Boy Scout Winter Camping

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BEAVER PATROL FIRST AID
HYPOTHERMIA & FROST BITE

HYPOTHERMIA

HYPO means " a lack of. " THERMIA means " heat.

Hypothermia occurs when a person's body core temperature drops so low that it is no longer possible to keep warm. In effect, the Body's furnace goes out.

Conditions need not be extreme for Hypothermia to develop. Any combination of cool weather, damp clothing, and wind can bring it on. In fact, most cases occur when air temperature is well above freezing. In wet cool weather, do all you can do to keep yourself and your clothing dry, and prevent the loss of heat through your head by pulling on a warm cap.

HOW TO SPOT HYPOTHERMIA

In order to function well, the brain must stay warm. As the Body begins to cool, The Victim will shiver in an attempt to create heat. Other symptoms may include irritability and, as the temperature of the brain begins to drop, disorientation, sleepiness, and incoherence. The ability to make clear judgements will be impaired, perhaps causing a victim to push on long after conditions dictate turning back. As the person becomes even colder, shivering will stop, followed by a slip into unconsciousness, and perhaps death.

HYPOTHERMIA CHALLENGE

If you suspect that another member of your group is acting strangely, you can challenge your companion to walk a 30 - foot line scratched on the ground. It's a test similar to that used by police officers to check the sobriety of suspected drunken drivers. If a Hiker can walk heel - to - toe the length of the line without difficulty, Hypothermia is still not a problem. However, if there is unsteadiness, loss of balance, or other signs of disorientation, see that your companion gets warm and dry even if the person protests. Everyone in the Patrol, must pass the Challenge before you travel on.

HOW TO TREAT HYPOTHERMIA

Rewarming and preventing further heat loss is the answer. In mild cases you can move the victim into the shelter of a building or tent, remove wet clothing, and zip the person into a sleeping bag until body temperature warms to normal. Make sure the head is covered with a warm hat or the sleeping bag hood. Give hot drinks and soup if possible.

In more serve cases you'll have to actively warm the victim's body. Get the person into shelter and into a sleeping bag, Ideally a double - size bag made by zipping together two single bags. Crawl into the bag with your companion, and strip the clothing from both of you. The effort of removing damp clothes will help you generate body heat, and the bag will protect you both from the cold outside. If the bag is large enough, have a third person crawl inside and strip down, too.

5. Use the BUDDY SYSTEM to ensure everyone's well-being, especially if Veteran winter campers are paired with those

   without much cold weather experience. Buddies can help each other pack for a trek, look after one another in the woods, and watch for symptoms of frost bite, Hypothermia, and exhaustion.

What keeps you warm?

When you really study what keeps you warm, it becomes clear that it is you! Your body produces all the heat you need. Your clothing is designed to hold in whatever heat you need to feel comfortable under a variety of conditions and activities. You will notice all our clothing is loose. That is because tight clothing constricts the flow of blood so the body heat cannot move around—just like when a faucet is turned off. That is why tight boots mean cold feet and a tight belt means cold legs.

COLD

C.O.L.D. That is an easily remembered key to keeping warm.

C. Keep yourself and your clothes *clean*. Dirt and body oils which build up on clothing destroy its insulating properties.

O. Avoid *overheating*. Clothing is designed to be taken off or added to in layers to maintain an even body heat.

L. Wear clothes *loose* and in *layers*

D. Keep *dry*. Wet clothing removes body heat 240 times faster than it will dissipate through dry clothing. Wet is trouble.

Ventilation

To regulate the amount of heat yet not get overheated and wet with perspiration, adjustments can be made to loosen up the waist, the cuff, and the neck opening, allowing more heat to escape.

Wet, windy, cold

This is the combination that spells danger to the winter camper. We avoid it by keeping dry, getting out of the wind when possible, and wearing the correct clothes.

Good clothing and equipment

Buy the best clothing and equipment you can afford, they are essential for your enjoyment of the outdoors in winter.

Fire

Nowhere in the winter clothing or sleeping systems will you see any provision for fire to provide body heat. Fire in the winter is a "false god" in regard to warmth. The body itself is like a big furnace. You stoke your furnace with good food; it burns the food and provides the heat which your heart circulates through your body. Layers of insulation determine how much of that heat is retained and how warm you will feel. Fire is useful for turning snow into water, for its cheerful glow, and for heating water in an emergency. Extreme care must be taken around an open fire not to get too close with synthetic fiber garments which can shrivel or melt just from reflected heat.

Winter

Short days, deep snow, and cold, clear, dry, air characterize deep winter. The beauty of snow-covered terrain and the hushed silence of frozen lakes provide unique setting for those who answer the call of winter camping. Learning to live in and enjoy the snow country is a challenge few dare to take. But once you have answered this call and have slept beneath the stars and the northern lights arrayed against a black velvet sky, or listened to the distant howl of a hunting wolf, snow camping will become an unforgettable experience which calls you back again and again.

Types of bags

Inner bags and outer bags may be made of synthetic fiber which can be rolled up compactly for travel. These are particularly tailored for long-distance trips in the winter. The cold weather foam outer bag is warm and while somewhat bulky, can be laced down and compacted into a serviceable size for travel.

Temperature

Temperature indicates how much of the system you will need. In warming situations, only part of the system may be needed. The winter camper adds or takes away individual items to maintain personal comfort. In extreme cold, with the entire system in use, clothing, plus a knit cap, also add warmth inside the bags.

Your Clothing Is Your Key to Winter Comfort

Headgear. This is personal preference but it is always a good idea to have at least one stocking or knit cap for use under a parka hood or in the sleeping bag. Soft, insulated caps with ear flaps are good, but should be loose-fitting.

Eye protection. Goggles are best but sunglasses and homemade snow shields will reduce glare from sun off the snow, a situation which can cause painful problems, even "snow blindness."

Scarf. Wool or synthetic fiber makes an excellent cold weather protector, but make sure it is plenty long.

Parka. The anorak or pullover should be windproof, should reach almost to the knees, and be large enough to fit over all the other garments. It should have a hood.

Hand covering. This is a personal preference. Use any loose-fitting combination of the following: wool gloves, wristlets, wool mittens, foam mittens, dacron mittens, leather oven mitts, wind and waterproof expedition mitts.

Jacket. A lightweight jacket used in combination with other outer garments makes a better "layering" system than one thick, heavy jacket. A hood for extreme cold is a welcome addition.

Vest. This insulated garment keeps the vital organs—heart and lungs—warm. Best style has a flap in back to protect the kidneys. Detachable sleeves convert a vest to an insulated jacket.

Sweater. Use a wool or wool synthetic sweater to layer.

Shirts. Wear full-cut, loose wool, or wool-and-synthetic fiber shirts.

Long underwear. May be wool, wool and cotton, wool and synthetic fiber, and synthetic fiber. Keep a spare set for emergencies and to sleep in.

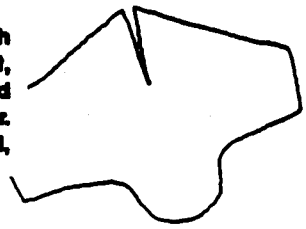
Pants. Wear full-cut, preferably with suspenders. In extreme cold, lightweight, windproof pants may be worn over everything.

Boots. Proper footgear is essential. A boot should fit somewhat loose for warmth, but the adage "cool is comfortable" is true; the feet should not sweat profusely. Use a combination of a light boot for travel, a thickly insulated boot for camp.

Socks. Wool, or wool and synthetic are good. Sometimes synthetic fiber stretch socks are worn next to the skin for added warmth.

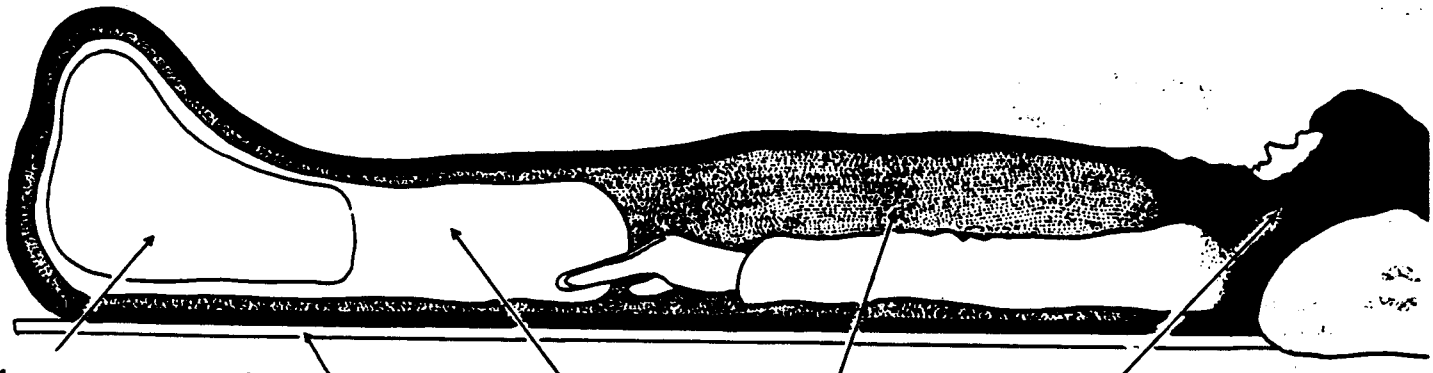
Insulated chaps. Equipped with snaps down the inseam, they may be put on or taken off without removing the boots. Taken off, the legs may be zippered together to form a half-bag inside the sleeping bag.

Boot liner. A specially cut piece of 1-inch foam can be wrapped around the feet, held in place with a nylon "sock" and used with the mukluk in very cold weather. Also, quilted, synthetic liners are used and, sometimes, felt liners.



Your Sleeping System Is Designed to Keep You Warm

Essentially, you are sleeping in four layers of insulation with a fifth layer underneath you to insulate you from the frozen ground. It is important to first make sure the feet are warm, so the sleeves in your parka are built to unsnap so they can be pulled over your feet like boot liners when you crawl in for the night. The insulated chaps are unsnapped, converted from individual leg coverings to a single bag which further protects the feet and lower extremities in the sleeping bag. The third layer is the "three-quarter bag" which comes up to the armpits and has a drawstring which allows it to be tightened down slightly in order to capture heat. The outside layer is a hooded sleeping bag which covers the entire system from feet to head and which has a drawstring allowing the opening to be pulled snug around the face to prevent loss of body heat.



Sleeve unsnaps and becomes a foot bag.

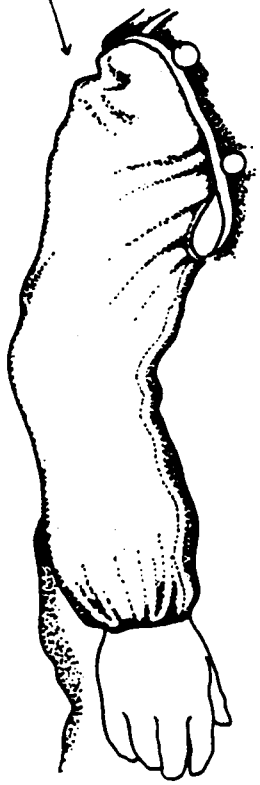
Foam pad stops cold from below.

Three-quarter bag, or bag liner.

Hooded outer bag covers everything.

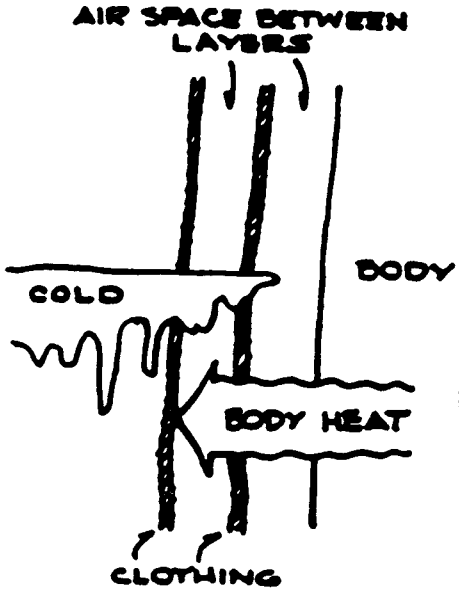
Sleeping pads. These are essential for insulating the body from the cold ground. They come in three types: 1) closed cell foam; 2) open cell foam, used with a closed cell pad; 3) insulated air mattress.

Insulated chaps snap together to form a half-bag.



YOUR SLEEPING SYSTEM WORKS BEST WHEN KEPT CLEAN AND DRY.

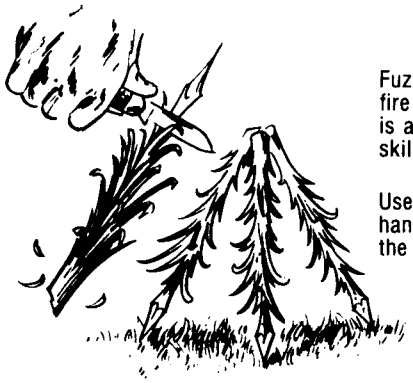
Six hints for keeping warm



Use air space between layers of clothing and between clothing and your body to keep body heat in and coldness out.

Keep your head warm, particularly your temples, to force heat to other parts of your body. Uncover before you start sweating.

Keep your torso warm with a long jacket that covers the thighs and sends extra body heat to other parts of your body.



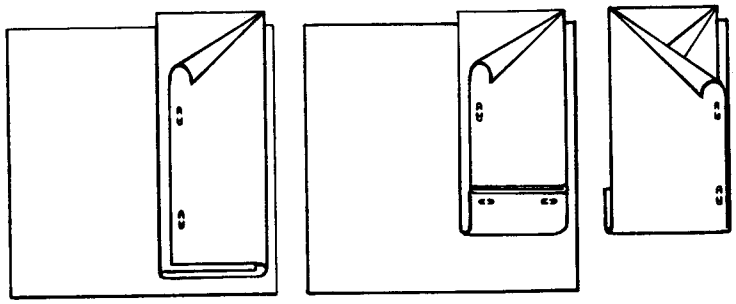
FUZZ STICKS

Fuzz sticks are the true woodsman's fire starters. And whittling fuzz sticks is an excellent test for proving your skill with a knife.

Use dry sticks, thumb-thick and a handspan long. Point one end. Hold the pointed end and fuzz the stick.

Cut shavings as long and thin as possible. But leave them on the stick to make it look like a Christmas tree.

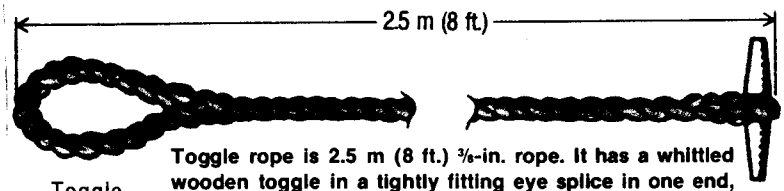
When you are good at fuzz-stick making, you may want to take up real whittling. Then you will need a whittler's knife with special blades.



Blanket sleeping bag is made from two blankets. Fold first blanket in three layers. Pin down free edge with blanket pins. Place on half of second blanket. Bring bottom up and pin. Fold other half of second blanket over first blanket. Pin edges. Fold bottom under.

In survival camp, you'll be eating edible wild plants. Here you'll also use fibers of wild plants for lashing your shelter and making fish lines.

If a stick is too thick to cut with a contact stroke cut it in two with a V-shaped notch.

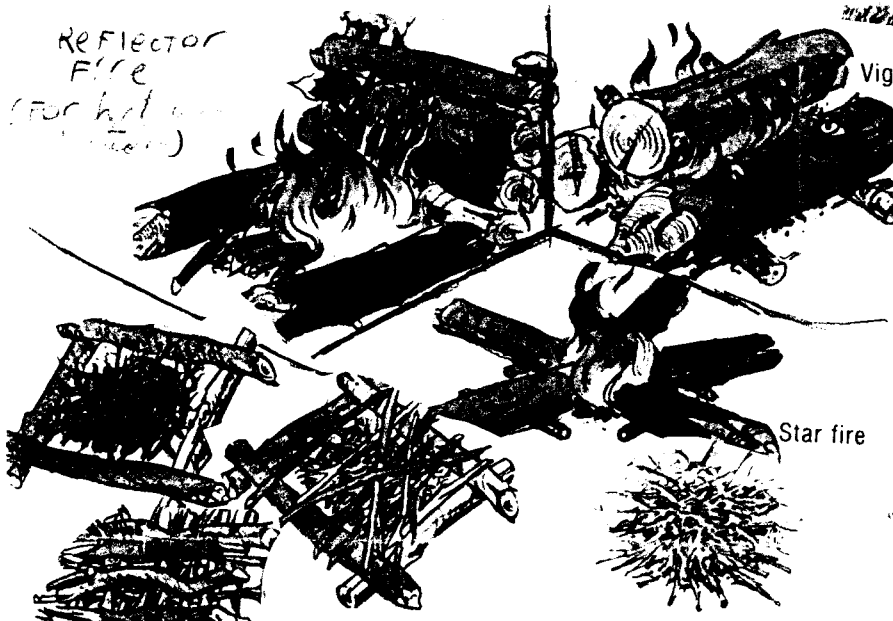


Toggle rope is 2.5 m (8 ft.) ⅜-in. rope. It has a whittled wooden toggle in a tightly fitting eye splice in one end, and an eye splice to fit over the toggle in the other end.

Toggle

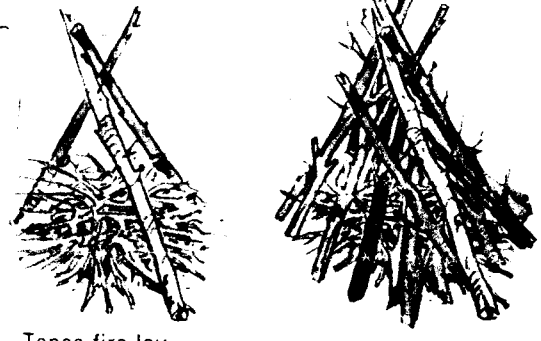
Reflector Fire

Vigil fire



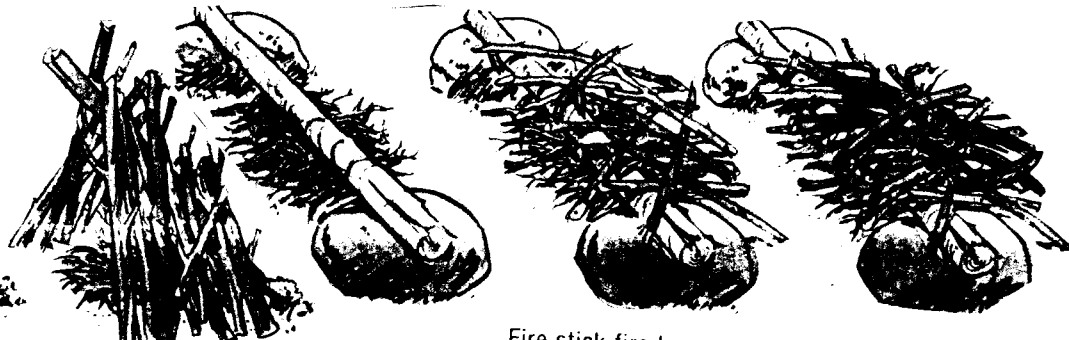
Star fire

Crisscross fire lay



Tepee fire lay

Lean-to fire lay



Fire-stick fire lay

What to Wear

To really enjoy winter camping, you must keep warm. The clothing you wear will not make you warm; it will only keep you warm. The warmth

is generated from your own body. The clothes you wear will either hold in that heat, and keep you warm, or let it escape and leave you cold.

The secret of keeping warm is to wear layers of loose fitting clothing, to control perspiration by letting the normal body moisture evaporate and to keep out the wind. If you wear layers of clothing — two light sweaters instead of one bulky heavy one, two pairs of wool socks instead of one heavy pair and so on — the trapped air spaces between the layers will act as insulation almost as much as the clothing itself, and will help keep the heat in.

This space also allows for the normal perspiration to move away from your body. Then as you perspire from exerting yourself on the trail, setting up the camp, or playing games, you can peel off layers of clothing. Then, as you stop activities, you can add layers to keep warm. If your clothes get damp from perspiration, the insulating property is lost and you will be as cold as if you were wearing light clothing.

In short, winter clothing should achieve three things if you are to be comfortable in winter weather: 1) ventilation, 2) insulation and 3) wind protection.

A typical winter suit includes long underwear. This could be the fishnet type with 9 mm mesh or larger, and about 5 mm in thickness. Smaller holes and "waffle" construction do not permit enough evaporation. Insulating underwear should not be worn next to the skin as it will absorb

perspiration, instead of letting it evaporate. The exception is wool underwear which keeps its insulating properties even when damp.

Next a wool shirt and pants will make up the first outer layer followed by a wool sweater or vest for the second layer. Depending upon the cold, you may either cover up with an insulated parka or wear a light jacket, wool cap, and shoe packs.

There are two ways to cool off while wearing the insulating layers: remove certain layers or increase the ventilation. Depending again upon the conditions whether you are hiking or camping, you may do one or the other. Remember, on the trail, removing layers may be awkward, especially if you have to pack away the removed layer.

Ventilation begins at the points of your body that are the most effective radiators. Remove your parka hood first, keeping your hat or toque on. The opening of your neck and shirt front will permit the heat from your torso to escape. A two way zipper is very handy here. Opening your cuffs has a dual advantage: the wrists and hands are excellent radiators because of the large blood vessels near the skin surface. The air movement up the sleeves will draw warm air away from the arms, especially the underarm area. You can ventilate the lower part of your body by opening your pant cuffs (a problem in deep snow conditions) or using high side zippers on your pants.

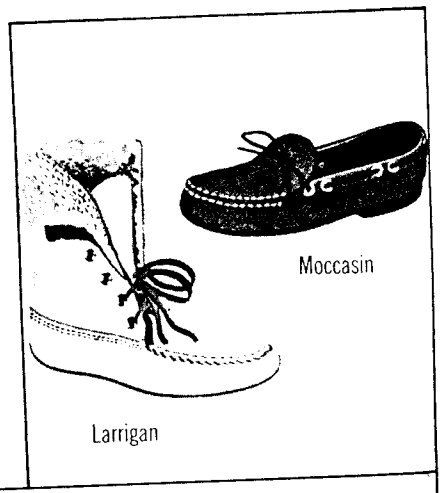
Once the ventilation openings are created, air flow should be encouraged by flapping your arms.

Wind protection is important to maintaining the other two conditions. Your parka will take care of this if it is cotton, three quarter length and you have nylon wind pants. If these are waterproofed, they can provide rain protection, too. A wind parka and pants may also solve the problem but they are not waterproof. A nylon poncho may have to be worn but this will prevent body moisture from escaping, thus cutting down on your insulation.

Footwear

For hiking without snowshoes or skis, the temperature, weather and the nature of the terrain will suggest the footwear — either moccasins, shoe-packs or larrigans, mukluks, laced leather ankle boots or high cut boots.

For frosty snow which isn't too deep, the Indian moccasin is ideal. When you are hiking over bare rough ground, or where you may hit wet snow, as in the middle of a sunny day, the shoe-pack or larrigan is best. Rubber overshoes worn over moccasins or running shoes also work well in this kind of weather. Unless your regular snowboots are lightweight, leave them at home. They are too warm, too heavy and are likely to cause sweating during long, non-stop hiking.



Footwear should be roomy enough to allow you to wear two pairs of wool socks plus felt or fleece insoles. These layers inside your boots absorb moisture and keep your feet dry and warm. Tight boots lead to frozen toes or feet, because they cut down on your circulation.

Take along a spare pair of moccasins to change into when the heavy going is over for the day. They will be comfortable and dry and will help prevent frosted toes and cold feet.

Socks

Socks should be of soft wool and should be smooth fitting without being too tight. There should be no holes or hard spots where the socks have been mended. Wear two pairs, the second pair a half-size larger. Socks should be long enough to roll for dry snow or to pull up well on the calf when travelling through damp or melting snow.

Tops

Over your underwear, wear a woolen, flannel, or heavy cotton shirt, then a sweater or a second wool shirt. Over all this, a water repellent and wind resistant jacket or parka will keep you warm in sub-zero weather. The parka's advantages includes roominess for freedom of movement and inside circulation of air to help eliminate perspiration dampness.

Pants

Wool pants or wind and water repellent ski pants tucked into the tops of your boots will keep your legs warm. Flap or zippered pockets are handy for keeping valuables in and snow out.

Mitts

Knitted wool mittens or mitt liners inside water repellent over mittens are best. Gloves aren't warm enough in sub-zero cold, even with an outer mitten. A pair of gloves may be useful around a bivouac (temporary camp) in milder weather.

Light cotton gloves will give you flexibility to work around the camp. When your hands get cold, slip them back into your mitts to get them warm again. Place your hands under your arms if they get really cold; once warm, you can put on the mitts again. Leather gloves may be useful for working around the fire.

Headwear

Your head is the single best control you have over body temperature. A wool toque or watch cap that can be pulled down over the ears should be the first layer, then your insulated parka hood, and finally the hood of your wind parka. The varying use of these three layers will give you a wide range of temperature control.

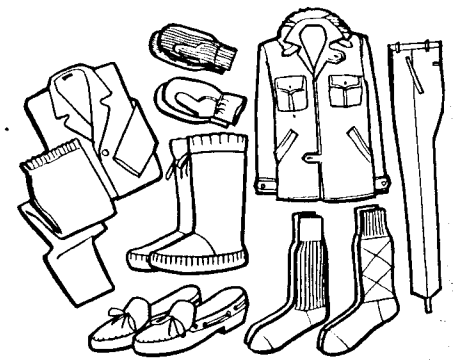
Pointers-Remember:

1) All clothing should be loose fitting, not binding, with closures at ankles, wrists, and neck.
2) Insulating thickness is warmth.
3) Ventilate before you sweat. Change damp articles of clothing such as insoles, socks, mitts.
4) Use a wind protection layer.
5) Use your head — uncover to cool, cover to warm.
6) Increase your metabolism (rate of chemical absorption of food by the human body). Exercise will cause your body furnace to work harder to keep you warm in the cold so feed it well.

What to Take

Here is the basic personal kit for a winter camper. You should use a suitable pack, leaving room for your share of the patrol gear and food.

TO WEAR:
underwear (flannel
pyjamas or long
johns)
2 pair of woolen socks
appropriate footwear
flannel or wool shirt
pants — wool or ski type
wool sweater
parka
wool mitts with water
repellent mitts over them
toque



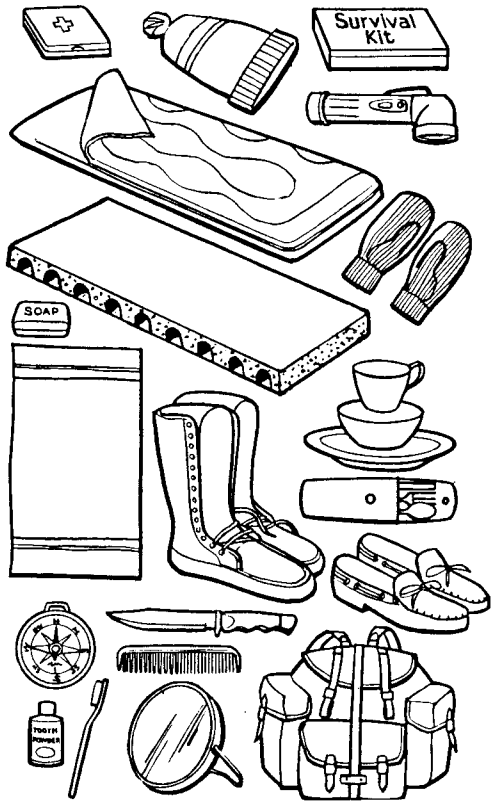
TO PACK:
bedding
pyjamas
winter sleeping bag
extra bed socks
foam pad

EATING KIT:
knife, fork, spoon, plate, bowl
and mug

TOILET KIT:
towel, soap and container, comb and mirror, toothbrush and toothpaste/powder

CLOTHING:
two pairs of extra socks, extra handkerchiefs, moccasins, extra wool mitts.

MISCELLANEOUS:
notebook and pencil
scout knife
emergency kit (pocket)
personal sewing kit
matches in waterproof container
candle and flashlight
first aid kit
compass
whistle



CEDARVILLE TROOP 95

WINTER CAMPING --- COLD WEATHER CAMPING

1. Layers of loose-fitting clothing provide much more warmth than a single bulky coat because the air trapped between the layers is good insulation. The well-dressed Scout wears:
   a. Thermal underwear over undershirt and shorts.
   b. Long-sleeved flannel shirt with woolen shirt or sweater over it.
   c. Light wool jacket or nylon jacket or parka.
   d. Woolen trousers or good warm type trousers.
   e. Visored cap with woolen earflaps or snug woolen cap covering ears. (A hat is a must since much heat is lost by an uncovered head).
   f. Two pairs of woolen socks inside roomy, water-repellant boots. (Extra socks needed too so feet can be kept dry. Figure on two pairs of socks per day, plus extra ones.) (Wear heavy boots or galoshes over low shoes.)
   g. Woolen gloves inside water-repellant mittens.

   (ABOVE ALSO APPLIES TO WINTER HIKING)
2. Before pitching a tent in snow, pack snow with feet, or else scrape or shovel it away until a firm layer is reached. Even better, if snow is not deep, dig down to the natural mineral earth. Bank snow against bottom of tent sides -- it will cut drafts. Pitch tent with closed back to the wind. Do not pitch tent under tree branches.
3. For ground cover, spread plenty of newspapers on ground -- the more newspapers, the better. (You can never have too many.). Newspapers are the best ground insulator there is. You can also lay down a heavy layer of dead leaves or pine boughs from a downed tree, if newspapers are not available. Cover the ground cover layer (newspapers) with a ground cloth. You can also put additional newspapers on top of ground cloth, then perhaps a sheet of plastic.
4. Next, fold a heavy blanket in thirds and place lengthwise on ground (two blankets would be ideal in extreme cold weather); then place sleeping bag on top of blanket. Fluff up sleeping bag to get plenty of insulating air in it just before going to bed. It's the air, not the stuffing, that keeps you warm. (NOTE: Have more underneath your sleeping bag then on top to keep you warmer). Do not use an air mattress in the winter due to the air inside being extremely cold, and it would be the same as sleeping on the bare ground without any insulation. Although you can use the flattened air mattress as an extra ground cloth.
5. To warm a tent, make a "tent heater". Heat several large, nonporus rocks and put them into a metal container, such as a #10 can or a large coffee can. Bring it into the tent. (Never have a fire in or close to a tent). Also, heat water and pour into a metal canteen (not a plastic one), and put canteen into sleeping bag to keep your feet warm. Make sure that the cap is screwed on tightly.
6. When ready for bed, undress in your sleeping bag. Wear a sweatshirt with a built-in hood and a pair of track pants. Or else wear thermal underwear and a stocking cap. Never sleep in your clothes because of perspiring during the night. You can freeze to death because too much sweat conducts heat from your body, then freezes.
7. Store up plenty of firewood. Collect twice as much as you think you'll use. Dig snow away to bare ground, if possible. Place a "floor" of sticks or stones and build fire on it. Use a hunter's fire. The heat from the fire will thaw the ground under the "floor", and will make a muddy mess unless you have a properly built fire base "floor".

REMEMBER THE SCOUT MOTTO "BE PREPARED". THIS APPLIES TO WINTER CAMPING TOO.

WINTER CAMPING IS FUN

TROOP 95 NOVEMBER 1990 CAMPING TRIP (11/16 -- 11/17 -- 11/18/90)

PLACE: DANIEL BOONE HOMESTEAD, Berks County, Baumstown, Pa. Camping in tents in the Picnic Area with Pavillions, Outhouse Latrine, and Water available

LEAVE CHURCH: Friday evening -- 11/16 -- at 5:30 PM.

ARRIVE HOME: Sunday morning -- 11/18 -- around 11:00/12:00.

COST: Troop Expense Fee $ 10.00 per person.

MEALS: Patrol Method Cooking. PL responsibility to purchase food supplies staying within a budget of $6.00 per person for Saturday Breakfast, Lunch, and Supper, and Sunday Breakfast. Meals only -- no snack type food.

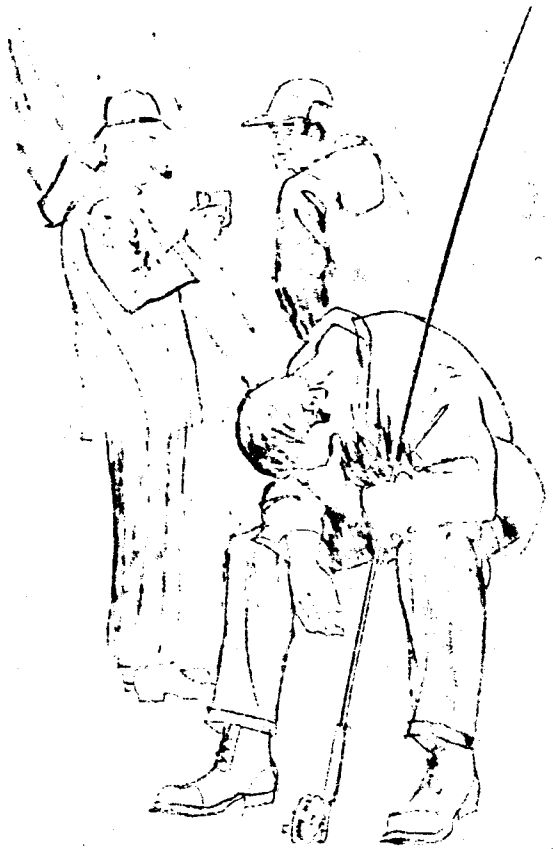
PROGRAM: Individual Advancement Opportunities to be stressed -- a guided tour of the Daniel Boone House -- a self guided tour of the other homestead buildings/areas -- Opportunity for good cooking skills for Saturday afternoon to prepare for Saturday Supper such as Dutch Oven Cooking -- Camping with Troop 525 Wilmington, Delaware -- fellowship with other Scouts, learning from their ideas -- combined troop campfire programs.

UNIFORMS: None required -- Wear good warm clothing for a winter camping trip.

GEAR: Come PREPARED for COLD weather. Need good warm & dry sleeping bag (A 4 lb or 5 lb sleeping bag is good for winter trips). Plenty of newspapers for ground cover under tents, under the ground cloth. Newspapers are excellant for ground insulator. Two or more wool blankets for under sleeping bag, folded in thirds. Need extra gloves & extra socks, hat with earflaps, wool knit cap for sleeping, mess kit & utensils, & layers of warm clothing.

NOTE: Earn a camping bead for your Camp Belt Totem. Also, This is our second winter camping trip for this season (October Camporee was the first), and you need at least four winter camping trips to earn the POLAR BEAR PATCH & SEGMENT for this year. How many Polar Bears will we have this year?

(THE TROOP EXPENSE FEE $ 10.00 MUST BE PAID ON MONDAY, NOVEMBER 12th IN ORDER TO GO ON TRIP. --- THIS IS A GOOD LOCAL TRIP TO ENABLE PARENTS TO VISIT ON SATURDAY AFTERNOON TO SEE YOUR GOOD COOKING SKILLS AND GOOD PREPARED FOOD)



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.***

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.**

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FOUR LINES OF DEFENSE AGAINST HYPOTHERMIA

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

COLD KILLS 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 judgement 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 WHATEVER 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. Immobile, 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* warmth donors. *Skin to skin contact* the most effective treatment.
5. Build a fire to warm the camp.

FROSTBITE AND FREEZING

Frostbite may be **superficial**, when only the skin and tissues just beneath the skin are affected, or it may be **deep**, when deep tissues are frozen and may be destroyed.

Frostbite is progressive. If superficial frostbite is identified early, tissues may not be damaged and gradual warming of the frozen part of the body may prevent more serious injury.

SUPERFICIAL FROSTBITE

Superficial frostbite usually affects the ears, face, fingers or toes. It appears as a sudden whiteness. In early stages, it is painless and may not be noticed by the person affected. As freezing progresses, the skin takes on a white, waxy appearance and is numb and firm to the touch, but the tissues beneath it are soft and resilient.

If frostbite is more severe and affects tissues beneath the outer layer of skin, there may be enough tissue damage and fluid seepage to cause blistering.

Gradual rewarming is the recommended first aid for superficial frostbite. It can be accomplished by the firm steady pressure of a warm hand, by breathing on the frostbitten part or by placing the frostbitten area in close contact with a warm area of the your own body, such as the armpit or the groin. This treatment may be all that is required.

DEEP FROSTBITE

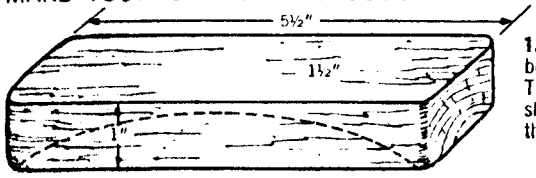
Deep frostbite is a serious injury, usually affecting the hands and feet. The frozen part appears white and waxy, and is cold and hard to the touch. The person with deep frostbite requires immediate medical attention. If transportation is required, it should be on a stretcher. However, if necessary, and even if the lower extremities are affected, walking a reasonable distance on a frostbitten limb in order to obtain medical aid is not likely to lessen the chance of successful treatment, provided that the limb has not been thawed.

snow blindness

This term is not quite accurate since actual blindness does not often occur. There is first a feeling as of grit in the eyes, they become hot and sticky, then begin to water, and the vision becomes blurred. Next comes sharp pain, and an impulse to shrink from the light.

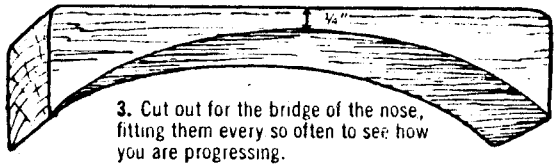
The sun need not be shining to cause snow blindness. In fact, the trouble develops more often in diffused light, on days of a slightly overcast sky, without shadows.

MAKE YOUR OWN ESKIMO GOGGLES

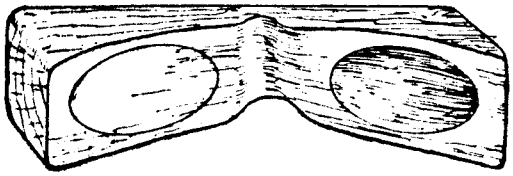


1. Any soft wood may be used. It should be straight grained. Round off the corners. Then with a piece of cardboard and shears make a template of the curve of the forehead at the line of the eyebrows.

2. Mark the line on the edge of the block and cut out as shown at right.

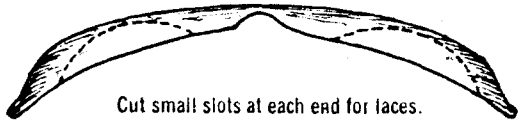


3. Cut out for the bridge of the nose, fitting them every so often to see how you are progressing.



4. Clamp in vise and cut out the depressions with a gouge or knife. The depressions or hollows should be from ¾ to ½ inch deep at the deepest point.

5. Then cut away the surplus wood to about the shape shown here ——→ Care must be taken not to cut away too much at first. The slits are then cut out with the point of a knife and a keyhole saw if one is handy.



Cut small slots at each end for laces.

Polarized or amber coloured glasses are good prevention and protection. And these must have side ventilation to prevent frosting.

If without glasses, the eyes should be kept fixed on a dark object ahead, such as a dark canvas covering a loaded toboggan or sled, or the back of a companion mushing ahead of you. A trail breaker developing eye trouble should fall back to the end of the line.

Failing the above sources of relief, the eyes can be given some help by almost closing the lids of both eyes and looking through the eyelashes.

To cut down glare, blackening of the nose and cheekbones with a mixture of charcoal and grease may be helpful.

Camp treatment for snow blindness consists of applying cold compresses or ice wrapped in gauze and shielding the eye as effectively as possible. In serious cases the patient should be kept in a darkened place for as long as necessary.

Accidental Hypothermia

Accidental hypothermia is the unintentional lowering of the body temperature below 35°C in an otherwise healthy individual. In this context, 'body temperature' is the temperature of the inner core of vital organs.

The problem of hypothermia, or exposure as it was once called, is simply one of balance. Heat loss caused by exposure to cold, wet and wind and the effect of mental and physical fatigue is balanced against the body's ability to produce heat and retain it. Factors such as food intake, fitness and clothing assist heat production and retention.

The onset of hypothermia is often insidious and, unless a careful watch is kept on all members of the party, the early signs may be missed, particularly if the party is dispersed. No party should set out unprepared for hypothermia and without the means to deal with it if it should occur.

The Heat Balance—Loss

Cold

Cold alone can chill the body. This is rare in lowland Britain but temperature changes with height. At 1,000 metres the temperature can be 6·5°C to 10°C colder than at sea level.

Wet

Cold combined with wet is far more dangerous: the insulation value of clothing immersed in water can be as little as one-tenth that of dry clothing. Water conducts heat away at about twenty-five times the rate at which it is lost in still air at the same temperature. Survival times in water can be estimated from the graph showing expectation of life, reproduced as Figure 1 on this page (this graph appeared on page 31 of the August *Scout Supplement* when we featured an article on *Survival Swimming*).

The importance of a *completely waterproof* outer shell is clearly shown from the graph.

Movement of Air and Body

Clothes themselves do not warm us. They simply trap relatively warm, still air close to the skin and between the layers of clothing; and a windproof

outer shell prevents the constant replacement of this insulating layer with a stream of colder air. The Sipple Wind Chill Index (Figure 2) gives an approximate guide to the cooling effect of various wind velocities.

Wind also increases with height. At 100 metres wind speed is approximately double its speed at sea level; at 1,000 metres it is at least treble. A chilling thought!

After immersion, a layer of water close to the skin can act similarly with certain clothes, for example polar suits, though the insulation gained is considerably less than with air. Swimming has the same effect as wind in changing the insulation layer.

Fatigue

Fatigue and stress complete the potential loss side of the balance. Lack of good food, poor sleep, sea sickness, uncertainty about one's abilities and hostile group pressure all take their cumulative toll on the mental desire to survive.

Beware of drugs and stimulants. Their use at home under medical prescription is fine *but* certain drugs or stimulants make the body more susceptible to hypothermia. It is worth checking with the doctor beforehand.

The Heat Balance—Gain

Heat produced as a result of eating food is controlled within the body by the hypothalmus situated in the brain. Sensitive to changes in the temperature of blood flowing through it and messages received from sensors in the surface tissues, it reacts in three ways:—
by constricting or dilating the blood vessels, thereby increasing or decreasing the blood flow to the skin and subsequent cooling;
by sweating; evaporation of moisture at the skin surface increases the magnitude of the cooling process; and
by shivering: the automatic rippling of the muscles to produce extra heat. At its maximum it is equivalent to fairly heavy manual work — and as much exhaustion.

The preservation of the core temperature is vital because a fall leads directly to mental deterioration and loss of muscle co-ordination and, eventually, to unconsciousness and death.

The hypothalmus, registering the cooling effect of the factors discussed above, immediately constricts the blood flow and ultimately shuts off the extremities. Shivering increases to its maximum. If physical movement of the body and the effects of the environment continue, the body cannot compete — the slide towards unconsciousness and death starts and will continue until reversed.

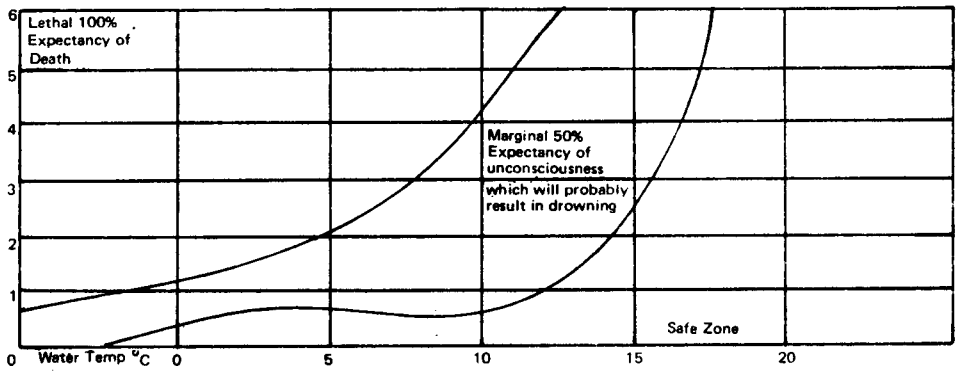


Fig. 1. Graph showing the expectation of life for a normally clothed person during cold water immersion (based on Barnet, 1962).

Treatment

Treatment of a hypothermia casualty varies according to length of exposure: acute (6 hours), sub-acute (6-24 hours), or chronic (24 hours). *However hopeless the situation it is worth attempting to revive a hypothermia casualty,* at least until a doctor tells you to stop.

Acute Hypothermia

Acute hypothermia is commonly caused by involuntary immersion, after a capsize, for instance. There has been a rapid drop of core temperature which must be stopped and reversed.

Remove the casualty from the hostile environment and, if near a hospital, lightly cover the casualty with blankets or the equivalent to prevent further heat loss. Then speedily, but smoothly, carry him to hospital.

The patient may be unconscious and suffering from respiratory and/or cardiac arrest and should be treated by normal first aid methods — though slightly slower and lighter in terms of ventilation and compression.

See Figure 3 for symptoms and signs in acute hypothermia.

As surface tissues begin to rewarm the patient may enter a shock-like state or hypotension (lowering of blood pressure). Carry in a head down position and under no circumstances administer hot drinks or alcohol, rub the skin or surround the patient with too many hot water bottles.

If help is not close to hand, the patient should be actively rewarmed in a bath of water heated to 40-41°C if naked or 44-46°C if clothed (just bearable to the elbow). Immerse the trunk leaving the limbs out of the water, stir the water and maintain its temperature. Remove the casualty to a warm bed when he begins to sweat.

The casualty may also suffer from 'after drop' — the occurrence of a further drop in core temperature after removal from the hostile environment and even after active rewarming has commenced. This drop may vary from 0·5°C to 3°C and should be watched for. Excessive man-handling should be avoided and constant reassurance given when the patient is conscious.

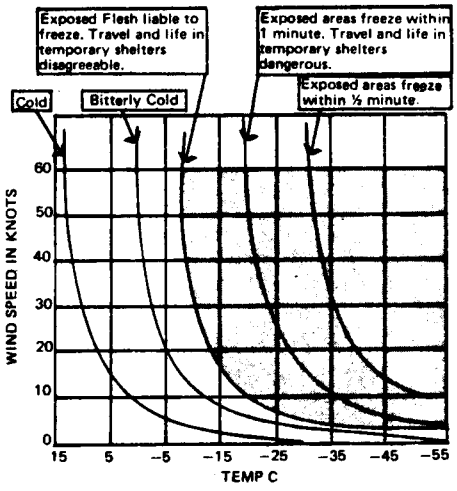


Fig. 2. Windchill Graph

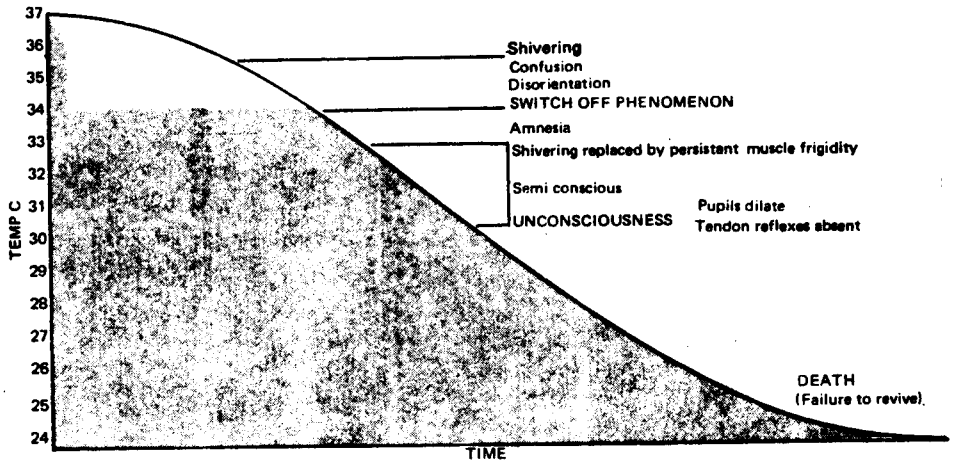


Fig. 3. Curve representing behaviour of body temperature during cold water imersion with associated signs and symptoms encountered at the various body temperatures.

Sub-Acute Hypothermia

This is common in hillwalking incidents. As it has taken longer to develop the problem is one of exhaustion and exposure rather than exposure on its own.

To reverse the downward trend stop, seek shelter nearby and remove the casualty from the hostile environment. Place him in a sleeping bag inside a polythene survival bag, preferably with someone else, and ensure adequate insulation from the cold ground.

Pitch the tent around them or build a wall for shelter. If convenient and practical, exchange wet clothing for dry. If the patient is conscious, give him and the remainder of the party warm, sweet drinks.

When and how to return to safety depends on the circumstances; the essential task is to stop the casualty losing any further heat. Again carry the patient in a head down position. The remainder of the party will also be suffering to a degree, so do not neglect them.

The recommended treatment is slow but sure. The body itself is in a very poor state and any sudden return to normal temperature is likely to be hazardous. If safety is close to hand, removal of the patient to a warmed room where he may recover gently is recommended.

If expert medical care is available in either of these cases it should be sought and instructions followed to the letter. After any case of suspected hypothermia the casualty should immediately be taken to hospital for a check up. Under no circumstances should he be allowed to go home saying: *'I feel all right. I'm fine'.* The chances are that he may have a further, fatal, collapse.

Summary

Hypothermia is a lowering of the body temperature below 35°C. The symptoms are:

- coldness, with the patient complaining of tiredness, and cramp;
- physical and mental apathy;
- slurring of speech and drooping eyes;
- sudden shivering fits;
- violent outbursts of energy or language;
- collapse — a late and grave sign;

A careful watch should be kept on members of the party at all times.

In treatment, *avoid* any action that will induce surface circulation, such as:

- hot water bottles;
- rubbing;
- alcohol.

Reversal of the downward trend in the core temperature is either by very rapid or by very slow rewarming.

Constantly monitor the casualty's progress — be aware of the possible dangers of hypotension, cardiac and respiratory arrest and after-drop, and know how to deal with them quickly and efficiently.

Prevention is better than cure. No party should ever venture on the hills or on water ill-prepared for an exposure risk — at any time of the year.

Acknowledgements

We are grateful to the following sources for material used in this article:

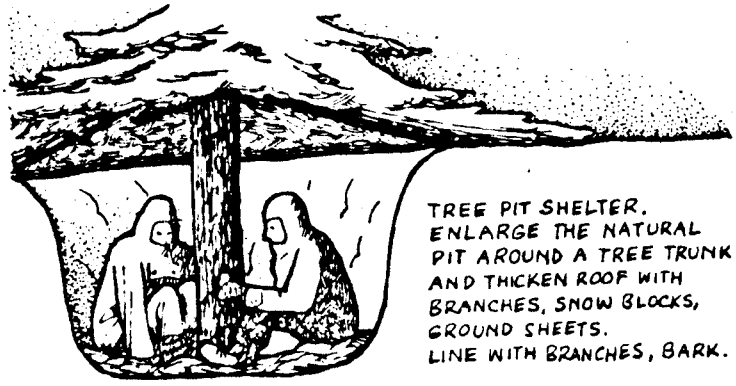
The Royal Yachting Association and National Schools Sailing Association's National Proficiency and Coaching Schemes *Handbook* by Alaistair Mitchell, published by the Royal Yachting Association Scottish Council.

Mountain Hypothermia — a pamphlet published by the British Mountaineering Council (available from the Training Department at Gilwell Park, price 5p).

Material written by H. M. Jones, Scottish Headquarters Commissioner for Water Activities.

Mountain Rescue Committee accident reports.

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 fulfil this key to prevention.



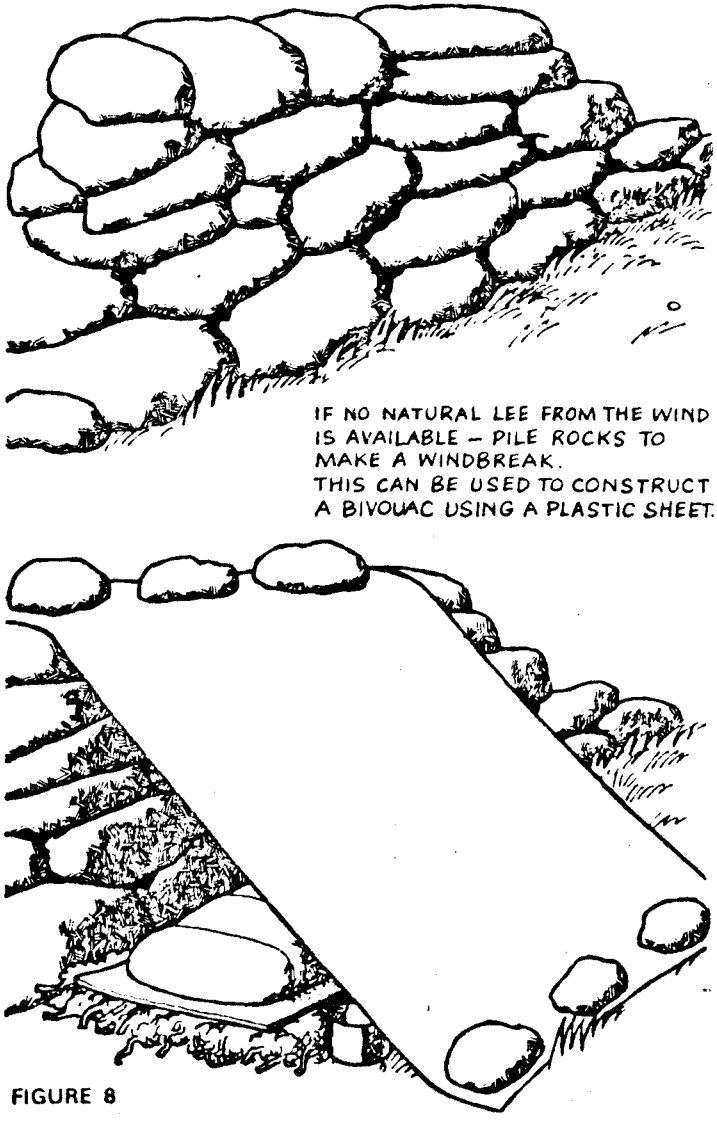
TREE PIT SHELTER.
ENLARGE THE NATURAL PIT AROUND A TREE TRUNK AND THICKEN ROOF WITH BRANCHES, SNOW BLOCKS, GROUND SHEETS.
LINE WITH BRANCHES, BARK.

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



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

The third key is "food." Two considerations should be taken into account here. The first of these is: **don't skip meals.** Physical exertion requires energy and, to produce the required energy, our bodies require fuel — food. The second consideration is maintaining a high energy level while on the outing. This can be accomplished by munching on "squirrel food" — a mixture of raisins, candy and nuts or "hiker's bird seed." A recipe for "hiker's bird seed" in the Oshawa Council's *Totem* consisted of:

a) 3 boxes of individual packages of sugar-coated breakfast cereals,
b) 2 small (10¢) bags of sugar-coated candies,
c) 1 handful of raisins,
d) ½ handful of shelled, dry-roasted peanuts.

Mix all together and place in small plastic bag. Carry in your pocket for nibbling on the trail.

FOOD AND MENUS

Winter Scouting menus are a little different from those you planned for summer outings. You don't have to worry about refrigeration, but the freezing of certain foods can cause some difficulty. As in summer, the weight of the food should be kept to a minimum.

Meal preparation, cooking and cleanup take longer during winter camping. The cold slows things down, and more time is spent in gathering wood and water and setting up the kitchen area. Plan in advance, as we suggest in the Campcraft section. Make sure that each patrol member has a special job. A good, hot breakfast is the best way to start off a winter camp morning, so remember to start early.

You need high-energy foods. Here are a few suggestions: Oatmeal; bacon; prepared biscuit and pancake mix; molasses; corn syrup; honey; dehydrated milk; vegetable soup; meats and eggs; frozen meat; fish; cornmeal; dried meat; salt; butter; tea; cocoa; prunes; dried apricots; raisins; nuts; chocolate; egg powder; sardines; potatoes; fruitcake; hardtack; biscuits; cheese; canned goods and hard candy.

A good trail tip is to prepare food at home, such as baked beans and stews, freeze it, then cut it into individual-size blocks. All you need to do is heat one for an easy, quick meal on the trail. Hot beverages like tea, coffee, soups and hot chocolate give energy and heat and are great morale boosters. Take a look at the section on cooking and menus in "Campcraft". Then keep the following points in mind when planning your menu:

1. Weight/food value. Where possible buy dehydrated or freeze-dried foods to save space and cut down on weight. At the same time remember to include foods of high fat and sugar value.
2. Temperature — foods that spoil when they freeze, such as fresh fruits and vegetables, should not be included.

   Don't stick to pot-and-pan cooking. Try cooking food in aluminum foil or a tin can, skewer or spit. You can try broiling using a "tennis racket" broiling grill. These cooking utensils are light and don't take up much space. Also, foods cooked using these utensils are an interesting change from plain, boiled dishes.

The natural refrigeration of winter will reduce the perishability of meat, however, fresh fruit and some vegetables will freeze making them unusable. Items with a liquid content can be expected to freeze.

Another consideration is that the caloric intake needed by the average person about doubles during an active winter program. The average intake for a Scout aged boy should be between 1800 and 2400 calories per day. On winter camps the extreme cold and activity boosts this required level to 5000-6000 calories per day. Your body's furnace is running full blast and needs the fuel.

Your body needs liquid intake. Because your body is working at a high heat level it is giving off large quantities of water even if you aren't perspiring. Include lots of liquid (preferably hot) as part of your menu. This helps keep you warm.

Food loses heat during cold temperatures. As a result, heat retaining dishes such as soups and stews should be emphasized, and frying should be eliminated. A fried egg and bacon will have congealed in fat between the pan and your mouth.

As clean-up is the extra chore in winter camping, one-pot meals should be planned. Use of stoves also makes clean-up easier.

Planning the Menu

The hot beverages that are so necessary to a good winter camp might include coffee, tea and hot fruit drinks. The hot fruit drinks are most easily made from the powdered breakfast drink packages. Hot chocolate is quite suitable but tends to make clean-up more difficult. Remember, lots of hot liquids for each meal and for between meal snacks are needed. Try to plan for a minimum use of pots.

Camp breakfasts should avoid the traditional fried foods because of quick heat loss. Hot porridge liberally sweetened with brown sugar and raisins is an old winter standby. Syrups can be used as sweeteners too, but their tendency to freeze creates problems.

A breakfast of stewed tomatoes, livened up with green pepper, onion, and fried bacon is a tasty alternative or addition to porridge. The stewed tomatoes can be prepared before camp. Scald fresh whole tomatoes in boiling water. The skin will peel off easily and the core should be removed. These whole tomatoes can now be frozen in plastic bags until ready for use. This dish does require two pots (the frying to prepare the bacon), but it does provide a welcome change.

Lunches should emphasize simplicity and ease of preparation as they are often eaten on the trail. Hot soup and a pre-packaged sandwich is quite acceptable. The boil-in-bag meats will produce a hot sandwich and can be heated in the soup water prior to making the soup. Be sure the bag is clean before boiling. When selecting camp bread, bannock or the heavier rye breads have the advantage of squash resisting, in a pack and generally are less bulky than other breads. If the lunch is taken on a day outing, a thermos of hot liquid should be considered, if a fire is not desired.

Supper should be a filling and hearty meal. Stews, chili, baked beans and macaroni and cheese are good choices. They "stick to your ribs" and retain heat well. Each of these dishes freeze well and can then be pre-made to be simply thawed out in camp. Fairly consistent cold weather is needed to make pre-making a success.

Desserts can include cookies or fruit cake. Any dessert that is capable of being frozen is acceptable, and desserts should be planned for each meal. The caloric value is needed.

Trail snacks are another good idea in winter camping. These high energy snacks should be easily carried in a pocket. Chocolate bars are a poor choice, because although they have a high caloric value, chocolate is digested slowly. GORP is a favourite of cross-country skiers and backpackers. Recipes vary greatly and experimentation will produce your own favourite combination. However, here is one recipe to get you started: equal parts raisins, peanuts, smarties (the kind that don't melt in your hand are best) and coconut. For more bulk and less concentration, sweet dry cereal may be added. Place the mixture in a zip-lock or other plastic bag and keep it handy in an outside pocket. A handful when you feel hungry will give you that added energy demanded for winter activities.

Dehydrated foods can cut down on weight, but tend to increase costs. Consider dehydrated foods in supermarkets (e.g. macaroni). You can repackage these in plastic bags to save bulk and you usually save considerable cost. Weight may not be as big a concern in winter camping, as toboggans or sleds are often used to assit in transportation.

Water is better than snow if it's available through the ice of a lake or stream. It uses far less fuel to heat than snow. Water purity is still a concern in the winter and should be treated with the same care as it would be in the summer, (see p. 25 for methods). If snow is used to produce water, heat it at a medium temperature. It can be "burned" if heated too quickly. Ice should be chopped fine or added to hot water to prevent burning.

If a hole is chopped in the ice, mark it clearly with a cut branch of evergreen. As long as the hole is open you are responsible for a potential hazard. The hole can stay unfrozen if some snow is used to cover it when not in use.

Experiment with different dishes just as you would for summer camping, but watch the five special considerations for winter eating as you make your plans.

Methods of Cooking

Other than the standard pot method try tinfoil and boil bag cooking.

1. Tin Foil

Ways to use tin foil

a) form foil to make pots or pans for cooking vessels
b) wrap food in foil for cooking directly over the fire
c) use foil to protect pots and pans
   — bottoms: from soot and ashes
   — insides: from odours such as fish

Wrapping food in tin foil

a) Apples: place apple in centre of a square of foil which has been "buttered". Bring sides of foil up and press together to form seal. Repeat with 2nd layer of foil.

b) Other food: place food in centre of foil. Join sides A and B and fold over several times to seal. With each of sides C and D fold edges toward centre of package. Repeat for second layer of foil. (See

2. Cooking Bags

Buying Cooking Bags

a) Purchase a known brand or test them at home before taking them to camp.

b) Bags are available in various sizes. Remember to have the bag large enough so that food can be frozen in a fairly thin layer whenever possible.

— Hints For Using Cooking Bags

a) Attach strings to your bags at home. It is easier to do with warm hands and makes removal of the bag from the cooking pot much easier.

b) When using a community pot for group cooking, individual bags can be identified easily by using coloured string or by tying some light object into the end of the string such as a pop can tab, plastic button etc.

c) When freezing non-formed foods such as scrambled eggs in cooking bags use a flat dish or pot (smaller in diameter than your proposed cooking pot) to serve as a mold. This eliminates having a frozen shape with pointed corners that won't fit in the cooking pot.

Sample Recipes

CB indicates cooking bag, TF tin foil.

HOT APPLE JUICE WITH CINNAMON (CB) — Place a portion of apple juice in a boil bag. Add 1/2 cinnamon stick. Freeze.

SCRAMBLED EGGS (CB) — Mix 2 or 3 eggs with 2 or 3 tbsp. milk. Season with salt and pepper. Mix well. Pour into bag. Freeze. Variations: To above mix add:

a) bacon that has been pre-cooked and crumbled

b) sausage that has been pre-cooked and cut into bits

c) canned mushroom pieces.

SAUSAGES (TF) — Place sausages in centre of foil. Season with salt and pepper. Apple rings may be added if desired. Freeze.

GRILLED CHEESE SANDWICHES (TF) — Butter inside of each of 2 slices of bread. Insert cheese and close bread. Butter outsides of sandwich. Wrap in foil. Freeze.

HAMBURGER AND VEGETABLES (TF) — In centre of foil square place hamburger patty. Season with salt and pepper. Add a layer of thinly sliced potato. Season. Follow with layers of desired vegetables seasoning each layer in turn. Top with a small pat of butter. Wrap in foil. Freeze.

SURPRIZE FRANKS (TF) — Slice frankfurters lengthwise and insert cheese in the slit. Wrap in foil. Freeze.

BAKED APPLE (TF) — Core apple. With the following mixture, fill the centre of the apple; brown sugar, butter cinnamon (mix into paste). If desired, raisins may be added to mixture. Place on a square of "buttered" foil. Wrap. Freeze.

BANANA SUPREME (TF) — Place a banana which has been peeled and rubbed with lemon or line juice in the centre of a piece of "buttered" foil. Sprinkle banana with a mixture of cinnamon and sugar. Cover with miniature marshmallows. Wrap. Freeze.

FRUIT GRILL (TF) — Use any canned or fresh fruit (or pie filling). Place fruit on a square of "buttered" foil. Top with marshmallows. Wrap. Freeze.

FISH STICKS, POT and VEGETABLES (TF) — Directions same as for hamburger.

WEINERS AND BEANS, SPAGHETTI, MACARONI, STEW and other similar canned products may be cooked in tin foil packets or in boil bags. These items are pre-cooked and require only heating. Try variety by adding suggested ingredients to:

1) beans: pineapple chunks, weiner bits, sliced olives
2) spaghetti: pre-cooked bacon bits, pre-cooked hamburger
3) macaroni: cheese chunks, or as in spaghetti.

Footwear

For hiking without snowshoes or skis, the temperature, weather and nature of the terrain will suggest the footwear — whether moccasins, shoepacks or larrigans, mukluks, laced leather ankle boots or high-cut boots.

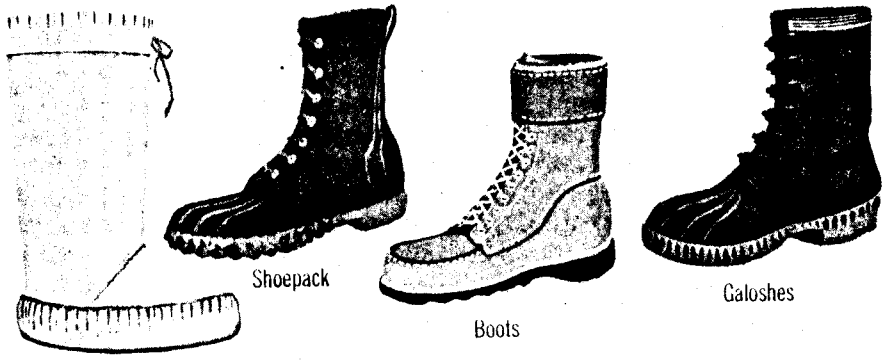

Larrigan


Moccasin

For frosty snow which isn't too deep, the Indian moccasin is ideal. When you're hiking over bare, rough ground, or where you may hit wet snow, as in the middle of a sunny day in early spring, the shoepack or larrigan is the best. Rubber overshoes worn over moccasins or running shoes also work well in this kind of weather. Unless your regular snowboots are lightweight, leave them at home. They're too warm, too heavy and are likely to cause sweating during long, non-stop hiking.

Footwear should be roomy enough to allow you to wear two pairs of wool socks or one pair of socks plus felt or fleece insoles. These layers inside your boots absorb moisture and keep your feet dry and warm. Tight boots lead to frozen toes or feet, because they cut down your circulation.

Take along a spare pair of moccasins to change into when the heavy going is over for the day. They'll be comfortable and dry and will help prevent frosted toes and cold feet.


Mukluk

Shoepack

Boots

Galoshes

nightwear

Suitable sleeping clothes will vary with circumstances and conditions — the period of hiking, the temperature and the type of shelter to be used (cabin, open front bivouac or tent). In any case a complete change of clothing to fresh pyjamas and dry socks is a must for comfort and warmth. Change from the skin out before turning in for the night. Keep your head out of the sleeping bag, because breath will condense inside and form a layer of frost. Wear a wool toque or hooded sweatshirt so that you won't lose the heat generated by your body. If you are worried about frost bite on the nose, a piece of gauze stuck across the nose with adhesive tape is a quick and easy safeguard.

BEDDING

When it comes to bedding, you have a choice of sleeping bag or blankets. Which one you choose depends on a number of things: your personal taste, how cold the nights are, how much weight you can carry and what you have or can afford to buy or make.

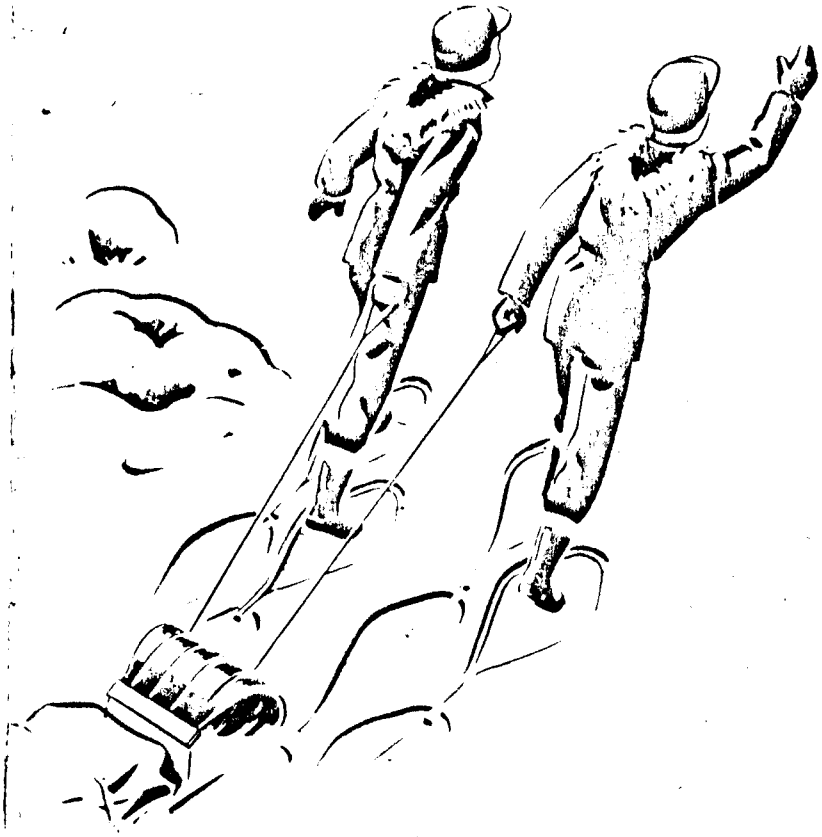
Airspace is the secret of good insulation, whether you're using blankets or a sleeping bag. Fluffy, loosely-woven materials that provide tiny air pockets make the best sleeping gear. For below-zero temperatures, a sleeping bag should have not less than 1.45 kg of down filling or 1.9 kg of Dacron fiberfill II.

Whichever type you use, air your bedding every morning as early as possible. During the night, your body gives out a great deal of moisture which is absorbed by your bedding. If the bedding is not thoroughly aired, it will stay damp, and if the nights are cool, so will you.

Undress and dress inside your sleeping bag. Put on fresh, dry underwear at night and sleep in it. Unless you perspire during the night, you can dress over it the next morning and wear it all day.

Use a foam pad under your sleeping bag. An air mattress will be too cold unless you put a thick layer of newspaper or spare clothing between it and your bag. Fluff up your sleeping bag to put plenty of air in it, and lay it out on top of the newspapers. If you put the newspapers under your ground sheet, they'll become wet, soggy and will be hard to dispose of at the end of your camp; but if you keep them dry, you can burn them.

WINTER SCOUTING



There are five keys to preventing the development of hypothermia. Rather than just listing these, let's look at each one in some depth. The first and most important key is "awareness." Remember those three combined conditions mentioned earlier — wetness, wind and cold? Any outing where these are present carries the threat of hypothermia. And keep in mind the subtle, creeping way in which hypothermia tends to develop.

Estimation of Wind Velocity in Kilometres per hour.

Indication	Velocity	Indication	Velocity
Calm: smoke rises vertically	0-1.5	Large branches in motion billow and strain	40-50
Smoke shows wind direction	1.5-5	Whole trees in motion; walking against wind difficult; loose snow rises in air	51-62
Wind felt on face; snow eddies	6-11		
Small twigs in constant motion; light flag extended by breeze	13-19	Twigs break off trees; walking generally difficult	64-74
Snow is raised; branches move	21-29	Branches break off trees	76-86
Small evergreens sway; tents flap	30-38		

Actual Thermometer Readings (°C)

Estimated Wind Speed (km/h)										
Calm	10	4	-1	-7	-12	-18	-23	-29	-34	-40
8	9	3	-3	-9	-14	-21	-26	-32	-38	-44
16	4	-2	-9	-16	-23	-29	-36	-43	-50	-57
24	2	-6	-13	-21	-28	-36	-43	-50	-58	-65
32	0	-8	-16	-23	-31	-39	-47	-55	-63	-71
40	-1	-9	-18	-26	-34	-42	-51	-59	-67	-76
48	-2	-11	-19	-28	-36	-44	-53	-62	-70	-78
56	-3	-12	-20	-29	-37	-46	-55	-63	-72	-81
64	-3	-12	-21	-29	-38	-47	-57	-65	-73	-82
Wind speeds over 64 km/h have little additional effect		Little Danger (to properly clad person)			Increasing danger			Great danger		

Danger of Freezing Exposed Flesh

- **thermal**, caused by fire, contact with hot objects or steam;

- **radiation**, caused by excessive exposure to the sun,

- **first degree** burns, limited to the most superficial layer of the skin and causing reddening of the skin;
- **second degree** burns, extending to the deeper layers of the skin and causing blisters with redness;

FIRST AID FOR THERMAL BURNS

For minor localized surface burns, first aid treatment is:

- **immerse the burned part** immediately in cold water to relieve pain and to reduce swelling and blistering. Place cold packs, ice or wet cloths, on the burned area if immersion is not possible.
- **remove anything that is constrictive**, such as rings, bracelets or footwear, before swelling begins.
- **cover the burn** with a clean, preferably sterile, lint-free dressing, such as facial tissue.

The First Aider must take particular care when treating burns to avoid causing further injury and contamination of the wound. Therefore:

- do not apply lotions, ointments or oily dressings;
- do not break blisters;

- do not breathe, cough over or touch the burned area;
- do not remove clothing that is stuck to the burned area.

For more serious burns, send for medical aid quickly and give first aid as follows:

- monitor breathing and give artificial respiration if needed (see chapter 7);
- cover the burned area lightly with a clean, preferably sterile, lint-free dressing or facial tissue;
- take care of other immediate life-threatening injuries;
- treat for shock (see chapter 10);
- arrange for immediate transportation to a medical facility.

RADIATION BURNS

First Aider can treat minor sunburn. Cover the burn area with a wet towel, using a solution of 5 grams of salt to a litre of water. This soothes and cools the skin. Commercial ointments and creams may also be used. Blisters must not be broken.

PREVENTION - USE A SUN SCREEN ON EXPOSED SKIN

WIND BURN OR CHAPPING

COMMON AROUND THE LIPS

REVENTION - USE A WINDSCREEN (CHAPSTICK)

Winter Safety

BEWARE OF FROSTBITE! SYMPTOMS: INTENSE COLD, NUMBNESS, GRAYISH WHITE COLOR TO SKIN. AVOID FROSTBITE BY PLACING HANDS OVER EARS OR NOSE. WARM HANDS BETWEEN ARMPITS. IF YOU FEEL "WOODEN," GET TO SHELTER QUICKLY. IF FROSTBITTEN, COVER FROZEN PART WITH WOOLEN CLOTHING. PUT ON EXTRA CLOTHING; GET WARM QUICKLY. GET TO SHELTER; HAVE A WARM DRINK. SOAK FROSTBITTEN PART IN LUKEWARM WATER. DON'T USE HOT WATER BOTTLES OR HEAT LAMPS. DON'T GET CLOSE TO STOVE. DON'T RUB FROSTBITTEN AREAS; DON'T SHOVE FROZEN HANDS INTO SNOW. IF ONE OF YOUR GANG FREEZES HIS FEET BADLY, REMOVE HIS SHOES, WRAP HIS FEET WARMLY. LAY HIM DOWN WITH HIS FEET RAISED SLIGHTLY WHILE YOU CARRY HIM TO SHELTER. SEE A DOCTOR!

DON'T GET OVERHEATED. YOU CAN FREEZE TO DEATH AFTERWARDS BECAUSE TOO MUCH SWEAT CONDUCTS HEAT FROM YOUR BODY, THEN FREEZES.

WHEN EXERCISING, REMOVE SOME OF YOUR OUTER CLOTHING, PUTTING IT BACK ON WHEN YOU'RE FINISHED AND DRIED OFF.

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. CRAWL IN; IT HELPS TO CONSERVE BODY HEAT.

IF YOU'RE CAUGHT IN A BLIZZARD, MOVE AS LITTLE AS POSSIBLE TO CONSERVE ENERGY AND BODY HEAT. KEEP CLOTHES DRY. DON'T PANIC, DON'T EXHAUST YOURSELF. GET INTO SHELTERED PLACE OUT OF THE WIND, KEEPING WARM AND RESTING. AS SOON AS WEATHER CLEARS UP, YOU'LL BE ABLE TO REACH SAFETY.

IF LOST, MAKE SHELTER OF EVERGREEN BRANCHES, BENT OVER TO FORM WINDBREAK. GATHER LOTS OF WOOD; BUILD A FIRE, KEEP IT GOING. RELAX AND WAIT--YOU'LL SOON BE FOUND IF YOU DON'T WANDER AROUND!

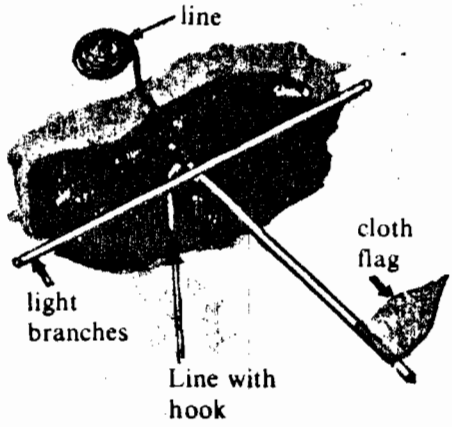
IF YOUR PATROL GETS CAUGHT IN A BLINDING SNOWSTORM, TIE YOURSELVES TOGETHER. DECIDE THE BEST COURSE TO FOLLOW; HEAD THAT WAY. SIGHT FROM ONE LANDMARK TO ANOTHER. DON'T GET EXCITED; TAKE IT EASY AND YOU'LL SOON REACH CAMP.

SNOW INTO WATER

JUST TWO CAUTIONS

--Stir the snow or it will scorch.

ICE-FISHING TIP-UP



A different colour flag for each Scout will save squabbles over whose fish it is!

anyone for camping?

by Don Swaneon

November — not the friendliest month, when one compares the weather against those balmy days of summer. Even so, it's important that the onset of cooler weather doesn't drive the troop indoors. Scouting is an outdoor game and camping at this time of year has its own built-in adventure. What's more, use of the appropriate lightweight gear under slightly more adverse conditions than a summer camp will give your Scouts added experience and confidence.

Cold weather camping leads naturally to the Winter Scout badge.

This is a sample program, based on the gold stage and assumes that the patrol is composed of boys 13 and 14 years of age, of similar school level and some are friends. The troop Scouter works with this patrol. Because there are insufficent leaders for each patrol in the troop, he doesn't devote all his time to this patrol during patrol meetings.

The decision to work on the Winter Scouting Achievement badge was made during a patrol meeting in late September. The patrol meeting took place during the troop meeting. During the meeting, the patrol decided to work on the Winter Scouting Achievement badge (gold stage) during November and into December. They selected the following options within the requirements:

—requirement #2 "Make two of the following:" they selected snow goggles and snowshoes
— requirement #3 "With members of your patrol, do three of the following under winter conditions:" they selected

a) cook five meals, varying the cooking methods used;
b) participate in three activities — ice skating, skiing, snowshoeing;
c) put on a demonstration of winter camping for a group of Scouts or some similar group.

At the first troop meeting in November the patrol meeting focused on the first requirement. A patrol hike would be held on the second Saturday in November. On the hike, the patrol would have to deal with each of the emergencies listed in the first requirement.

Preparation for the hike involved reading the **Canadian Scout Handbook:**

- breaking through ice — page 393 to 397
- carbon monoxide poisoning — page 393
- frostbite — page 391
- becoming lost — page 85, 86, 87 & 398 (winter survival)
- overtaken by a blizzard — page 398 (winter survival and page 86 & 87 lost in wilderness)
- snow blindness — pages 392 & 393
- cold metal — page 382
- hypothermia — pages 60 & 61

One of the Scouters also gave the following information to the whole troop using a yarn or lecturette approach.

Blizzards

The term blizzard refers to a winter weather condition involving wind-driven snow and usually intense cold. Two points should be remembered regarding blizzards:

a) Severe storms are generally of short duration.
b) Poor weather conditions cause limited visibility and hides natural hazards. Travel in hazardous conditions increases the possibility of leg injury, body heat loss and of course, loss of direction.

If caught on the trail by a blizzard, follow these simple rules:

1) do not travel;
2) quickly erect or find shelter from wind and cold;
3) build a fire;
4) wait till the storm is over.

Contact with Cold Metal

Injury may be caused if the hand or any wet or damp part of the body comes in contact with very cold metal. The skin instantly adheres and tissue injury occurs if the part is forcibly torn away. Injuries of this nature can be prevented by wearing suitable protective clothing. Children should be warned not to put metal objects in their mouths in freezing weather. If the problem occurs, warm the metal until the tissues can be removed without damage.

Carbon Monoxide

One of the inhaled poisons most commonly encountered is carbon monoxide. Carbon monoxide has a peculiar effect on the body that makes it an especially dangerous poison. While normally the red blood cells pick up oxygen easily in the lungs, carbon monoxide unites with the red blood cells 250 times as readily as oxygen. Thus the oxygen-carrying capacity of the blood is reduced, the brain suffers from the lack of oxygen, and death occurs, even after only a short exposure. Fortunately, the process can easily be reversed if the casualty is treated before the red blood cells have absorbed any great amount of carbon monoxide. The gas can be readily removed from the lungs.

Usually there is no indication of carbon monoxide poisoning until the casualty collapses. This is especially true in cases where a muffler leak allows carbon monoxide to enter an automobile.

The gas is odourless, tasteless and colourless. Therefore, the dangerous accumulation is not recognized until the driver passes out. He may have a headache and dizziness but these are usually attributed to other causes and thus overlooked. There is only one sign of carbon monoxide poisoning that is usually reliable and unmistakable: **the skin takes on a cherry-red colour** that is unlike a symptom of any other illness.

At the second meeting, this patrol had made an arrangement to go over to the home of a parent who was skilled in working with wood. Each patrol member made himself (with adult help when necessary) a pair of Eskimo goggles from a piece of pine. (see page 392 of the **Canadian Scout Handbook).**

For the Saturday hike, arrangements had been made with the group's Venturer company to stage an emergency based on each of the situations listed in the first requirement. On the hike, the patrol put into practice what they had learned as they encountered each emergency.

At the patrol meeting during the third troop meeting, the patrol tackled two tasks. First they planned their overnight camp. This included putting together a list of necessary gear, preparing menus and assigning jobs to members of the patrol. Two Scouts took on the task of buying the food and other supplies. (In this troop, all food must be purchased by the patrol rather than boys arranging to "bring items from home." The reason for this rule is that planning, purchasing and preparation of meals can and should be a real and valuable learning experience for the Scouts). Each Scout should check with their father or mother the possibility of providing transportation and report to the a.p.l. Two cars will be required.

The second task undertaken at this patrol meeting was to begin work on making snowshoes from hockey sticks (see the Feb./76 issue of **The Canadian Leader).**

The next few meetings were devoted to making their snowshoes. As a pair were finished, they were tested out at one of the three camps that the patrol held.

The camps were held at a small farm near the edge of town. The Scouter had made arrangements to use the property through one of the group committee members. Because the camp was close, two of the overnight camps were held without a Scouter in camp. The Scouts went out after school on Friday night and returned on Sunday afternoon. A Scouter dropped in on the camp during the day and ate supper with them once.

Members of the group committee, parents and senior cubs were invited to visit the camp on the Saturday afternoon of the third camp. Over the course of the three camps, the Scouts had cooked 18 meals. Working in pairs, the members of the patrol had cooked the required five meals.

The program in camp included short "hike outs" on skis and snowshoes, building of snow shelters and tobogganing on a nearby hill.

By the end of the third week in December, the patrol had completed the work on the gold stage Winter Scouting Achievement badge.

At the next troop meeting, six pleased Scouts received recognition for their work and fun when their Scouter presented them with their badges.

Snow Cave It!

by Phil Newsome

Although the 4th and 7th West Vancouver Venturers carried tents during their Amory Adventure Award winning expedition on the Garibaldi Névé, when they had the time, they dug snow caves for their sleeping and cooking quarters. They first tested the idea during their December outing in Manning Park when lows dropped to -20° C and highs hovered around -10° C. Because they found them warmer than the tents, they slept in snow caves like those illustrated here for four nights during their Garibaldi expedition.

On their second night out, they were late reaching their camping spot. Here's their description of the situation.

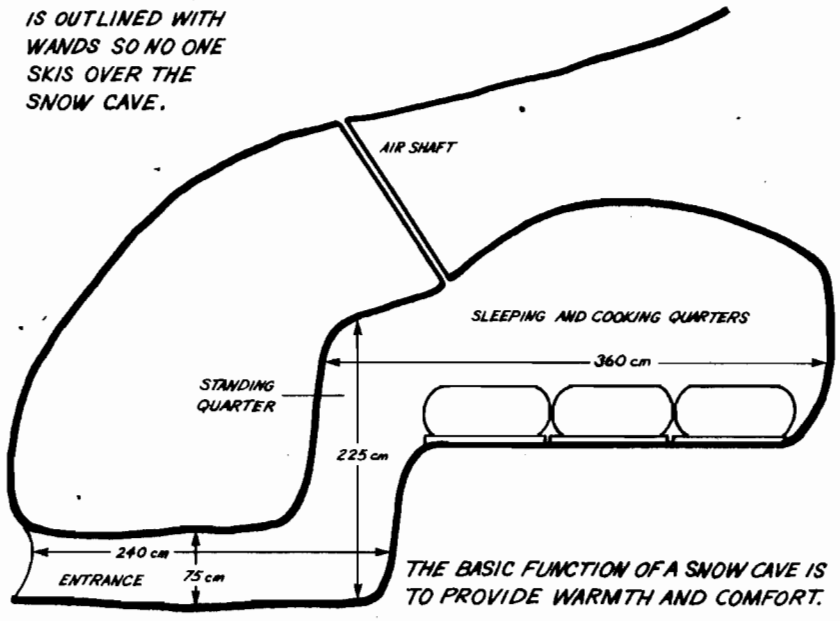
"Doug found a way to the valley floor and we soon began to dig our snow caves because it was getting darker and colder every minute. Starting at 5:00 and finishing at 8:00, we made a three-chamber snow cave that was just good enough for one night's stay at Ring Creek. We found that having all three snow caves joined, there was a very cold breeze, but we stopped that by plugging the holes with packs."

Later, when they dug caves to serve as shelter for three nights, they took more time and proceeded differently, as they describe.

"Dougal and Doug (advisors) dug a small snow cave which they called the officer's quarters. The rest of us split up and dug two more snow caves. We spent all night digging out blocks and smoothing the insides. We finished at 2:30 a.m."

The next day they were able to enlarge these caves to fit in three other members who joined their expedition for the last few days.

Perhaps it's an idea your company will try if they're camping in deep snow country this winter.



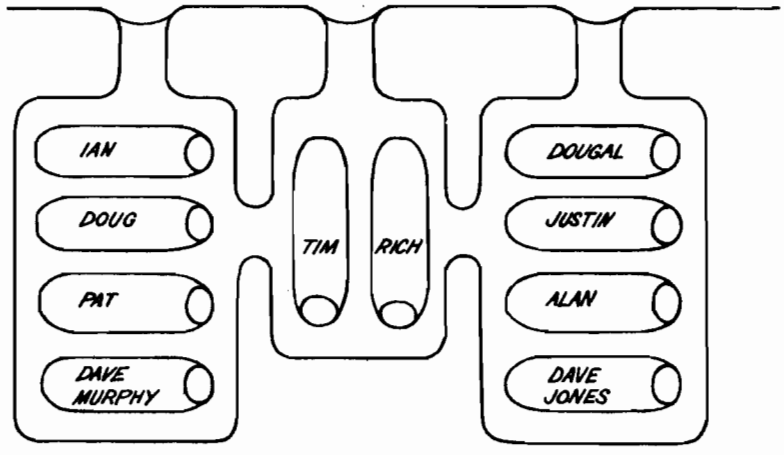
THE BASIC FUNCTION OF A SNOW CAVE IS TO PROVIDE WARMTH AND COMFORT.

THE FACT IT IS UNDER THE SNOW COMPLETELY ELIMINATES ANY WIND FACTOR.

THE SLEEPING QUARTERS ARE ABOVE THE ENTRANCE TO SAVE HEAT.

WHEN GIVEN A CHOICE BETWEEN TENT OR SNOW CAVE, EVERYONE WOULD RATHER TAKE THE TIME TO DIG A SNOW CAVE.

October



PLAN VIEW OF SNOW CAVE DEPICTING THE SLEEPING ARRANGEMENTS.

AT MEAL TIME THE SLEEPING BAGS ARE ROLLED BACK PROVIDING MORE THAN AMPLE EATING AND COOKING SPACE.

A SNOW-CAMP KITCHEN

BY SAM CURTIS

Here's how to make a comfortable cooking area.

Cold-weather campers have big appetites, so the cook needs a comfortable and efficient kitchen.

For a one-man cooking area in deep snow, first make a three-foot-square pit. Stomp down the snow with your boots, or shovel it out. The pit bottom is the kitchen floor; the sides will be your counters.

Scoop out a niche in one corner for the stove. Wind reduces the efficiency of even a stove with a wind screen.

A sunken counter protects the stove on three sides. Make other sunken counters around the pit to hold food and utensils.

For comfort, you can place your skis across one end of the pit—and use them as a seat.

To prepare your kitchen for a wood fire dig a five-foot-square pit. Dig to bare ground, and place several pieces of large logs in the center. Build your fire on top of these, so its heat won't turn the ground to mud.

Pack down the pit sides into seats. With a foam sleeping pad to insulate you from the snow, you can sit around the warm fire while dinner simmers over the coals. ♣

It might come as a surprise to some, but it's possible to build a snow shelter south of the treeline that's similar to the Inuit igloo.

Igloos are constructed of blocks cut from wind-packed snow, and that's somewhat difficult to find in southern Canada. But a perfectly snug shelter can be made from powder snow of the milder climes, though the construction techniques are different.

Most people think of snow shelters in relation to wilderness emergencies, and, of course, they meet that need quite well. They can, however, also be made to serve recreational purposes for an entire winter. For example, cross-country skiers and snowshoers might consider building a string of them along a trail to provide overnight accommodation on weekend jaunts.

Keeping yourself dry is the main problem when working with powder snow, and it's imperative that you do so because getting wet can ultimately lead to hypothermia. Over the years, I've developed a method whereby the job can be done without the builder getting wet, and I've used it near my home on Calumet Island, Quebec, where snow varies from wind packed, to granular, to powder. I've also built snow shelters in the area of Chapleau, Ontario, where the temperatures can dip so low that even when wearing snowshoes, you sink waist deep in powder snow.

The first thing to consider when you've decided to build a snow shelter is the site. It's preferable to have at least a foot of snow, but the more there is, the easier and faster it will be to build the shelter.

The ground should be reasonably level, but if there's a slope, build the shelter so that the door will be on the lower side. Begin by tramping down the snow to form a three-metre (10-foot) diameter base for a two-person shelter, or 4.5 to 5.2 metres (15 to 17 feet) for one to accommodate up to five people.

Using a snowshoe as a shovel, heap snow on the packed area in a 1.8 or 2.1 metre (six- or seven-foot high) pile (for two people, higher for more), and pack it down occasionally to create a dome shape. Leave it for an hour to freeze so it won't cave in when you start excavating the inside. And don't worry, even powder snow will freeze after being disturbed. In the meantime, busy yourself gathering evergreen boughs, dry poles and firewood.

When the hour is up, the next step is to hollow out the pile, starting at the door and making the hole about 90 cm (36 inches) wide by 78 cm (30 inches) high so the job can be done easily. A hole that size will also reduce the chances of getting wet, and this is so important that you shouldn't even permit yourself to sweat. Stop and take a breather whenever you feel the need because any moisture absorbed by clothing could later result in chilling.

Kneel on a few dry boughs or squat on you heels to avoid touching the snow while excavating, and throw the removed snow to the sides of the doorway. You'll know the shelter has been hollowed out enough when light can be seen through the walls, which will then be from 15 to 20 cm (six to eight inches) thick.

Inside the entrance, an area about 1.2 by 1.2 metres (four feet by four feet) must be excavated to ground level, leaving a sleeping shelf at least as high as the top of the door. Dig to the full height of the shelter as you proceed toward the back to prevent the roof from becoming too heavy for the walls to support.

Once the inside has been completed, the outside has to be hardened. Light a tiny fire inside, just big enough to melt back the snow on the inside walls (about 10 minutes is usually sufficient). When that has been accomplished, remove the fire and permit the melt water to freeze so the shelter will be strong enough to support a person's weight on the roof.

To construct a snug door, place a few boughs or a piece of plastic .9 metres by .9 metres (three feet by three feet) on the ground and pack 7.75 cm (three inches) of snow on it. The base material will prevent the packed snow from freezing to the ground. If the snow is powdery, a sprinkle of water or soggy snow from the vicinity of the fire will help it freeze harder. The block will form the door, and when it's hard, it can be squared off.

While the main structure is freezing, work should be done on the entrance tunnel which should be built at a right angle to the wind to prevent drifting at the tunnel entrance. The snow from inside the shelter should be in two heaps on either side of the door. Square them off to form the sides of the tunnel entrance and level the tops. Lay the dry sticks gathered earlier from one wall to the other to form the tunnel's roof support, then cover with boughs or plastic so snow can be piled on top. Building the tunnel this way prevents you from getting wet.

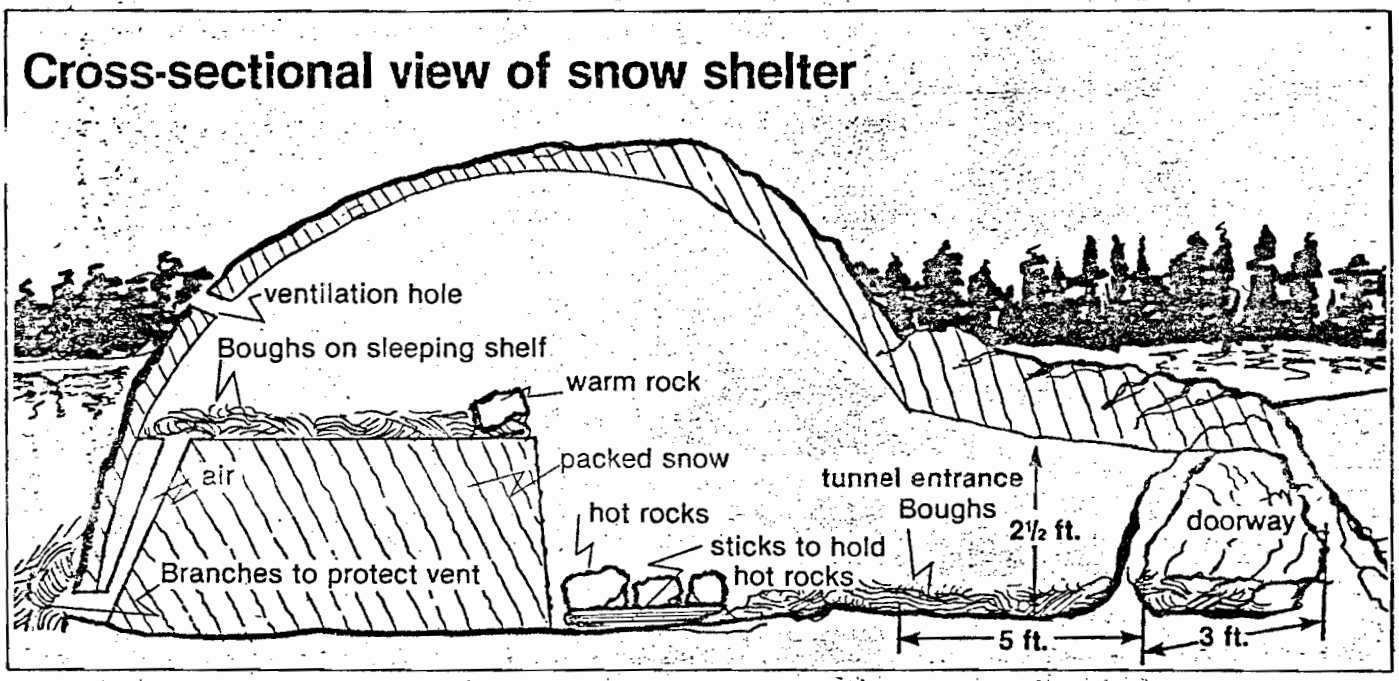
In the final construction stage, fill the tunnel entrance with snow and pack it. Square the face and let it freeze. Once the door itself has hardened, put it against the blocked tunnel and outline it, then cut out the outline a little smaller than the door so it will fit tightly. Put boughs or plastic on the tunnel floor and cover the sleeping shelf with boughs, dead bark, plastic over boughs or closed cell foam pads.

It often isn't necessary to heat the snow shelter when a sleeping bag is used, though if heating is desired, there are a number of ways to do it. Hot rocks can be used, or, if you have one, a tent heater. You could also use a koodlik, which is an Inuit type of stove, and excellent instructions for making one can be obtained from the Canadian Armed Forces Manual, "Down But Not Out."

Of course, ventilation is needed for a snow shelter, and this is achieved by punching a hole near the top of the door, and one or several at sleeping-shelf level. If it's a bit smokey inside, and you want fresh air to enter the shelter near your face, punch a hole from the shelf *toward the ground*, at an angle which will take it outside at ground level. As long as the inside air is warmer than the outside, fresh air will come into the shelter. If it gets too cold, a cloth can be stuffed in the hole to regulate or block the air flow.

To prevent falling or drifting snow from blocking the air passage, a small cover made of sticks and overlaid with green boughs will protect it.

When it comes time to sleep in the shelter, you'll soon learn whether you made it the right shape at the



top. If there's too much of a point, hot air will become trapped at the peak and won't recirculate back down to the people on the sleeping shelf. An open fire inside isn't recommended because it usually gets too hot and fills with smoke, though if the door is left open, a small fire can be built for cooking. If this is what you plan to do, make a ventilation hole at the top of the shelter. Safer yet, though, is a small backpacking stove or cook outside on an open fire.

To use rocks to heat the shelter, put ones from 20 to 38 cm (eight to 15 inches) in diameter in a fire outside, then, in a carrier fashioned from boughs, drag them into a shelter and roll them onto a bed of smaller stones and rocks. Keep them out of the snow (especially inside) or they'll create a lot of steam and cool rapidly. When they have cooled somewhat, they can be placed right on the sleeping shelf at the feet or along the back where they do the most good.

The hot rocks will also do an adequate job of drying socks and mitts, though admittedly, the clothing manufacturers wouldn't recommend it. Of course you won't worry about that if there's a danger of hypothermia from wet clothing. If somebody has succumbed to hypothermia, one way to warm him is to zip two sleeping bags together, put the victim in naked, and crawl in naked beside him.

For drying other clothing items, spin them around in the heat above the fire. Once the fire has died down but the embers are still good and hot, you can throw together a rack which will suspend clothing about a metre above them.

If you enjoy winter activities and the solitude of nature, try building a snow shelter. Remember never to cut green boughs for any purpose along hiking trails, near campsites, portages or in parks. Others like to enjoy unspoiled areas too. But do build a snow shelter far from people places. It's insurance not only for a longer life should the need ever arise for an overnight winter shelter, but also for greater comfort and pleasure in the outdoors.

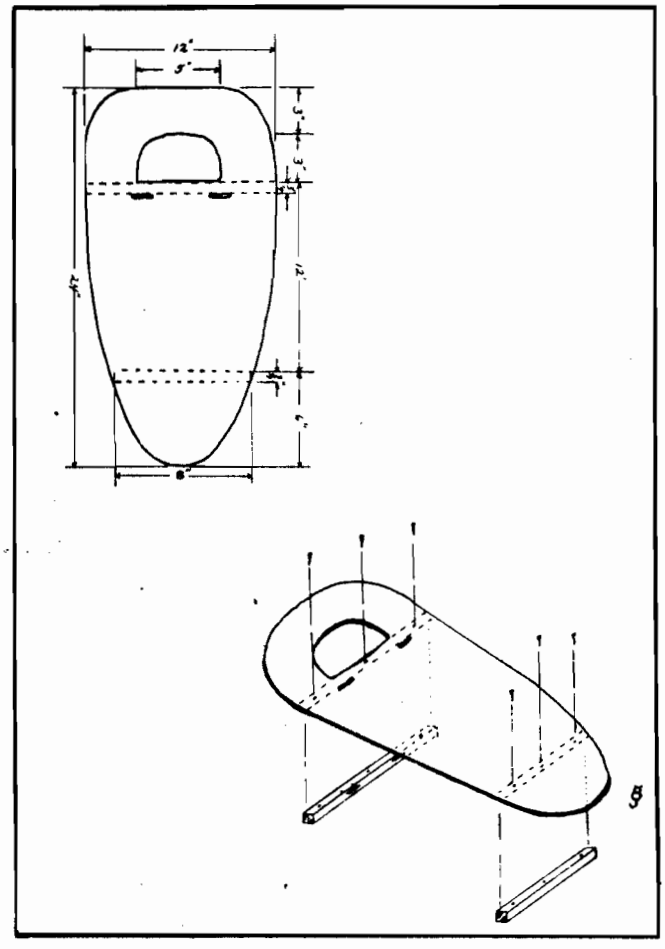
Winter Camping

By Bruce Hopson

Challenge your Scout troop or Venturer company to a winter-weekend camp! With the proper preparation your boys will enjoy adventure and fun, and the satisfaction that comes from knowing they have experienced the outdoors under extreme conditions.

When you think about it, summer is pretty good to us: poorly trained and ill-prepared campers can get away with improvising and inexperience. Winter is less forgiving to the camper who makes mistakes, and the results are potentially more disastrous in terms of comfort in camp. But there are no mosquitoes, blackflies or similar pests to make life miserable in the winter, so let's prepare ourselves for winter camping, and enjoy it.

Snowshoes are a boon to any winter camp or hike and every boy should have a pair, but the expense of a good pair of snowshoes is often too much to expect every Scout and Venturer to own his. So why not make your snowshoes as a troop project? Scouter John Purchase of Bracebridge, Ontario, has sent us plans for making "Panther Paws," plywood snowshoes which can be made easily in a short time. These "Panther Paws" closely resemble the wooden-plank snowshoes made by the Naskapi Indians of northern Quebec.



John's Panther Patrol made their snowshoes of two pieces, measuring 12" by 24", of 3/8" fir plywood. The outline pattern and toe-hole were cut out with an electric sabre saw. Crossbars, 3/4" square, were fastened to the bottom of the snowshoes with glue and screws. The crossbars help to prevent slipping on hills and crusty snow. The two slots for the harness were made by drilling a series of holes and finishing the slot with a chisel. After a light sanding, the snowshoes were waterproofed with two coats of urethane varnish. A simple harness may be made from one-inch lampwick, using about five feet for each snowshoe. To fit the snowshoes, loop the wicking over the toe of moccasin or boot, pass the two ends through the slots behind the toehole, then pass the wicking diagonally across the toe. Take the ends around the heel and back up to the toe, where they are tied together. These snowshoes will support 165 pounds. For heavier people you may have to enlarge the snowshoe up to 36 inches long.

Who should go to a winter camp? Well, just about anyone, but it is wise to take inexperienced Scouts for a couple of one-day hikes to prepare them for the rigours of a weekend. Use these hikes to try out your snowshoes, practise fire-lighting and cooking.

You can't just build a fire on the snow — the snow will melt and the next thing you know your fire is at the bottom of a hole. Take some wide aluminum foil and spread it on snow which you have compacted with your snowshoes. Then build your fire on top of it. The foil helps reflect the heat away from the snow. If you don't mind packing it, a sheet of light, galvanized metal will serve the same purpose. The old technique of using green logs for a fire base is discouraged because of the damage to our natural resources. Remember, too, if you use foil: take it back with you when you strike camp and stick it in the garbage as it will not disintegrate.

Take a tent or two on your one-day outing and let Scouts practise tent pitching in the snow. *The Canadian Scout Handbook* gives some tips, but practice is important.

Make sure each Scout knows how to dress for cold weather. The little secret is "dressing in layers" so you can shed or add clothes as you require them...for example, while hiking, body temperature rises so you will want to take off a jacket or sweater; in camp you will need that jacket to keep warm when you are less active. It is equally important to keep dry. Snow may dampen you, but perspiration is the trouble-maker. When you are damp, you get cold! Anti-perspirant won't do — dress so you can shed clothes when you need to. Here are some tips: start with a pair of flannel pyjama bottoms and a good thermal undershirt. Long-Johns are a no-no: they cling to the body and absorb sweat, and they don't provide those little air pockets that retain body heat. The second layer should be a flannel or wool shirt and a pair of ski slacks that are designed to shed snow. Jeans or heavy wool trousers absorb snow and moisture. Top this off with a wool sweater and a windproof jacket. A pair of wool mitts, with a pair of waterproof leather or vinyl mitts on top, will keep the hands warm. Wear a hat or

Hot Stuff!

toque that will cover the ears. Keep the head covered under all conditions, as the head does not have a heat regulating mechanism like the rest of the body.

Footwear in the winter depends a lot on the weather conditions. In dry snow there's no beating a pair of moccasins or shoepacks and a couple of pairs of wool socks. For moist conditions, a pair of insulated, high-cut, leather boots are a must because moccasins slurp up moisture. As an alternative, try a pair of socks, light running shoes, a pair of socks over the shoes and a pair of galoshes. (You can wear boots on those "Panther Paws," but not on conventional, rawhide-laced snowshoes.) With footwear, the important thing is to make sure it is not too tight - you will cut the circulation and cold will set in. When snowshoeing with moccasins, stop once in a while to massage the feet as the harness tends to cut down blood circulation and accelerate frostbite.

Once you have made these basic preparations, you are ready for the weekend camp. Here is a suggested checklist of personal gear for a weekend in the snow.

To wear:

pyjama bottoms
thermal undershirt
ski slacks
wool shirt
sweater
windbreaker, parka or anorak
two pairs wool socks
water-repellent boots
wool gloves or mitts
water-repellent mitts
cap or toque
handkerchiefs
knife
matches
a couple of your favourite chocolate bars

To carry in your pack:

extra socks
extra flannel shirt
pyjamas
sleeping bag: either a good arctic bag, or a wool blanket inside a summer bag, or two bags: one inside the other
ground sheet or air mattress
newspapers (very important)
eating tools: sheath knife, spoon, cup, bowl and plate. You don't need a knife and fork.
your share of group equipment

The newspapers in your pack will help you sleep warmly. The trick is to put them between your air mattress and sleeping bag. Remember that 75% of the cold you want to avoid comes up from the ground. Newspapers are very good insulators and, in a pinch, you can start your fire with them. When you leave camp, take them back with you or burn them.

Now for the patrol equipment:

tents
pressure stove and lantern
Swede saw
kitchen utensil kit
dishmop
bucket
shovel
two pots with lids: one big, one not so big
large, iron frying pan
candles
tea pot, if desired
garbage bags
food — but we'll get to that

Small tents are recommended as they are warmer than big tents. Pressure stoves and lanterns are here to stay so we might as well use them.

A Swede saw is far superior to an axe in the winter. First of all, chopping frozen wood is difficult because the axe tends to bounce off the wood. Saws don't make half the mess of chips an axe does and they cut twice as fast.

Cold weather and vigorous activities develop hearty appetites. When your Scouts design their menus they should consider nutritional value as well as ease of preparation. Here's where foil cookery is regal. It's fast ...it's easy...and there are no pots to wash.

Try this for breakfast: Good Old Porridge...it's good and it's hot. Eggs baked in foil: make a cup out of foil, crack an egg or two into it and stick it in hot coals (sprinkled with ashes so you don't burn the egg) for five minutes; and exit: egg, sort-of-poached. Never neglect toast and jam. Finish with tea, coffee or hot chocolate. Don't forget Vitamin C which your body cannot store: some powdered orange juice will do the job.

Shredded Wheat cereal offers a fast and pot-free meal. Heat with hot water: the recipe is on the box. They go all mushy, but are good and, again, hot. For something different, take an egg and a sharp, thin stick. Pass the stick through the egg carefully and roast it over hot coals. It's like a boiled egg, only it's roasted.

Here is a lunch which employs one frying pan. It's called **Slurp:** assemble ½ pound of diced, slab bacon; 2 chopped onions; 1½ pounds of hamburger; 2 green peppers; cook the lot in your iron frying pan. (There's nothing like an iron frying pan; well worth trucking into the bush.) When it's cooked, the onions look glassy. Add 1 medium-size can of tomatoes and stir everything together. Serve over thick slices of bread which you have cut from a loaf of previously unsliced bread.

Kabobs are good, too — no pots. Cut a group of green sticks suitable for skewering. Foods you can skewer are potatoes, round steak, onions, bacon and just about anything you can push a stick through. Roast the works over the fire until tender.

Mmmm, scrumptious. Carefully prepared food, besides being a necesssity at winter camp, somehow ALWAYS tastes much better. -- The Lethbridge Herald Photo

(continued on page 6)

For these Scouts, a metal drum, cut in half lengthwise, makes a first-class fireplace that will not sink into the snow or endanger the groundcover. — *The Guelph Mercury* Photo

Suppers are like lunches and can be interchanged. Our troop calls this one **Conestoga Burgoo** and who knows where it came from. Take one can condensed tomato soup and one of vegetable soup. Crank off the lids and pour over hamburger which you have previously sautéed in your iron frying pan. To this add enough boiled macaroni to stretch the meal among the patrol. A one-pot, one iron-frying-pan meal. Use your gas stove.

While we're busy opening cans, let's remember that canned foods freeze like everything else and, when frozen, the contents may be a little difficult to pry out. The solution is to plunge the tin, unopened, into some hot water for a minute.

Here's a foil dinner that's inside out: **Hamburglers.**

Take enough hamburger or, preferably, ground chuck to feed the patrol (allow ½ pound per hungry Scout — hungry being relative), and make two thin patties for each Hamburgler desired. Sprinkle with salt and pepper. To assemble: divide the total number of beef patties by two and cut that many slices of onion and cheese. The idea is to get the onions and cheese between the two meat patties, using the meat to seal everything together. Wrap the works in foil and place in hot coals for ten minutes, turning once. Cook in foil, similarly, one spud and two carrots, both thinly sliced (in butter), per person. Remember that the latter take a little longer to cook — prepare them first. Top this off with baked apples, cored and stuffed with brown sugar and cinnamon, cooked in foil.

Burgers in Armour are hamburgers, onions, thinly sliced potatoes and anything else that sounds good, all grouped together in foil and cooked on the coals.

Apart from the fact that foil saves on pots, you will find that everything tastes much better, almost better than home-cooking, because the foil retains all the scrumptious juices in the food that otherwise are boiled away. Satisfaction guaranteed!

As a Scouter, you would be committing mortal sin if you neglected "Mug-Up," the cherished bedtime snack. In the winter, even Scouters like a mug of hot chocolate and a fistful of cookies.

First Aid is amply covered in *The Canadian Scout Handbook*, except for one thing: **frostbite.** Prevention is always better than cure so the idea here is to keep the face moving — skin freezes when it is stationary, so to speak. Solution: either make faces at each other or, more simply, chew gum. Result: less chance of frostbite. Snow-blindness and bandage application are covered in the book.

Now we are ready to go camping!

If you have a favourite, summer camping spot, why not use it in the winter? With all the snow around, it will be like camping in a totally different place. Find a campsite that is sheltered from the wind: wind can make a camp twice as cold. If possible, try hiking a short distance to the site, packing your gear either on your back or on a toboggan. Your *Handbook* gives you good tips on packing gear. Make sure to allow more time for hiking and setting up camp than you would in summer. If you cannot locate a water supply, melt compact snow, but the same water-purification precautions should be taken as in summer. Water chlorination kits are available at provincial health departments and are the best method.

Once your camp is set up, it's time to start the fun. Here are some suggestions around a weekend program for a Scout troop or Venturer company.

If you plan to leave Friday, allow enough daylight time to set up camp: tents, fireplace and firewood. A pot of hot chocolate served by the Scouters is a good way to warm the spirits after some hard work at tent pitching and wood gathering. Ensure that no Scout unfurls his sleeping bag **until** bedtime. Unfurled sleeping bags allow moisture to get into all the little air spaces in the bag. Therefore, fluff up your sleeping bag just before turning in. Have each Scout stuff his clothes in the bottom of his sleeping bag to keep them dry and warm. It is important that all campers change into a pair of fresh pyjamas. The body gives off about one pint of water during the night so a Scout sleeping in his clothes will be damp in the morning and, therefore, cold. First thing in the morning, every Scout should air his sleeping bag for an hour or so to dry it. Afterward, roll it up again.

Have a good breakfast as soon as you are up, and take care to wash your dishes and pots in hot water, rinse them and air dry. Don't neglect to wash yourself as well: apart from being hygenic, it wakes you up fast.

If it is more practical to arrive at your campsite on the Saturday morning, leave early so you'll have time to set up camp well before lunch.

If you have time for a morning activity, why not try some orienteering with a compass and couple this with tree identification? Orienteering will acquaint your campers with the surrounding country, which could be important in the evening, and identifying trees by bark and shape alone will be a challenging activity. This will take you through to lunch. Make sure to allow a little more time for meal preparation in the winter.

There are any number of activities that can be done at a winter camp — skiing, skating, tobogganing and snowballing — which we can often do just as well elsewhere. Why not have a shot at building a snow shelter? Or an obstacle course?

When the snow is sticky you can build a dandy snow shelter by constructing "walls" from a bunch of snow balls. Make it square, roof it with skis or spars and a tarpaulin; cut a small door in the side. If it is built with low, three- to four-foot walls, it will be quite warm — some of the Scouts might try sleeping in one of these instead of tents; they are warmer because the snow acts as insulation.

While the snow shelters are in progress, get some of the Scouts to set up an obstacle course or, if there are some Venturers along, they might offer some ideas and assistance in this project. Next month we hope to include in *The Canadian Leader* an article on setting up an obstacle course.

After supper, when it starts to get dark, let's get on those snowshoes we made and enjoy a simple, wide game like "Capture the Flag," which is all the more fun in the snow. Afterward, have some hot chocolate ready, roast some marshmallows over the fire, and then to bed.

Another interesting aspect of winter camping is that no animal can go anywhere without leaving tracks, and snow tracks are usually easy to find, so you might try some plaster-casting. You will need an atomizer bottle, some paper clips, strips of light cardboard about two inches wide and some plaster of Paris. The technique is to spray water on the track until a layer of ice forms, thick enough to support the plaster. Make a ring of the cardboard and fasten it with a paper clip. Put this around the track, pour in the plaster and, when it dries, you will have an impression of the animal track. This is one thing you can take home as a souvenir of your winter camp.

With practice, pitching a tent on packed snow is little problem. Note the method of tying the snowshoe harness using one-inch lampwick.

Before you strike your camp, remember to have each patrol collect **all** the garbage, stuff it in a garbage bag and take it home with you. That way, when you return in the summer, or other Scouts wish to use your campsite, they will not be confronted with your residue.

A winter-weekend camp with a lively program is an excellent way to let Scouts test their winter-camping skills. It's a pack of fun and makes an excellent wrap-up for Scouts earning the Bronze or Silver Winter Scouting Badge.

BRUCE HOPSON is a Venturer Advisor with the 32nd Ottawa Group. He has attended the University of Victoria and Carleton University, majoring in English, Psychology and Journalism, and has been approved for a position on the executive staff, Boy Scouts of Canada. He is presently employed by Program Services at the National Office on project work with the Scout Program evaluation and Leader Surveys.

This low snow shelter, with improvised roof of skis and canvas, provides comfort and warmth for four. The door should be small and away from the wind.

WINTER FUN

By Don Swanson

Winter. Brrrl

Just the thought of it probably chills your blood until it forms tiny icicles. We've begun another six months of plowing through that thick, cold, 'white stuff'. Makes you want to curl up close to a cosy, warm fire, doesn't it? Well banish the thought. This year they'll be no huddling indoors for you. Right?

Ha! you say. Well, perhaps you're right. But there's nothing like being prepared for outdoor winter activities with plenty of good ideas to keep the boys active and get the most out of the winter months — even if you insist you only want to supervise (and miss all the fun).

Winter camping, snowshoeing and hiking are great activities, but in this article we'll deal with a few ideas that you can try right in your own (or someone else's) backyard.

Before even stepping out the door, you must make sure that everyone is properly dressed.

Here are a few points to remember:

1. Wear a hat. Your head is the biggest heat leak of your body.
2. Keep on the move. You produce four times as much heat walking briskly as you do sitting.
3. Don't get overheated. Unzip or undress first, or you'll get chilled when you stop. Sweat-soaked clothes also insulate less. Keep dry.
4. Layer your clothing. Get the free insulation from dead air trapped between an extra light, thin layer or two of clothing.
5. Close the openings around ankles, wrists and neck. Wind blows in; warm air escapes out.
6. Protect your most vulnerable spots — your face, feet and hands. These are most exposed and get coldest. Discomfort to them can drive you indoors, even though the rest of your body is warm.

Bird watching in winter? We're not the only ones who feel the icy chill of the cold winter winds. Some of our feathered friends must fend for themselves without the protection of full, leafy trees and warm temperatures.

The development of a bird feeding station can provide many hours of pleasure as well as being educational. Encourage the boys to undertake this activity and learn to identify the various birds that use the feeders. One caution that should be kept in mind — the birds quickly come to depend upon the feeder as their food source, particularly in the winter. It is cruel to suddenly drop the project after a few days because this may mean the starvation of the birds that were using the station.

Investigate the various bird feeders that can be made and maintained easily. To start off, refer to *The Canadian Scout Handbook* and *Golden Book of Crafts and Hobbies* by Ben Hunt.

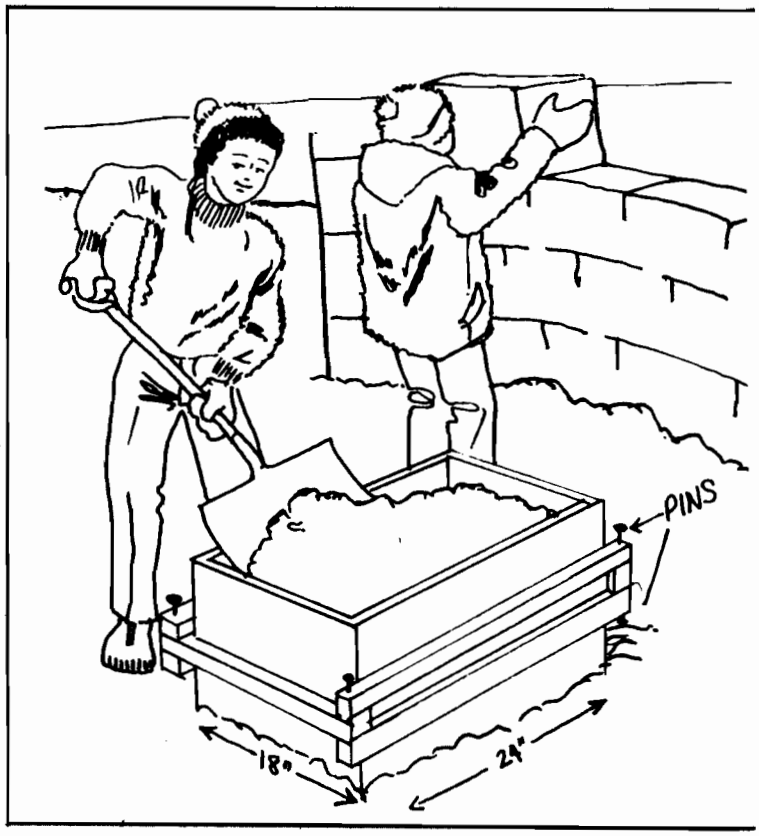
Snow Sculpture

You can make this into a contest. When judging, consider originality, appearance, balance, solidarity and artistry of carving.

Let each patrol go off to create their snow sculpture making a rough framework over which snow and slush are packed. Suggest subjects such as animals, buildings, human figures, ships and cars. Prizes? That's up to you, but hot chocolate for everyone will be more than appreciated.

Build a Better Snow Fort

Build a snow fort to end all snow forts! Sounds great — but how? Here's one approach.



First you need a snow block form. We can make this from scrap pieces of plywood and 2 x 2's

Material Required

2 pieces: 2" x 2" x 23"
4 pieces: 2" x 2" x 28"
2 ends: ¾" x 18" x 18"
2 sides: ¾" x 18" x 24"

The form is held together by drilling a hole through the 2 x 2's where they interlock and using something like a six inch spike as a pin. The drawing, which is not to scale, shows the assembly of the form.

The snow is tamped into the form — the pins are pulled out — the sides are then removed — result: one block. (If the snow is too powdery — experiment with dampening with a small amount of water.)

Once you have built your fort, you may want to develop some defence machines worthy of such a fortification. Here are a few ideas:

Snowball Catapult

Material:

- piece of 2" x 4" (length is dependent on size of sawhorse)
- bottom quarter of plastic bleach bottle
- sawhorse
- rope

1. Nail the bleach bottle to one end of the 2" x 4".
2. Cut the inner tube into 2" bands.
3. Use two of the bands to hold the 2" x 4" against the sawhorse.

The catapult operates by pulling the arm down with the rope, loading the bottle with snow balls and leasing the rope. You will have to experiment with:

- number of bands needed
- placement of the stopper board
- anchoring the sawhorse

Snowball Muzzle Loader

Material:

- a length of 8" to 10" stove pipe
- two bands cut from inner tube
- scrap of plywood
- length of ¼" rope
- bottom of plastic bleach bottle (must fit inside stove pipe)

Assembly:

1. In the piece of plywood, cut a circle to fit into one end of the stove pipe.
2. Drill a ⅜" hole in the centre of the circle.
3. Fasten the circle in one end of the stove pipe.
4. Attach one end of the rubber bands to the plastic bleach bottle and the other end to the stove pipe.
5. Attach the rope to the bleach bottle.
6. Feed other end of rope down stove pipe and through ⅜" hole in plywood.

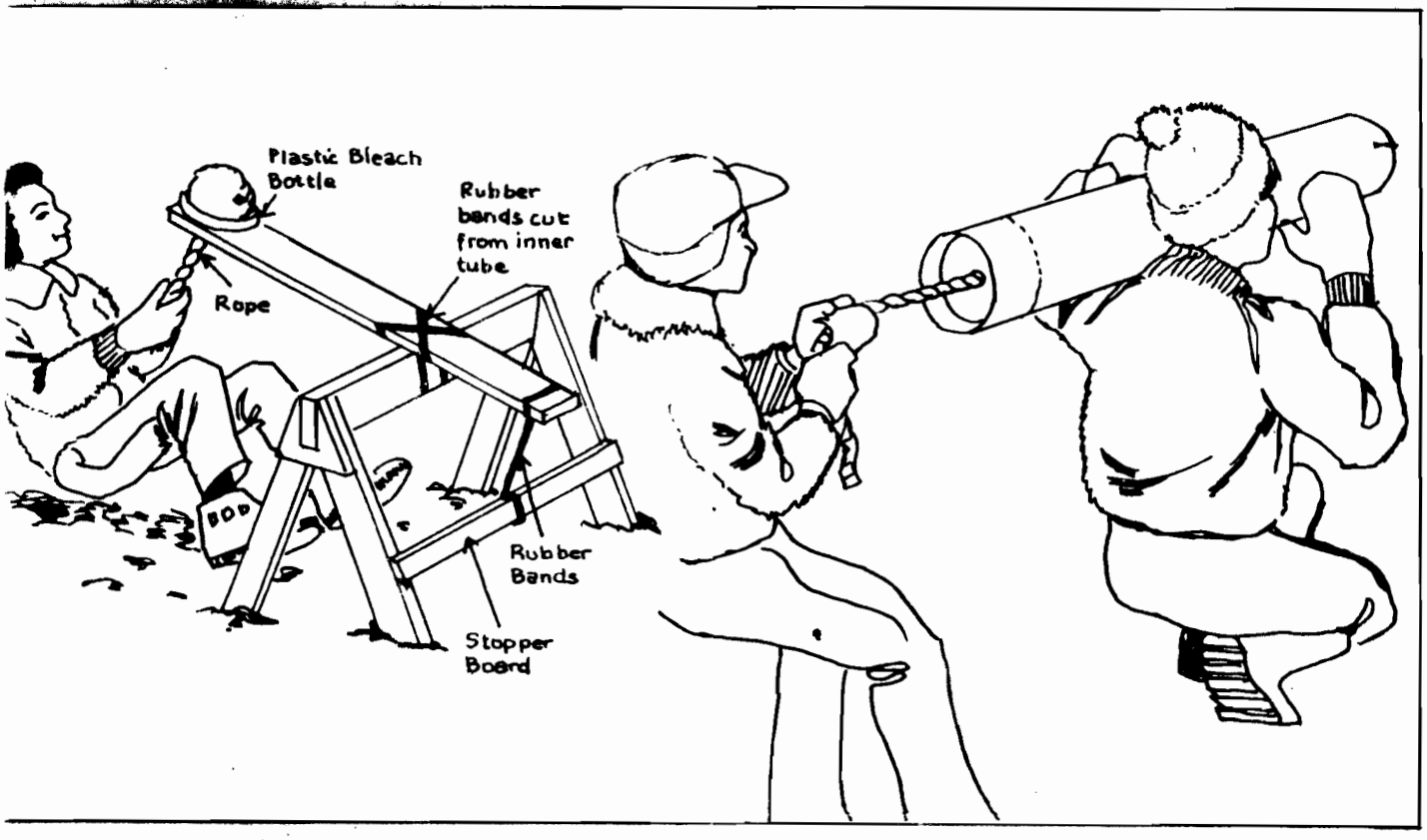
Firing Instructions

Pull rope until plastic plunger is against the plywood stopper. Load snowball into muzzle. Point at enemy fort and release rope.

Consideration must be given to the use of these instruments. They are intended for storming a fort and not man-to-man snowball fights.

Capture the Flag (with a winter twist)

Allow each patrol or company one hour to build a snow fort. Mount a pennant on each fort. At the end of the hour, each team will attack the opposing fort or forts and endeavour to capture the flag. At the same time, they must protect their own fort and flag. If there are more than two teams involved, the first team to lose its flag must join the team which has captured its flag and assist in the attack on the forts.



WINTER SCO

On the Way of the Pioneer

During a patrol meeting on troop night, the Oomingmak (Eskimo for muskox) Patrol decided to tackle the Bronze Winter Scouting Badge.

This decision didn't happen by accident. The Scouter raised the question of camping and hiking in winter weather. This led to the need for special skills and equipment. A short discussion and the Handbook launched a patrol program.

The Oomingmak Patrol consists of five boys — one: ten years old, three: 11 years old and one: 12. All the boys are in the sixth level or grade at school. Their Scout counsellor is a 16-year-old Scouter-in-training.

It was decided that three patrol meetings during the troop meeting, plus two Saturday patrol meetings, should meet the requirements for the Winter Scouting Achievement Badge (bronze stage).

While the first requirement of the bronze-stage Winter Scouting requires knowing how to deal with two out of seven — the patrol agreed to tackle this requirement as the counsellor suggested. Each Scout selected one of the items and during the week would prepare a report. The counsellor would cover the two items left over. The patrol leader would check with the patrol two days before the meeting to ensure each Scout would have his task completed. One reference source to be used would be pages 385 to 416 of *The Canadian Scout Handbook*.

The detailed program worked out at the Scouter's meeting looked as follows:

Patrol Meeting (during troop meeting)

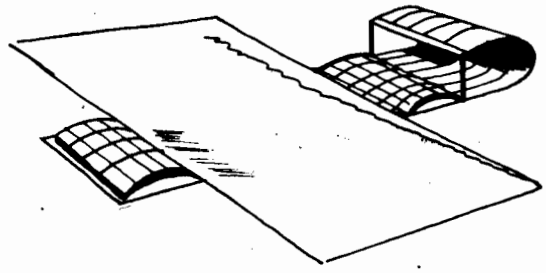
Five-minute presentations by Scouts on selected topic from first requirement. — 30 minutes

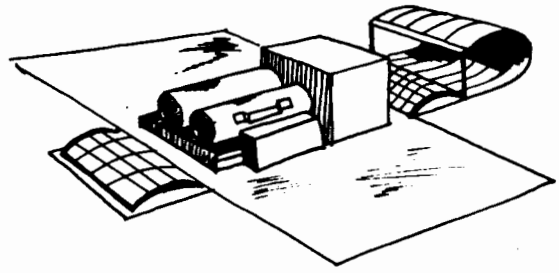
Discussion led by Scouter on the two topics not covered by Scouts. — 15 minutes

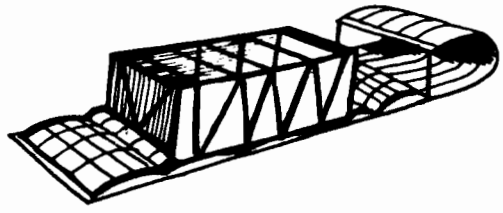
Game to test listening: large circle drawn on floor with one Scout to sit in the centre. Patrol to effect a "rescue" demonstrating what they have learned. — 10 minutes

Patrol Meeting (during troop meeting)

Each Scout given a piece of card stock to make a pattern for a pair of eskimo-type sunglasses. The pattern is transferred to ¼"-plywood and cut out. Flat black paint is then applied. (Page 408 of *The Canadian Scout Handbook* has a picture of a Scout wearing a pair of these.) Care must be taken to ensure that the slit in the wood is in line with the pupil. This is best done through trial and error as it requires "custom fitting."







UTING

By Don Swanson

Using a large cardboard box and a toboggan, the Scouter demonstrates how to pack a toboggan (page 400, *Canadian Scout Handbook*). 5 minutes

Patrol Meeting (during troop meeting)

Using pages 144, 145, 394 and 395, the boys plan a menu for two meals: lunch and supper.

Quantity lists are also prepared for the patrol. When completed, the Scouter takes the patrol to the shopping centre to price the foods they have selected. Emphasis is placed on dehydrated foods and one-pot meals prepared in foil.

Troop Game (*Race to the North Pole*)

At a given signal, each patrol to load a toboggan with a large cardboard box and one rider.

Patrols race across a field (around a large circle, down a path) to a point marked by a pennant.

Each patrol must light a fire and boil a cup of water (material will be given out by Scouter).

First patrol to load toboggan, boil water and return to starting point will be the winner.

Patrol members to read pages 386 to 389 of their Handbooks.

Patrol to arrange for transportation, one toboggan and food, as planned at patrol meeting.

Patrol Meeting (Saturday)

On Thursday the Scouter will call the patrol leader to ensure all the tasks (food, transportation, snowshoes and toboggan) have been looked after.

Patrol assembles and dress is checked by Scouter. Upon arrival at hike departure point, the patrol loads the toboggan.

The Scouter has included six squares of heavy galvanized tin (2' x 2') for practising fire lighting.

Patrol hikes to small lake and clears a strip for skating and a game of shinny. (For ice safety and rescue information, see *The Canadian Leader*, Jan '74.)

Scouter demonstrates how to light a small cooking fire with a piece of metal as a base. Each Scout to light a small cooking fire and heat a cup of soup and cocoa.

Shinny on the strip cleared before lunch.

Early supper cooked on one fire.

All garbage, ashes, trash to be placed in a plastic bag and packed out . . . and then home.

A second Saturday hike which involves ice fishing and tobogganing, as well as preparing lunch and supper, completes the badge. At the troop meeting, the patrol is awarded their bronze-stage Winter Scouting Achievement Badge by the troop Scouter.

WHEN COLD WEATHER CAMPING, KEEP IN MIND THE AIDS WRITTEN IN THIS MANUAL ARE NOT MAGIC, IT WILL TAKE MANY SMALL THINGS TO GET ONE SUCCESSFUL END RESULT. REMEMBER THERE IS NO SUBSTITUTE FOR COMMON SENSE.

WINTER CAMPING KNOW-HOW

Winter Camping requires more hardiness and skill than any other type of camping and above all keeping dry.

Have you ever spent the night in a sleeping bag, quite comfortable, then along toward morning the sleeping bag has gotten cold, as if someone had turned off the thermostadt? It need never happen again. Just cross your wrists, inside to inside and then you will immediately warm up. The reason: your blood is closest to the surface where it crosses your wrists. During the night your pumping system slows, causing the blood to get colder as it crosses the wrists and moves into the body. By insulating this near the surface area, you immediately warm up the rest of your body.

We have also learned that the temples, where the blood near the surface of the body are, the first to get cold. Then the head immediately signals to the pumping station that it's getting cold and needs more heat. So the heart adjusts its valves and sends more blood to the head in order to warm it.

You have only so much blood in your body and to send more blood in your body and to send more blood to the head, the heart must steal it from somewhere. First it draws from your extremities --your feet, your toes first, then from your fingers. So your toes get cold first and then your fingers.

CLOTHING:

Air is the great insulator that maintains body warmth in clothing, that's why layers of material are warmer than just one thickness. Air is trapped between each layer. The air must be dry, moisture in your clothing will chill you,it conducts away heat. Another general rule for cold weather comfort is to be sure that all your clothes are loose fitting. If clothing is tight the outside cold will be able to seep through. So the secret to keeping warm is to wear layers of clothing, not to perspire,and to keep out of the wind. Wool is the best material for outer garments because of its natural warmth and water repellant qualities. Mittens will keep fingers warmer than gloves. Use gloves for working only. Do not over look several changes of clothing and long underwear.

CARE OF FEET:

Only use silicone water repellents on leather boots, it will allow leather to breathe. Grease and oil base water repellants will give leather boots a cold feeling.

Dampness and tightness are enemies of warm feet. Your foot covering must be waterproof. Cotton socks worn under heavy wool socks with a pair of felt slippers inside a pair of rubber galoshes will do a fine job of keeping your feet warm. Be sure to dry your boots, socks, and felt slippers every night.

FOOD"

The winter trail is no place for calorie watchers, so plan meals that brim over with fatty and sugary energy producers. Winter camping and activities use up almost double the normal amount of calories. FOr example a chocolate bar has 178 calories in a single ounce, and together with raisins and peanuts make a good energy ration to use during the day or at bedtime.

FOOD(Continued)

*Several more suggestions in planning your Winter Camp Menu are as follows:

* Plan menus that avoid foods that can be damaged by freezing.
* Many foods can be stored frozen. When using any of these in winter, freeze them ahead of time at home and they'll stay that way until ready to use in camp.
* Frozen TV Dinners make good fast meals for camp.
* Pot test your menus so you do not dirty unnecessary pots and pans, keep it simple, Kabobs, Stews, and Foil Food Packets made in advance and frozen save a lot of time and also makes for faster cleanup.
* If canned foods freeze cut ends out of cans before thawing out with heat. Do not over look one of the pot meals made in the dutch oven.

SLEEPING WARM:

Don't make a sloppy bed, since one third of your time is spent in bed, make it soft and warm. Pick a smooth level spot, remove snow or tramp it down, and insulate the ground with a plastic sheet or poncho, then spread a heavy layer of newspaper for the insulation.

Pad the gound with straw, hay, or leaves. A good sleeping bag is important, if necessary add several wool blankets to the inside of the sleeping bag or even use two sleeping bags one inside the other. A wool sleeping cap, flannel pajamas or sweat suit and heavy wool socks should be worn to sleep in. An air matress is OK but generally cold in raw weather. If using an air matress place heavy leyers of newspaper between the matress and sleeping bag. You'll need more under than over you in sub-zero weather, because your body weight compresses the fill in your sleeping bag, therefore reducing its insulation qualities. Also wait till bedtime to spread out your sleepigg bag, then fluff it up, its the air in the bag- not the stuffing that keeps you warm.

SLEEPING WARM (Continued)

Dress and undress in your sleeping bag for more comfort, and put your next days change of clothes in the sleeping bag with you to keep them warm.

If you should wake up the middle of some cold night shivering in your sleeping bag, here is something you might try to rewarm yourself. Eat a candy bar: the digestive process will help to warm you up by increasing your metabolism. Also muscular activity will be a great benefit, strain one muscle against another and indian hand wrestle with yourself. Exercises of this type must be done at least 10 to 15 minutes to get results. Use of these suggestions should put an end to cold uncomfortable and sleepless nights.

YOUR CAMPSITE:

For winter camping, a top consideration is shelter against icy blasts and driving snow. Your best bet is a protected hollow in a dense forrest. You'll need far more firewood than in summer-- not just for heat but also for light during the lon long dark hours. When setting up a tent, keep it low, flat to the ground--it's warmer. If the ground is too hard for tent pegs, take along spikes (long nails) or if the snow is deep burry crossed sticks in the snow and pack down. Tie to a tree or brush if near enough. A shelter can be dug in a deep snow drift-- a snow hut is the the warmest winter shelter. The A Type tent is best for winter camping because of its pi it's pitched roof that sheds snow. A voyaguer , miner, or forester style tennt will do the job. Pack snow around the base of your tent to keep out icy winds and pitch your tent with the clsed back to the wind.

Beware of any flame or oxygen using heat in a tent--- it can use up all of the oxygen and leave you dead. don't do it!!!

A tin can of real hot rocks will keep a low tent warm for a while. Body heat is the best warmer.

YOUR CAMPSITE (Continued)

If weather is windy set up a wind break tarp or several ponchos. It's impossible to cook and have fun in severe wind. Don't cook with pots suspended in mid air, too much heat is lost. Scrape away smow- lay down some base or floor of logs and build your fire on this platform. A real cook can put pots directly on the coals and get excellent results, and no heat is wasted by being blown awa. A double-log trapper fire is an excellent choice.

When you wake up on a cold morning in winter camp, the first thing you want is a fire. Keep a supply of tinder in a plastic bag and some dry wood under the shelter of your tent, it will be easier to get your fire started.

SOME THINGS YOU DON'T NEED TO WORRY ABOUT IN COOL CAMPING

* No mosquitos or flies
* No fear of heat strokes
* Food don't spoil
* Birds singing doesn't wake you up early
* No dust problem
* With lots of snow around, there's little fear of forest fires.
* If food is served too hot-- wait a second

COOL CAMPING TIPS:

* Don't skimp on food, keep a pot of hot water on the fire, eat hearty, drink a cup of soup, hot chocolate, or boullion often.
* Don't drink from a metal cup in zero temperature.
* Protect your water canteen from freezing by keeping it in your sleeping bag at night and inside your jacket during the day.

COOL CAMPING TIPS (Continued):

* Keep shirt collar buttoned to prevent body heat loss at the neck or use a scarf.
* 10 quarts of snow make about 1 quart of water, it must be stired to keep from burning.
* Newspaper crammed into shoes, helps to dry them out.
* Dampness in any form is the number one enemy to body warmth and comfort in cold weather, especially wet feet.
* An old shower curtain with a slit for your head makes a good poncho or wind breaker.
* Keep dry as possible, even avoid perspiring loosen clothes when exercising, bundle up when resting.
* Dry socks by placing them undeneath your T -shirt on your chest, this will dry them out and is not uncomfortable.
* If you have a cap without earflaps, tie a ncekerchief over your ears and cap.
* In a wind storm tie your neckerchief over your nose and let the point hang down over your chin.
* If you have no gloves or mittens or if they got wet, use an extra pair of wool socks as mittens.
* Fill a canteen with piping hot water and use it as a bed warmer.
* Newspaper wrapped around legs, thighs, back and chest will keep wind out if clothing is porous.
* For cold feet wear a hat.
* Protect against wind-burn and skin chaping. Include in your winter pack skin lotion and chap stick for your lips.
* Choose camp long before dark. No later than 3:00 p.m. It takes longer to make a comfortable camp in winter than during other times of the year.
* Transport gear on a sled or toboggan to your camp-site, then use them as a seat or table.

* Don't eat snow or ice along the trail. This will lower your body tempature very quickly and can kill. Typhoid has been traced to apparently pure ice. Even sucking icicles can be risky. Melted snow or ice can be used for drinking water only if it is boiled.

FROSTBITE:

In very cold weather or while hiking in a chill wind, be on guard against frostbite. Suggest that all Scouts keep "making faces" to keep the circulation of blood. Chewing gum also keeps the face muscles in action and thus eases the danger.

Numbness of toes, fingers or cheeks, followed by tingling after they have been rewarmed, is not really frostbite. Rather it is frost nip. Frostbite symptom is a sudden blanching(pallor) of the skin. Scouts should check each other periodically for this condition. If it is noticed promptly, it can be treated by firm, steady pressure (no rubbing) of a warm hand or by cupping one's own hands and blowing on the spot until it returns to normal color.
Frost nipped fingers can be treated by holding them in the armpit. For forst-nipped toes, remove the footgear immediately and warm the toes on the the belly of a trailmate, protecting them from the wind by keeping them covered by a parka and shirt.
In ture frost-bite, the victim does not feel cold. The frozen part is white and becomes hard to the touch. The victim cannot feel it when it is touched.

True frostbite cannot be treated on the trail. Get the boy to the nearest warm building and then to the hospital as soon as possible. Rapid warming is the best treatment, but it cannot be done safely on the trail. The frozen part should never be thawed until a place is reached where adequate warmth can be maintained.

FROSTBITE (Continued)

REMEMBER THESE CAUTIONS ABOUT FROSTBITE:

* Never try to rewarm a frozen part by exercising it.
* Never rub a frozen part before, during, or after rewarming.
* Never expose it to an open fire, hot water (above 112° F.) or other intense heat.
* Always keep the victim warm after rewarming.
* Always handle a victim as a litter case after rewarming and continue until he arrives at a hospital.

WINTER GAMES AND ACTIVITIES

Many ordinary games can be played on the ice, including troop favorites Steal the Bacon. Here are others which require some equipment:

ICE BROOM BALL: This game is played on any icy surface about the size of a hockey field or basketball court. Players may be on skates or wear galoshes. Each player has an old broom for hitting the ball that may be a basketball, volleyball, or soccer ball.

You can play with or without a hocky-type goal. Either allow a score to be made whenever the ball crosses the goal line, or establish a goal 6 feet wide with lines on the ice or with uprights.

If a hockey-type goal is used, one of the players on each team is a goalie who stands directly in front of his goal. He may block the ball with any part of his body,but he can propel it only with his broom. If a goal is used, every player except the goalie can go anywhere on the rink. If the end line is the goal, half of each team are guards, half are forwards. Guards may not go beyond the middle of the rink, and forwards must stay in their offensive zones. Score one point for each goal.

PATROL FILE RACE:

Each patrol skates 100 yards (50 yards and return) in single file. No skater in the patrol may pass another. Last man carries the patrol flag.

SLEDDING GAMES AND RACES

ESKIMO COASTING. Set up a 3 foot square target midway down the hill. It should have concentric circles of 36-,20-, and 10 inch diameters and should be about 20 feet off the sledding track and parallel to it.

Each Scout arms himself with three snowballs that he fires at the target as he goes by it. Scores for hits: 10- inch circle,10 points; middle circle, 5 points; and large circle is 1 point.

DOG TEAM RACE: One patrol member is the driver, the others are"huskies". Each patrol equips itself with one sled and as many 4 -foot pieces of rope as there are "huskies". On signal, the "huskies" tier their opes together , and the driver ties one end to the sled with a bowline knot, The "huskies" then pull the sled and driver to the finsih line. If the driver falls off or the ropes become untied before reaching the finish line, the patrol is disqualified.

ALASKAN SERUM RACE. Each patrol has one sled with two 6 foot ropes tied to the front, and each sled carries one "Bottle of serum". Four stations, about 100 yards apart, are set up(the course can be square like a baseball diamond). Each scout in the patrol becomes a sled-puller sometime during the race. With an eight-member patrol, it works like this: to station 1, Scouts 1 and 2 pull and Scout 3 rides; to station 2 Scouts 3 and 4 pull and Scout 1 rides; to station 3,Scouts 5 and 6 pull and Scout 4 rises; to station 4, Scout 7 and 8 pull and Scout 5 rides. At the finish, Scout 5 leaps off the sled and delivers the "serum" to the "doctor". First patrol making the delivery is the winner.

TRACKING WINTER TRAILS

What could be greater sport in winter than tracking, trailing, and stalking in the snow!

Trailing and tracking conditions are ideal in the winter woods. The tracks are written clearly and in detail on a "page" of the freshly fallen snow.

Whole histories of foxes and rabbits lie in full view. There's plenty of drama for those who wish to see it. Here, the story of how a rabbit outwitted a pursuing dog. There a pheasant proved too smart for the fox. And here, the climax of a drama written in the blood of the hunted.

Even if you live where snow seldom falls, you can still enjoy winter tracking and trailing. Look along a sandy or soft. muddy river bank, creek or lake, where animal prints may be even clearer and more distinct than in the snow.

Perhaps your troop can't get far from the city, but that doesn't mean you can't find wildlife tracks. Fox, skunk, rabbit, woodchuck, muskrat,squirrel,weasel, grouse, and pheasant are often year-round residents within earshot of a busy highway. Deer may often be found nearby.

Wherever you are in any wooded area, there's great sport in orospect if you try tracking.

MAKING CASTS OF WINTER TRACKS: Snow is an excellent receptacle for bird and animal tracks, but can't cast plaster in soft snow. In cold weather, spray the track with a fine mist of water to form a thin coat of ice over the track. Then when you pour in the plaster the shape will be preserved. An atomizer works fine for making the spray. Tracks of birds and animals that are so light they make poor tracks in soil can be captured by this technique.

TRACKING WINTER TRAILS(Continued)

STALKING GANES. You will find eight good games for stalking practice in the Scoutmaster's Handbook, tool 11.

THE FUGITIVE. The senior patrol leader or another older Scout is the "Fugitive". He is given a 10 minute headstart to find a hiding place to conceal himself. If snow is on the ground, he should circle, back-track, and make maneuvers to throw his pursuers off his track. When the older Scouts find him, a snow-ball battle begins. Scouts who are hit by the"fugitive's" snowballs must withdraw from the game. The "fugitive" must be hit three times before he is considered captured. The game lasts 45 minutes and ends when the "fugitive" is captured or returns to the starting point without being hit three times.

TRAILING PRACTICE. Make a trail a mile or more in length, using Scout or Indian trail signs, then have the Scouts follow it to see how many signs they can identify. You can make a contest of it by giving points for the signs read correctly.

SKATING AND SLEDDING PRECAUTIONS:

Skating and sledding are great fun, but they can be dangerous, too, unless proper precautions are taken. Be sure your Scouts are supervised during skating and sledding periods so they don't get carried away by their enthusiasm into foolish and dangerous acts.

Since your campsite will be away from heavily traveled highways, the gravest perils of sledding are not present. Your first rule should be that no sledding is permitted on any road-- even an old dirt road that does not see five cars a day.

ADDITIONAL SAFE-SLEDDING TIPS:

* Patrol the slope for discipline.
* Sleds are hard to steer, so pick a slope that has no fences, trees, or big rocks as hazards.
* Don't permit sledding on ice, unless it is solid everywhere. Sleds are almost impossible to guide or stop on ice, and a boy could easily nreak through thin ice before he could stop.
* To slow doen-- drag both your feet as brakes.
* To make a quick turn- drag your rightfoot for a right turn--- your left foot for a left turn at the same time you turn the steering bar on your sled.
* To make a slow stop -- steer your sled into a snowbank.
* To make an emergency tip-over stop- tip your sled over on one side. Hold onto the sled so that the runner and edge of the wood top are pressed against the ground. Dig your heels hard into the snow.

SKATING:

By far the worst hazard in skating is, of course, falling through the ice.

Don't permit skating unless the ice is at least 3 inches thick. And even then, have some rescue gear handy in case a boy breaks through.

Be prepared with one or more of these items:

* Ice rescue Cross- two pieces of 2 by 4 lumber, 8 to 10 feet long, notches in the middle to fit together, with 50 feet of 1/2 inch Manila line attached, see patrol leader's handbook.
* Ladder- minimum length, 15 feet.
* Ring bouy-- with 60 feet of 1/4 inch Manila.
* Heaving lines-- two or more 1/2 inch, 50 foot lengths of Manila with hand loops at each end; two or more lines joined with sheet bend for additional length.
* Board- 1 by 10 inches, 12 to 15 feet long, with 50 feet of 1/2 inch Manila attached.
* Rowboat - light enough to be pushed over ice, with 50 feet of 1/2 inch Manila attached. Blanket and the troop first aid kits should be available for use after a rescue.

ESKIMO HOCKEY:

Fill a sock with leaves or grass and then tie the open end shut, players use sticks to hit the sock across the goal line, make up your own set of rules for the game.

ARTIC EXPEDITION:

Each Patrol use a sled or toboggan with ropes and harness, for two of thier number to pull. Two Scouts go a mile or so ahead, the remainder with the toboggan follow, finding the way by signs as the leading Scout may draw in the snow. All other signs seen on the way are to be examined, noted, and their meaning read. The toboggan carries rations and cooking pots, and other supplies.

SNOW FORT:

The snow fort may be built by one Patrol according to the boy's own ideas of fortification, with loop holes for looking out. When finished it will be attacked by hostile Patrols, using snowballs as ammunition. Every Scout struck by a snow ball is counted dead. The attackers should as a rule, number at least twice the strength of the defenders.

SIBERIAN MAN HUNT:

One Scout as fugitive runs away across the snow in any direction he finds a good hiding place, and there conceals himself. The remainder, after giving him twenty minutes start or more, proceed to follow him by his tracks. As they approach his hiding place, he shoots at them with snow balls, and everyone who is struck must fall out dead. The fugitive must be struck three times before he is counted dead.

POLAR EXPEDITION:

Each Patrol is a group of Polar Explorers racing to the North Pole in competition with the other Patrols. On the North Pole they will find the flag which Admiral Byrd threw down from his airplane when crossing from the top of the world. This flag (signal Flag) must be brought back to the office of the geographical society before the Explorers' claim can be acknowledged.

COMMANDOS

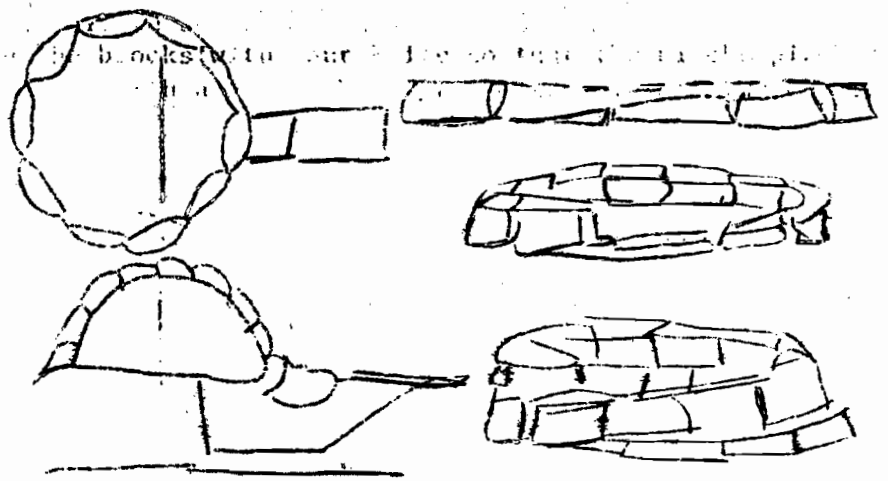
Two tiny countries are trying to get into the good graces of one of the big countries. To do this, each one of them established a radio tower (three 20-foot poles, lashed together in tripod style, with a streamer at the top) and begins a barrage of propaganda, praising itself and defaming the other country. Each government decides to stop the propaganda of the rival country by sending into it a team of men on a commando raid, for the purpose of destroying its radio tower(team to bring home evidence of its destruction in the form of the streamer from its top).

ICE FISHING:

Refer to your copy of BL Winter Activities on suggested Ice Fishing Methods.

MAKE AN IGLOO:

In deep packed snow you can cut out blocks with a long knife to build an igloo. Make it a perfect circle and wedge shape the first quarter circle. Then spiral around, shaping the blocks with your knife so that the blocks pitch toward the center. Cap the top with a little help from outside. Dig the entrance tunnel and make your bed on the snow shelf.



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SELECTING SNOWSHOES

by Don Swanson

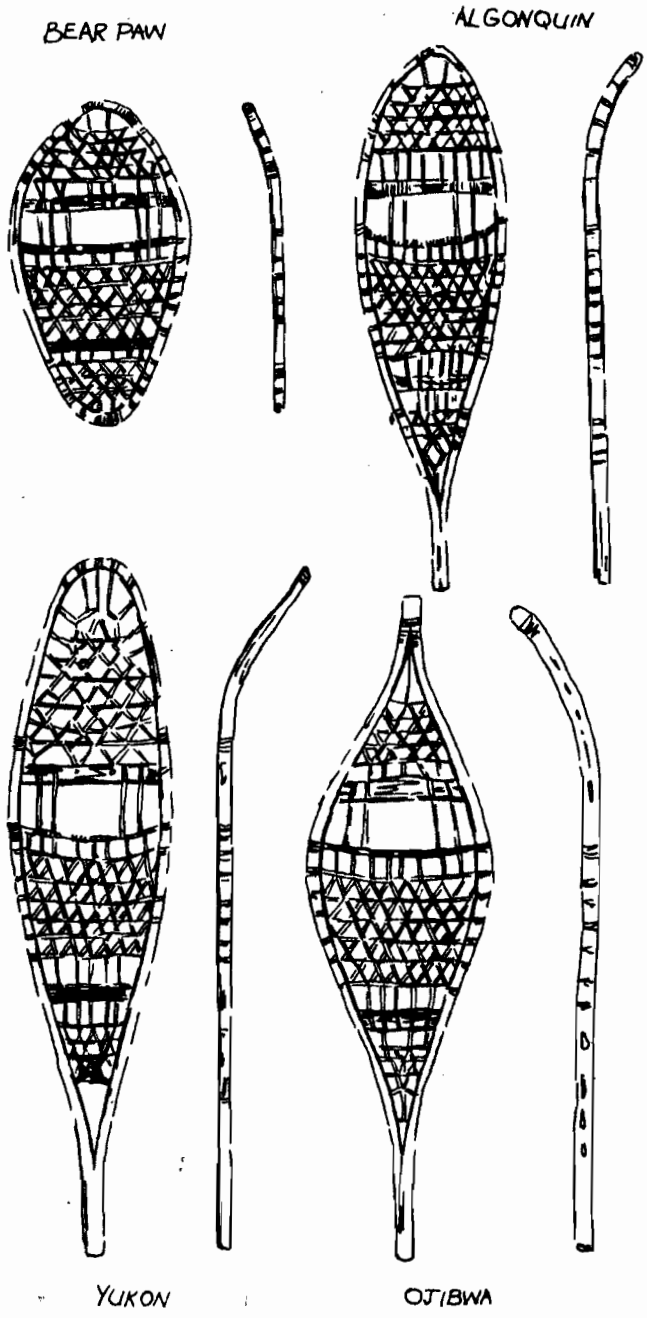
Writing about the selection of snowshoes when the sun is shining and there isn't a flake of snow on the ground seems just a little out of place. On reflection, I guess that's the time to shoe-up—before the snow lies deep and white.

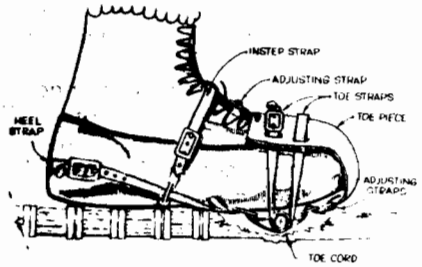
Two of the most common questions asked are, "How big should a snowshoe be?" and "What kind (style) is best?" Rather than just giving a pat answer to the two questions, let's look at the basic points to be considered. These are: style (or type), floatation, traction, tracking ability, length, width, weight, front turnup and binding.

At one time, the type or style of snowshoe indicated various Indian cultures and a designated geographical location. This has become less so today though some styles of snowshoes do use a location or native tribal name. It would be impossible to name the tremendous variety of styles which have evolved so we'll concentrate on the most common ones available. These are:
a) *Bearpaw*—a short, wide, oval shaped shoe that may or may not have some turnup at the toe;
b) *Modified bearpaw* (otter or green mountain)—retains the rounded tail of the standard bearpaw but is longer and more narrow with some turnup at the front;
c) *Yukon* (sometimes referred to as the Alaskan or trail)—a particularly long and narrow snowshoe with a distinctive turnup to the front;
d) *Algonquin* (sometimes referred to as the Maine or Michigan)—a teardrop shape with a broad and slight upturn to the front and a long and narrow tail;
e) *Beaver tail*—a snowshoe of medium length that has a teardrop shape with a turned up, rounded front and a pointed tail;
f) *Ojibwa*—similar to the Yukon, long and narrow with a sharp turnup at the toes. The key difference is that the toe is pointed as a result of the frame being made of two pieces of wood joined at the toe and tail (an advantage: the pointed tip tends to "knife" through the snow).

Floatation is the degree a snowshoe will keep you from sinking into the snow. As a general rule, a large snowshoe of nearly any shape works well in deep snow on level ground. When the snow is deep and loose, and the ground is flat with little or no rough terrain, then floatation is of first importance. The following table can be used to serve as a guide to the carrying capabilities of snowshoes:

Type	Weight With Pack	Size
Bearpaw (standard)	125-150 lbs.	13" x 28"
	150-175 "	13" x 33"
	175-200 "	15" x 30"
	200-250 "	14" x 36"
Modified Bearpaw (otter or green mountain)	up to 175 "	10" x 36"
	175-200 "	15" x 30"
Yukon	125-150 "	10" x 48"
	150-175 "	10" x 56"
	175-200 "	12" x 60"
Algonquin	125-150 "	12" x 48"
	150-175 "	13" x 48"
	175-200 "	14" x 48"
	200-250 "	14" x 52"





If snowshoeing is going to be done on ground that is hilly or mountainous, then traction is required. Traction is improved by the position of the toe cord. The farther forward the toe cord is, the deeper the front of the snowshoe will sink.

Attachment of metal devices to the bottom of the snowshoe will improve traction. These are best attached directly beneath the ball of the foot so that the full weight of the body will ensure a good grip or bite.

Tracking is simply how well the snowshoe follows the foot. Each time the foot is raised, the toe of the snowshoe should rise up and the tail should drag directly behind. The key to good tracking is the ability of the boot toe to move through the snowshoe-toe hole. Snowshoes with a high turned up toe usually track best as the toe doesn't catch in the snow. The tail should be heavier than the toe. If the snowshoe is lifted by the binding the tail should drop immediately.

Dimensions are always a compromise. Longer and wider shoes obviously have greater floatation but the size adds weight. Dimensions affect the performance and this can help in selecting the right size (and weight):

Length—Long snowshoes track better but are difficult to handle in situations requiring tight turns.

Width—A shoe 12 inches or more, wide will tire you because you must walk with your feet far apart.

Weight—Every pound on the foot is as tiring as five on the back. Because size adds weight, use as small and light a snowshoe as possible.

Front or toe turnup on the snowshoe reduces the problem of the snowshoe catching in the snow. Too big a turnup and the shoe may crack the wearer in the shins.

The bindings used on snowshoes are as important to the snowshoer as the binding on skis to skiers. The binding must allow the toe of the boot free up and down movement through the toe hole in the snowshoe. At the same time, the binding should hold the foot firmly and allow no side play.

WHAT ARE THEY MADE OF?

Wooden framed snowshoes are still the choice material of most snowshoers, though other materials are also used today. The wood frame is usually white ash and the lacing is composed of raw untanned cowhide. While rawhide is tough and will withstand considerable wear, it loses much of these qualities when wet. To protect the wood and the rawhide from moisture, they are heavily varnished with marine spar varnish.

Neoprene lacing and nylon cord are also used by some manufacturers. Both of these are waterproof, though nylon tends to wear quickly on breakable crust snow.

Metal frames are also used. Usually the metal is aluminum or magnesium. Metal frames must be anodized or coated to prevent snow from sticking to them.

Plastic snowshoes have problems resulting from the limitations of the material. They are too flexible, break in cold temperatures, and develop a bowed appearance with the toe and heel pointing up. They do have the advantage of low cost and light weight.

CARING FOR YOUR SNOWSHOES

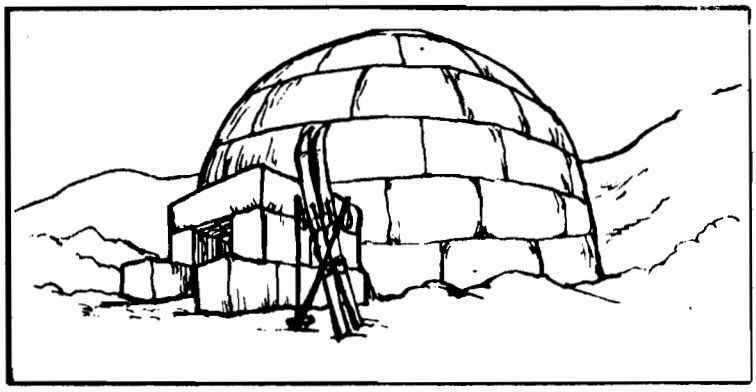
Except for the person who makes continual use of their snowshoes during the winter season, maintenance is relatively easy and can be carried out once a year.

At the end of the winter season, give the wood and webbing a coat of marine spar varnish. Allow to dry and rub lightly with fine steel wool or sandpaper. Now apply a second coat of varnish (the sandpapering is important to ensure good adhesion between coats). A third coat is a good idea but not necessary. The finished job should leave the wood and webbing looking shiny.

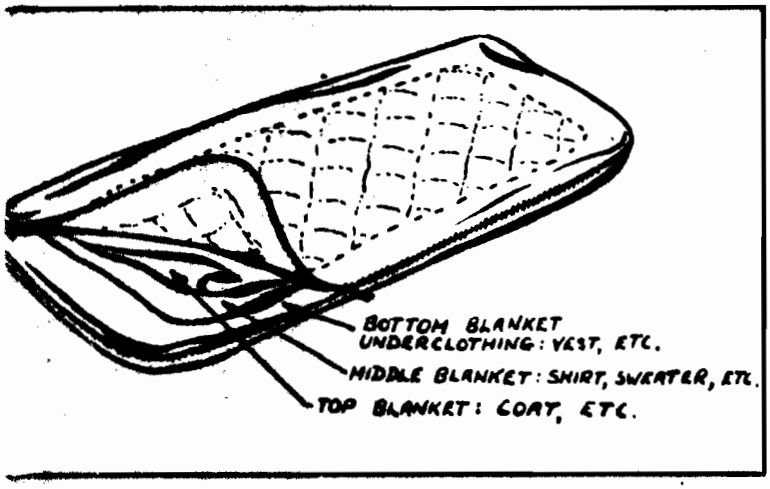
Don't varnish your binding harness. If these are leather, treat with a good silicone leather treatment.

Snow Venture

It's no venture when you do winter Scouting in a basement hall - it's snow venture when you do it outdoors. How does your troop have it - no venture or snow venture?

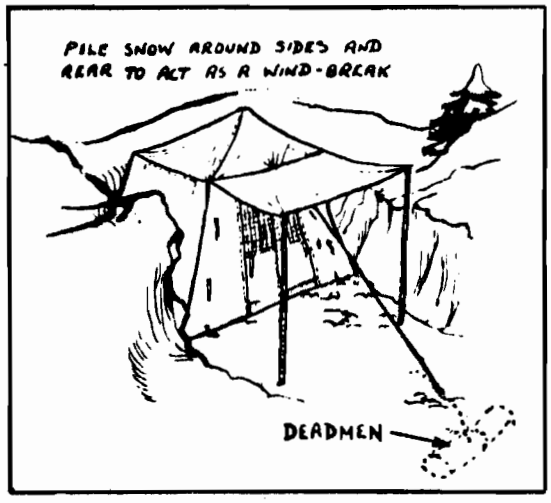


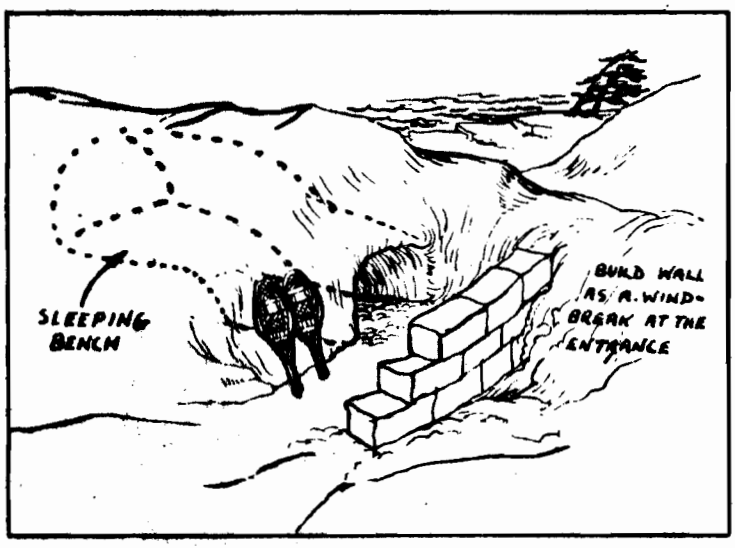
IGLOO — Building a igloo is not impossible in a large portion of Canada. Building an igloo requires hard packed wind swept snow. The closest that we can come in many areas is making large snow balls and cutting them into blocks. Proper method of laying blocks is a series of circular spirals which increase in angle with the top block acting as a keystone. A large snow knife is essential.



SLEEPING BAG — Is your present sleeping bag only useful in the summer? It has been found that a flannelette blanket, a couple of light bags and a canvas cover is warmer than the same weight in one bag. It also allows you to place clothing between various layers to make dressing in the morning a much more pleasant task.

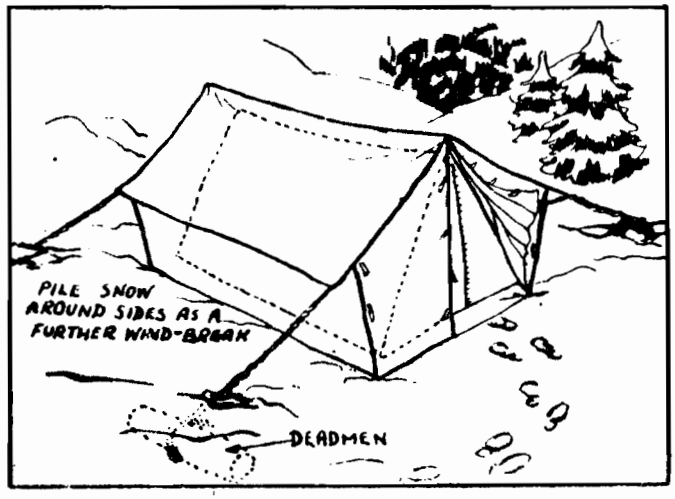
TENTING — When using a single tent, bank the sides with snow. Use deadmen - logs buried in packed snow - to anchor the tent. Remember to leave some ventilation.





SNOWBANK SHELTER — Without canvas you can still be relatively comfortable. Make like a bear and den up. Make sure your sleeping couch is higher than the entrance. Warm air rises - cold air goes down. Use a bough bed to keep your sleeping bag off the snow. If you seal the entrance - leave a vent hole for air.

TENT-IN-A-TENT — This uses the same principle as storm windows. If you have two tents such as an 8' x 10' x 3' and a 10' x 12' x 3', erect the smaller tent inside the larger. The air space between the tents will ensure a warmer sleep.



The ARTS of WINTER SURVIVAL

by M.E. Lamothe

Michael Lamothe is a 33-year old wildlife biologist who is more at home in the wilderness than in the city laboratory. A graduate of the University of Guelph, Mr. Lamothe has worked for the Ministry of Natural Resources but gave that up preferring to be independent. With his brother, Philip, he founded Wilderness Living Experience where he teaches guides and outdoor enthusiasts how to survive in the bush without equipment. He and his wife, Ann, have taught other courses on survival in the Toronto, Ottawa and Montreal areas. Following are Lamothe's ideas, gained from years of practical experience, on the best type of survival shelter. His ideas could save your life.

Reprinted by courtesy of OUTDOOR CANADA Magazine.

Most books on survival advocate the lean-to shelter as a necessity for survival not only to provide protection from the elements but to promote a sense of well-being. While these objectives are, in themselves, of prime importance, years of practical experience lead me to believe that the authors of many of these books have built only one lean-to in their lives and that was probably based on plans from someone else's book in order to add another chapter to their own. In many cases, these authors used a sleeping bag, and therefore any properly constructed shelter would be comfortable. But if they had spent a night in a lean-to without the aid of a sleeping bag, they probably would have written much differently about them.

A lean-to is relatively easy to build if there is a good supply of evergreen boughs handy. However, the amount of firewood necessary to keep it warm if a sleeping bag is not used is phenomenal. If building the shelter doesn't exhaust you, carrying in all the wood to keep a fire blazing for 10 to 12 hours will. It would be ideal if you could just put all your wood in one pile, set it on fire and relax for an eight-or 10-hour sleep. But such is far from the case.

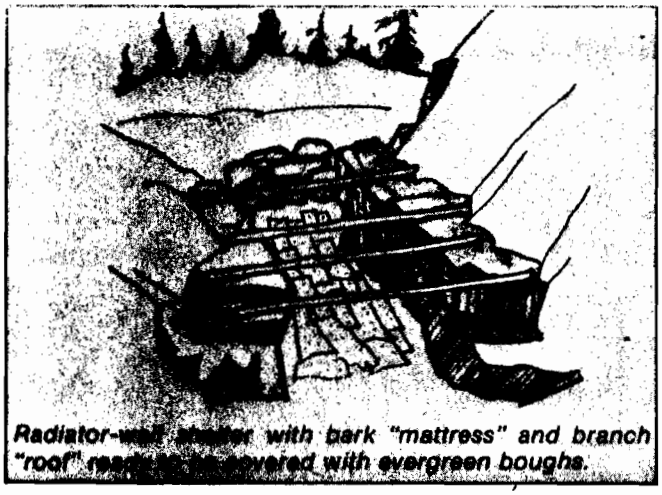
Here is how a lean-to might work for you if you are alone: You put a few good-sized pieces of wood on the fire. As it starts to flame, you feel a warming glow, so you climb into that also overrated bough bed. You really feel comfortable. Suddenly you are getting too hot on the side next to the fire so you roll over to warm the other side or you move a little farther from the flame. Some people are fortunate enough at this point to fall asleep and not to awaken until the fire dies down. But this is the exception. Most people will toss, turn, move away from and then closer to the fire in an effort to maintain a comfortable temperature as the fire constantly varies in intensity. Sometimes, you will doze off, then suddenly awaken, startled by the flames, envisioning that you were in a house that was on fire.

As the fire burns lower and chilling begins, you generally go through the routine of telling yourself that you should tend the fire but you decide it can wait just a little longer. Finally, after two hours at the most, more wood is added to the fire and the cycle begins anew.

I have seldom ever slept comfortably in a lean-to shelter, even in the warmer months. The best variation I have been able to come up with is a group of four or five people. A four-or five-sided lean-to is built around a depression so that the fire is lower than the sleeping area. The shelter is made only deep enough from front to back so that a person can lie full length exposed to the fire. A door opening is left on the lowest side through which the cold air enters rather than through the walls of the sleeping area.

Since this type of shelter greatly reduces air movement, considerably less wood is required to heat it but I still consider it far from the ideal shelter. Enough heat is given off and wasted in one night to heat a house for a month or more. Unfortunately, there is only a very small portion of that heat used. The trick is to store some of that heat and have it released slowly while you sleep.

"Sounds great," you say, "But in the wilderness?" This is when *rocks* are a man's best friend. Heat the rock for a couple of hours and you will be amazed how long it will continue to give off heat.



Radiator-wall shelter with bark "mattress" and branch "roof" ready to be covered with evergreen boughs.

Unfortunately, rock shelters are not the answer to every survival situation because they are not always available *where* you need them. However, many wooded areas contain a lot of exposed bedrock. A little time spent searching for the right rock usually pays good dividends in terms of comfort.

A typically good rock for a shelter will be six to 10 feet long and flat on one side. For convenience let's call this the radiator wall. This radiator wall should be at least two feet in height and be perpendicular or sloping inward toward the base of the rock. The top of the rock will be flat or sloping away from the radiator wall. The ground at the base should be relatively flat.

Two rocks are better than one!

That kind of rock is good but what is even better is to have another rock parallel to that one and three to four feet away. It can be only two feet high though. This makes a second radiator wall. If there are any smaller rocks that are movable, these can be placed at one end of the radiator walls to form a three-sided enclosure. These last two walls are more of a luxury than a necessity.

To heat the rock, simply remove most of the snow between and above the radiator walls and start a fire. Let the flame lick the rock for at least two hours. Some rocks have more capacity to absorb heat than others. Avoid rocks with ice on top. This indicates that on warmer days, water has dripped over the surface you are trying to heat. That rock will contain a lot of moisture and will break off in large flakes as it heats. The end result will be that it will absorb very little heat to radiate during the night.

The longer the rock is heated, the longer it will give off heat. You can have the fire burning as you gather more wood, roofing and bedding material or dry out clothes. The nights are long in winter so four or five hours of heating the rock goes by quickly. Often a rock will give off heat for two or three times as long as it was heated. Keep enough wood to keep the fire burning for one more hour as the rock cools down in the night. The second heating is always more efficient because the rock is already partially warmed.

During the last hour of the first heating of the rock, it is preferable to use only small pieces of coniferous wood and, of course, at all times, only dead, dry wood should be burned. This will burn cleaner without leaving a thick bed of coals which result from hardwoods.

When the fire has completely burned out, the remaining live coals are scraped outside the area with a stick. Care must be taken that there are no live coals left before the bedding is laid down.

Evergreen boughs can be used for a bed but I personally don't favor them. There is too much moisture in them which is given off into your clothing. I prefer large pieces of bark from a dead tree such as elm or birch. The wood in a birch tree can completely rot out but the bark will remain in good condition except for a few insect holes. Using old bark defaces the landscape less than cutting green boughs. When using green boughs, respect nature and the environment. Experiment in isolated areas. Use only the lower living limbs that would soon die by nature's self-pruning process.

Next, a roof must be put on with the light of another fire nearby or by moonlight. The material, of course, would have to be collected in daylight.

The framework can be made with a few old dry limbs on top of which is laid some evergreen boughs such as balsam or spruce. You can also use large pieces of bark from dead trees if it is available. The whole roof is constructed in such a way that it can be easily removed during the night for reheating the rock.

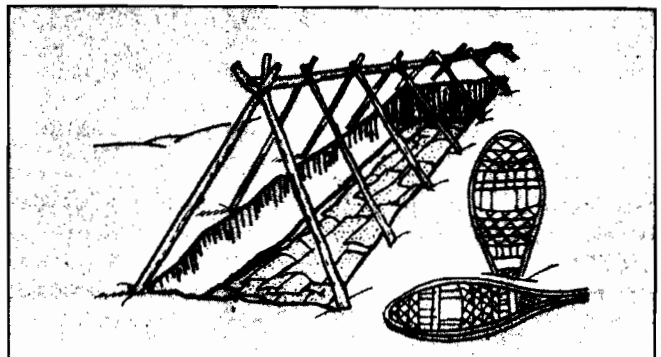
The angle of the roof depends on the circumstances. On a clear night, it can be quite flat which utilizes less material because its only purpose is to reduce movement of hot air out of the shelter. On a snowy night, it will have to be steeper and thick to keep out the melted snow which will result from the heat that rises from the shelter. The boughs or bark are laid on like shingles starting at the bottom of the roof.

Once the roof is installed with the foot radiator end blocked off with boughs, you are ready for bed. Crawl into the shelter, feet first. If the rock absorbed the heat well, you may have to remove a lot of your heavy clothing before you enter. You might be comfortable like this for three or four hours, even when it is -20 or -30 outside. The important thing is not to permit yourself to get so warm that you begin to sweat or you may get chilled.

So that my feet won't sweat, I often remove my socks or felt liners. If they are damp, they are put next to the rock to dry thoroughly. If your feet sweat, you may find that in a few hours, the rest of your body is comfortable but your feet are cold. At first you may think that you heated the rock more than necessary but if it is quite hot, it is a sign that the heat penetrated deeply. This is your guarantee of a good comfortable night's sleep.

You may awaken during the night a bit chilled. Just put your clothes back on or move in a little closer to the rock and feel the warmth surge through your body even though you may hear the trees cracking from the cold outside.

At a time like this, you can't help but think how kind Nature has been to provide the necessary materials for such comfort when you could be freezing outside. If you



After the coals have been removed from the pit shelter, an inverted V-type frame is erected before being covered with boughs.

(continued on page 39)

THE MYTHS OF WINTER SURVIVAL

(continued from page 19)

ever spend a winter night in a rock radiator shelter without a sleeping bag, you will get a great feeling of satisfaction and being one with nature. It is so much better than desperately heaping more wood onto the lean-to shelter's fire with the knowledge that as soon as the flame dies down, the harsh cold will be threatening you with freezing again.

If you happen to be caught in a place where there is no rock, it may not be so easy, but you are not doomed to a lean-to shelter.

Select the best drained and sandiest soil in the area and with the use of a sturdy stick, excavate a pit a bit larger than yourself and one to two feet deep. Now build a fire at least six feet long in the pit. Over several hours, if the soil was well drained, the heat from the fire will have penetrated deep in all directions. As you poke into the ground with a stick, it will have the appearance of boiling water as the heat makes the soil particles bubble.

Remove all live coals, let the ground cool slightly, then lay down a bed. An inverted V-type shelter is built on top and closed in at one or both ends depending on how cold or windy it is. This will remain comfortable for several hours.

I have had students who have used rocks incorrectly. The noise these people created groping through the dark forest or on the lakeshore late at night would wake me from my comfortable sleep. Experience is the best teacher, so if they insisted that their form of shelter would be comfortable, I let them do it.

Some have had their sleeping area lower than the fire. Inevitably, the cold air entering the shelter to replace the hot air rising from the fire passed through the sleeping area which further chilled them.

Other uncomfortable nights have been caused by using rocks which were too moist, usually indicated by ice on top or on the sides. A fire that does not burn close enough to the rock will not heat it sufficiently. Also, if it is not heated long enough, it will cool quite quickly.

One student, with the help of an ax, some wire and plastic had made himself a framework similar to bunk beds but with a ridge pole on top. The whole affair was covered in plastic. He heated large rocks in a nearby fire, then lifted them onto the lower bunk. He slept in the top bunk three feet above. The rocks were changed every two or three hours which he claims gave him a very restful, warm night. When he demonstrated how it worked to the others the next morning, it finally caught fire. But he had the right principle. Store the heat in the rock and let it come out as you sleep. With a little practice and experimentation, anyone can go out into the woods, at any time of the year, with no fancy equipment and get a good night's sleep, but he must first learn to live in harmony with Nature. Further, he must know his own capabilities, limitations and have learned the skills necessary to use to greatest advantage what Nature has to offer. But he should modify the environment only enough to blend in and become a part of it. Then, he can sleep comfortably in sub-zero weather armed with nothing more than a match, content in the realization that he is self-sufficient, at one with Nature and enjoying the experience of a lifetime. ⅄

WINTER CAMPING

CLOTHING

IN COLD WEATHER, WEAR LOOSE FITTING CLOTHES IN LAYERS OR "SHELLS." KEEP IT DRY!

START WITH "LONG-JOHNS," NOT TOO TIGHT.

NEXT A FLANNEL SHIRT, WOOL TROUSERS.

NEXT, A WOOL TURTLE-NECK SWEATER.

WEAR WOOLEN GLOVES WITH WATER-REPELLENT SHELLS OVER THEM IN WET WEATHER.

ADD A LIGHT JACKET, WOOL CAP, HEAVY BOOTS.

FOR VERY SEVERE COLD WEATHER, OR WET, COLD RAIN, WEAR WATER-REPELLENT JACKET OR COAT OVER ALL YOUR OTHER CLOTHES; WEAR WATER-PROOF SHELLS OVER GLOVES AND GALOSHES.

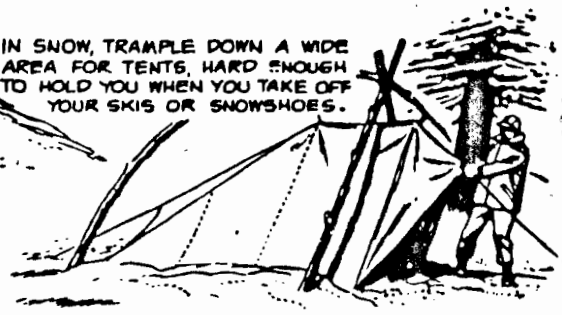
KEEP YOUR FEET DRY.

WEAR HEAVY BOOTS--OR GALOSHES OVER LOW SHOES.

MAKING CAMP

CHOOSE CAMPSITE LONG BEFORE DARK--THE SIDE OF A HILL, IN A CLUMP OF EVERGREENS--A SPOT THAT'S NOT TOO EXPOSED. NEVER PITCH CAMP UNDER DEAD TREES.

IN SNOW, TRAMPLE DOWN A WIDE AREA FOR TENTS, HARD ENOUGH TO HOLD YOU WHEN YOU TAKE OFF YOUR SKIS OR SNOWSHOES.

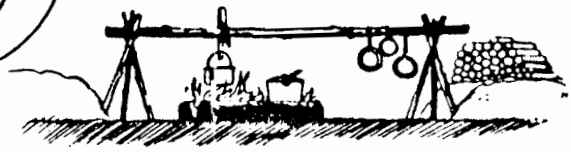


PITCH YOUR TENT SO THAT OPEN END FACES FIRE. BANK SNOW AROUND TENT SIDES.

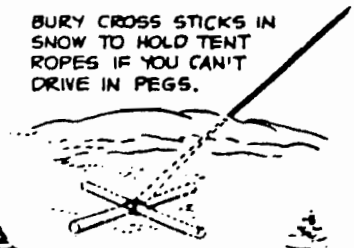
STORE UP PLENTY OF FIREWOOD. COLLECT TWICE AS MUCH AS YOU THINK YOU'LL USE.

COOKING

USE A HUNTER'S FIRE. DIG SNOW AWAY TO BARE GROUND, IF POSSIBLE. PLACE A "FLOOR" OF STICKS AND BUILD FIRE ON IT. PUT LOG POLE THREE FEET OVER FIRE, SUPPORTED BY TRIPODS.



BURY CROSS STICKS IN SNOW TO HOLD TENT ROPES IF YOU CAN'T DRIVE IN PEGS.



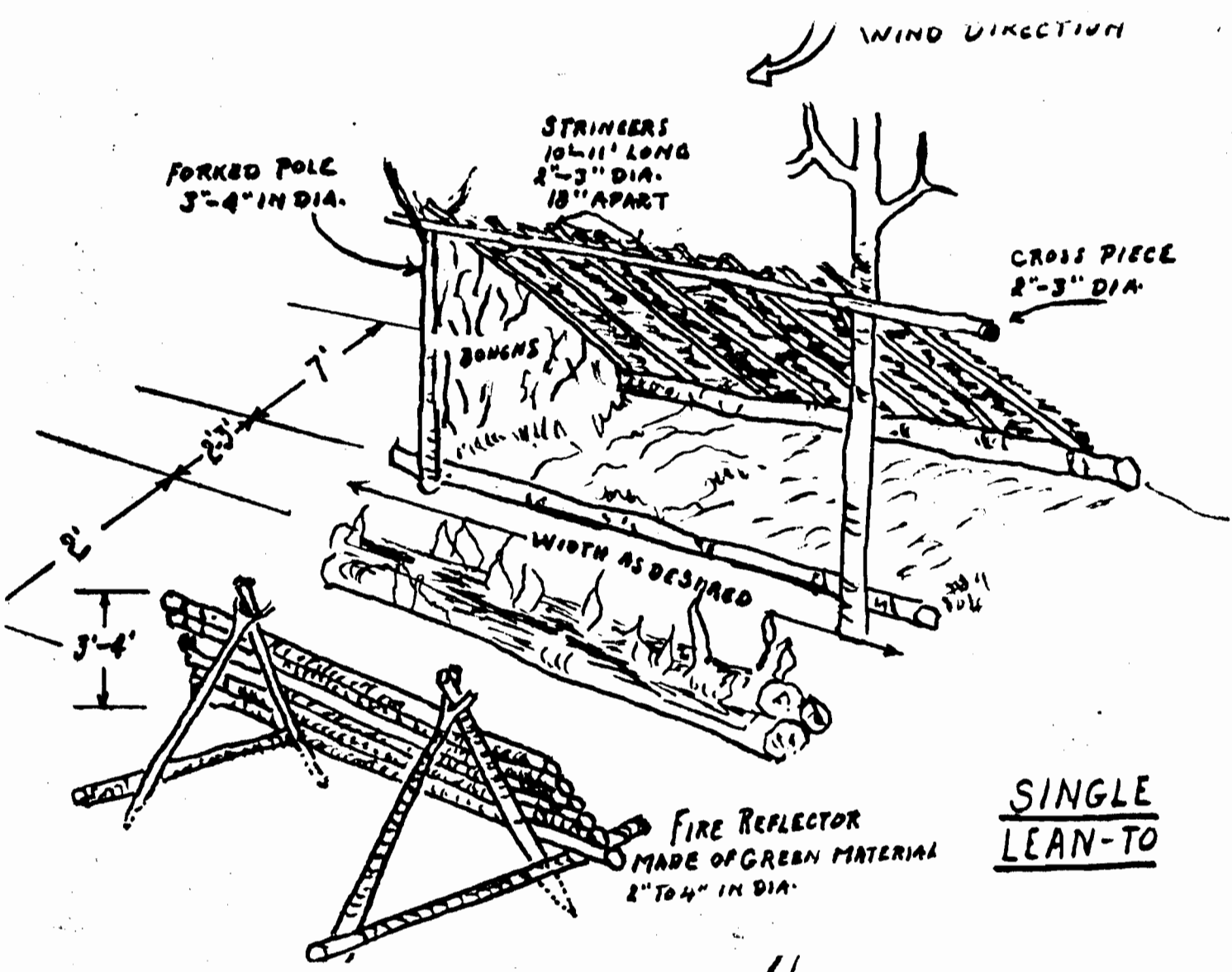
KEEP A POT OF WATER ON FIRE AT ALL TIMES. HOT STEWS, SOUPS, HOT CEREAL, HOT TEA, HOT LEMONADE, AND HOT CHOCOLATE ARE BEST FOR WINTER CAMPING CHOW. SERVE FOODS THAT ARE HIGH IN ENERGY AND FATS. CARRY EMERGENCY CHOCOLATE RATIONS WITH YOU FOR ENERGY BUILDING.

WHERE THERE'S A POSSIBILITY OF RAINS, PITCH TENT ON A KNOLL OR GENTLE SLOPE.

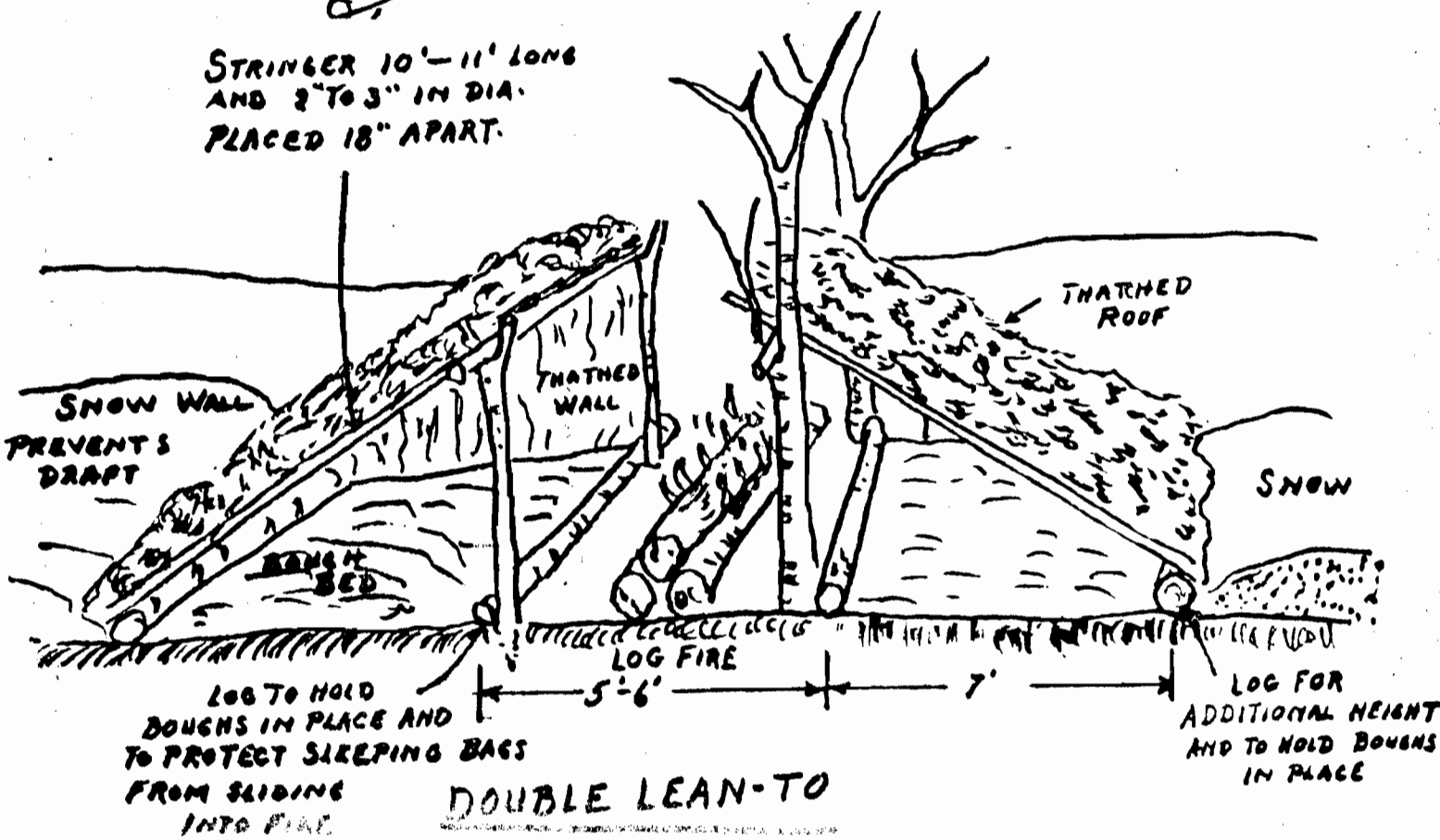
BEDDIN' DOWN

A SWEATSHIRT WITH A BUILT-IN HOOD AND A PAIR OF TRACK PANTS MAKE A FINE SLEEPING OUTFIT. UNDRESS IN YOUR SLEEPING BAG--FIRST FLUFF IT UP WELL--IT'S THE AIR, NOT THE STUFFING, THAT KEEPS YOU WARM.

HAVE MORE UNDERNEATH THAN ABOVE: MORE LAYERS OF BLANKETS, OR SLEEPING BAG, AIR MATTRESS, BROWSE-FILLED TICK ON TOP OF GROUND CLOTH.



SINGLE LEAN-TO



DOUBLE LEAN-TO

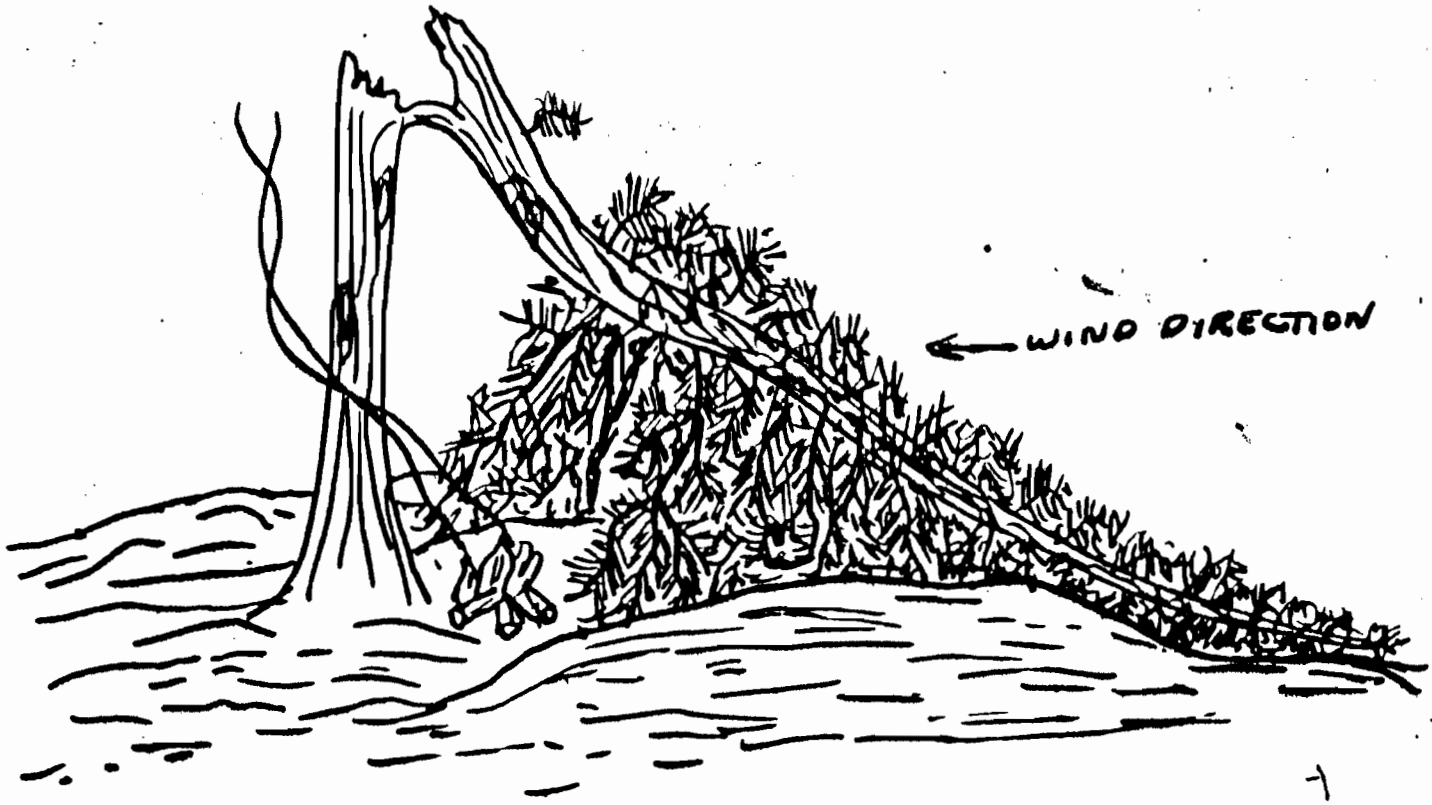
The fifth and last key is "exercise" if chilled. Keep moving, exercise your muscles, use isometric exercise to prod your body into producing extra heat.

GENTLE EXERCISES

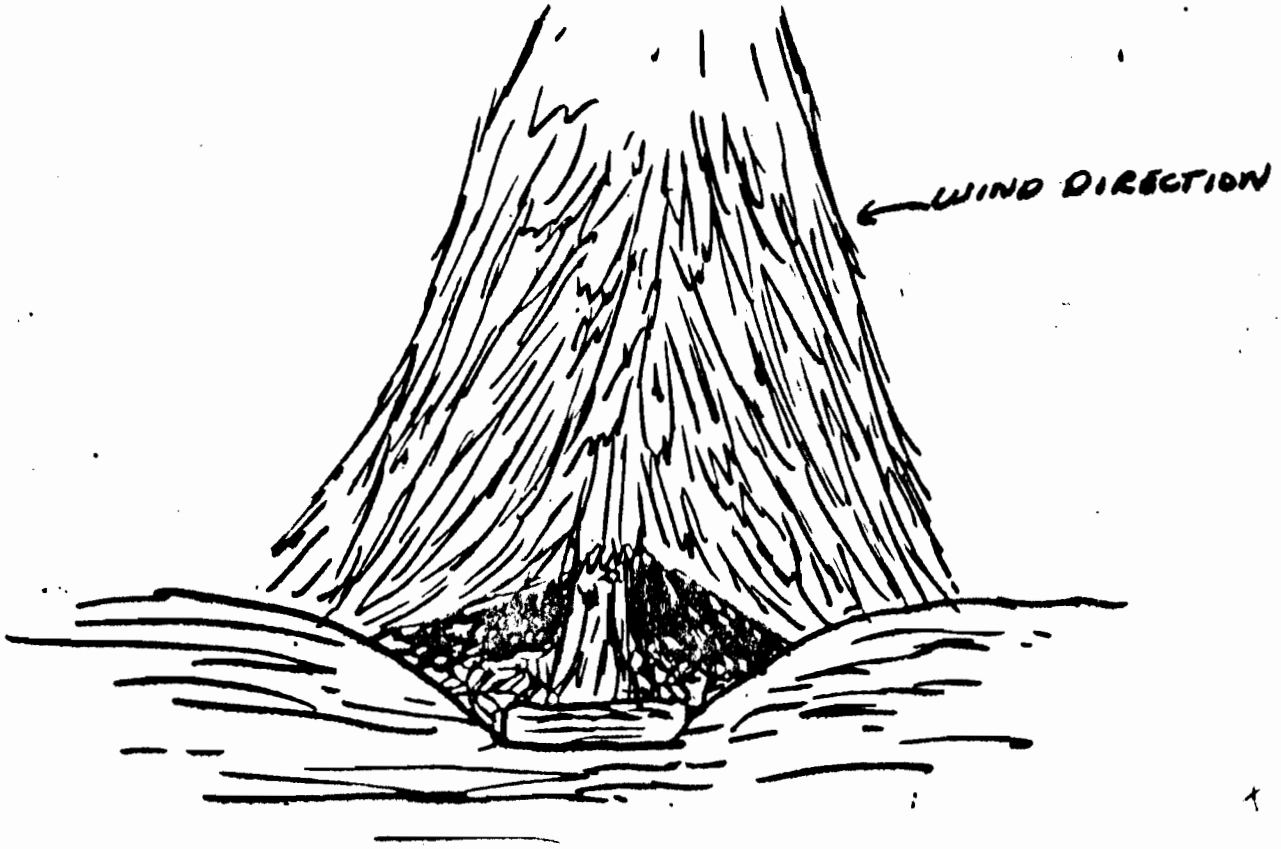
DO NOT WORCK UP A SWEAT

DO NOT WORCK TO EXHAUSTION.

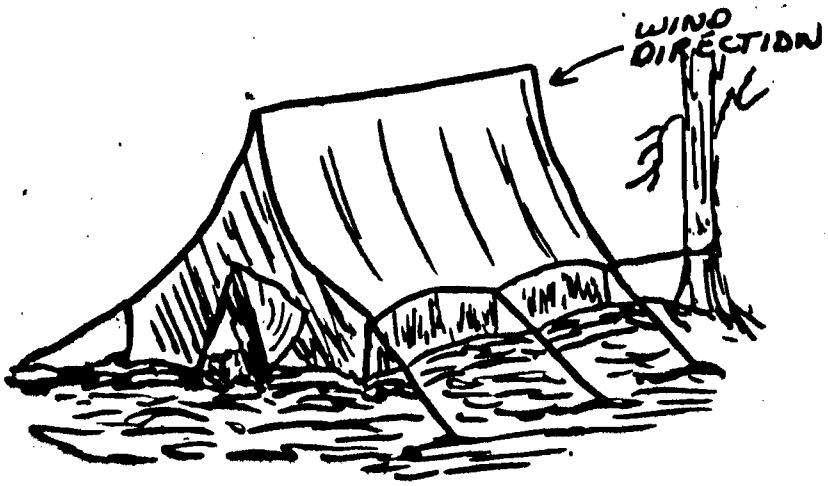
FALLEN TREE SHELTER.

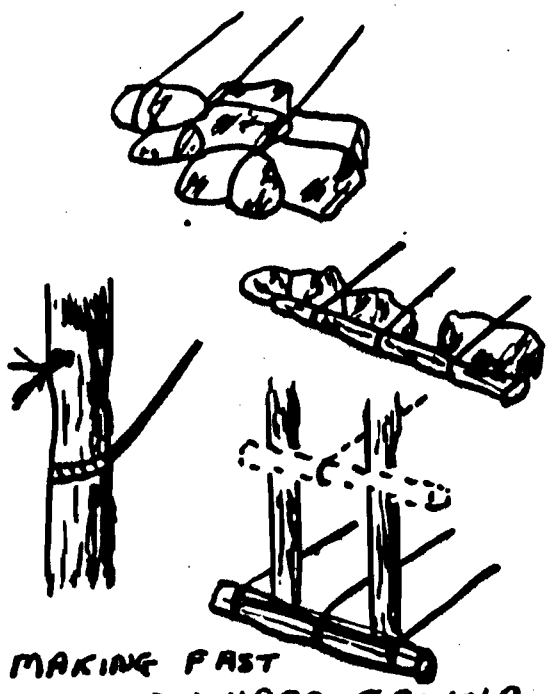


NATURAL SHELTER



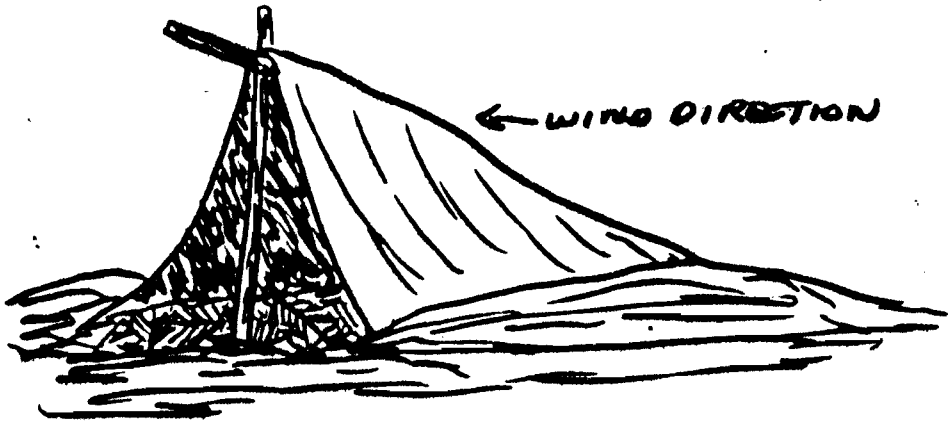
TENT

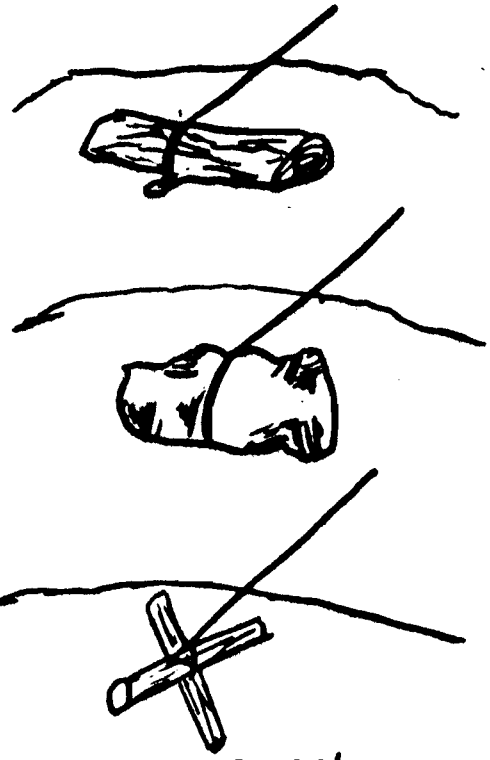




MAKING FAST ON HARD GROUND

GROUND CANVAS OR PLASTIC





MAKING FAST ON SNOW

SHELTERS

Generally:

-The type of shelter used on a winter camp will depend on the time available and the environment of the chosen campsite.
-Chose as sheltered an area as possible to set up your shelter.
-Be careful not to set up close to dead trees.
-Tramp down the snow in the area where the shelter is to be located.
-Always have the back of your shelter to the wind.

Lean-to:

-This type of shelter requires time and much evergreen brush; such as hemlock, spruce or pine; to set up.
-A main cross piece is lashed to two sturdy uprights; trees, bipods, etc.; at a suitable height (4-6 ft.).
-Rafters or slants are lashed to the cross piece and slanted to the ground (7-10 ft. long); placed about a foot apart.
-Cross poles are lashed every few feet apart across the top of the rafters. Horizontal poles are lashed to the sides.
-Cover the exterior of the frame with evergreen boughs and bank the sides and back with snow to cut down on the draft.
-Lay a floor of boughs 6-10 inches thick, cover with a ground sheet and place a large log in front of the lean-to for safety purposes.

Fallen Tree:

-A fallen evergreen tree can prove to be a very convenient and capable type of shelter with a little bit of work.
-Cut out the interior branches and lay them along the exterior for added protection.
-Obtain poles used for slants and more boughs, if needed, to cover any openings.
-Bank the outside edges with snow and finish the interior as was for the lean-to.

Natural Shelter:

-It is quicker in remote terrain to utilize nature's own shelters. Evergreen trees with long boughs extending to the ground may prove the best.
-Clear out the entrance and interior of boughs and branches, with the entrance away from the wind.
-Place boughs around the exterior where necessary, then bank with snow. Finish the interior as for the lean-to.

SHELTERS (CONT'D)

Tents:

-Tents are advantageous in that they can be quickly set up. The most popular type for rambling camps are the two man tents.
-Tents without floors are set up slightly differently than those with floors.
-For tents without floors, stomp down the snow in the area and set up the tent. Spread a layer of boughs or hay if available (6-10 inches thick) and cover with a ground sheet.
-For tents with a floor, stomp down the snow in the area and spread the 6-10 inch layer of boughs or hay. Set up the tent on top of this layer.
-For both types, place a large log across the front of the tent, bank the sides with boughs and then snow.
-When tent pegs will not due because of frozen ground or snow, many other methods may be employed to hold the corners or guy lines of the tent in place. Some of these are listed diagrammatically.

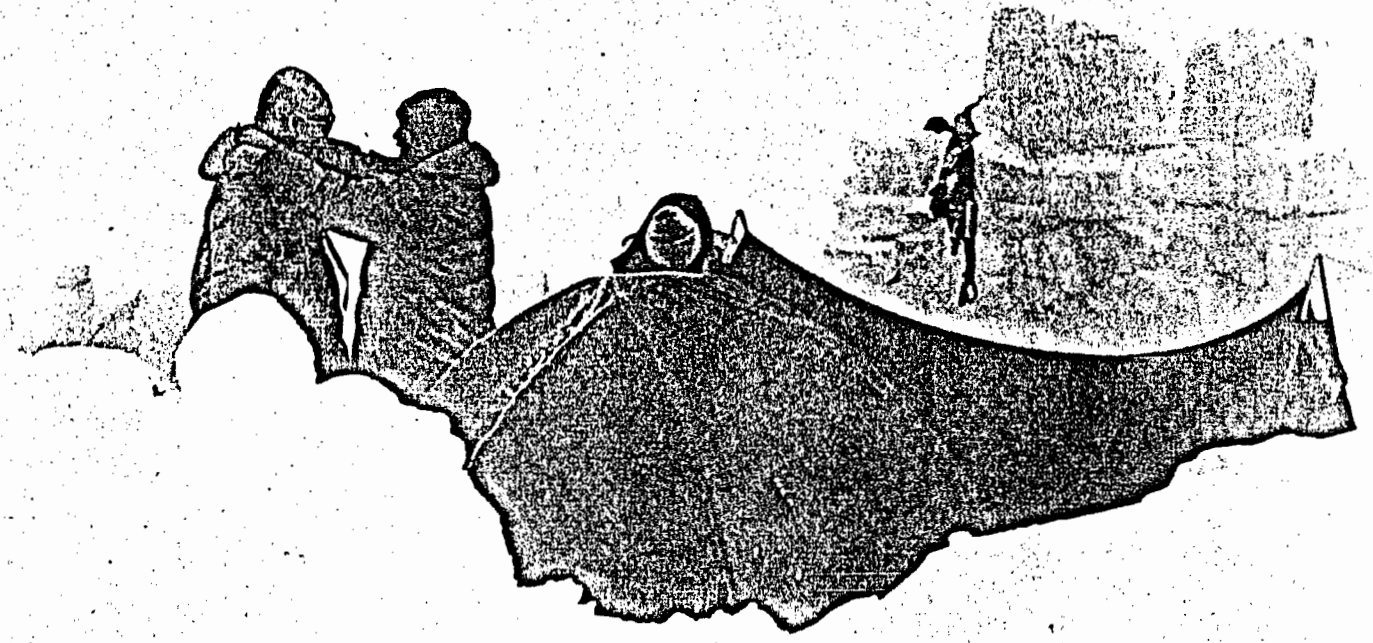
Ground Canvas or Plastic:

-There are many types of shelters that can be constructed with a ground canvas or piece of plastic.
-A lean-to type frame, slightly smaller than the ground canvas or plastic can be constructed, then covered. Tie it securely to the frame at strategic points. Bank the sides with boughs and snow. Boughs or poles may be layed on top of the covering to prevent flapping and possible tearing by the wind. Finish the interior as was for the lean-to.
-A quick shelter can be set up by pegging down one of the ground canvas or plastic and running a ridge pole from the ground at the pegged corner diagonally to the opposite corner of the covering. Secure the corners to the ridge pole and lash the one end of the ridge pole to a bipod or natural upright at a suitable height. Peg down the remaining two corners, secure the sides and bank with boughs and snow. Finish the interior as was for the lean-to.

Igloo:

-An igloo or snow shelter is not too commonly used unless the winter camp is lengthy.
-Safety has to be considered when constructing this type of shelter.
-When lost, a snow shelter could be used if there are no other simpler natural shelters.

The Fine Art Of Not Freezing To Death



BY DAVID DEHAAS

When, late in the fall of 1977, I determined to set out on a long camping trip into the wild country of Northern Ontario, winter survival and the art of staying warm were very much on my mind. Three months in winter, I thought, would well serve to provide vital experience and test my mettle.

The primary concern of the winter outdoorsman is simple: stay warm. A mild overdose of cold can be bothersome, but in extreme circumstances can be far more serious. There is in the mind of every outdoorsman who ventures out in winter the knowledge that it's possible to freeze to death.

My planning was simple: I would ke what I could stuff into or tie onto y oversized frame pack, carry my rifle and snowshoes, wear most of my clothing out to the drop-off point and, generally, hope for the best.

The minimal amount of clothing I did bring was chosen with care and included a down-filled coat with removable liner and two-way zipper for effective layering and ventilation, woollen shirts, woollen socks and underwear designed to wick moisture away from the body. I was confident in my scientific choices.

A long fairy-tale ride on the CN mini-train out of Capreol, Ontario, took me by trundle and lurch to mile 163, my chosen drop-off point. From there, I headed north to an area where my topographical maps promised a most appealing combination of high ground and two small lakes joined by a wild little stream.

By evening of the second day, I had my temporary camp set up and was scouting around for a permanent site. Already I was a bit uneasy and hoped that I hadn't overdone the rugged outorsman role.

The temperature ranged from minus 10 at night to plus 10 in the afternoon, and each morning found a heavy frost on the landscape. My boots were usually too stiff with cold to put on until long after my breakfast fire was dwindling. My every joint ached. I was desperately cold.

Of course, I realized that making any concessions to the cold would be potentially disastrous. I pressed on with my plans, setting out each morning to investigate the reaches of my little domain, found the ideal spot for a camp and set about erecting a shelter. But the penetrating cold stayed with me, and the end of each day found me exhausted. I began to think that I might never be warm again but kept a literally stiff upper lip and waited for my city-softened system to readjust.

The eighth day dawned clear, fresh and very cold. After smoking myself into some semblance of warmth by the fire, thawing my boots and drinking my third cup of sweet, hot tea, I decided to try my luck fishing. The turbulent water below the rapids above the little lake to my west seemed a good spot, as my angling days were limited by the encroaching ice that each morning stretched farther out from the shores into the still water.

In a matter of perhaps an hour, I had five walleye dangling from my stringer. I bustled back to camp for an impromptu fish fry.

I fried the fillets in corn oil in my one big skillet. They browned appealingly, and I found myself eating the first two while the next batch lay sizzling in the pan. Suddenly, I realized that I was doing something entirely uncharacteristic: with each bite of fish, I was mopping up the oil from the pot lid I used for a plate and eating it with relish. Normally, oil gives me a weak, nauseated feeling, but then it tasted very good. For the third batch of fillets, I added a triple dose of oil and soaked it up eagerly, hot out of the pan. In all, I ate seven or eight fillets of fish for lunch that day and at least a cup of corn oil. And for the first time on that trip, I was able to sit back feeling warm and satisfied.

Upon reflection that evening, I began to understand what had happened. I had planned my trip carefully but badly. Somehow, I had managed to make the very serious mistake of planning my cold-weather diet on the basis of what I would normally need in the city during the summer.

My summer diet included from 1,800 to 3,000 calories per day and was entirely sufficient for my normal energy requirements. But the fairly constant cold and vigorous activity I experienced in the North demanded a dramatic rise in my caloric intake. I soon found myself consuming between 8,000 and 10,000 calories per day and suddenly thriving!

My granola and dried vegetables continued to be a welcome part of my diet, but I would eagerly consume huge pancakes, bean-and-partridge stew with a one-third fat content and meat and fish fried in copious amounts of corn oil as well.

I made an expedition out to the railway tracks, then went via mini-train to the town of Foleyet for supplies and returned late the next day laden with high-calorie foods: oil, pancake mixes, syrup and butter.

My main problem with the cold was solved. All I had to do was follow my natural appetite and stoke the body furnace with the right fuel for the circumstances.

The weather grew steadily colder, and by the first of December, "my" little lakes were covered in ice. The snow began to fall in earnest, and, soon, the landscape was transformed into the forest of winter.

I tried to spend as little time as possible in my smoky little windowless cabin. My days were spent ranging the territory, east and west around the lakes, north to the height of land and far south to the railway. I set up caches of firewood, watched the animals, took extensive notes for future reference and, in general, wandered far and wide, eager and curious.

Alan Denis ph

I came to revel in what I thought was my solitary mastery of the situation. The colder the better, I thought, and set the stage for my second big mistake.

When, about a week before Christmas, a day dawned especially clear and bright, I set out to explore on snowshoes with only my rifle and daypack. The sky stayed clear, and, by noon, the temperature started to plummet.

By midafternoon, already well on my way back to camp, I was seriously cold. Each breath seemed to sear my nose and lungs or bite at my tongue and throat when I breathed through my mouth. I couldn't keep my eyes open into the gathering wind and my cheeks were numb.

When I reached my firewood cache at the rapids, I stopped and made a small fire, heated the portion of stew from my pack and made a small pot of instant soup. I felt slightly cheered, but my hands and feet refused to be warmed. After perhaps half an hour, I killed the fire and set out on the last three-kilometre leg of the trip back to camp.

I was lucky to make it at all. I dragged into the cabin nearly two hours later, numb and stiff with cold, my hands useless for anything so delicate as lighting a match, my spirit so sapped that I hardly cared.

Lighting a fire in my tumble-down stone fireplace was a real chore, but I finally succeeded. Several cups of hot tea and a great deal of turning before the fire to alternately smoke my front and my back revived me at about the same time as the cabin grew livably warm.

Again, I spent an evening in reflection. Again, I nearly had been caught by my own mistakes.

I had set out on a long hike with insufficient supplies. I should have taken much more food and probably a sleeping bag and ground sheet as well so that I would have had the option of staying overnight in the field. With those supplies and a bough-lined lean-to by a large fire, I could have spent the night getting at least some rest. In the event of some accident or miscalculation, provision for an overnight stay could have meant the difference between life and death.

I had built a small fire and stayed a short while, still shivering in my winter clothing. I should have built a large fire, gradually removed all my outer clothing and thoroughly warmed myself—by dancing around the fire, preferably—and raised my spirits. Then a light, high-energy meal and a half-hour rest before donning my gear and setting out again would have been perfect. What I had done served only to let the cold set in more deeply as I sat getting smoke in my eyes. My rest had served only to let the warm blood drain from my extremities as I stopped moving.

But perhaps my biggest mistake that day was that I let myself become depressed. I had hunched over forward, walked progressively more slowly and stopped swinging my arms. Therein lies the greatest potential danger: It's very easy to give up when the brain becomes subdued and sedated by the piercing cold. I should have walked boldly and briskly, summoned up my deep reserves of strength and pressed on defiantly.

Worst of all, that evening as I lay in my sleeping bag keeping an eye on the fire, I realized that I already knew all this. But I'd been careless. I'd assumed that I was above precaution, that I could survive regardless of anything the land and the weather might do. I was nearly wrong, and I will remember.

This article isn't meant as a confession of my past errors in judgment, nor is it meant as a rehash of how-to-stay-warm articles. It *is* meant to provide vital information in the gentle art of staying warm in severe cold over long time periods.

I will end with a couple of very important *don'ts* of which I, for a change, am not personally guilty. Don't try to warm yourself with a stiff drink of alcohol. Sure, you'll *feel* warmer, but it could kill you. Alcohol makes one feel warmer because it makes the tiny blood vessels expand and carry more blood to the surface. The blood carries warmth from the body core—where your system has been carefully saving it to preserve the function of vital organs. Drain off that heat, and your body temperature might plunge irrevocably.

The other *don't*? Don't smoke. Even though there's fire involved and you're inhaling hot smoke, it'll cool you down. Nicotine causes blood vessels to contract, cutting off blood supply to the surface and making you colder.

Anyone suggesting a quick drink to dilate the blood vessels *and* a cigarette to constrict them again, go to the bottom of the class. It doesn't work.

Plan carefully. Eat properly. Don't allow yourself to become exhausted. Stay cheerful. You'll be warm. ■

COLD-WEATHER TRAIL MUNCHIES

Fortifying your diet with the extra calories your system will need to withstand prolonged conditions of extreme cold can be essential to your full enjoyment of winter activities. In some circumstances, those high-energy snacks in your day pack can be essential to your survival.

A suitable cold-weather diet should meet three basic requirements: It should be sufficiently well balanced to support your general health; it should satisfy your appetite for calorie-rich food; and it should avoid being top heavy with indigestible high-calorie foods that will make you sick.

For simple trail snacks to give you that little added boost, it's best to stick with natural foods. Peanuts, walnuts, cashews and almonds all provide upwards of 600 calories per 100-gram (4-ounce) snack portion. A similar portion of raisins will give you 300 calories, and the average candy bar about 400. Dried apples and apricots are ideal for munching on the move and provide around 300 calories each per 100 grams. Banana flakes weigh in slightly higher at 400 calories per serving. Why not carry little packages of each?

It's easy to make your own high-energy bars at home for a fraction of the cost of the commercial variety. You can also vary the ingredients to suit your taste.

Super Energy Bars

55 grams (¼ cup) butter or margarine
675 grams (3 cups) of your favorite granola
170 grams (¾ cup) chopped nuts
115 grams (½ cup) peanut butter
1 can condensed milk

Combine ingredients in mixing bowl, gradually adding the condensed milk. When thoroughly mixed, spread loosely in greased 22 x 32 centimetre (9 x 13 inch) baking pan. Bake at 325°F for approximately 30 minutes. When cool, cut into bars and wrap individually in tinfoil.

This is a recipe that begs for improvisation. Add your own favorites. Sunflower seeds, dried fruit, rolled oats, raisins are other tasty suggestions. Just watch those proportions of liquids to solids so you end up with a bar that holds together.

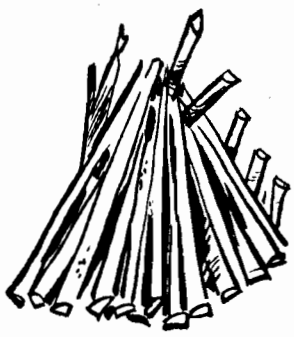
TYPES OF WINTER FIRES

Building a quick fire

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

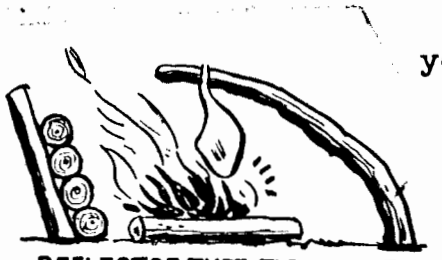
Next get a good supply of tinder. Birch barck makes an excelent starter as it will flame even when wet. Dead leaves and dry grass are also good tinder. Find a good supply of small dead twigs from living trees.

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

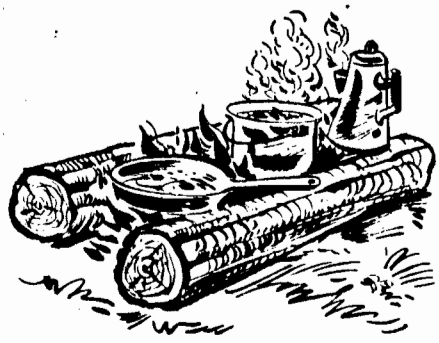
Reflector Fire



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.

Trappers Fire



TRAPPER FIREPLACE

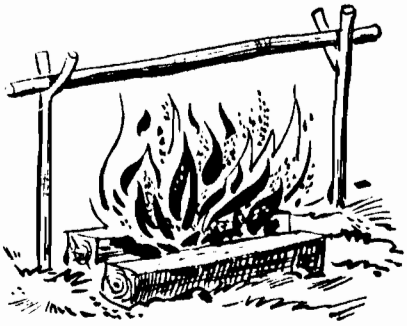
The main purpose of this fire is cooking.

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.

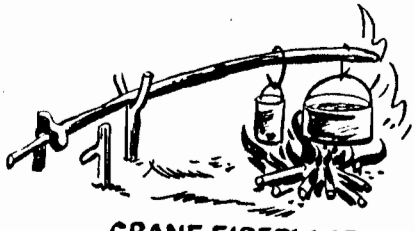
Hunters Fire



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.

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WINTER CAMPING

Morrie Schneiderman

Winter camping makes possible extended cross-country and snowshoe trips into areas that are too remote to be reached in a single day.

Experience with summer camping is a good preparation for winter camping, which is considerably more involved with more to be done and less time to do it in because of the short days.

Warmth is of prime consideration in winter camping. The best procedure is to stay comfortably cool and dry. Becoming overheated and perspiring is the most common way of getting wet. For winter camping purposes there are two types of sources of warmth: internal warmth comes from food. Your body derives much more warmth from the sugar you add to the tea than from the warmth of the water. Eating is an exothermic process of digesting food. The other method of stimulating a production of heat from food is exertion.
There are also three major external sources of warmth.
Stop for lunch in the sun (out of the wind) and turn your ski bottoms to face the sun. The snow and ice that have accummulated melt away and the bottoms don't ice up. Leave the backpack side that is against your back facing the sun, the pack will usually be dry and warm when you put it on again. The second external heat source is a fire or a stove. The third external heat source is other people.

The second major consideration in winter camping is food. Most people require 5000 kilo-calories each day to remain healthy while losing weight. This is due to high levels of exertion that are involved. Energy comes from protein, fat and carbohydrates. Protein is an essential source amino-acids which the body needs to rebuild the muscle cells. Fat is a concentrated form of energy that takes considerable time to be digested and metabolized. As a result, it will keep you warm for a long time. The third type, carbohydrates, is rapidly digested and converted to energy.

A winter camping diet should consist of all three types of food. It should be kept simple. Avoid meals that are complex in either their preparation or cooking. Your food should be prepackaged by day, by meal, and by portion to minimize handling and preparation.

A winter camping lunch is something very special. It begins when you wake up and it continues until you fall asleep with two brief interruptions, one for breakfast and the other for supper. By cutting food into bite size portions, it can be eaten whenever the opportunity presents itself. Long, formal, bone chilling lunch breaks are to be avoided. Significant portions of lunch can be put into a pocket for availability.

Breakfast causes problems for many novice winter campers. Hot food is nice but not necessary. Granola can be eaten from a bag using a spoon while lying in the sleeping bag.

Supper can also be a cold meal. You should already be warm and comfortable from a day of exertion. The basic format for supper is stew, then soup, then tea. All 3 courses are prepared in the same pot, therefore, the pot is clean when supper is finished.

All food should be of the quick cooking variety. The protein base for the stew can be precooked, diced beef, tinned tuna, or other fish. Carbohydrates can be included in supper in forms such as egg noodles or instant mashed potatoes. Adding a stick of margarine to the stew will help keep you warm all night. Foods to avoid include brown sugar, bread and uncooked hamburger meat because they freeze solid.

Most novice winter campers do not drink enough water. This is probably because of two reasons; (1) you're not as aware of water loss as in summer and (2) water is not as accessible. The basic principle is to drink lots and then drink more. There are several reasons for consuming large quantities of water: the cold dry air causes large amounts of water to be lost through breathing; a high protein diet requires large amounts of water to remove keytones which are bi-products of the body's metabolism of protein. An effective way to determine if you are consuming enough water is a simple urine test. If urine is clear you are consuming enough water. If it is yellow, drink more water.

Finding water can often be a problem. Melting snow can be time consuming and yields very little water. Melting ice is more effective. An ice axe can be used for chopping through the ice to get at water either in a lake or a stream. Small snow covered streams are often the best source of drinking water, because they flow freely under the snow. Warm the water first before drinking it. This is not for the added heat content but avoids internal core cooling of the body. Water can be kept from freezing by burying it in snow, which acts as an extremely good insulator or take it to bed with you, because you are going to become thirsty during the night.

Winter camping clothing is extremely important and the layered look is in. The first layer should be fishnet underwear etc. This provides good insulating air space and also absorbs perspiration. The next layer should be wool. One or more wool shirts or sweaters and wool trousers. Woolen socks are better than synthetic because they keep you warm if they get wet. Finally comes a windproof layer which is not waterproof and maintains the insulating integrity of the clothing worn underneath while permitting perspiration to evaporate.

Layers of clothing should be removed or undone as needed to facilitate ventilation. Clothing should be bulky and large sizes are recommended. It is the air space rather than the fabric that keeps you warm. Bring extra clothing since the weather may be very cold. Approximately 50% of the body heat is lost through the head, therefore, if your hands get cold put on a hat. Mits will keep your hands warmer while gloves give you more manual dexterity. Possibly bring both. Down parkas are nice when you're not moving but too hot when you are moving.

A face mask or scarf can be of critical importance if you run into bad weather. You can use specially made insulated nylon overboots or a very large pair of wool socks over top of your boots with a heavy plastic bag over top of these wool socks. Socks should not be tight fitting as this will not keep you warm. Also socks can be used in place of mits in an emergency.

Most people these days use skis which are faster and better for flat terrain, but they're poor for packing snow for a campsite. Snowshoes are slower but are better in steep terrain and are good for packing snow. Start early, stop early and avoid long rest stops. Take turns breaking trail and travel carefully, accidents can be very inconvenient to others and fatal to you. Stick together so that you can deal with eventualities. It is important to plan your route and your alternatives in case weather conditions deteriorate or accidents happen.

Equipment requires much more attention for winter camping than in summer camping. A foam pad such as encollite for sleeping on is extremely important. A sleeping bag should be either down-filled or fibre-filled. A down-filled bag will compress more than a fibre-filled bag of the same weight and insulation. However, a fibre-filled bag will keep you warm if it gets wet, whereas down will not. The bag should have 3 lbs. of insulating material, and no stitched through seams which create cold spots. Buy either barrel shaped or mummy shaped bags. There should also be an adequate baffle covering the zipper. Use a flannelette sheet folded in half as a sleeping bag liner which adds extra insulation.

A flashlight is important because the days are short and you will certainly be doing things in the dark. You should take the batteries to bed with you to keep them warm, which will increase the life of the batteries. H-shaped frame packs are not suited for cross-country skiing. Preferable is a knapsack with an internal frame that will carry a fair weight and still be comfortable. A knapsack should have a waist strap so that the pack will follow you closely and not swing sideways when you make turns. An insulated cup is useful since you don't burn your fingers and your lips when you are drinking hot soup. A bowl for eating soup or stew and a taped spoon are all you should need for eating utensils. You will need a plastic water bottle for drinking water and a plastic garbage bag for putting your boots into at night, which can be used as a pillow thereby preventing boots from freezing. Also, bring along a raincoat since rain in winter can be most deadly.

Additional group equipment to include: a first aid kit; a stove that burns white gas not propane. Propane stoves don't work adequately in winter because the cold temperature drops the pressure in the propane tank. Take a cooking pot and lid and pot grips; a candle is very useful for light, or a source of heat, to start a fire or to warm up a gas stove; a map, compass and a basic repair kit.

When stopping for the night put on extra clothes so that you won't get cold. Next pick a site for your tent where you'll get the early morning sun and avoid overhanging branches. Take a water sponge bath before you get into your sleeping bag. Removing perspiration salts will make you much more comfortable and you will sleep much warmer.

If you sleep in clothing each part of the body has to heat itself. For heat generated from the trunk of your body to warm your feet it must pass through the insulating layers of shirts and sweaters that you are wearing, down the length of the sleeping bag then in through your socks to your feet. There is a temperature drop each step and the temperature of your feet drops. The recommended approach is a big bag of air. You don't wear clothing in a sleeping bag, you just close it up snuggly around your neck. That way the entire sleeping bag heats up to the same temperature and the trunk of your body keeps the extremeties warm. Don't cover your face with the sleeping bag. If you do, the moisture from your breath will condense in the sleeping bag and get it wet, which will lose its insulating qualities.

Before you turn in, get your breakfast handy, that way you can eat breakfast in bed.

If you follow these simple guidelines you should have no problems with winter camping this year.