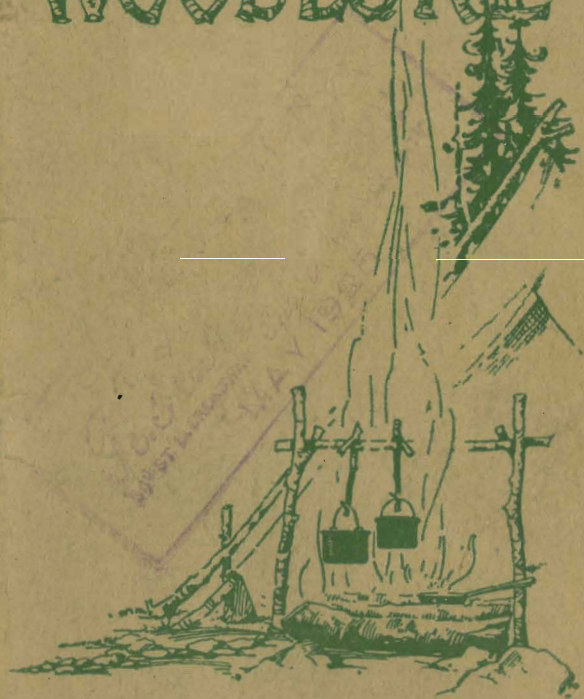


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FOREWORD

*T*HE Out of Door appeals to every normal, healthy individual. Possibly it's the blood of our ancestors that causes us to thrill at the thought of a holiday spent in the open, away from all the artificialities of modern life. But whatever the cause, we revel in the bigness, the freshness and the wholesomeness of it all. And it is wholesome. The lungs expand to inhale the pure clean air. The muscles harden under the unwonted exercise of paddle and portage. It's an education too, to view at close range the marvels of nature and to learn something of the wondrous ways of the wild.

"Camp Craft and Woodlore" is dedicated to those who would answer the call of the open. Here will be found many helpful hints gleaned from the experience and learning of years in the Out of Door, and related in the hope that their telling may widen the appeal of Canada's great natural playgrounds and add to the numbers who have discovered their charm and delight. Elsewhere (see page 45) will be found a list of booklets descriptive of Canada's great open spaces where you may hunt, fish, camp or paddle and experience all the delights of the Out of Door.

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WHAT TO WEAR

For summer camping or hiking, elaborate clothing supply is an encumbrance. For a short trip, special clothing is unnecessary. Old things will do. If outing clothes are bought, they should be of rain-shedding duck, khaki or forestry cloth. Better travel in light-weight things, with extra garments to put on when resting or in camp.

A sweater is invaluable and may take the place of a coat if something water-proof is provided against rain. This may be an army poncho, or a water-proof silk cape about 4 x 7 with a slash in the center for the head, either also serving as bedding. A cruiser's shirt of close-woven woolen serves well as both coat and water-proof.

Men should wear leggings or high boots. Women usually wear knickers and high boots, but bloomers and short skirts will do. An outing shirt is better than a middy blouse. Woolen shirts are better than cotton, except in very hot weather. Underwear should usually be medium-weight cotton or light-weight wool.

Felt hats give best all-round service.

Buckskin gloves, without cuffs, are good for working around camp and to keep off mosquitoes. Hop-pickers' canvas gloves will do. Also better take a yard or two of mosquito bar, especially in the mountains.

Footwear is most important of all. Comfortable shoes and wool socks are absolutely essential. Uppers of shoes need not be of the heaviest weight but soles should be thick. They keep the feet from tiring and hold hobnails, important because soles become slip-

pery on forest trails. New shoes should be broken in before starting, for blisters are dangerous as well as painful.

Avoid narrow heels. If your ankles turn in or out, running your shoes over, buy side plates that screw to heels and stiffen counters. Instep and ankle straps, buckled outside the shoes, are excellent in steep country to prevent jamming the toes and blistering the heels. Always have insteps tightly laced. If, after all, heels slip and blister, ram with a stick as much cloth or moss as you can force in between ankles and heel on both sides. This prevents slipping.

Moccasins are restful after a hard day's hike.

DUFFLE BAGS

Trunks, suit cases, grips, or satchels should never be taken on extended camping trips; the rough usage incident to packing or to other forms of transportation will soon destroy them and call for the purchase of new articles. Aside from this fact they are very inconvenient to handle, especially if packing is to be the means of transportation.

Extra clothing and other personal equipment can best be carried in a heavy canvas bag known as a "duffle" bag, which can be purchased from any firm handling sporting goods. Such a bag is fitted with a canvas loop or handle at one end and with another at the side; the top has an inside hood supposed to be water-proof, and the bag is fastened shut with a drawstring or bar lock passed through the eyelets at the open end.

TARPAULINS

A tarpaulin is used as protection to bedding when the latter is rolled into a pack or made down on the ground. The best size is 11 by 15 feet, or the same size as a regulation wagon "sheet" or "cover." It should be of not less than eight-ounce duck, and should weigh approximately ten pounds. No water-proof blanket need be included in the bedding if a good grade of tarpaulin is used. A 30-foot $\frac{1}{2}$ -inch manila rope is long enough to tie the bed for packing.

HOW TO CARRY EQUIPMENT

Amateurs cannot use or care for pack animals and should never attempt such a trip without employing an expert packer as well as outfit.

Auto equipment may be had on any scale up to runningboard kitchens and trailers, special beds and tents. Gasoline or kerosene stoves are labor-saving and practical except for heavy cooking and baking, obviating wood-rustling and trouble with fire wardens. The prime requisite of all auto equipment in connection with food supply is that it be dust-proof. All covers should overlap and close down on felt straps. Plenty of canvas covering is useful.

For back packing in the woods there are four standard devices, relative superiority being much a matter of opinion. The canvas packsack with straps is simple, easy to load, and can be bought in any size or quality.

Its chief defect is being rather inadjustable to shape and weight of load, which is therefore likely to rest too low on the back. Packs should "ride high."

The packboard is a flat wooden frame with shoulder straps. The load is lashed to it or suspended in a sack into which the frame is built. A variation to provide ventilation is of hollow tubing bent so only connecting webbing bands rest against the body.

One of the commonest and best devices, if employed with some skill, is the old-timer's bedroll and straps. The blanket is folded lengthwise about 2 feet wide with the edges lapping over the food and small articles first laid compactly in the center nearest to one end. The roll is begun at this end, producing a cylindrical bundle with all hard articles in the center. Straps or cords around each end hold this firm, and to these the shoulder straps are attached, together at the top and separated a foot or more at the bottom to prevent swaying. Sometimes the roll is put in a sack before strapping.

Gunnysack and overalls furnish a variant of the above system actually preferred by many. The leg-bottoms of a pair of old soft overalls are tied to the bottom corners of a gunnysack with a chip or pebble in each corner so the string will not slip off. The load is placed in the sack, the top of which is then gathered down as close to the load as possible and there lashed with a string to the overalls gathered exactly at the crotch. The legs form the shoulder straps; the waist is spread back over the pack to shed rain.

Always use some method of suspending even a light pack from both shoulders. Anything on one shoulder, even a long slender blanket roll, is utterly bad. But see that shoulder straps are not too wide, narrow, tight, loose or hard. Keep pack as high as you can without

binding arms or chest, else it will tip back and punch the small of the back, also tire you by swaying. Next to a badly slung pack the commonest errors are:

TOO MUCH LOAD: Avoid non-essentials and duplicate articles in the party. Anything above 35 or 40 lbs. is too much. A 4-day trip can be made comfortable with less than 30 lbs.

TOO MUCH SPEED: Travel slowly. Rest often.

LOCATION OF CAMP SITES

WATER:—The one thing of most importance in locating a campsite is a supply of water. This is absolutely essential except at temporary camps where a supply of water is provided in barrels or canteens.

When camps are to be more or less permanent in nature they should be located at a point far enough away from and above the source of water supply to prevent its contamination by contact with camp refuse if this is allowed to accumulate. Refuse should, however, either be burned or buried.

FUEL:—This is the next important item to consider. Ordinarily, where camps are established in wooded regions, there will be found sufficient dead and down material to provide for all fuel needed either for heating or cooking purposes. But if no wood is available and a camp is to be made in open country, dry stock manure will prove an excellent substitute.

ACCESSIBILITY:—This also demands close attention. If transportation of equipment and supplies is to be by means of wagons, it is especially desirable to have the camp located at a point where wagons may reach it without difficulty and where they may even have

plenty of room in which to be backed or turned about. The camp may be located in a much rougher place, however, if pack animals are to be used. In either event it should be so located as to provide easy access to whatever work is to be done.

PROTECTION:—After the questions of water, fuel, and accessibility have been satisfactorily settled, the one of protection should next be considered. For example: Winter camps located on north slopes where little sunlight can penetrate through possibly heavy timber prove very dreary and uncomfortable. On the other hand, summer camps located on bare, exposed south slopes are equally uncomfortable.

When camps must be established in country where stock grazes at large, it is always advisable to construct some sort of fence about the tents or other equipment.

WHAT TO EAT

The old general ration rule for simple foods is 3 lbs. of food a day per man, 1 lb. being meat and 2 lbs. all other food except that beans count rather on the meat side. Prepared foods in these days tend to increase the 3 lb. average, but there is the more reason to select and balance with care. Following is an alternate list. Column 1, about $5\frac{1}{2}$ lbs. a day per man, contains canned goods and fresh vegetables which can be carried by auto, canoe or packhorse. On a back-pack trip, where every ounce is a burden, the water in canned and fresh foods should not be carried. Column 2 gives a well-balanced ration under 4 lbs.

Multiply either list by days and number in your party; reduce to pounds, etc.; and you have a purchase list. Check the list again when packing, to see you have all you need. If you check again when you get home, you may be able to modify it next time.

HEAVY		LIGHT	
Ration One man, one day	Weight in oz.	Or Substitute	Weight in oz.
Bacon	9 oz.	Fresh meat	20 oz.
		Ham	12 oz.
		Canned meat or fish..	16 oz.
		Dried fish	12 oz.
		Cheese	14 oz.
Cheese	14 oz.	Chocolate, sweet	9 oz.
Beans	3½ oz.	Dried peas, rice or lentils, kidney beans..	3½ oz.
Flour	13 oz.	Pancake flour	13 oz.
		Bread	16 oz.
		Hardtack, crackers, ryecrisp	13 oz.
		Spaghetti, noodles	12 oz.
Baking powder	¾ oz.	Dried yeast	½ cake
		Soda for sourdough..	½ oz.
Oatmeal	2½ oz.	Cream of wheat, corn- flakes	3 oz.
Potatoes, fresh	12 oz.	Rice or hominy, dehy- drated potatoes	3½ oz.
Vegetables, fresh, onions, etc	7 oz.	Dehydrated vege- tables	4 oz.
Dried stoned prunes, apricots, apples, etc . .	4 oz.	Raisins	2 oz.
Coffee, ground	2 oz.	Tea, ¼ oz.; Chocolate.	1¼ oz.
Sugar	5½ oz.	If no dried fruit	3½ oz.
Milk, canned	5 oz.	Powdered milk	1½ oz.
Butter	2 oz.		
Lard	1½ oz.	Bacon fat, from bacon	
Erbswurst, for soup . . .	¼ oz.	Julienne and Swiss soups	¼ oz.

Salt, pepper, spices to suit taste.

In high altitudes water boils at low temperature. Do not depend on slow-boiling foods on mountain trips unless making long stay in one place.

FIELD COOKING

Since cooking facilities in the field are necessarily limited, only the simplest recipes are given here, and it is suggested that the novice take advantage of his spare moments to experiment with other and more complicated dishes.

A few general rules which will be of assistance to the beginner are offered. Chief among these is the mixing together of dry ingredients before liquids are added; the latter are then also mixed together, and finally the two mixtures are added together. This rule holds good in all cases unless specific advice to the contrary is given. Another point to be borne in mind is the fact that actual experience is essential to the best cooking, and that satisfactory results cannot always be obtained merely by following a given recipe. Ingredients may vary in strength or quality, fuel may not supply the proper heat, altitude has its effect, the water used has more, milk, which should be sour, may only be "turned," or the same condition may exist in milk that should be sweet. It should be borne in mind also that nothing definite on the subject of seasoning can be offered, since individual tastes differ so widely that they must be considered in every case. A recipe therefore can be considered only as a general guide and must be varied to suit local conditions. As a rule the field

well soaked in warm water. The yeast cake may be procured at any grocery store.

SALT RISING BREAD:—This is not as palatable as yeast bread, but is prepared with less trouble and bakes much more quickly. Scald half a teacupful of meal with half a pint of boiling sweet milk, add sugar and salt to suit, then let the mixture stand in a warm place overnight. Next morning scald a teaspoonful of salt, the same amount of sugar and half as much soda, with a pint of boiling water. Add this to the mixture prepared the night before and stiffen the whole with as much flour as may be required. Mix it quite stiff when it has become sufficiently light after having been left in another vessel hung in a kettle of warm water. Add a tablespoonful of lard before molding into loaves. Bake in a well-greased pan in a hot oven.

BAKING POWDER BREAD:—Mix a tablespoonful of baking powder and a teaspoonful of salt into a pint of flour. Stir thoroughly until the three are well mixed, then add water or milk and stir again. These should be added in quantities sufficient to make the dough as thick or thin as desired. The dough should be worked or handled as little as possible and should be baked in a well-greased pan in a hot oven. As soon as the water or milk begins to mix with the baking powder a gas forms that makes the bread light. If the dough is worked much this gas escapes before the dough becomes hard enough on top to keep it confined. Heavy bread is the result.

POTATO BREAD:—Boil four medium-sized potatoes for each loaf of bread to be baked. When these are

well done mash them thoroughly, then add two teacupfuls of flour and mix. Scald the mixture with the potato water. Knead well and let the dough stand overnight. Knead again next morning and let it rise before molding into loaves.

RYE BREAD:—Use the same sponge as for wheat or “light” bread and let it stand overnight. Then add a teaspoonful of salt, one pint each of sweet milk and water, half a teacupful of molasses or sugar, and stiffen the whole with rye flour. The dough should not be made as stiff as in wheat bread.

RICE BREAD:—Boil a teacupful of rice in a pint of water till tender. Add half a pint of milk, then let the mixture cool. When cold add two teaspoonfuls of baking powder, half as much sugar, one-fourth as much salt, and one and one-half pints of flour. Mix well.

CORN BREAD:—To a pint each of meal and buttermilk well mixed together add two eggs, two tablespoonfuls of melted lard or butter, one teaspoonful of soda and half as much salt, also well mixed together. If buttermilk cannot be secured use water, but instead of using soda with water a teaspoonful of baking powder should be used. Soda mixed with water or baking powder mixed with buttermilk will not produce satisfactory results.

SODA BISCUITS:—Dissolve a level teaspoonful of soda in a pint of buttermilk, then add a heaping tablespoonful of lard and a teaspoonful of salt. Mix thoroughly, then stir in a quart of flour. Let the dough rise for about twenty minutes before it is placed in a hot oven.

BAKING POWDER BISCUITS:—Prepare the same as for

bread and cut or mold the dough into lumps the size desired.

JOHNNY CAKE:—Mix three teaspoonfuls of baking powder, one teaspoonful of salt, half a teacupful of sugar, all mixed well together, with two eggs and two tablespoonfuls of lard. Stir a quart of corn meal into a quart of sweet milk, then add the first mixture and stir again. If sour milk is to be used a heaping teaspoonful of soda should be substituted for the baking powder. Bake in a shallow pan.

POTATO CAKES:—Add an egg to three peeled and grated potatoes of medium size, and salt to suit. Mix well together and fry in hot grease.

RICE CAKES:—Add one and one-half pints of flour to the same amount of boiled rice. To this mixture add three eggs, a heaping teaspoonful of butter or lard, one teaspoonful of soda, one teacupful each of sour and sweet milk, and salt to suit. Bake immediately.

FLOUR CAKES:—Use a quart of flour and sour milk for batter and let it stand overnight. Next morning dissolve a teaspoonful of soda in three times as much water and add it, together with two well-beaten eggs, to the batter. Salt to suit. Water may be used in lieu of sour milk, in which case use a heaping teaspoonful of baking powder instead of soda.

BUCKWHEAT CAKES:—Add a teacupful of yeast to a quart of buttermilk and water, equal parts. Put in salt to suit, then stir in enough buckwheat flour to make a batter and let it stand overnight. Next morning dissolve a teaspoonful of soda in warm water and add it to the batter. Bake immediately.

CORN MEAL MUSH:—Add meal to boiling water and stir well to prevent lumps forming. Season with salt to suit and make the mush as thick or thin as desired.

CRACKED WHEAT MUSH:—Stir a teacupful of cracked or rolled wheat into a quart of water and add salt to suit. Less boiling will be required if the wheat is soaked overnight.

OATMEAL MUSH:—Add four or five tablespoonfuls of oatmeal to a quart of cold water, salt to suit, then boil slowly for half an hour, taking care to replenish the water as it boils away. Unless a double boiler is used the mixture should be stirred continually to prevent burning.

HOMINY MUSH:—Soak a teacupful of hominy overnight in a quart of well-salted water, then boil for an hour. With cream and sugar this makes an excellent breakfast food.

CEREALS:—Nearly all packed cereals may be eaten raw with cream and sugar. However, oatmeal and cream of wheat should be well soaked and then boiled in salt water. This applies also to rice.

THE COOK FIRE

To build a camp fire over which cooking can be accomplished, select two medium thick green logs and level off the top with the camp axe. Set and brace these logs a few inches apart, so they will form a support on which the bottom of the cooking utensils will rest safely. Scrape a little trench underneath and with a few logs more form the windguard or radiator at one side. The two logs which are to form the sides of

the cooking "range" should be arranged so they are about six inches apart at one end and one to two feet apart at the other end, at which the baker may be placed, facing the glowing coals. The common error of amateur campers is to build too big a fire; experienced cooks take out the unburnt wood before starting cooking, the novice puts on more and suffers from smoke accordingly for his ignorance. **When leaving the camp, always be sure the fire is out. This is most important, and it is also the law.** Green wood is generally used for a camp fire that is intended for all-night service.

Selecting Fire Woods.

Quick, Hot and Flaming	Long-lived Coals	Undesirable
Black birch	White hickory	Hemlock
Yellow birch	White ash	Cedar
White birch	Oak	All green pines
Red maple, dry	Rock elm	White elm
Hard maple		
	Good for back logs	
	Red oak, green	
	Pitch pine, green	

INDIAN FIRE MAKING WITHOUT MATCHES

Make a bow about 2 feet long of stout oak or hickory; string with a loose leather thong. Make a drill of balsam, cottonwood, cedar or bass wood, and of the same wood make a firestick split flat with the axe. Notch this firestick with penknife and start a small

drill cup at the point of the notch. Make of some hardwood a pressure block for the upper end of the fire drill, and you have all the utensils for fire making.

You must get ready also tinder. The best is birch bark or cedar bark; string into fine shreds between two stones. Pass leather thong around drill once, enough for the bow to run taut on it. Put the drill point in the small cup-shaped depression at the end of the notch. Draw the bow back and forth steadily, with even strokes, its full length. You will grind out wood filings which are brown, but after two or three seconds you have a pile of black shredded wood dust, and presently smoke will come from the black pile of wood dust which forms on the top of a chip placed under the notch. A coal will form in this as you blow on it gently; add a pile of tinder in a wad of shredded bark and capsize the coal into this. Breathe gently to a flame.

This is the way of making fire described by Ernest Thompson Seton in his *Boy Scout's Handbook*.

Another method is to take a piece of bamboo, split it in half, and after starting a notch rub rapidly across with a sliver of bamboo. This forms a pile of dust from which will presently come smoke and a coal, to which should be added tinder from which the flame is obtained.

Still another method is to knock the ball out of your rifle cartridge, take out all the powder, placing same in a pile of tinder, fire rifle or revolver into this, using only the primer and a few grains of powder strewn down the barrel.

This is the best way to get fire in the woods. If you

have sunlight, a lens or a watch crystal filled with water will serve to concentrate enough of the sun's rays to start a fire. Unless you have tinder it is impossible to get a fire with flint and steel.

HOW TO SLEEP WELL

Good bedding is important, because nothing takes more from endurance and enjoyment than loss of sleep.

Where weight is an object, nothing surpasses a sleeping bag. The best ones have an outer bag of canvas, tanalite or balloon silk, with two inner bags of eiderdown or other good blanket or quilting. According to the weather the sleeper has more of the coverings over him to keep warm or beneath him for softness.

Any blankets or quilts can be made into sleeping bags, lacking the water and wind-proof cover, by folding them lengthwise and sewing or fastening with horse blanket safety pins.

Without any such device, and the bedding insufficient, the greatest warmth can be had by lying down and drawing the blankets over you as a coverlet; then lifting the legs without bending at knee and tucking the covering smoothly beneath them from either side, also folding far end under the feet; then lifting hips and tucking in similarly; and finally same at the shoulders, so that the edges are overlapped and bound smoothly for the full length beneath you.

Two light blankets are warmer than one heavy one. Better than blankets are quilts of eiderdown or wool with extra covering of denim or still more weatherproof material.

A 7 x 7 ten oz. canvas, folded, makes a good ground cloth and extra cover, while also useful as a pack cover when travelling, or for rain shelter.

For auto and packhorse trips, although too heavy for hiking, are many practical folding cots and the ever-popular pneumatic mattress. Brush beds are easily made from feathery coniferous boughs. Other boughs are useless. Use none bigger at butt than your thumb, and these only well-covered by smaller tips. Collect good supply first. If possible, confine entire bed by 4 to 6 inch logs pegged in place before brush laying is begun and with foot log resting on the side logs. Lay largest boughs in courses with "bow" up, overlapping so butts are toward foot of bed and, except at very foot, covered by tops of other courses. Keep pushing in smaller boughs same way; always lengthwise of bed, "bowed up," and butts thrust down and covered by tops. Finally, sift smallest evenly over the whole. Try bed and build up weak spots.

If you have to sleep directly on the ground, choose a level place (so you won't slide), free from roots, and scoop hip and shoulder holes.

If the fire must be kept up all night for warmth, have your head toward log or tree to reflect heat and stop wind (for you should be windward of the fire to avoid smoke and sparks), and have the fire 5 or 6 feet from your feet in an open place where you can walk around it and where no log, tree or rotten wood can catch from it. Before dark drag up a good supply of the biggest logs and chunks you can get, also locate more that you can reach in the dark if necessary. Sit up

late, burning your smallest stuff. Save the biggest to keep fire longest without replenishing during the night. Keep your shoes away from the fire, even if wet.

While permissible on horse and auto trips, tents seldom pay for being carried on man-back. If taken at all they should be small and of oiled silk. They are unnecessary unless it rains, and then shelter is provided by lighter ponchos, tarpaulins or like covers elsewhere suggested as part of the bedding equipment and better adapted for this in good weather. They can be stretched, lean-to fashion, facing the fire, back to the wind.

Especially on slopes, always provide drainage around tents and shelter, else floor and bedding may be flooded. Tent poles need not be taken in the woods. For an A-tent have a rope long enough to serve as ridgepole, knotted inside each end grommet of the tent, and passing out with at least 10 feet to spare at each end to hitch around an improvised pole and then guy to a ground peg. Often a tree serves for the end away from the fire.

29 WELL-TESTED HINTS

1. Do not sit or lie on bare ground; it is harmful and likely to cause sickness. It is better if caught out in the rain to sit on your hat and go bareheaded than to sit on the ground.
2. Always carry two waterproof match boxes of the hard rubber kind that will float—one full of salt and one full of matches—and do not use them all the time, but keep in reserve in case of accident. This is cheap life insurance.

3. Drink sparingly of water in a strange country; it may cause dysentery or be very constipating until you get used to it.

4. If your horse won't drink water don't do it yourself; trust your horse, but don't trust your dog, for he will drink any filthy water.

5. Don't fail to take a good compass with a lock needle, and become familiar with it before you start. Don't wait until you are lost to do this.

6. If lost in unknown territory, find a stream and follow it down, it will generally bring you out near habitation.

7. Don't follow old wood roads; they generally wander around aimlessly and lead nowhere.

8. Your jack knife should not be too large, of good steel, with two strong blades, a can opener, leather punch and a file.

9. Don't lug a heavy pistol around on a belt full of cartridges to back up your rifle in case it is jammed when a big bear charges you, as you read of in a book. It hardly ever happens, and, if it does, make up your mind that you will be a dead hunter anyway, for it's 20 to 1 you would not get the pistol busy in time and it would not stop the bear anyway. The pistol and belt will make your hips so sore walking long distances that unless you are used to it it will cripple you, and it means another gun to keep clean in camp—a constant source of worry.

10. Don't forget that sewing kit in your ditty bag,

which should contain safety pins, needles, thread, darning cotton, buttons, wax, etc.

11. The tail of your sweater is fine for darning if you unravel a bit of it.

12. But two heavy woolen lumberman's shirts are more comfortable and warmer than a sweater or a coat.

13. If thirsty and without water, put a small stone or a button under your tongue; it will keep your mouth moist.

14. Plan your work. Let each member of your party have a certain amount of work allotted to him and every one do his share.

15. Do not have a dirty camp. It should be cleaner than your home. Crumbs dropped on the ground don't show like they do on the floor, but flies and insects find them. Destroy all refuse from the table in the fire. Don't pollute the woods.

16. Unload all firearms as you come into camp.

17. A well-soaked cloth wrapped around a bottle will keep it cool. Hang it up in a breeze in the shade.

18. A little vinegar in water boiled in your pots or pans will take away the smell of fish.

19. Keep all of your extra matches in a large bottle.

20. Signal of distress. Three shots: fire once, wait five seconds and fire again twice.

21. Remember it is warmer to sleep in a snowdrift than on the bare ground.

22. To keep ants away from rations set a box on

four sticks standing in tin cans or saucers full of water, and the ants can't get to them.

23. Talk to your dog or horse—he is just as lonely as you are.

24. Cheap guns make poor shots and poor sportsmen.

25. Don't think you know more about hunting than your guide. Remember conditions vary in different places.

26. Always take the natives' advice as to living conditions and avoid sickness. They have learnt by experience, and experience may be costly to you.

27. If your boots are wet, scrape away some hot dirt or sand from under the fire and fill them with it. They will be dry in the morning.

28. To avoid sore feet, wear large shoes with small hob nails that cannot be felt through the soles, a thin pair of socks, soaped on the heel on the inside next to the feet, and a heavy pair of woolen socks over them. This will positively prevent blisters.

29. If you fall into the water, no matter how cold the weather, take off all of your clothing and wring it out as dry as possible and put it on again. You will be warmer afterwards and avoid colds or worse.

“LOST IN THE WOODS”

Travelling off trails, sight back frequently, fixing in mind appearance of the country and bearing of objects so the return route will seem familiar. Marking the return trail is alright, but you may miss the marks. Be able to recognize unmarked objects when seen from

the reverse approach. The so-called “sense of location” is mainly the habit of observing these things both in large and in detail.

If lost avoid panic and hurry. Believe your compass and map. Think and go slow. Remember the relation of downhill and uphill, and of stream courses, to your objective. If you have to give it up, stop in a conspicuous place and stay stopped so search won't be wasted. Build a fire, making it smoke by day and bright by night, and await relief. Always have dry matches.

On days when the sun may be seen, a common watch may be used as a means of determining the approximate direction in which a person is travelling. The end of the hour-hand is pointed toward the sun; a line projected from the pivot on which the hands are hung over a point mid-way between the end of the hour-hand and the figure “12” will run approximately south.

Confusion of directions on a prairie, where it is much more likely to occur than in timber, may be removed by careful attention to the manner in which the grass stems lean; prevalent south-west winds will eventually cause them to lean to the north-east.

COMPASS VARIATIONS

Carry a compass and learn to use it. On the Pacific slope the needle does not point true north but east of north—roughly about 22 degrees east, but with local variation. Learn it for your region and notch your compass case so that with the north point of the needle at this notch the card will indicate correctly.

KEEP CAMPS CLEAN

Keep camps clean. Leave them clean. Burn or bury all refuse promptly—even tin cans—to prevent flies and to get it out of sight.

Never defile water.

Never break bottles (glass is dangerous) or leave them where the sun may focus through them and start fire.

Do not bark or chip trees needlessly, or drive nails in them to shatter a saw some day.

Do not fire pitch or moss on trees.

THE DOMINION DEPARTMENT OF HEALTH OFFERS THE FOLLOWING SUGGESTIONS FOR SPORTSMEN

TYPHOID FEVER

Inoculation against typhoid is almost a certain protection. The value of anti-typhoid inoculation was proven beyond a doubt during the war. The experience in Canada is the same. The operation is a simple one and any physician will give it. The "vaccine" may be procured from any biological producing house, or from any Provincial Board of Health. Inoculation is recommended without hesitation to all those going into areas where the control of sanitary conditions cannot be guaranteed. No surface water supply, that has been visited by human beings, whether Indians or whites, within six months, can be used with safety. Don't take the risk—be inoculated.

TO CHLORINATE WATER.

Doubtful water supplies can be made safe by chlorination. A stock solution of chlorine water, which will keep for ten days, may be made from three teaspoonsful of chloride of lime (calcium hypochlorite) in one quart of water. One teaspoonful of this stock solution is added to a two-gallon pail of water. The water is stirred well and allowed to stand for fifteen minutes. It will then be safe for use.

POISON IVY

Wash the surface well with soap and water, using plenty of it. The irritating oil will remain for a long time in the clothing, and can be washed out with strong soap and plenty of rinse water. Vaseline, or any heavy petroleum oil, is a good dressing for the parts affected. Do not do this until after the thorough washing, as it might spread the oil and the irritation.

CARE OF THE EYES

SNOW BLINDNESS

This may be prevented by wearing amber glasses, which are said to be the best, or by cutting down the amount of light which reaches the eye by using smoked glasses. Black net could be used if glasses are not available.

TO WASH THE EYES

Any cloths used for washing the eyes should be boiled first, and the hands of the person who is washing

another's eyes should be carefully cleaned. For washing out the eye make a salt solution, one teaspoonful to a pint of clean boiled water; use it warm. Lie on your back and tilt the head so that the eye and hollow will hold all the fluid possible—manipulate lids gently, working eye up and down. Empty and repeat three or four times. Do this five or six times in the twenty-four hours.

GENERAL

The sportsman depends upon his eyes for much of his pleasure. Great care should be taken to make sure that the eyes are functioning properly, and that the glasses used are really suitable for shooting.

MILK

Canned or powdered milk is safe if the water for diluting it is made safe either by boiling or chlorinating.

FIRST AID

Take a St. John's Ambulance First Aid Kit, and be familiar with the instructions.

MOSQUITOES

Mosquitoes may be troublesome on warm fall days. Camp in the wind, on a point if possible. A fly-proof tent will bring much comfort, even though not a necessity.

FIRST AID IN ACCIDENTS

Cuts:—These probably constitute the chief injuries received in the field, and unless they are unusually

deep or ragged no complication should ensue. The first thing to determine is whether or not an artery has been severed and this will be indicated by strong regular spurts of bright-red blood. When such a course is possible a tourniquet should be applied between the wound and the heart, and the injured part should be elevated above the latter. Soot, cobwebs, or mud should never be bound on a cut; it should be washed with from three to five drops of carbolic acid in a pint of water.

Darker blood, flowing in a slow, steady stream, indicates a severed vein, and such a wound seldom proves serious. Bleeding may be stopped by binding fresh flour to the wound. In severe cases a tourniquet may be used, being applied at a point which brings the wound between it and the heart.

Blood which merely oozes out in a few large drops or a number of very small ones indicates injured capillaries, and such a wound requires no attention other than possibly that of the use of a disinfectant.

Hydrogen peroxide applied to a wound will "boil" if the wound is festering or if other unnatural conditions exist. Soreness may be removed by frequent application of turpentine and camphor in equal parts. This will produce a severe burning sensation if applied to an open cut, and in some instances may even have a slightly poisonous effect on the patient, but as a general rule it is as effective a remedy as can be used.

SUNSTROKE:—Remove the patient to the shade and lay him flat on his back, dash cold water in his face,

and see that the clothing is loosened. If recovery does not occur in from forty-five minutes to an hour, salt should be added to the water until a strong solution is secured. Recovery is seldom so complete that the patient will be able to withstand exposure to extreme heat again without a recurrence of the stroke.

DROWNING:—Lay the patient face downward over a log or a roll of clothing in such a way that the pressure of the support is against his stomach. Place one or both fore-arms beneath his forehead to keep this from the ground, then press down vigorously on his back, afterward turning him over and pressing on his chest. Alternate pressing of the back and chest should be continued until all the water has been removed from the lungs.

If this treatment fails to remove the water, stand astride the patient's body as he lies face downward, seize him at either side just below the ribs, and give the body a sudden jerk upward, taking care to see that the operation does not result in bruising the face against the ground. In event this also fails to remove the water from the lungs, the attendant, if he is strong enough, should hoist the patient to his back, the patient's head down and the crook of his knees resting over the attendant's shoulders, while the attendant holds the patient there by a firm grasp of the ankles. In this position the patient may be carried about at a rough, jolting walk or run for several minutes, during which time most of the water will be shaken from his lungs.

If natural respiration does not reappear soon after the water has been removed from the lungs, the patient

should be laid flat on his back, and the attendant should then hold shut the nostrils while he forces his own breath into the lungs of the patient, removing it by pressure on the chest. This should be continued until respiration begins again in a normal manner, care being taken, of course, not to interrupt the first faint breaths that occur.

The patient should be removed to quiet quarters and given a complete rest as soon as natural respiration has been secured.

FLY DOPE

It doesn't take but one experience to convince the amateur of the absolute necessity of fly dopes, to varnish withal the visible pelt of him in any wilderness trip. Here are two good home-made recipes, both by past masters in the art of woodcraft.

3 oz. pine tar
2 oz. castor oil
1 oz. pennyroyal oil

Simmer together over a slow fire.

3 oz. pine tar
2 oz. olive oil
1 oz. pennyroyal
1 oz. citronella
1 oz. creosote
1 oz. camphor

Heat tar and oil and add other ingredients.

TO SKIN A FISH

Lay the fish on its side and cut along the "water line" from the gill to the tail with a sharp-pointed knife. Lift the skin, beginning in the middle, and work it up easily, being particular not to tear the skin at the fins. It is better to leave a little flesh on at these points to be removed later. When the skin is well started use the handle of a spoon to loosen it, and when about half removed cut the bone close to the tail. Work up towards the head, and when this is reached cut the neck bone and lift the body away from the skin. Remove the tongue and gills and with the bowl of a spoon scrape off any clinging flesh wherever any remains.

Salt well inside, especially around the fins, head and tail. Always make a brine of salt and water sufficient to cover the skin in a vessel large enough to hold it without too much folding and leave it here until ready to start home. A Mason jar is best to put it in for carrying. If you use the latter, wrap it in old rags so the brine won't get mixed up with the contents of your suitcase. If the distance to the taxidermist is not too great, wrapping the skin, when moist, in paper is sufficient.

SHRINKAGE OF FISH AFTER DEATH

The question of the weight of fish is one which interests us all, and is so often the subject of heated discussion that the following table of comparative

weights of fish when taken from the water, and the same fish after having been dead from 6 to 12 hours, cannot fail to be interesting:

Just Killed	Dead Six Hours	Dead Twelve Hours
1 lb.	15¼ oz.	15 oz.
2 lb.	1 lb. 14½ oz.	1 lb. 14 oz.
3 lb.	2 lb. 13¾ oz.	2 lb. 13 oz.
4 lb.	3 lb. 13 oz.	3 lb. 12 oz.
5 lb.	4 lb. 12¼ oz.	4 lb. 11 oz.
6 lb.	5 lb. 11½ oz.	5 lb. 10 oz.
7 lb.	6 lb. 10¾ oz.	6 lb. 9 oz.
8 lb.	7 lb. 10 oz.	7 lb. 8 oz.
9 lb.	8 lb. 9¼ oz.	8 lb. 7 oz.
10 lb.	9 lb. 8½ oz.	9 lb. 6 oz.
11 lb.	10 lb. 7¾ oz.	10 lb. 5 oz.
12 lb.	11 lb. 7 oz.	11 lb. 4 oz.
13 lb.	12 lb. 6¼ oz.	12 lb. 3 oz.
14 lb.	13 lb. 5½ oz.	13 lb. 2 oz.
15 lb.	14 lb. 4¾ oz.	14 lb. 1 oz.
16 lb.	15 lb. 4 oz.	15 lb.
17 lb.	16 lb. 3¼ oz.	15 lb. 15 oz.
18 lb.	17 lb. 2½ oz.	16 lb. 14 oz.
19 lb.	18 lb. 1¾ oz.	17 lb. 13 oz.
20 lb.	19 lb.	18 lb. 12 oz.
30 lb.	28 lb. 9¾ oz.	28 lb. 2 oz.
40 lb.	38 lb. 2 oz.	37 lb. 8 oz.
50 lb.	47 lb. 10½ oz.	46 lb. 14 oz.

STURDY'S TABLE OF WEIGHT FOR LENGTH
OF SALMON AND TROUT

SALMON			
In.	lbs.	In.	lbs.
30.....	11.574	43.....	34.082
31.....	12.770	44.....	36.516
32.....	14.046	45.....	39.063
33.....	15.404	46.....	41.725
34.....	16.848	47.....	44.506
35.....	18.379	48.....	47.407
36.....	20.000	49.....	50.432
37.....	21.713	50.....	53.584
38.....	23.522	51.....	56.864
39.....	25.428	52.....	60.274
40.....	27.435	53.....	63.819
41.....	29.544	54.....	67.500
42.....	31.759	55.....	71.320

TROUT			
In.	lb. oz.	In.	lb. oz.
9.....	0 5	20.....	3 7
10.....	0 7	21.....	4 0
11.....	0 9	22.....	4 9
12.....	0 12	23.....	5 3
13.....	0 15	24.....	5 15
14.....	1 3	25.....	6 11
15.....	1 7	26.....	7 8
16.....	1 12	27.....	8 7
17.....	2 2	28.....	9 6
18.....	2 8	29.....	10 7
19.....	2 15	30.....	11 9

HOW TO HANDLE A GUN

BE CAREFUL

To carry a gun without peril to human life or limb is the A-B-C of its use. "There's death in the pot." Such constant care is required to avoid accidents that no man can give it by continual voluntary efforts; safe carriage of the gun must become an unconscious habit, fixed as the movement of an automaton. The golden rule and whole secret is: the muzzle must never sweep the horizon; accidental discharge should send the shot into the ground before your feet, or away up in the air. There are several safe and easy ways of holding a piece; they will be employed by turns to relieve particular muscles when fatigued.

1. Hold it in the hollow of the arm (preferably the left, as you can recover to aim in less time than from the right) across the front of your person, the hand on the grip, the muzzle elevated about 45 degrees.

2. Hang it by the trigger guard hitched over the fore-arm brought round to the breast, the stock passing behind the upper arm, the muzzle pointing to the ground a pace or so in front of you.

3. Shoulder it, the hand on the grip or heel-plate, the muzzle pointing upward at least 45 degrees.

4. Shoulder it reversed, the hand grasping the barrels about their middle, the muzzle pointing forward and downward; this is perfectly admissible, but is the most awkward position of all to recover from. Always carry a loaded gun at half-cock, unless you are about to shoot. Never let the muzzle of a loaded gun point

toward your own person for a single instant. Get your gun over fences, or into boats or carriages, before you get over or in yourself, or at any rate no later. Remove caps or cartridges on entering a house. Never aim a gun, loaded or not, at any object, unless you mean to press the trigger. Never put a loaded gun away long enough to forget whether it is loaded or not; never leave a loaded gun to be found by others under circumstances reasonably presupposing it to be unloaded. Never put a gun where it can be knocked down by a dog or a child. Never imagine that there can be any excuse for leaving a breech-loader loaded under any circumstances. Never forget that the idiots who kill people because they "didn't know it was loaded" are perennial. Never forget that though a gunning accident may be sometimes interpreted (from a certain standpoint) as a "dispensation of Providence," such dispensations happen oftenest to the careless.

RESTORING A RUSTED BARREL

Clean the bore as well as you can with soap and water, then dry it thoroughly. Cork up the chamber tight and fill the bore level with the muzzle with the following metal-fouling solution, which must be freshly mixed at your druggist's and kept tightly corked until you use it the same day it is mixed:

Stronger ammonia, containing 28% gas.	3 ounces
Water	2 ounces
Ammonium persulphate	$\frac{1}{2}$ ounce
Ammonia carbonate	100 grains

Allow this solution to remain in the barrel half an

hour (not more), pour it out and at once dry the bore thoroughly. Then scrub it well with a new tight brass bristle brush, and repeat with the metal-fouling solution, drying immediately after pouring the solution out as before. Then scrub the bore well for some minutes with patches heavily greased with rust remover, clean out the rust remover and oil it. If this does not restore its shooting qualities buy a new barrel, for the old one is hopeless.

SOME GENERAL PRECAUTIONS WORTH OBSERVING

The secret of safe climbing is never to relax one hold until another is secured; it is in spirit equally applicable to scrambling over rocks, a particularly difficult thing to do safely with a loaded gun. Test rotten, slippery, or otherwise suspicious holds before trusting them. In lifting the body up anywhere, keep the mouth shut, breathe through the nostrils, and go slowly. In swimming, waste no strength unnecessarily in trying to stem a current; yield partly, and land obliquely lower down; if exhausted, float; the slightest motion of the hands will ordinarily keep the face above water; and in any event keep your wits collected. In fording deeply, a heavy stone carried under water will strengthen your position. Never sail a boat experimentally; if you are no sailor, take one with you or stay on land. In crossing a high, narrow footpath, never look lower than your feet; the muscles will work true if not confused with faltering instructions from a giddy brain. On soft ground, see what, if anything, has preceded you; large

hoof-marks generally mean that the way is safe; if none are found, inquire for yourself before going on. Quicksand is the most treacherous, because far more dangerous than it looks; but I have seen a mule's ears finally disappear in genuine mud. Cattle paths, however erratic, commonly prove the surest way out of a difficult place, whether of uncertain footing or dense undergrowth.

HUNGER AND FATIGUE

"Hunger and fatigue are more closely related than they might seem to be; one is a sign that the fuel is out, and the other asks for it. Extreme fatigue, indeed, destroys appetite; this simply means temporary incapacity for digestion. But, even far short of this, food is more easily digested and better relished after a little preparation of the furnace. On coming home tired, it is much better to make a leisurely and reasonably nice toilet than to eat at once, or to lie still thinking how tired you are; after a change and a wash, you will feel like a "new man," and go to the table in capital state. Whatever dietetic irregularities a high state of civilization may demand or render practicable, a normally healthy person is inconvenienced almost as soon as his regular meal-time passes without food; a few can work comfortably or profitably fasting over six or eight hours. Eat before starting; if for a day's tramp, take a lunch; the most frugal meal will appease if it does not satisfy hunger, and so postpone its urgency. As a small scrap of practical wisdom, I would add, keep the remnants of the lunch, if there are any; for you cannot always be sure of getting in to supper."

PEELED LOG CABIN

Is there any disadvantage in building a log-cabin with logs which have NOT had the bark removed? Some people think a cabin better-looking if the bark is left on, and would like to have it so, provided there are no fatal disadvantages in so doing.

However, peeled logs are generally used for building camps because the unpeeled logs hold the damp, which causes them to rot very quickly, besides affording a hiding place under the bark for wood-borers, ants and slugs.

CANOE HANDLING

As canoes can be purchased or rented at most places likely to be visited by the camper, advice on this subject should be sought in advance by correspondence, when arranging for guides, information, etc. Where portages have to be made, the light canvas-covered canoe is best; for ordinary use cedar or basswood are generally used. One sixteen feet long and weighing about seventy pounds is the best canoe. The requisites of an ideal canoe are that it must be light, yet strong; it must be staunch and steady, yet easy to handle; it must carry great loads, yet draw little water, and, above all, must be so built as to stand all sorts of rough usage and be easy to transport.

It is always a good plan to reconnoitre rapids before putting your canoe into them. They may be navigable and may not, and the time to find out is before you go into them, for once in there is no turning and you must go through. One who knows the rapids and their channels may go through all right, but in waters un-

known to you reconnoitre carefully, and if there is any doubt carry around, then you will surely be on the safe side. Before going into the rapids lash all baggage tightly in the canoe so there be no shifting of cargo and no duffle lost if you should happen to spill. This applies particularly to rods and guns.

PATCHING A CANOE

It is advisable to carry on your canoe trip a small tin of marine glue or stop-a-leak, which can be obtained from any outfitting store. If it should happen that you punch a hole in the canvas or planking of your canoe, and you have not any of the above, balsam or spruce gum will answer the purpose quite as well.

Press planking back into position, clean well around the damaged part, heat gum until it runs freely, then spread well over damaged part. If patch is required, cut a piece of tent canvas to size, press edges firmly into gum, then over all apply good coat of gum. Place canoe in water and let stand for twenty minutes for gum to harden.

THE CAMP HATCHET

Belt hatchets are seldom useful. Take a real 2½ or 3 pound axe, though a short handle may do (boy axe). If without leather scabbard, wrap blade in cloth.

A RESERVE MATCH SUPPLY

A reserve match supply can be kept dry, even if soaked in water, by emptying the box and pouring melted paraffin over layer after layer of matches.

CARE WITH CAMP FIRES

Never build a camp fire against a tree or log, in leaf mold or in rotten wood. Build all fires away from overhanging branches and on a dirt or rock foundation. Dig all rotten wood or leaf mold from the fire pit and scrape away all inflammable material within a radius of from 3 to 5 feet. Make sure that the fire cannot spread on or under the ground or up the moss or bark of a tree while you are in camp and that it is going to be easy to extinguish when you are ready to leave.

WHEN YOU QUIT CAMP

Never leave a camp fire, even for a short time, without completely extinguishing every spark with water or fresh dirt free from moss or leaf mold. Do not throw charred cross logs to one side where a smoldering spark might catch. It is well to soak thoroughly all embers and charred pieces of wood and then cover them with dirt. Feel around the outer edge of the fire pit to make sure no fire is smoldering in charred roots or leaf mold. (Hundreds of fires escape each year after campers thought they were extinguished.)

RADIO

If you have a pocket radio set, take it into the woods with you. It will provide amusement for leisure hours and keep you in touch with the outside world.

The Canadian National Railways has already equipped some of its through trains with radio receiving apparatus, and is going ahead on a definite pro-

gram which embraces the building of broadcasting stations together with the installation of up-to-date receiving apparatus in all its hotels and on every through train.

The Company is now broadcasting weekly from eight different broadcasting stations in Canada, extending from Montreal to Edmonton, and will in the very near future extend their broadcasting so that the range will be from Moncton, on the east, to Vancouver, on the west. In addition to these concerts, the installation of receiving apparatus on its trains enables the Canadian National Railways to give its guests the additional convenience of keeping in touch with market reports, weather bulletins, etc.

LIST OF AUTHORITIES UTILIZED

- "Canadian Forest and Outdoors," Ottawa, Ont.
Canadian National Parks Branch, Ottawa, Can.
Dominion Department of Health.
Ernest Thompson Seton.
The Outdoorsman's Handbook, published by
Angler's Guide Co., New York.
"Handbook for Rangers and Woodsmen," by
Jay L. B. Taylor, published by John Wiley
and Sons, New York.
Publications of E. T. Allen, Forest Economist,
Western Forestry and Conservation Association,
Portland, Oregon.
Dr. W. T. Hornaday, Curator, N.Y. Zoological
Gardens, New York.

PUBLICATIONS

Copies of the following publications may be obtained from Agents of the CANADIAN NATIONAL RAILWAYS:—

- Algonquin Park—Ontario
Appreciation
Bigwin Inn—Lake of Bays, Ontario
Camp Craft and Wood Lore
Canada—Atlantic to Pacific
Canada—Pacific to Atlantic
Fishing in Canada
Grand Beach—Victoria Beach—Manitoba
Georgian Bay, Orillia, Lakes Huron, Couchiching
and Simcoe
Hunting in Canada
International Route—Eastward to the Sea
International Limited
Jasper National Park and Triangle Tour
Jasper Park Lodge
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List of Summer Hotels and Boarding Houses, Ontario,
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Lakes of Northern Minnesota and Quetico Park
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Mount Robson
Muskoka Lakes
Maine Coast Resorts
Minaki Inn
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