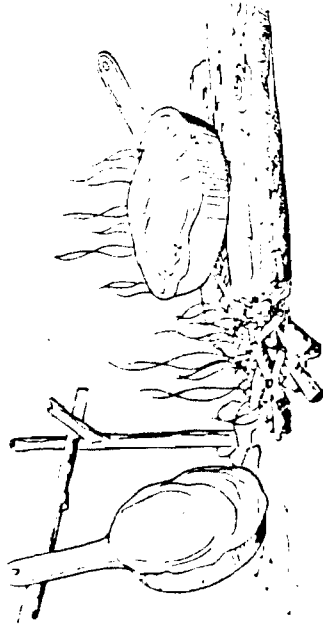
BUGS, GRUBS AND ANTS . . . roasted on a piece of aluminum foil are edible and have a nutty flavour and are nourishing.

PREPARATION OF MEAT AND FISH . . . any meat and fish prepared in the wilderness should be cooked for at least 30 minutes per pound, and the cooking fluid consumed. (The cooking fluid holds all the minerals and vitamins removed by the boiling.) In cold weather eat plenty of fat to produce a lot of heat calories.

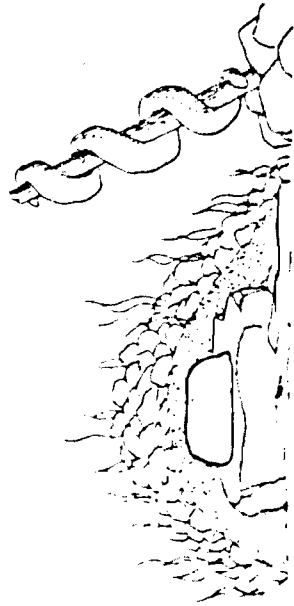
Emergency Plants

CATTAIL . . . this plant, with its prominent flower structure at the tip, is an easy plant to recognize. The flower is composed of a dense spike with flowers above and below. After the flowers have fallen off a green spike is left over. This spike is edible and tastes like asparagus when boiled. The inner tender stalks of the young plant are edible and are eaten like celery, boiled in salt water, or eaten raw. The root stalks, after they have been scraped and cleaned, cut them up in small pieces and boil into a thick gruel and after the water has evaporated, makes an excellent flour to make bread or pancakes of. The root, wrapped in green leaves and placed in the campfire to be roasted, can be eaten like potatoes. The pollen from the brown spike is used in soups or stews.

DANDELION . . . I don't think the dandelion needs any identification — we all know this plant. This plant is one of the most common weeds we have. The tender leaves are stripped of their stems and washed well, cut



FRYING PAN BAKING



UMU-BAKING

TWIST

roasted root can be used as a coffee substitute. The dandelion holds 25 times more vitamin A than tomato juice and 50 times more than asparagus.

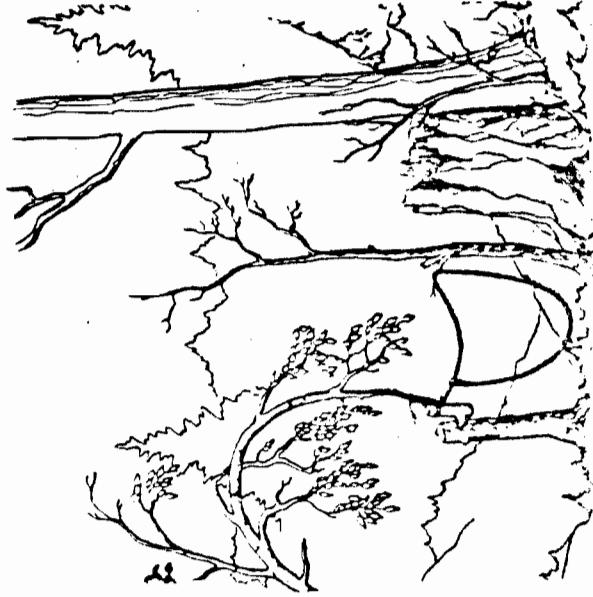
ASPEN OR POPULAR TREE . . . the bast or the soft succulent layer under the bark can be eaten as an emergency food and was often used by the Indians as such. Scrape off the succulent layer on the trunk, making sure that you don't get any of the wood, as the wood makes the porrage bitter. Boil in water and eat. Don't be surprised if it has a laxative effect on you.

WILD ROSE . . . some 35 or more varieties of wild roses are found on this continent, and they are all edible. The part we eat is the flowers in the early summer, and later the bright red fruits. The fruit or the "rose hip" has one of the richest vitamin contents of all our wild edibles. The juice is 25 times richer in vitamin C than orange juice. If you crush the stones you will release vitamin A and E.



Spring Up A Rabbit Snare

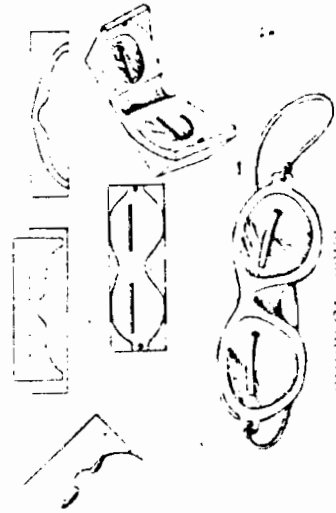
A simple rabbit or squirrel snare can be constructed from a fish line, shoe lace or wire if you have it. Set as many snares as possible, but always on game runways.



SUMMER . . . preserving meat and fish in the summer usually creates a bigger problem, but by far the best method during the hot season is to smoke or sun dry "jerking". To prepare in this way just cut the meat or the fish in thin strips one inch thick and several inches long and place them over a smoky fire on racks made out of saplings. Care should be taken that only the smoke and very little heat reaches the meat. Also make sure that the strips of meat do not touch each other, as this will spoil the meat.

Personal Welfare

Severe sunburn and windburns may be present both winter or summer. Always keep your head covered if at all possible with a wide brimmed hat. Take advantage of any shade. **Be sure to use snowglasses in snow and ice conditions.** The bright sun reflection of snow and ice can result in snowblindness.



SNOW GLASSES

INJURIES . . . even minor injuries are potentially dangerous in the wilderness. Treat all cuts, sprains or bruises carefully, with antiseptic powder or wash with plain soap and water.

BLEEDING . . . to stop bleeding in most cases use direct pressure over the site of bleeding.

BURNS . . . submerge in cold water and treat with sterile vaseline compresses and elastic bandages from your first aid kit.

FOOT BLISTERS . . . tender-foots should be aware of blisters between toes and on the heels of the foot. To forestall this condition, keep your socks dry even if it means to stop and dry them over an open fire every so often. This same method is followed to prevent frost bite of the feet. If blisters do form do not puncture them, cover with antiseptic and apply a dressing.

INSECTS . . . can drive a person out of his mind in a short time. The black flies and the mosquitos usually are the most troublesome, and even a short exposure to them can make life almost unbearable.

There are three methods of protection from them available to you. None of them offers complete protection, but at least they give you some protection for a short while.

1. Make a smudge fire of green wood or leaves - this will keep the insects away.

2. Cover your exposed parts of your body with a thin layer of pliable clay or mud.
3. Use insect repellent. Use extreme care in the area of the eyes as it may cause permanent damage to the eyes.

Ground to Air Emergency Code

Many different methods have been used to attract attention of an aircraft flying over a stranded person to indicate location and immediate need of supplies. Here are a few of the most common.

Heavy smoke produced by any means whatsoever.

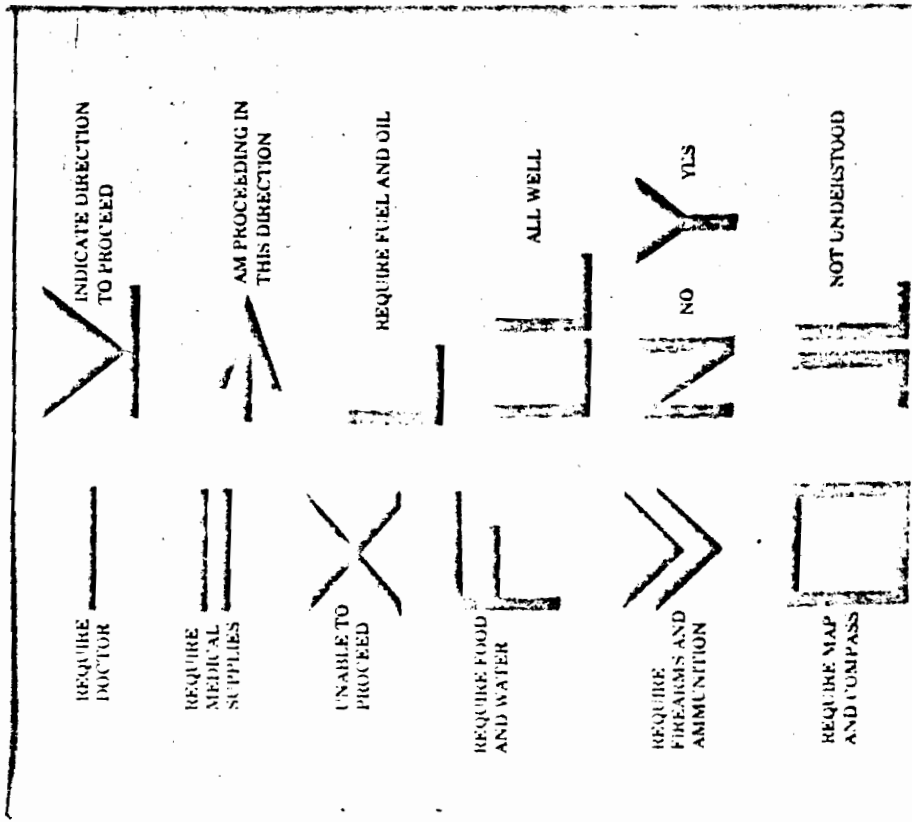
Flames produced by any means whatsoever (short of a forest fire).

Any pyrotechnical light, flares, smokepots, etc.

Flashes from a heliograph mirror or any other shiny object reflecting the rays of the sun.

Signals laid out on the ground in a contrasting color to their surroundings.

Also remember to take advantage of the shadow effect caused by piling snow blocks, rocks or logs on the



LEANING-POLE SQUIRREL SNARE . . . this snare is simple and very effective. Always set at least 3 or 4 loops on the same pole, located near the squirrels' food cache or nest.



WATER . . . a man can go a long time without food but only 3 to 4 days if all fluid intake is stopped. A man's normal fluid intake is about one quart a day and this amount should be maintained under all circumstances. Water is considered unsafe to drink in a survival situation without first having been purified. There are several ways to purify water.

1. Boil vigorously for at least 10 minutes.
2. Treat the water with halazone tablets.

3. Use ordinary household bleach, 8 to 10 drops to a gallon of water.
4. Use Tincture of Iodine, 12 to 15 drops to a gallon of water.

Remember any chemically treated water should stand for at least an hour before use.

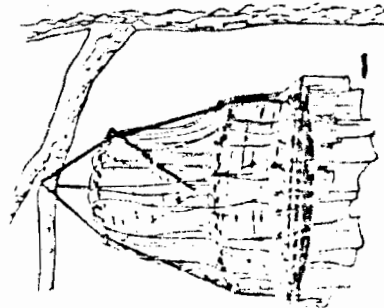
Do not eat snow. It tends to dehydrate the body.

Preserving Meat and Fish

Spoilage of meat and fish can spell disaster for the survivor. Steps must be taken to prevent spoilage or theft by small animals.

Always hang your food in a tree where it is safe from rodents or small animals.

WINTER . . . usually there is no problem in the winter, when the food can be cut up in small serving portions and just let it freeze. Thaw only what you need for each meal. Fish and meat can be dipped in water and frozen several times, and in this way a protecting coating of ice is created.



Look for cloudy unsettled weather when

The barometer is falling.
The temperature at night is higher than usual.
The clouds move in different directions at different levels.
High thin white clouds (cirrus) increase. A large ring appears around the sun or moon and stays there until the overcast clouds thicken and obscure the sun or moon.
Summer afternoon clouds darken.

Look for steady precipitation when

There have been signs of unsettled weather and -
The wind is south or southeast, the pressure falling.
Rain (or snow) within a day if pressure falling slowly.
If falling rapidly, rain soon with winds increasing.
The wind is southeast to northeast, the pressure falling.
Rain (or snow) soon.
Thunderclouds developing against a south or southeast wind.

Look for showers when

Thunderclouds develop in a westerly wind.
Cumulus clouds develop rapidly in the spring or summer early afternoon.

Look for clearing weather when

The barometer rises.
The wind shifts into the west or northwest.
The temperature falls.

Look for continued bright weather when

You can look directly at the sun when it sets like a ball of fire.
The barometer is steady or slowly rising.
Cloudiness decreases after 3 p.m. or 4 p.m.
Morning fog breaks within two hours after sunrise.
There is a light breeze from the west or northwest.
There is a red sunset.

Look for higher temperatures when

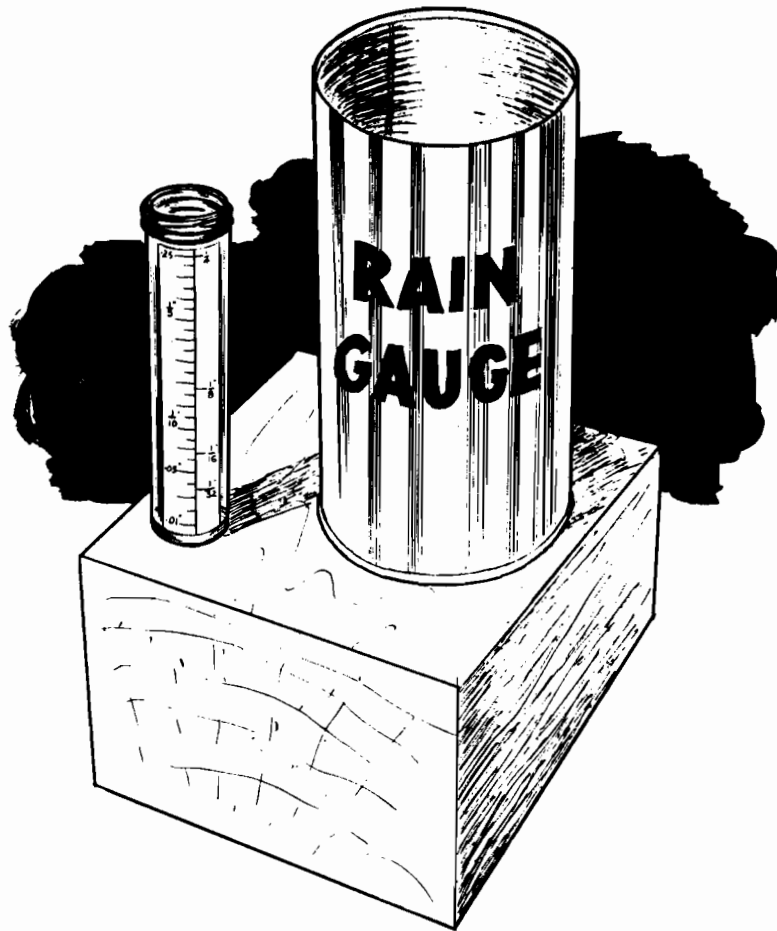
The barometer falls. In summer a falling barometer may indicate cloudy weather which will be cooler than clear weather.
The wind swings away from the north or the west.
When the morning sky is clear, except when the barometer is high or is rising in winter-time, or if the wind is strong from the north or west.

Look for lower temperatures when

The wind swings from the southwest into the west, or from the west into the northwest or north.
When skies are clearing - (although clearing skies in the morning will likely mean warmer weather by afternoon, particularly in the summer).
In the winter, the barometer rises.
Snowflurries occur with a west or north wind.
Pressure is low and falling rapidly, wind east or northeast and backing slowly into north. (The fall in temperature will be gradual.)

MEASURING RAINFALL

A simple instrument for collecting and measuring rainfall is called a rain gauge. Here is a way of making such an instrument yourself.



YOU'LL NEED

1. Tin can, open at top, with no lip, so you can pour rain out of it easily.
2. Wood to make a little platform (a log or a box stuck into the ground on end will also do).
3. Ruler
4. Tall glass jar (a narrow one with straight sides like an olive jar, chili sauce bottle, alka-seltzer bottle, etc.)

TO MAKE IT

1. Make stand of wood, log, box, etc., to hold tin on top so it won't fall off. The open top of can should be level and about a foot above the ground.
2. To calibrate jar: pour one inch of water into tin can. Pour this water into tall jar and mark water level with grease pencil or paint. This will be the mark for one inch of rain. From this first mark you can measure and mark up tenths of inches all the way to the top of the jar.

TO USE IT

Put rain can as far away from buildings, trees, fences, etc., as possible so they won't interfere with rain catch. Pour rain from can into calibrated jar and read off rainfall in inches and tenths of inches. Read rain can at least once a day, or better still, twice a day, at regular times, say at breakfasttime and at suppertime.

NOTE

To measure snow, just use a ruler; stick it into snow at several points in the yard; average the readings; distinguish between old and newly fallen snow. Ten inches of snow equal one inch of rain.

WORLD RAIN RECORDS

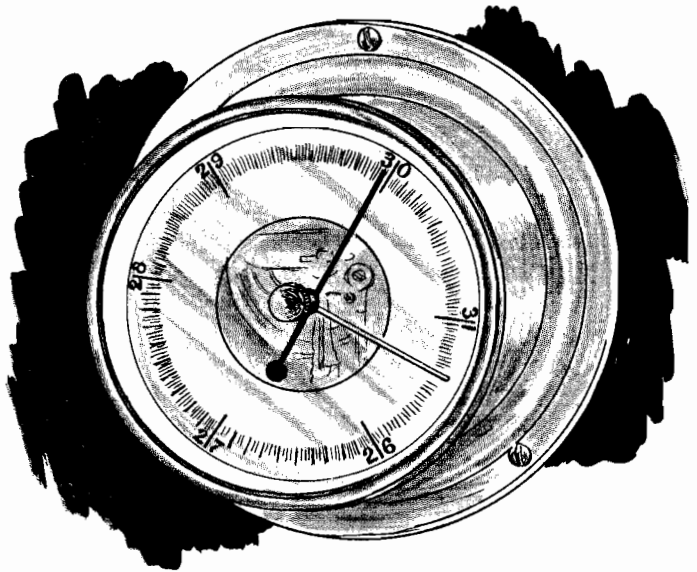
Average precipitation around the world	--- 33 inches a year
Greatest rainfall amount in 24 hours	--- 45.99" at Baguio, Luzon, Phillipines, July 14-15, 1911.
Greatest rainfall amount in one year	--- 905.12" at Cherrapunji, Assam, India, 1861.
Greatest average annual rainfall	--- 472" at Mount Weialeale, Kauai, Hawaiian Islands.
Least average annual rainfall	--- 0.02" at Arica, Chile

CANADIAN PRECIPITATION RECORDS

	<u>Least Average Annual Precipitation</u>	<u>Greatest Average Annual Precipitation</u>
British Columbia	7.67" at Ashcroft	261.80" at Henderson Lake
Alberta	7.58" at Empress	41.40" at Waterton Park
Saskatchewan	9.35" at Alsask	18.75" at Bangor
Manitoba	12.97" at Grass River	25.27" at Deerwood
Ontario	21.56" at Heaslip	41.57" at Parry Sound
Quebec	13.59" at Cape Hopes Advance	59.57" at Barriere Tourilli
New Brunswick	30.10" at Burnt Church	56.98" at Saint John
Nova Scotia	37.16" at St. Paul Island	66.27" at Ingonish Beach
Prince Edward Island	32.83" at Alliston	43.49" at Charlottetown
Newfoundland	20.41" at Cape Norman	65.34" at Cluny's

THE WEIGHT OF THE AIR

We live in an ocean of air. It has weight just as the waters in the ocean have weight. The atmosphere, extending many miles upward, presses down on the surface of the earth with a weight of about 15 pounds per square inch or about 18 tons on the body of an average adult. A standard sized house contains about 1000 pounds of air, and the weight of the atmosphere on a single square mile of the earth's surface is about 28 million tons. As one climbs a mountain there is less and less air above, and at the top of Mount Everest at an altitude of 29,000 feet, the weight of the air is only one third as much as at the surface. Because the weight of the air above compresses the air below, about half the total weight of the air is concentrated in the three-mile layer closest to the earth. The higher one goes, the thinner the air becomes and it becomes necessary to use oxygen masks or pressurized aircraft above a height of about 10,000 feet.



At the earth's surface water boils at 212°F but the boiling point of water decreases as air pressure decreases at about 2°F for each rise of 1000 feet. At 12,000 feet where water boils at 188°F it takes seven minutes to boil a "three-minute" egg. People living in the mountains of Chile at the 17,500 foot level have developed, as a result of prolonged exposure to "thin" air, long, large hearts, large chests and slow heart beats.

MEASURING THE WEIGHT OF THE AIR

In the 17th century an Italian scientist, Torricelli, found that the weight of the atmosphere could be balanced by the weight of a column of mercury enclosed in a glass tube. The pressure of the air was equal to about 30 inches of mercury and ever since that time we have measured air pressure in inches of mercury. From Torricelli's experiments the modern mercury barometer was developed and refinements have led to a very accurate instrument which is used in weather observing throughout the world. However, because it is cumbersome and fragile, it is unsuitable for general use in offices and homes.

The aneroid barometer is an ideal instrument for home use and its operation is quite simple. The dial is generally graduated in "inches of mercury", while inside the instrument is a thin metal cylinder partially evacuated of air. This cylinder responds to changes in air pressure in an accordion-like manner. The minute movements of the surface of the cylinder are amplified by a system of levers connected to a movable hand; the pressure may be read directly from the dial.

SETTING YOUR BAROMETER

A few days after Christmas, or Father's Day, weather offices across Canada receive many phone calls asking how to set gift barometers so that they will record the pressure accurately and can be used in forecasting the weather. The amount of pressure change and whether the pressure is rising or falling are more significant than the actual barometer reading. Therefore, it is not really necessary to "set" a barometer accurately unless one wishes to know the value of the pressure at any time. The movement of the hand will always reflect the changes in atmospheric pressure. However, many people like to be able to compare their barometer readings with the values quoted in the newspapers, or by TV and radio weathermen. The following advice will enable you to set your barometer so that its readings will be comparable with the readings of nearby weather stations.

1. First note the reading of the black hand. This is your "station" pressure now. On the back of the instrument there is a small hole. In the hole is a little set screw which can be easily turned with a small screwdriver. Test it by turning it gently back and forth. You will note that the black hand on the dial moves in response to the turning of the screw.
2. If you live near a weather office call and obtain the barometer reading in inches corrected to sea level. Then set the black hand on your barometer to read the same value.
3. If there is no weather office nearby you can use a table of figures to determine the correction required at any elevation above sea level. These tables are available from barometer manufacturers and are included in most books of mathematical tables. But you must know the height of your location above sea level. This information can be obtained by consulting your civic engineer, local railroad agent or a good road or topographical map. You will find from the tables, for instance, that for an elevation of 250 feet you move the black hand so as to add 0.28 inches; or for 500 feet you add 0.54 inches. This amount is to be added to whatever the value was before any change was made.

THE BAROMETER AND TOMORROW'S WEATHER

First of all, do not put much faith in the legends that are usually marked on the face of your barometer. Despite the words "stormy", "rain", "change", and "fair" you may often find the hand points to "rain" when the sun is shining.

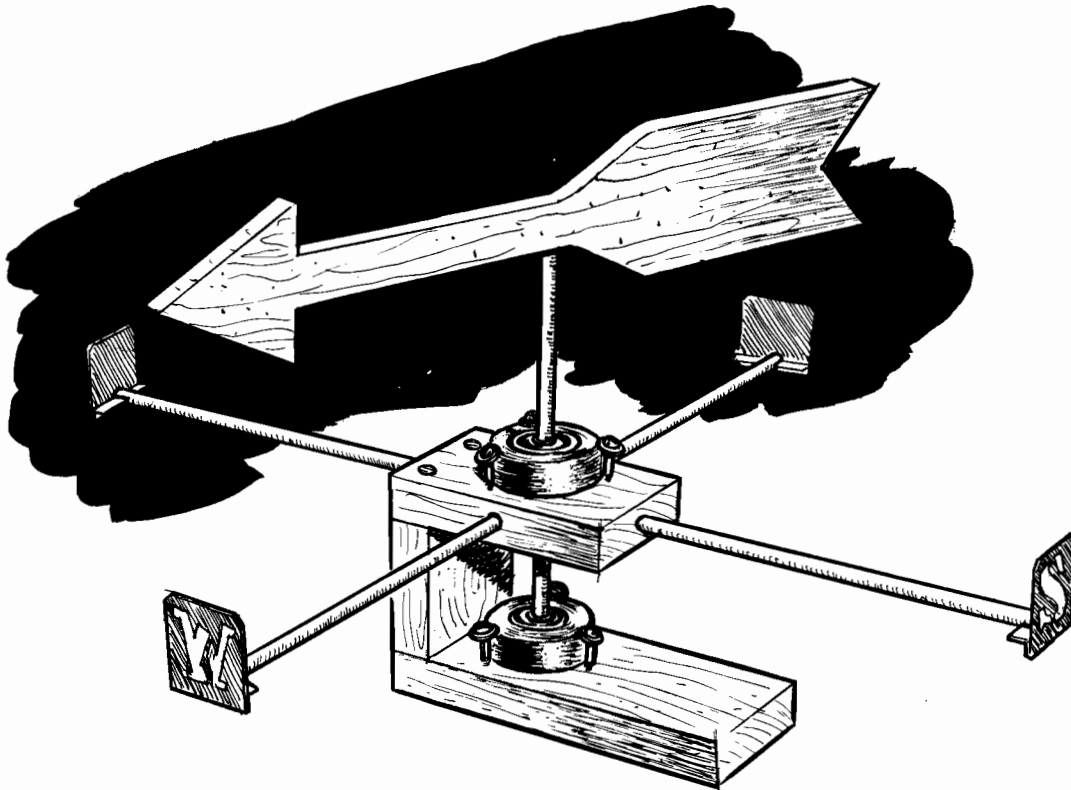
Weather changes are usually related to changes in the weight of the air overhead. The high pressure areas and low pressure areas on a weather map are indications of this weight of the air. In general these pressure areas move from west to east in Canada accounting for the fact that our weather usually moves from west to east. The weather associated with high pressure areas is usually fine, while low pressure weather is often stormy.

As these pressure areas move towards, over and past you, your weather-glass faithfully shows the change in the total weight of the air overhead. It won't take you long to learn the ways of your barometer. Read it carefully and regularly. At fixed times note down the barometer reading, its rate of rise or fall, the wind direction and the actual weather. In a few short weeks you'll begin to tie together the pressure, the wind and the weather elements and to make weather forecasts for your locality. You'll soon decide that the barometer reading alone doesn't tell the whole story but when associated with the current wind and weather you can draw some useful conclusions which help in predicting tomorrow's weather.

DETERMINING THE WIND DIRECTION

It's a basic weather rule that "the winds bring the weather" and an amateur weatherman can become adept at foretelling future conditions by associating the wind direction with other weather signs.

A simple wind direction instrument as illustrated can be constructed from a few basic materials.



You'll need 4 pieces of wood about $\frac{3}{4}$ " thick and of the following approximate dimensions:

3" x 7" (for bottom of base)
3" x 4" (for top of base)
3" x 3" (for upright part of base)
16" x 3" (for arrow)

2 roller skate wheels
6 large-headed screws about 1"-2" long, with washers
5 dowels (round sticks about $\frac{1}{4}$ " diameter) 8" long
4 pieces of metal about 2" x 2" (for direction letters)
glue

Making the Instrument

1. Cut out arrow from largest piece of wood. The tail of the arrow should be made much larger than the head to obtain best results. It's a help to draw half the arrow along the fold of a piece of folded paper, then cut around the outline. When the paper is opened flat it will provide a pattern with uniform shape for both halves.
2. Find the point of balance of the arrow, drill a hole at this point and glue one dowel into the hole.
3. Drill $\frac{1}{2}$ " hole through top of base and half way through bottom of base.
4. Fasten skate wheels over each hole with 3 large-headed screws.
5. Force dowel attached to arrow through holes of wheels so that the bottom of the dowel doesn't quite touch the wood base. Wax the end of the dowel so that it won't bind as it turns.
6. Glue remaining dowels into holes drilled around top of base. Paint letters on each of metal squares (N, E, W, S) and tack these directional letters to the ends of the dowels.

Mounting the Instrument

Erect the instrument in a location free from wind obstructions and well off the ground. If possible, line up the N marker with the North Star in order to properly position the directional letters. A pocket compass may also be used to determine the positioning but the readings will be magnetic rather than true bearings.

Using the Instrument

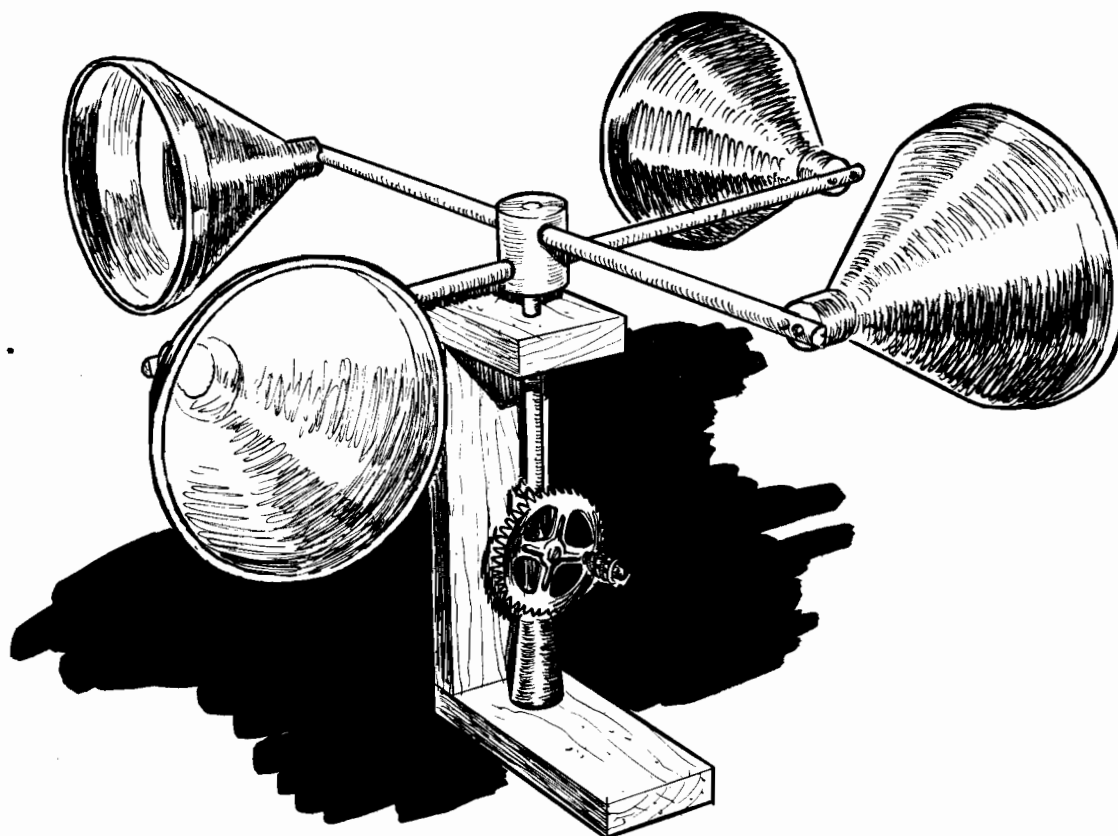
You'll notice that the arrow will point into the wind and therefore will indicate the direction from which the wind is blowing.

The arrow will vary in position from minute to minute especially if it is located where there are gusts and eddies caused by surrounding obstructions.

You may be surprised to find that cloud, rain and snow do not always come from the direction from which the surface wind is blowing. However, experience will teach you what wind directions in your locality are most likely to bring fair weather, rain or snow.

MEASURING THE WIND SPEED

Amateur weathermen learn to estimate the speed of the wind by noting its effect on branches of trees, leaves, smoke, water surfaces etc. But a more reliable method is to have an instrument which measures the wind speed. Here is a method of constructing a simple form of such an instrument.



You'll need 3 pieces of wood about $\frac{3}{4}$ " thick and of the following approximate dimensions:

- 7" x 3" (for bottom of base)
- 4" x 3" (for top of base)
- 9" x 3" (for upright part of base)

1 household egg beater (the type with only two beater sections, one of which is meshed with the big wheel works best)

4 dowels (round sticks about $\frac{1}{4}$ " diameter) 9" long
1 dowel 6" long

4 metal funnels about 5-6" in diameter at widest part
1 large wooden spool (carpet thread type)

screws

4 wooden plugs to fit snugly in cut-off ends of funnels
glue

Making the Instrument

1. Remove the "beater" ends of the egg beater, and the stem of the "idling" side. Leave a 3" U-shaped support attached to the small gear (which meshes with the large driving gear). This is the part which will permit you to attach the beater to the wind cups. (see step 3).

2. Saw the wooden handle off flat. Run a screw through the bottom of the base into the wooden handle of the beater.

3. Drill a hole in the centre of the top of the base, wax the 6" dowel and slip it through the hole. Fasten this dowel to the beater by means of a nut and bolt through the U-shaped part described in step 1 above.

4. Drill holes on 4 sides of the spool (spaced evenly apart) and glue in dowels to form arms at right angles.

5. Glue spool to upright dowel attached to beater.

6. Shorten the ends of the funnels. Insert wooden plugs into them then fasten the funnels to the arms by screws into the plugs. Make sure the funnels all point in the same direction.

Calibrating the Instrument

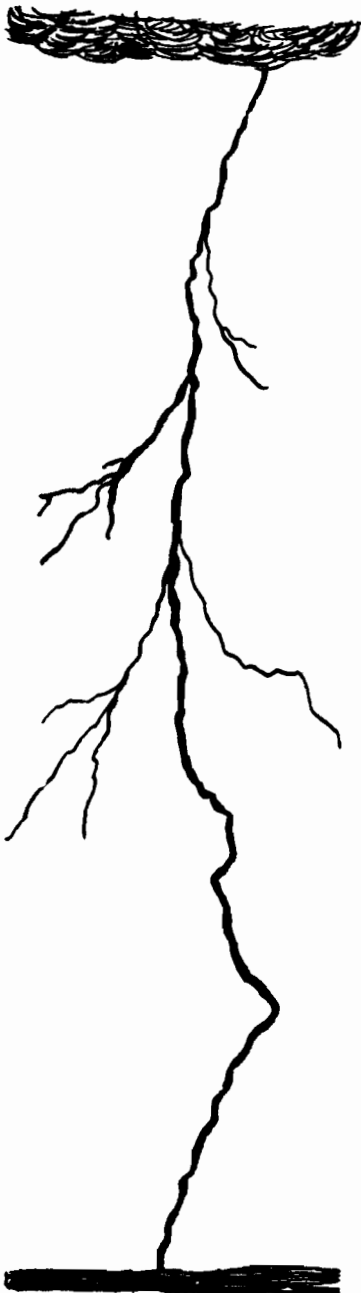
To give a reasonably accurate reading the instrument must be calibrated. One way of doing this is to have someone drive you in a car on a windless day. Hold the instrument at arm's length out the window and have the driver proceed at an even speed starting at five miles per hour. Count the number of turns the beater handle makes in 60 seconds. Do the same at ten miles an hour and so on in five-mile intervals to 40 miles per hour. Speeds above this lead to velocities beyond the ability of the instrument to measure. As a check on your calibrations, repeat the readings with the car travelling in the opposite direction.

Chart the information in two columns with wind speed on one side and revolutions of the handle per minute in the other. Then it will be easy to translate the revolutions per minute into speed in miles per hour. For quicker readings count the turns in one half minute and double this number to get the wind speed.

Mounting the Instrument

Erect the instrument in a location free from wind obstructions and as high as possible, remembering of course that you must be able to see the handle in order to count its revolutions.

IS LIGHTNING REALLY DANGEROUS?



Many believe that animals draw lightning and that open windows and doors invite lightning to come inside. Others say it never strikes twice in the same place and you're safe if you stay where lightning struck once before.

Although people do continue to be struck by lightning occasionally, such an accident is actually quite rare. In Canada the chances are only one in a million of being in the path of a lightning stroke, while the odds of being in an auto accident and not living through it are two hundred times greater. Actually, the bark of the thunderstorm is worse than its bite, for nine out of ten lightning discharges go from cloud to cloud or between parts of the same cloud and never reach the earth at all, and most of those that do strike the ground cause little or no harm or damage.

But each year a few people do get struck by lightning, and a great many worry and wonder about it. Here are a few facts to help you understand it better. Lightning is the discharge of static electricity which has gradually built up within a towering cloud until it is great enough to break through the resistance of the air and jump as a giant spark between either charged parts of the clouds or the cloud and the ground.

There are many beliefs about lightning, some true some false. Test yourself with this quiz and check with the answers on the reverse side.

1. It's dangerous to leave windows and doors open during a lightning storm.

2. When caught out in the open in a thunderstorm, take shelter under a tree.

3. You're safer in the city than in the country during a lightning storm.

4. When a thunderstorm occurs while you're driving in your car, it's best to get out and away from the automobile.

5. Lightning never strikes twice in the same place.

6. Thunder can be just as dangerous as lightning.

7. Toronto has more thunderstorms per year than has Vancouver.

ANSWERS:

1. F -Closing windows and doors will keep out the rain, but otherwise has practically no effect on lightning.

2. F -That tree is too good a target for the lightning discharge, and you could be right in the path. Animals are sometimes killed when they huddle under isolated trees for shelter.

3. T -The large number of tall buildings properly grounded, lead the lightning charge off harmlessly to the ground.

4. F -Your all-steel automobile will safely protect you - but if the rain is heavy you might be well advised to stop and drive on when the visibility is better.

5. F -Lightning often strikes the same place more than once. The Empire State Building has been struck 9 times in 20 minutes.

6. F -Thunder is just the sound of lightning discharge - it can't hurt you. One lightning expert puts it this way "If you heard thunder, the lightning didn't strike you. If you saw the lightning, it missed you; and if it did strike you, you don't know it now".

7. T -Toronto has an average of 22 thunderstorms a year; Vancouver only 4.

Woodcraft Trail Signs



This is
THE TRAIL



Grass Marking
The Trail



Turn to the
RIGHT



Turn to the
Left



(BRANCH)

This way →



THIS WAY



(Pebbles)

This Way →



short distance

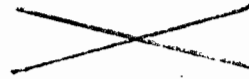
This Way →

Scout Trail Signs

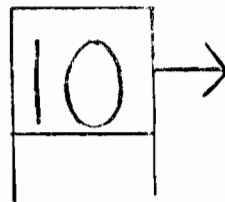
Trail to follow



Not this path



Message hidden 10 paces
in this direction



Gone home



Woodcraft Trail Signs



(STICKS)

This Way →

