THREE LITTLE TENTS ALL IN A ROW

From "Joy of Camping" by Richard Langer

HOW BIG A TENT?:

Rarely should you consider anything bigger than the two-man tents.

You're not trying to take a seven room house to the woods when you go camping. You're looking for compactness, easy portability, warmth, and cosiness in cold weather.

Even more rare are the circumstances where you'll need anything bigger than a three-man tent. So rare, indeed, I can't think of any. Yes, but what about the kids?

Kids go for tents like bees in basswood. Think back to your own childhood, when you were forever busy crawling into little houses or making a brand new one by hanging a blanket over the table or a set of chairs. Kids like tents so much they'll even camp out in the backyard at home.

How young can you start a child out in his or her own tent? Reasons of parental convenience, such as responding to calls for milk or a less soggy diaper in the middle of the night, may dictate three in a tent.

But our daughter Genevieve, presented with the opportunity of sacking out in one by herself when fourteen months old, seemed to view it as a cosy little nursery, apparently with much more interesting walls, doors, and furnishings than the one at home.

Needless to say, when camping with young children, separate tents should be within easy reach & hearing distance of each other - no matter how tempted you may be to pitch yours at the other end of the lake.

HOME IS A LAKE:

The most elementary tent is a tarp. This is simply a waterproof square of material usually somewhere between 9X9 feet and 14X14 feet in size. It can be slung between 2 trees etc.

The new types are made of nylon which make them very light and fitting for your pack.

They MUST be coated with polyurethane to repel water.

If you use a tarp you'll need also a ground cloth (simply a sheet of plastic) or use your poncho. You'll also need a strong nylon line about 15 feet or more.

A second item, not indispensable, but **very handy,** particularly if your tarp lacks sufficient ties and grommets, is the tarp garter, or Visklamp.

It looks like a combination jacks' ball and shower curtain ring and works on the same principle a garter does. Ask your wife!

You put the ring flat against the tarp wherever you wish to attach a line, then you push the tarp through the large end of the ring with the ball and slide the whole thing up to the slim end.

Then you just tie your line onto the large ring, lead it to the rigger point you've picked out, and your set.

THE TUBE:

At last a disposable tent, weighing just over a pound, good for two weeks in the wilds, and costing no more than a pizza pie back home.

It will probably not be with us long, however. Like so many other good things, it is too easy to abuse.

The usual tube tent is nine to nine and a half foot long, with an eight foot circumference for the one-man model, a 12 foot circumference for the two-man version.

Get one made of 4 mill or thicker plastic. Get an opaque-coloured one rather than clear. You won't walk into it at night as readily.

The tint will also reflect solar radiation, keeping the inside cooler in warmer weather.

There are two things to **REMEMBER** besides **NEVER** leaving your torn tent behind in the wilds. **NEVER NEVER close off the ends of the tube.**

Plastic cannot breathe. If it is sealed off, neither can you. Secondly, during heavy rain, water will tend to splatter in at the base.

To minimise the effects of this, stand your rucksack up at one end about ten inches inside the edge, place a log or similar object the same distance from the other end, then lift the plastic up like a doorsill against them.

A couple of doubled-over pieces of cloth adhesive tape, or even Scotch tape, which clings like a demon to polyethylene, attached as loops to the ends of the tent before you set out on your trip, will permit you to anchor the sill easily after you've climbed into the tent.

A more permanent version of the tube tent is the Trail-wise fabric model made by Sky Hut.

It's made of urethane-coated nylon & has the added benefit of a stronger floor. Tapered towards the rear, it has hooded eaves at both ends, making it more of a tent than a tube.

Still, if it's your first time out and you're not planning to rough it, you should probably consider something more substantial than even a modified tube tent.

A TUB FOR A FLOOR:

The floor of a real tent should be of the tub, or wraparound, variety and preferably seamless to eliminate the possibility of ground leaks.

A tub floor comes up and around to form the lower six to twelve inches of the tent sides. This waterproof sill prevents seepage if your gears or sleeping bags happen to touch the lower walls.

It also keeps raindrops splattering off the ground from saturating the tent itself, which is not and **should not be waterproof.**

A waterproof tent & there are some being made will raise a small rainstorm inside the tent while you sleep.

Moisture from your breath and body rises to the roof, can't go through, condenses, and drops back over your sleeping body, turning your abode into a miniature cloud chamber.

The moisture involved is not just a few drops, incidentally, but up to a full quart per person per day.

A RAIN FLY FOR THE ROOF:

But if a tent isn't waterproof how is it going to keep you dry? Simple. You cover the tent with a second roof, one that is waterproof and appropriately named a rain fly. This is suspended anywhere from three to six inches above your tent.

Water bounces off this top layer, while inside moisture passes through the tent itself into the space between and then out at the sides. The double layer also keeps a tent considerably cooler during the day and warmer at night.

FOREST TENT:

There are several one man tents available. They are rarely used, since even most loners will lug the minimal extra weight of the 2 men tent model just to have the additional space.

There are many types but there is one tent that is close to perfection. It's the Draw Tite developed by Robert Blanchard.

Working with lightweight heat treated aircraft aluminium tubing he designed a self tensioned tent frame from which the tent itself was tightly suspended by means of hooks and shock cords.

The exterior frame literally pulls the tent out in all directions, eliminating sagging & flapping completely.

In addition to **ALWAYS** giving you a smooth surface, it minimizes wear, since stress is evenly distributed.

And it provides & entranceway & interior entirely free of clutter. For years we used a 2 men Eureka Draw Tite. The modern camper may cringe at 13 pounds which is what a two-man tent weighs.

But for any other form of camping it's unbeatable. The same exterior frame that keeps the tent walls free of ropes and stakes also permits you to set up the tent on sand or solid rock where other tents are difficult, if not impossible to erect.

And pitching a Draw Tite is simplicity itself. Identical aluminium sections slip together to make the frame from which the tent is suspended. There are no lines to set or adjust. The whole thing can literally be done blindfolded.

This tent again proves its worth in storms because of its being so stable & ventilation is excellent.

The only draw back is the metal zippers which should be switched to self-repairing snag-proof nylon ones. Now there is also a nylon model which will save on weight.

WHAT MAKES AN ALPINE TENT:

True mountain tent, designed not **only** for windy high altitude but snowstorms as well, have several features not usually found in forest tents. Yet they add much weight and expenses as well.

There are 5 **ESSENTIAL** modifications that distinguish the alpine tent from others: cook hole, exhaust vent, frost liner, tunnel entrance & snow frock valance.

There are several good ones: Among the best: Gerry's Himalayan, Sierra Design's Glacier and North Face's St. Elias; which is the lightest one of the lot.

THE COOK HOLE AND EXHAUST VENT:

A zippered opening in the tent floor, set well away from the wall for fire safety & convenience, permits access to the ground below an alpine tent.

If you **MUST** cook in the tent this is where you will set up your store, it will also be your garbage pit.

"Cook-King" in your tent is a practice not recommended except in really extenuating circumstances, better to munch on cold gorp.

Any extensive inside cooking will cause moisture condensation in the best of tents.

To minimise it, alpine tents have a small hood closable tunnel vent half a foot or more in diameter or near the cook hole to permit an up-draught exhaust of the moisture laden air.

THE FROST LINER:

In weather below 20 F. frost lining becomes an ESSENTIAL part of a tent.

The removable frost liner is cut from light cotton fabric and attached as an inner wall.

In some cases nylon is used, although lighter it is far inferior for this purpose since it holds comparatively little moisture.

Ice crystal forming from tent moisture condenses on the surface of the liner during the more extreme temperature conditions rather than falling on your sleeping bag especially at night.

At a convenient moment you take down the frost liner and shake it off outside the tent.

If you don't get a chance to do this before the tent warms up, the ice crystals will melt. But the frost liner will then absorb the moisture rather than letting it drip down your back.

TUNNEL ENTRANCE:

It is another ESSENTIAL in the Winter camping conditions the alpine tent is designed to meet. Zippers are prone to freezing, jamming or breaking in extreme cold weather rendering the usual tent flaps worthless.

Also a flat vertical entranceway is more readily blocked by snow than a tunnel.

With the tunnel extended it's not difficult at all to enter a tent unaccompanied by blowing snow even in a determined blizzard.

As a rule, a tent tunnel entrance is roughly 3 feet in diameter with a 3 to 4 foot sleeve that can be pulled out and suspended to a guy line or attached to the tunnel entrance of a second tent to make a cosy set of twins during long heavy rains or severe storms. It certainly makes for easy tent keeping.

THE SNOW FROCK VALANCE:

A last modification found is the exterior snow frock valance or flaps. Pieces of coated fabric of some material as the floor extended out from the base of the tent to life flat on the ground.

Usually about a foot wide the flaps can be covered with a thick layer of snow & then stomped down thoroughly to keep the wind from slipping under the tent floor.

Not only do they add warmth, but in case of a severe gale they prevent your tent from breaking its mooring and drifting off to no-man's land.

MAYBE A VESTIBULE:

An additional plus you may want to look for in alpine tent is a vestibule or two.

One or both ends of the tent, instead of being made flat are curved out to give you an extra cooking and maneuvering room when you're tent-bound.

AVOID tents with floored vestibules unless they have skills to keep the dirt from being tracked into the main part of the tent. If a sill is provided, the bare ground vestibule makes an excellent cook hole.

CHECKING OUT A TENT:

The thread used to stitch a tent together should match the material nylon thread with nylon, cotton thread with cotton. Cotton is really the best of all threads because it swells when wet, sealing the stitch holes.

However, when it is used on nylon tents, owners tend to treat the whole tent as if it was synthetic and do not take the time to let it dry out as well as if it was a cotton tent.

This induces premature rot in the cotton thread materially lessening the seam life of the tent.

Seams preferably should be lap felled & double stitched for maximum strength, particularly with lightweight fabrics.

Horizontal seams should lie so that the folded over part drips towards the ground on the outside.

Otherwise the seam will tend to hold water like a rain gutter. The stitching should be evenly spaces and neat. **REMEMBER neatness does count.**

Nylon, even ripstop, is susceptible to unravelling. All nylon edges should be heat-sealed. Most tent makers hot cut their fabrics, effectively binding off the edge as they snip, all in the same process.

Peaks, corners, pole sleeves and particularly pullouts and grommets should be reinforced.

Any part of the tent to which a line is going to be tied should be strengthened with a patch to spread the stress. Set the tent up and check all stress points while it's raised. That's the way you'll be using it.

Zippers are best made of nylon. The coil variety being the most desirable of all, with nylon teeth in second place. Following those are the old brass zippers. Aluminium teeth come in a far distant forth.

Check out not **only** the quality of zippers, but their arrangement as well- **ALWAYS** with these **questions in mind:**

How convenient would this particular setup be for me & my gang when we are inside? Is the door easy to work? Can the window be closed if the gear is at the back under it? Etc.

TENT ACCESSORIES:

The whisk broom is not a fetish. What makes it so **IMPORTANT** is the nature of modern fabrics and the almost universal acceptance of floored tents.

Ripstop nylon does not tear readily. But the shell of a tent is sensitive to small punctures Pine sap turns into cotton candy.

It doesn't accept water repellents readily, but it greets dirt with open arms. And rolling up pine needles, burrs, and sand in your tent when breaking camp will reduce the life of the tent by half.

MENDING A TENT:

Speaking of water, any tent can and may develop a small seam leak, particularly along the edge of the floor and in corners.

A little squeeze bottle of Neoprene sealer complete with pointed nozzle should be kept in your tent-bag to remedy the situation quickly & painlessly. Make a mental note of any spot that leaks when it leaks.

Otherwise you may not find it till the next rain. Seal it before you leave the tent for the day, first making certain all possible vents are open.

Sealer sure doesn't smell like pine boughs, and it can give you a nasty headache as well. But after two or three hours the smell will be gone along with your leak.

Besides sealer, a small repair kit put together with your particular tent in mind is handy, **indeed ALMOST ESSENTIAL.**

Canvas tents will rip on occasion. The new nylon tents are **very** susceptible to fire damage. They won't burn. They simply melt.

ZIP ZIP ZIP ZIP:

Metal zippers are definitely out for either sleeping bag or tent; they jam, freeze, and break too easily. Nylon toothed zippers are good, particularly if the teeth are large. I've got one last thought on zippers. The longer, the better.

ONE SHIRT, TWO SHIRTS, THREE SHIRTS, FOUR:

Layering is the basic principle of dressing for the outdoors. A cotton shirt, a chamois shirt, and a wool shirt or a sweater, one on top of the other is as warm in winter as a heavy lumberman's jacket. Though one jacket sounds preferable to three shirts, in fact it's not.

You'll be amazed how warm you get carrying a pack or even just plain moving about. Wearing layers of clothes, you have a readily controlled thermostat at your finger tips.

As you warm up during the day you remove one layer at a time and at night you reverse the process.

The best outer layer (not counting rain gear) is 100 percent wool. The shirt often sold under the name "Alaskan" has the advantage of being quite tightly woven and thus more resistant to wind than a sweater.

It also has button-down flap pockets for keeping sundry small things, like a pipe and tobacco, an extra bandanna, the flashlight, or the waterproof matches, handy.

Kept away from moths & sparks, an Alaskan lasts forever or **at least** twenty to twenty five years, which is good enough.

My wool layer is usually a battered V-neck sweater I've had for fifteen years and am sort of attached to. The best of all sweaters, if you don't mind the bulk and really want to keep warm. They shed water and will keep you as dry as a sheep during drizzles.

The preference for wool is no sheepshearer's public relations plug. Wool is simply the best material for warmth, resilience, and durability.

Even when damp or wet, wool retains its bulk, and thus a large part of its warmth. Down, on the other hand, will clump up when even slightly moist, losing all its insulating quality.

SLEEPING BAG:

There is a chapter in this book not written because I think we have it in other part if not sufficient then refer back to this book and type it in.

FROM SEVEN LEAGUE BOOTS TO BARE FEET:

When you start looking for footgear, keep saying to yourself," an ounce on my foot is like a pound on my back." At all times you should keep your footgear as light as the terrain will allow.

Even when wearing boots-and the two activities for which they are **ESSENTIAL** are mountain climbing & skiing, stick with the lightweight models. When it comes to canoeing, I would no more wear boots than anchors on my feet.

For that matter, **NEVER wear a new pair of any kind of shoes camping.** That goes for surplus US Army Tropical boots and Reichle climbers right down to moccasins.

Now I'll be the first to admit that on occasion, when I didn't have the time to break in new footwear, I've broken this rule. And I've gotten the blisters to prove it. Shoes need breaking in. The trail is no place to do it.

SOCKS, THE HEIGHT OF LUXURY:

(Sock it to me baby!)

The standard saying is that shoes will make or break your walking. I certainly would not minimize the importance of comfortable, well broken in shoes, but without good socks too, you'd probably be better off walking barefoot. Again wool comes out on top.

THE OMNIBUS BANDANNA:

If you think the old Western bandanna disappeared as Tom Mix rode over the sunset, you have another think coming. It weighs next to nothing and is as versatile as a sky hook.

We usually take three apiece, using them for anything from havelocks to potholders, napkins, washcloths, towels, and handkerchiefs.

In mosquito country, a really great way to keep the bugs away without soaking your face in insect repellent is to douse your bandanna liberally with it and then wrap it around your neck. Easy to wash and literally dry in minutes on a windy or sunny day.

STOVE YES! KITCHEN SINK NO!:

By all means plan to build a fire when it's possible, when you really need one, when you really, really want one, but take a stove along for most of your cooking even cook-king.

THE LITTLE STOVE THAT COULD:

The Optimus/Svea/Primus Brands of stoves, products of the consolidation of Sweden's leading manufacturers in the field, **are the closest thing to Aladdin's lamp modern technology has to offer.**

WHITE GAS STOVES:

The Primus 71, weighing twenty oz, & the Svea 123; 18 ounces, are compact little stoves that utilise white or unleaded, gas and need no priming. They are miracles of efficiency.

We usually manage to cook anywhere from four to eight hot meals on one filling of the Primus's half-pint tank, depending on the menu, the altitude, and the temperature.

Even eight hot meals, of course, aren't enough for most camping trips. To carry spare white gas, you'll need one of the slim spun aluminum bottles usually sold wherever the stoves are.

These have gasket screw tops. Although they may look as if they might leak, they **NEVER** do **at least** not the first half dozen years. After that I've found it best to replace the gasket.

Additionally, you will need a doll sized funnel, preferably with a fine mesh filter as an extra precaution against impurities. The funnel enables you to pour gas from the bottle into the stove without spilling.

A tiny shielded cleaning wire mounted on a flat aluminum blade comes with each stove. Use it. Just poke it through the flame hole once or twice each time before lighting the stove. That's to make certain nothing has clogged this vital orifice.

Most of the small white gas stoves work on the self-pressure principle. The heat of the flame expands the gas below, forcing it as vapour up through the flame hole.

If the hole is clogged, the vaporised gas has to go somewhere else or the stove would explode like a Molotov cocktail. To this end there is a safety valve.

However, I've **NEVER** had any problems with mine, nor do I know anyone who has.

To ready the stove, check that the valve is closed, then fill the tank about three quarters of the way up with gas.

NEVER fill it completely. There has to be room for the fluid to expand into gas vapour. Otherwise the stove won't function well.

Next, take the cleaning wire and poke it into the burner hole a couple of times to **MAKE SURE** it's clear. Do it even the first time you try out a brand-new stove, just to get into the habit.

Another habit to get into is putting the cleaning wire back into the base, lid, or wind screen of the stove somewhere, in other words, where you won't forget it when you go to pack the stove up again.

The there's my way. I just pick up the stove, unscrew the filler cap on the tank, and huff and puff until I've driven enough fuel out the burner to get some down into the vaporizing depression. Then I screw the filler cap back on.

This method requires cocking your head and keeping the stove relatively vertical.

Also, drinking gasoline is most unhealthy, so don't let your mind wander and absentmindedly think you're holding on to a canteen.

There is no reason why you should get gasoline in your mouth if you are **careful** and no one slaps your back heartily while your huffing. If you should spit it out. I am what I would call relatively careful and have **NEVER** had a mouthful of trouble.

Butane stoves: are next to worthless below freezing, and at 15"F the fuel turns to slush so you can forget about it altogether. High altitude cooking with butane also does not work well.

WHERE TO BUILD A FIRE:

this block should go near top

A fireplace is most safely built on a rock outcropping. A sandy stretch or hard-packed, stony, or clay-like mineral soils are also good.

But building on loamy ground with a high content of organic material, particularly in heavily forested country, can mean igniting sub-terranean roots, which sometimes smoulder for weeks before resurfacing, yards away from the original, long since forgotten fire.

A tree will make a million matches, and it only takes one match to destroy a million trees. **You can NEVER** be too carefully. Forest fires are immensely destructive.

Several factors besides the ground conditions dictate the location of your fire.

There should be no overhanging branches lower than ten feet above the flames.

"Squaw wood", the dead limbs still held fast to a tree which incidentally, make good firewood & whose removal does no damage should be even higher.

Don't build the fire on a promontory or other exposed place. The winds that spring up the moment you've got the fire going will fan the flames, making them burn well too well.

You'll use much more wood than necessary; it will heat poorly, since cold air will constantly replace the warm; and most **important**, you'll greatly increase the danger of forest fire.

A good gust will not only pick up sparks and send them flying, but sometimes carry off a two- or three-inch long twig or splinter, whose weight has been almost reduced to nothing by burning, but whose centre is still glowing hot.

A last consideration, one of comfort, is smoke. Here I'm supposed to tell you to **MAKE SURE** the fire is so located in relation to your tent that the smoke stays away. Good luck Charlie Brown!

I don't ever seem to build a fire that sends smoke where it is supposed to. Still, it's worth a try guessing in which direction the fickle wind is least likely to blow.

THE FIRE PLACE:

A camp fireplace serves two functions: to contain the fire and to balance your grill or pan if your COOK-KING over it.

Although there are countless designs serving these purposes you are best off sticking with either the U or the keyhole.

The keyhole fireplace is, again, just what the name implies. Round at one end and tapering to a six- or eight-inch-wide slit at the other.

It is **very functional.** You burn wood in a circle. As coals form, you poke them over into the slot. Your cooking is thus not subjected to the vagrancy's of leaping flames, but has an even, constant coal heat.

STARTING A FIRE:

If it's been raining heavily or you're in a swamp, you may have to tuck some fire starter another small item to **REMEMBER** to stow away in odd crannies of your gear inside the kindling.

Either fire ribbon or solid tablets like Hexamine and Heatabs work surprisingly well. Leftover candle stubs will do, but they just don't turn out the same BTU's.

Next you need some kindling because tinder will not generate enough heat. Make a pyramid of those pencil-sized & slightly larger branches to help your fire start burning.

Leave some air space between the tinder below and the kindling above, some more space between the kindling sticks themselves.

If you want a rule of thumb, the distance between the two burning pieces of wood, be they twigs or logs, should be about half their diameter.

This interval is vital not only to permit circulation of the necessary oxygen, but also to reflect the heat back and forth between the two sticks. **It's very difficult to keep one log burning well.**

The flame from one log burning is about the same as the sound of one hand clapping. Two of them with space in between will burn just fine.

A good camper should be able to get all the fire he needs for these purposes from one large fallen branch.

Tinder from the twigs at its tips, kindling from the branchlets and fuel from the main bough broken into 6 or 7 inch long pieces. Give it a try next time. P/S: **Don't forget to quench the fire!**

THE OVEN:

On any long trip except a backpacking one, we take a reflector oven. Ours weighs less than three pounds and supplies a seemingly endless quantity of biscuits, trail pies, and even bread.

Some of the imported or ethnic-bakery pumpernickel and dark whole grain breads will easily last two weeks on the trail.

PROVISIONING: p

What I do recommend - and it's caused more than one jaw to drop - is that if you're a party of four or more heading for regions where campfires are still possible.

If you take a leg of lamb with you for the first night's camp. Build up a good coal fire. You don't want many flames, unless you like lamb black and cold and raw on the inside.

The fat from the lamb will drip down, causing the coals to burst into sputtering protest and smoke. But what a smoke, what an aroma.

It's like sitting around the steppes with Ghengis Khan waiting for the feast to begin. You can't help but salivate a little. Your jaw gets sharp and tenses and you turn the spit.

About the **only** equipment you'll need for this perfect meal is a long wooden or metal skewer to drive lengthwise through the leg of lamb so it's not too unevenly balanced.

If you use wood, it MUST be green. When you cut a spit in the woods, do your chopping in a way that helps rather than damages nature.

Find two young saplings growing four feet or less apart. As mature trees they cannot both survive.

As teenage trees their sibling rivalry will be fierce enough to be detrimental to both. Cutting one down will do no harm. In all probability it will help the survivor.

But make your cut neat and trim the whole thing flat, at or just below ground level. Don't leave a sharp point remaining an inch or so above the fallen leaves.

Not only is it unsightly, but you could walk over it a day or two later & have that point driven painfully into your moccasins. So could the camper following you.

Leave a foot or two of the lowest branches of a sapling spit, if possible. This will give you something to prop another stick against to hold the lamb in place while it roasts.

No matter how well you skewer it, perfect balance is almost impossible to achieve. Try to peel the bark off. Not necessary, but it makes things easier.

You'll be hanging the skewer about a foot over the coals on two Y-sticks. A third branched stick can be used to brace the meat when you've got it turned on the spit.

Use strong deadwood for the Y-sticks and keep them away from the fire.

If it gets very hot, sprinkle some water on them occasionally. The leg of lamb itself we jag diagonally with a knife all around, under the skin & fat, stuffing the slits with fresh slivers of garlic.

The sear briefly close to the fire to keep the juices in. Spice to suit yourself. Hang the spit and roast the lamb till you can't wait any longer.

BACON BEANS BANNOCK - AND VITAMINS:

Tradition calls for the three Bs bacons, beans, and bannock, or frypan bread in planning the wilderness menu. And with good reason.

They are easy to prepare, filling, provide complimentary proteins, don't spoil readily, and just plain taste good in the wilds.

The woods made beans, incidentally, taste infinitely better than the canned.

Another thing: Sweet teeth sprout like mushrooms after a summer rain when you're camping. You're burning up more carbohydrates than usual.

One of the more readily available source of carbohydrates is sugar so you begin to crave for sweets.

Starches are another source and another reason why the beans and bannock are there in the traditional 3 Bs. Not Blond, brainy & beautiful!

MEAT:

There are numerous sausages that trek well. In fact, sausages were probably man's first successful attempt to keep meat.

The spices so much in demand in medieval days were combined with salt, a natural preservative, to keep it edible. If you access to a European meat or food-speciality store, so much the better.

There you would be able to select such delicacies as Dauernwurst and the flatter Landtjaeger, both expressly designed for the hunter and the outdoorsman. They will last for months without refrigeration.

Next to sausages, the all around best meat for camping is slab bacon. It supplies both meat protein and fat.

The excess fat is useful for frying and amazingly tasty solidified & spread on bannock or even just poured on bread as on a sponge.

Smoke-cured bacon was another successful attempt to prolong the usefulness of meat.

Kept merely cool, slab bacon will last many months without refrigeration, so have no fear about its lasting a 2 or 3 week trip.

In summertime it does not need to be kept out of the sun and in the coolest spot available. The problem with bacon is that it molds. You can just cut out the mouldy part if it offends you.

PEMMICAN:

Pemmican, the fabled wonder food of the trapper, consists of lean dried meat beaten to a pulp and then mashed with fat into a concoction about as durable as cannon balls.

As romantic as it sounds, it has some drawbacks. If you've **NEVER** eaten it before, a diet of pemmican can be quite a shock to your stomach.

But nowhere near as much as to your nostrils. Pemmican made with beaver fat can be sensed easily at the far end of the campsite, even if you're upwind.

Gagging before I even had a taste was rather embarrassing until a trapper of thirty years told me nobody besides the Indians could handle it.

But there is a modern-day pemmican with all of the good qualities and none of the bad.

Wilson's Bacon Bar is every bit as durable and almost as concentrated. Its three ounces of compressed precooked flakes are equivalent to a full twelve ounces of raw bacon.

Providing more meat, less fat than any other modern-day equivalent, several of these are almost a **MUST** on any extended trip. Oriental food shops are particularly good for browsing when you're looking for lightweight dried foods.

CAUTION: BACON ATTRACTS BEAR CRAZY ITS A GOOD BAIT BUT DANGEROUS!

HOMEMADE JERKY!: DICK STYLE!

4 pounds flank steak / 3 cups red wine / 3 tablespoons salt / 2 tbs. garlic salt /1 tbs. black pepper / 1 tbs. Tabasco sauce / 2 tbs. Worcestershire sauce.

Trim all excess fat from meat. Slice, with the grain, into strips about 1/8 - to 1/4-inch thick. Mix remaining ingredients in a large glass bowl.

Add meat to marinade, **MAKING SURE** it is well covered. Refrigerate for 24 hours, stirring lightly every 4 hours during the day. Drain.

Hang meat strips over oven or pan rack. Set oven temperature control on low (no higher than 150 F.). The meat should dehydrate, not cook.

Prop door open an inch or so. Jerk for 24 to 36 hours, checking the meat frequently after the first 12 hours.

Don't let it dry out too much. Good jerky should be chewy & flexible, not brittle. **Store in a dry place.**

Canning jars make fine storage containers if heated to ensure that they are thoroughly dry before being filled & closed.

For trail packaging use plastic bags. **If kept properly, jerky will easily last a year at home and several months on the trail.**

Another commodity that is best considered under "meats" **is the indispensable bouillon cube.** As a hot drink or for flavouring stews & casseroles, its weight-to-pleasure ratio is hard to beat.

CHEWING THE FAT:

To increase their fat intake, which is **vital** in cold-weather conditions, many alpine and winter campers drink Sherpa Tea, a mixture of heavily sweetened tea and milk with butter. The original Sherpa Tea was served with rancid yak butter. (Yerk!)

Your butter may not be from a yak, but try the tea if it goes rancid. Provides lots of long-lasting energy and a taste treat that would wow them back in Katmandu. With fresh butter, the tea is sweet and comforting as well as nourishing.

CHEESE:

Of all the dairy products, cheese has the best storage qualities, and it improves with age. The one catch is to keep it from drying out.

First, buy it in chunks, which will stay soft considerably longer that the same version of the same cheese. Secondly, keep it well wrapped.

OLD WAYS TO KEEP CHEESE:

In the old days this meant using cabbage leaves, with an outside layer of cheesecloth. The moist cabbage kept the cheese pliable.

Today plastic is more or less the rule. It does almost as good a job as the cabbage leaves. Almost but not quite you can't make soup from plastic.

HIGH ALTITUDE COOK-KING!:

Altitude (feet) Increase in Cooking Time

3,000 20%

4,000 30%

5,000 40%

6,000 50%

7,000 70%

8,000 90%

Over 9,000 feet a pressure cooker saves a great deal of time.

HIGH ALTITUDE BAKING!:

Altitude (feet)% Less Baking Powder

3,000 10%

6,000 25%

10,000 30%

Add one extra egg if eggs are called for in recipe.

PASTA AND VEGETABLES:

The most filling thing you can eat is good old fashioned lie in the belly like lead starch.

Spaghetti is a **MUST** for at least one camp dinner. Then there are noodles, in all shapes and sizes, and the dried legumes.

We probably eat more beans than most folks do on a camping trip, but before you shrug your shoulders and pass them by, consider the variety of highly nutritious dried beans and peas available.

There are chick-peas, or garbanzos, green and yellow split peas, black turtle beans, navy beans, pinto beans, blackeyes, cow peas, brown and orange lentils, to name a few.

With the addition of a touch of spice, small chunks of sausage or bacon bar, dried mushrooms, shrimps, and what have you!

It is probably possible to concoct a different bean dish for every day of the year. These dishes are usually referred to as glop.

Each one is different, and each one is memorable. Why, I **REMEMBER** one split yellow peas Wilson Bacon Bar bouquet garni glop we made in Wyoming that would have soothed the soul of Escoffier himself. And there's only one pot to clean for the whole meal.

BREAD:

There are numerous varieties of heavy dark European Pumpernickel & rye breads that, unsliced, will stay fresh for two weeks.

Of course they bear no resemblance to the cellophaned cotton usually sold as bread which, in case you were considering it, squashes into a gummy mess about the size of a tennis ball in your pack.

But their heft is just what makes the dark breads so great. They have substance, flavour, & nourishment and eating them makes you realise that bread isn't' only a staple but a**highly palatable (edible)** one as well.

TRAIL BISCUITS:

1.5 cups fine-milled whole wheat or all-purpose flour / 2 tbs. brown sugar / 2 tsp. baking powder /1 scant teaspoon salt / 1 portion dried eggs (optional) / 4 tbs. butter / 1 cup milk (approx.)

1/2 cup to as much as the dough will hold of freshly picked, rinsed, and lightly sugared blueberries or currants if available.

Get a hot campfire going you'll want the flame about the height of your oven shelf. Set up the reflector oven and grease the baking shelf lightly.

Mix, sifting together with a fork, the dry ingredients. Cut in the butter to a coarse cornmeal consistency.

Add enough milk to make a stiff dough that will hold its shape when spooned onto the oven sheet, but just barely so, incorporating as much liquid as possible since baking in front of a fire is a drier form of heating than in the enclosed oven at home.

Work quickly, don't worry about small globs or lumps. Fold in the berries with a few light strokes. Drop the dough from a spoon onto the baking shelf of the oven.

Set the oven near the fire, controlling the heat by moving it closer to or farther from the flames (6 to 12 inches) will be your probable range if you have a good hot fire).

Bake, turning the biscuits around occasionally if they are rising or browning unevenly, though this would not usually be necessary, till done and toasty brown outside.

THE SPREADABLES:

Honey, jam, better yet, preserves, peanut or cashew butter will be devoured with fervour in the wilds. The old sweet craving again.

Prepack them in Jerry polytubes before you go. Seated beneath blue sky and scented pines, squeeze out on fresh buttered buns for an energy-giving snack or lunch the likes of which will **NEVER** taste the same at home.

One caution: For Winter camping you will have to use wide-mouth polyjars instead, at least for the peanut butter, which tends to turn halfway into peanut brittle when the thermometer scratches zero.

DRINKS:

Coffee, cocoa, and tea are the big three. Our one-pound coffee can that travels in the coffee pot lasts us about 10 days to two weeks, depending on how many cups we squeeze out of the grounds and whether we run into company or not.

Campers who cross paths in the wilds are a gregarious lot. You'll be left alone if you want to be. If not, there's bound to be a long chat and swapping of route information over endless cups of coffee.

Instant is popular among backpackers, but personally I wouldn't touch it. When I need to save weight, I take tea.

Tea is a fragrant wonder of the woods. Black teas, green teas, breakfast teas, and numerous especially spiced blends will carry you off to the high plantations of Assam on their steamy mist.

Cocoa and Ovaltine are excellent camp drinks combining the gifts of energy, warmth, and satiation of the sweet craving. They are particularly good for children if they do not take to powdered milk served straight.

Bouillon, a staple of many European coffee breaks, is making rapid inroads on the American coffee routine.

(Our apologies for bringing up the subject of the office you left behind.)

A good hearty cup of beef or chicken bouillon often hits the spot while you're waiting for the main course to cook outdoors. Instant soups like Lipton's ever popular Chicken Noodle, Knorr's Leek, & Maggis Oxtail are even better.

If my previous comments about vitamins haven't entirely put your mind at ease, most of the instant breakfast drinks, fruit or juice crystals, are lightweight and supplied with vitamin C.

On the other hand, true fruit syrup concentrates, again available through food speciality stores and European provisioners, are in my opinion infinitely superior.

They do weigh more, but by repacking in poly bottles, the weight differential is cut down considerably.

Flavours, ranging from raspberry or strawberry to loganberry, are fantastic, almost like those of the fresh berries the wilderness may proffer.

Great on pancakes which reminds me of the time, on one long rainy canoe portage, Susan and I guzzled down almost our entire hip flask of maple syrup for energy and warmth. Concentrated grenadine syrup also makes up into a refreshing drink.

CONDIMENTS: SPICES:

Herbs and spices do even more to sparkle up a meal in the woods than at home. They supply more flavour for their weight than anything else. If you want to try new ones, however, do so at home.

I think dried dill is great, but you may not agree, and when you've just seasoned a big pot of glop on the trail with it is no time to find out.

Besides salt and pepper, we take bay leaves (for spaghetti sauce), rosemary (for fish), cumin (for dehydrated pork chops), dill (again for fish), & sage for just about anything.

Anyone of these plus a few others may tumble into the glop du jour. The bay leaves travel in a Baggie.

The rest, individually or as bouquet garnish, used to go in little plastic pill jars from the local drugstore.

DESERTS, GORP, AND CANDY:

Others like to take along instant puddings, which are easy enough to make in a wilderness kitchen.

The instant fruit soups, from Europe, are a little known boon to campers here. Available from gourmet shops and health food stores.

Rose Hip Soup, **extremely high in natural vitamin C,** and Blueberry Soup, both by Ekstroms of Sweden, and Bergene's Mixed Fruit Soup, from Norway, are about as tasty ways to end a meal as I can think of.

Serve hot or chilled in a mountain stream. For stream cooling, anchor the pot firmly with rocks lest it floats away.

It has been said that camping involves eating only one meal a day. The meal begins when you get up and ends when you go back to sleep.

This is pretty true when you take into account the trail foods and candy. During heavy paddling and long treks, a handful of GORP.

GORP:

GORP THE TRADITIONAL TRAIL FOOD COMBINATION OF DRIED FRUITS, NUTS AND/OR CHOCOLATE PICKS UP YOUR ENERGY TO AN AMAZING DEGREE.

There are as many recipes for GORP as there are campers. Some like peanuts. Some like chocolate. Others don't like either.

Some insist using tropical chocolate is the way to keep it melting in your mouth instead of your hands, but there are just as strong advocates of candy covered M&Ms.

The **only** way to satisfy yourself on the subject is to experiment & make your own mix.

A few campers eschew GORP altogether, sticking with just plain candy for energy. Most candy, however, doesn't have the protein content of a nut filled GORP, and we find it less satisfying.

A good compromise is marzipan, which is ground almonds, sugar, & sometimes egg white, giving you the best of two worlds.

Mint cakes a la Kendal are a mountain climbing tradition, even more so since being gobbled on top of Mount Everest.

RICHARD'S GORP!:

Dick' Special du chef! Oui, Oui!

2 pounds raisins / 1 pound dried currants / 1 pound dried apricots / 1/2 pound whole shelled hazelnuts /1/2 pound whole shelled almonds / 1 pound pitted prunes or dates (optional).

Mix well in a large bowl. Then pack by the cupful into individual Baggies. Eat out of hand whenever you need a quick energy boost.

A WORD OF CAUTION: GORP is not suitable trail food for desert country, since it tends to make you thirsty!

FREEZE DRIED LARDER:

And so we come to the wonder food for today's backpacker! **At least** that's what everyone tells me.

True! Once per ounce there's no lighter food you can take with you, even if sometimes the packages are absurdly ungainly. It is also nourishing! (Surprise!)

Considering the weight saving it is sold without water, which makes up 96 % of something like cucumbers-it is not even all that expensive.

But there remains the issue of TASTE!?! And here it comes several notches below TV dinne-herrrs! Dine-errors Helas! Even Dine-her roars!

Yet it does **Save as much as 80 % yes 80% of your provisioning weight.** When it comes to mountain climbing and back pack-king!?!

And providing and that it is a BIG??? QUESTION if you are assured of plenty of water, so that you don't have to lug any of that along.

In snow season, the problem solves itself, although you may have to melt a lot more snow, **MAKE SURE**, you don't scorch it! (Burn it?).

As strange as it may sound, it's quite possible. Melt a little bit first over a not too hot a flame, so you get a light layer of water in the pan, before you really go at it.

The most popular brands in freeze-drying are Chuck Wagon, Mountain House, Rich Moor, Seidel, Tea Kettle, & Wilson's.

One LAST Warning about freeze-dried products.

Their packagers are either midgets or on an extended diet. The so called 2 men serving will hold me for a couple of hours.

I have seen and eight years old kids knock down one of the two man dinners & still have room for 1/2 dozen rolls & a 4 men serving of freeze dried fruit cocktail.

Check out your appetite against the manufacturer's before you set out with freeze-dried food in your pack.

INSTANT CEREALS:

Heavier than freeze dried foods but almost as convenient are the supermarket instants.

Look over the breakfast cereals, instant oatmeal and the like Fini are high on our list of staples gravy mixes, flavoured rice, mashed potatoes, puddings and quick cooking dinners.

BABY FOOD:

What the baby's eating at home will be the natural guide for what to feed him or her in the wilds. A baby still nursing is a joy to the cook because that's half or so of the menu already taken care of.

To supply the iron that growing infants need, instant baby cereals are usually iron fortified. **Barley is one of the best.** High-protein varieties sometimes comfort mothers.

Stock up and repack in Baggies to save weight. Add instant milk and hot water and you have a warm meal.

Most powdered milks supply vitamin D, something a baby probably won't lack in the sunny outdoors, But you'll be reassured on the matter.

Vitamin C may be a problem on extended trips; Rose Hip Soup, a nice baby-food consistency **anyway, is one of the best solutions.**

Brown sugar or honey will sweeten things; most of the freeze dried meats mash well for baby protein courses; and the fruits do likewise when well reconstituted and thinned with milk.

The dehydrated soups cooked up for the rest of the family make fine baby food. Just give the littlest camper a large share of vegetables and meat bits mashed in the broth.

Babies who have sprouted teeth can probably graduate to your regular camp fare, served in small pieces they can handle.

Probably the **only** special item you'll have to lug around is vitamin drops. For adults the vitamin situation is not vital.

In the case of a baby, however most pediatricians recommend vitamin supplements even in their normal environment.

If you have questions, check with your paediatrician when you're making out the provisions list. The best advice is that of a professional who knows your particular child.

GARBAGE:

There's no garbage pickup in the real wilderness. If you pack it in, pack it out pack it all out.

Food scraps, if there are any, are the **only** thing that can be safely left behind. But don't just scrape them out at the edge of your campsite. Carry them back into the brush and scatter them around.

KEEPING THE FOOD FOR YOURSELF:

Although they may not eat everything you take along, animals will make a beeline for the camp kitchen at night.

In Bear country it's **ALWAYS** a good idea to hang your comestibles well out of reach. Put them all together in a waterproof duffel or stuff sack, attach a line to the bag, and throw the line over a large tree branch.

It should hang out as far from the trunk as its weight will permit. I used to pull our gear up seven or eight feet in bear country. Now I make it twelve if I can.

This past summer a grizzly that **MUST** have been trying out for the Olympic basketball team tore the bottom out of our pantry even though it was almost 9 feet off the ground.

WARNING:

NEVER NEVER under any circumstances keep food in your tent when in Bear country.

Even in regions where bears have definitely been driven to extinction, it's still a good policy to hang your food away from the tent.

FOOD FROM THE WILDERNESS:

One of the joys of camping is going out in the morning to pick blueberries for the breakfast pancakes, fresh mushrooms to go with lunch, or some of the other gifts of nature discussed further on.

Don't count on the wilderness feeding you there are too many of us for that now. But **ALWAYS** keep your eyes open. Often you'll stumble across unexpected delights.

TOOLS OF THE TRADE:

The first tool most people think of when their planning to go camping is a hatchet or axe. Now a hatchet is a **dangerous thing.**

When you consider a hatchet, consider the fact that the popular term "hatchet job" didn't originate with Lizzie Borden's forty whacks, but refers to the poor quality of work and frequent self- mutilation that usually occurs when the instrument is used for chopping wood.

The standard recommendation is to take along a Hudson bay style single bit axe with a two to 2 1/2 pound head and 28 inch handle, preferably one of hickory for strength.

I have no quarrels with this; it's probably the best all-around axe you could get. The question is, should you have an axe along in the first place? The answer in most cases is no! Axmanship in camping is dying. Which is all to the good.

Unfortunately many city dwellers & suburbanites going out to the woods with an axe in hand seem to run amok, chopping here, chopping there, as if they were somehow conquering nature.

Felling a living tree simply to satisfy an urge to chop something down is no accomplishment, but rather a sign of lunacy or inability to keep destructive urges under control.

CHECKING OUT AXES:

If you are going to be camping where an axe is needed, select one with care.

The handle, preferably of hickory, should be straight-grained, with the grain running parallel to the blade, not diagonally against it.

As with any other piece of wood needing structural integrity, **AVOID** cracks, knotholes, and other deformities.

Also **AVOID** wood with a grain of sharply contrasting colours; even small streaks may mean a weak handle.

Because of this, although axes painted along the shoulder and top of the head are more visible, this is a safety feature you should apply yourself if you want it. Quite often a painted handle has a fault to hide.

Check to MAKE SURE the axe is well hung. This can mean one of two things, depending on whom you talk to.

Either that the handle is straight, which you can check by sighting down from one end of the handle towards the head.

Or that when the axe is held bit and knob against a flat surface, the bit touches at about the midpoint.

Both factors are important. But the first is more so, since chopping with a crooked handle is like shooting with a bowed gun barrel---**dangerous**.

The handle should feel comfortable in your hands when you swing it. A rule of thumb for length is that when you are standing erect, holding the axe in one hand, head down, & letting swing back and forth across the floor without bending your arm, the blade should just miss the floor.

CHOPPING WOOD:

Like all real skills, chopping with an axe is considerably more difficult than it appears when done by an expert.

That doesn't mean you can't do it. It just means that unless you chop wood on a regular basis, you should **MAKE SURE** you're extra careful when you do.

When you're splitting wood the **only** task you'll use the axe for, since cutting down trees is verboten--stand with your legs spread but comfortable.

Check to MAKE SURE the axe head is still firmly attached to the handle.

Check too that there are no overhead branches or other obstructions including people anywhere near the axes arc as you swing it from behind, above your head, and down to its target on the chopping block.

Children are best taught to keep their distance from the chopping block routinely. Chips fly.

Place the log you're going to split on end so one of its flat surfaces will be at right angles to the descending axe blade.

NEVER put a round log on the block lengthwise and attempt to split it that way.

If you weren't to hit it just right, the axe would glance off and you could be in real trouble.

Bring the axe over your head from behind your shoulders your near hand down towards the fawn's foot as well when the axe arches overhead.

As you bring the axe forward & down for the chop, **REMEMBER** it's the momentum of the axe head that does the work.

When the head is just about to hit the log, your arms are loose, merely to follow the arc of the swing. Don't lean into the blow.

It doesn't add any efficiency to the chop. All it does is add a lot of wearing vibration through your arms. Keep your eye on the log, not the axe head, when you're chopping.

Don't aim dead centre. Splitting is easier if you hit closer to the near edge. Don't aim for the far edge either. If, instead of the blade, the handle should strike the log, it will snap.

To tackle a thick log, dig the axe in toward the edge, turn the log and take a crack at the opposite edge, aiming so the two cracks will eventually meet.

Then keep digging in closer to the centre until the cracks are one. On a big log the first split is **ALWAYS** the hardest. Once you've broken the log it becomes much easier.

SAWS FROM JACK TO BUCK:

For all the axe's woodiness, I usually take along with me **only** a saw. A lightweight folding saw will handle almost all the ground and squaw wood you find.

Branches, even ones three inches in diameter, need not really be split in order to burn in a hot fire, and you're not going to find anything much larger. Most of these branches can simply be broken by hand or by a hefty wood stomp.

But where the wood is still quite springy, a lightweight saw simplifies the job of reducing whole branches to convenient fire lengths.

It also means less wood burned, since you won't be tossing in four-foot-long pieces that wouldn't break easily. As a last thought, a saw is not dangerous even in inexperienced hands.

The lightest and least bulky saw made is a quarter-ounce twisted toothed wire with finger rings at each end. An item for the emergency kit perhaps.

Outside of that, it is simply too inefficient. For cutting any considerable amount of wood, it would be quicker to convince some local beavers to give you a hand.

The next size up is the handy jacksaw, its 8 to 15 inches blade folding into a wooden or high-impact plastic handle in the fashion of a pocket-knife. Get one with at least a 10 inch blade or the strokes will be too short to be effective.

It's hard to beat a bucksaw. Although it will weigh over two pounds, a folding version is the best thing to have along if you expect to do considerable sawing.

Unlike the triangularly framed version, a bucksaw permits full-stroke cutting of up to 12-inch diameter logs without frame interference. It also permits team sawing, which cuts the work more than in half.

SAWING:

If you look at a saw blade you'll see that the teeth are angled out from the blade itself. This is the set of the teeth.

Teeth lose their set when squeezed or pinched in a log. So the **only** thing to watch for is that you don't flatten the angle. If you do, **your saw's efficiency will fall drastically.**

Let the log extend over whatever you're bracing it across, another log, for instance, then saw beyond this point.

The weight of the overhanging part of the log will widen the cut the deeper you go, keeping the blade from pinching. You don't have to bear down on the saw when you're cutting.

In fact you shouldn't, since this will also tend to make it bind and lose its set. Just pull and push, back and forth.

With a bucksaw two people set to on the job, each one pulling in turn towards his own direction. This is by far the simplest way, since pulling a saw through wood is much easier than pushing it.

ALWAYS A KNIFE:

If an axe or even a saw are not necessary on most camping trips, **a knife is almost ESSENTIAL** even on a weekend stroll.

Which really doesn't need saying & certainly doesn't need explaining, as almost everyone instinctively takes one with him.

But, and here's the rub, a large number of the knives taken to the woods should have been left behind.

Malayan throwing knives, Bowies big enough to kill an elephant in hand-to-hand combat, and commando knives suitable for a submersible attack on Manhattan not **only**look absurd, but they are impractical and in some cases useless.

If you feel you need a sheath knife, keep it small & simple. **One of the best all-around models is a skinning knife** used by Canadian trappers known by the name of its designer, Russell.

You may not find it at a local store unless you're in trapping country, but you can get an excellent Nova Scotia-made one with a smooth rosewood handle and first-class Swedish steel blade by mail from the Ski Hut or Eastern Mountain Sports.

The Russell has a slightly offset 4 inch long beaver tail blade with a curved handgrip. This means there's no hilt or crossbar needed at the end of the blade, making it a lighter knife.

The hilt's sole purpose, in case you're interested, is to keep your fingers from sliding forward and cutting themselves when you stab into something, somebody or an animal.

My **only** objection to the Russell knife is that the point is not sharp (a sharp point is no good when you're scraping off fat off a pelt, you might cut it). However, it's simple enough to sharpen it up.

ON THE SUBJECT OF MACHETES IN CONIFER FORESTS:

Although Army & Navy surplus stores list a great variety of machetes in their catalog, **there's no possible use for machetes in temperate climates** except for trimming a lawn if you like to do things the hard way.

A machete is an excellent jungle knife, ESSENTIAL for hacking through dense but tender underbrush.

In lush tropical areas, where the water content of most plants is considerably higher than it is up north, it's most effective. If that's the direction in which you're heading, by all means take one. **Otherwise forget it Rambo!**

Also forget, if you do have to use a machete, about those old Jungle Jim movies where they slash once to the right and once to the left, then move forward three or four steps and slash again. Swinging a machete through really dense undergrowth is good hard work!

If you're stubborn enough to want to get through, you may proceed at a rate of fifty feet or so a day. That's why river travel is so popular in jungle regions.

THE SHOVEL: To Shove IT! or Not!

A shovel presents more of a problem. Not in choice of models, but in deciding whether to lug it along or not. It's useful for burying human waste and garbage. But **it's not ESSENTIAL.**

Our decision is usually based on whether our shovel is required in the area to which we're heading. If the fire rules demand it, we take a small folding entrenchment camp shovel; if not, we leave it at home.

Show the Japanese model with hammer, screwdriver, folding handle....

PLENTY OF ROPE:

Almost any camping trip calls for a length of rope at one time or another to hang your food up with, to rig a tarp tent, to tow a canoe, or even just for games of tug of war among the kids.

On most trips 50 feet double that figure for canoe camping or tarp tenting of 8 inches nylon rope is just about right

It has a breaking strength of 400-800 pounds, depending on type & manufacturer, which is sufficient for most purposes.

Quarter-inch nylon has a breaking strength of 1,200-1,800 pounds, which you'll need to tow or track a canoe.

Braided nylon "parachute cord" with a 500 pound breaking strength, available in hundred foot skeins, is good for all around suspension work from tarps to clotheslines.

Nylon rope gives a bit, which means you have to check it occasionally when using it for hitches. But you should get into that habit anyhow.

Its strength is two and a half time that of hemp; it frays less; it's easily whipped by holding a lit match at one end, melting it a bit; and it's hardly susceptible to mildew. Even so, keep it dry & clean, and coiled when in storage around camp or at home.

SAFE-KEEPING THE TOOLS AROUND CAMP:

Probably more people are injured by carelessly stored tools than by using them.

Don't lay your saw down on the ground or prop it next to the chopping block when you are through cutting wood.

Hang it on a small branch stump protruding from a handy tree & if you're camping with kids, hang it high enough so they can't reach it.

Any loose rope that is not in use or packed away should also be coiled and hung. Tripping over it with a hot pot of stew in your hands is no way to wash your face.

Although it looks nice and woodsy to leave your axe or sheath knife stuck in a chopping block or log, sheath it.

Put the axe safely away in your tent, the knife in your pocket. Not only is the habit an accident preventative, but it's better for the tools.

Dew in the morning will rust your blade. If an axe sits out in the sun all day, the handle will tend to warp & dry out so the head loosens.

If you are in porcupine country, you may wake up some morning and find half your axe handle chewed into toothpicks.

It's not that porcupines are particularly fond of axe handles, or even in need of toothpicks. They crave salt.

And putting any kind of work behind your wood chopping will build up sweat, turning the axe handle into a tasty porcupine pretzel stick.

THE RUCKSACK VERSUS THE PACKSACK:

At the risk of setting myself up as a target for slings and arrows of derision from backpackers and campers across the country, I will say right now that in my opinion the frame backpack has been oversold.

On trips lasting three or four weeks without a chance to reprovision, the backpacks larger capacity can be a plus. But for general outdoor use it has some practical drawbacks. Let's look at it closer.

The first thing you see prominently displayed in the sales literature and books on backpacking is a panting and exhausted hiker carrying the old-fashioned low-slung rucksack.

He's leaning over as if he were charging into a tornado. Next to him is another camper with a high-riding, hip-belt-supported frame backpack, walking bolt upright like a Prussian general, but still managing to look relaxed and cool.

Next, vector lines are drawn in to show how the rucksack distributes its weight further back than the pack, so the wearer has to compensate for it by leaning forward. Thus he wastes energy. This is true.

The point is, however, that although it takes a bit more energy to carry a rucksack, its advantages far outweigh, if you'll pardon the pun, this one disadvantage.

The backpacks disadvantages, on the other hand, are pretty hard to ignore.

For instance, let's try on the backpack. Although it's cumbersome, it is also comfortable, just as the manufacturer said. And the hip belt does pull the weight in, making a load easier to carry.

(You can get hip belt for a rucksack, but it's not as efficient.) Of course since the load rides so high on the pack frame, it's a bit clumsy to put on, but you're good at balancing. Besides, it's a minor point.

Balancing on the trail, however, is another matter. For example, there's that icy cold glacial stream with a convenient log spanning it to cross by.

The log's a bit slippery from dew and moss. Still, under normal circumstances it would not be difficult to walk. However, your centre of balance is now up on your shoulders, instead of your hips as nature intended.

Luckily, you do have a long six-foot hiking staff that's been getting snared in the woods all day along with the top of your high-riding pack, which **ALWAYS** seems to be reaching out for low-hanging branches so you think about balancing yourself across the log with the staff plunged into the river bed.

Unfortunately, this would mean bending over rather steeply, which turns the balancing act into something for the Great Wallendas. In the end, you take the pack off and inch it across the log like a toddler with his push toy.

Once you get it to the other side you put the pack on and stride away, nice and upright again. There are a couple more balancing feats to conquer during steep ascents & descents but nothing serious.

WHAT TO LOOK FOR IN A RUCKSACK:

Several large outside pockets 3 or 4 is the standard. With these outside pockets you can pack your gear so that everything you might need quickly is easily accessible during hiking.

Another thing to look for is leather good, tough, durable and waterproofed on the bottom also for the shoulder traps and accessory straps on the top flap or sides of the back.

The shoulder should be padded. All fitting should be of leather.

You also want good tough fabric, high quality duck or heavy nylon for the rucksack itself. For maximum stuffability the flap should have 2 straps instead of a single centre one.

Most rucksacks have a frame either contoured metal bows or tubular ones to help make them ride more comfortably on your back.

If you try a rucksack **MAKE SURE** that it is not empty so that you will have a good idea of how it feels on the trail.

Probably the best of the lot are the Linchenneiger and the Mountaineer made by Class 5 which is 30% larger than the first they are excellent modern rucksacks. Second in line is the French La Fuma.

Incidentally a waist strap keeps a rucksack closer to your body thus improve your balance on the trail. The old Bergans are classics if you can find them go for it.

One of the most important things to keep in mind when buying a pack is getting one of the right size.

Don't get one too large for comfort. More difficulty is encountered by carrying too large a bag than by any other single factor.

A pack frame should be body contoured for comfort and is best made of lightweight tubular aluminium alloy, preferably with heli-arc welded joints.

Stay away from angle iron construction, it twists out of shape very readily. Most people agree on a strong, abrasion resistant nylon bag. However it has to be waterproofed on the inside.

The bag should have a minimum number of seams and be reinforced at all major stress and attachment points. Clevis pins are easier to work with to attach the bag to the frame. Carry a few extra ones along.

MAKE SURE that zippers are nylon rather than metal. The harness for a pack including a hip belt as well as shoulder straps should be fully adjustable in all directions. The hip & shoulder pad should be firm.

WHAT TO PACK IN THE PACKSACK BESIDE YOUR COLOUR TV, PC & VCR:

Beside the rucksack, sleeping bag and tent or tarp with ground cloth here are the:

MOUNTAINEER'S 12 ESSENTIALS recommended by experts of all types:

1) **AT LEAST ONE COMPLETE CHANGE OF CLOTHING** including extra for such contingencies as rain & cold weather.

2) **EXTRA FOOD.** Include extra rations in your minimum. This is your insurance policy in case something goes really wrong.

3) **SUNGLASSES.** Every time you set out for a strange area it's good to have a pair along.

If you are planning on desert, alpine or winter camping, it's a rare occasion that you will not need them. Even Eskimos worry about snow blindness.

4) **A KNIFE.** A substantial pocketknife is the order of the day. No need for Bowie knife and the big sheath knife for those who are out to tackle bears with bare hands. A good Swiss army knife is excellent or a Buck for bigger job.

5) **FIRE STARTERS**; jelly, ribbon, tablets or impregnated peat bricks. There are emergencies where a fire is both necessary and difficult to start. Every kit **MUST** include a supply of starters of one kind or another.

6) **EMERGENCY MATCHES.** Fire starters alone don't a fire make. You need matches. Long wooden ones are best & soaked in wax to make them weather proof and keep them in a waterproof container.

7) **A FIRST AID KIT.** See the proper chapter on how to build one.

8) **A FLASHLIGHT.** Everyone should carry his own and add extra batteries & bulbs just in case.

9) **MAPS.** You should have a map when going to all but the most familiar places. It's not only a safety factor but can add a lot of enjoyment to your trip, helping you to find the best spots and sights.

10) **A GOOD QUALITY COMPASS** even two might help in case the first one goes berserk.

11) **A SPACE BLANKET.** It did not exist in the first writing up of this list. **Today it's an invaluable safety precaution.** Weighing only 2 ounces it opens up to a full 56"X84".

It reflects up to 90% of a sleeper's body heat while at the same time keeping out rain, rain and snow.

Not to be used as camping blanket but **ESSENTIAL** as emergency gear for all kinds of use including signalization

12) **THIS BOOK! THIS BOOK!**

ODDS AND ENDS:

Bring your toilet kit cut in 1/2 and don't forget the **TOILET PAPER.** Also your suntan lotion and insect repellent and **this book!**

PUTTING IT ALL TOGETHER:

Pack everything you need into your rucksack, then unpack it. Pack it again. Everything in its place and a place for everything so that you can **find anything blindfolded.**

Putting the most needed things in the most accessible places & keeping the heaviest objects in the pack closest to your body so they will bear down less on your shoulders but not so close they poke into your back.

Lash your sleeping bag to the outside frame. Rolling your clothes takes up less place. Waterproof Matches in many places.

CAMPING WITH BABIES & KIDDIES:

No, you will not be locked up for child abuse. Children have not **ALWAYS** been raised with central heating & supermarket around.

With today's high-quality camping gear it is very easy to care for kids in the wild. There are 3 types of classes, carry along, anchors and catch me if you can.

Infants ride and even fall asleep in a Gerry or similar kiddie pack with such an ease you almost have to force yourself to **REMEMBER** they are there. Your partner will**REMEMBER** better since he or she is carrying most of the gear for all three.

Anchor stage is the only one that limits your mobility to any real extent. Between the ages of 2 to 5 they become too heavy & too restless to be carried for a prolonged period.

It's then a great time for base or canoe camping but not for backpacking. In the last stage start by letting the child assume some responsibility for his own gear and anytime a child takes initiative encourage it.

Channel their collecting habit in the direction of gathering twigs for the fire, picking up berries, cleaning up the camp site etc.

It has been noted by camping parents that kids almost invariably seem to make a leap forward in development both when they arrive in the wilds and when they return home. With a little care & planning, it will be a great experience for all of you.

Start out with short trips before tackling long ones. One more point easily overlooked, backpacking a baby usually lulls the little tyke to sleep

So you may have to remind yourself to check that he's not getting too much sun or wind back there and **don't forget the diapers.** OOPS's!

As for the bedtime comes along it won't be a problem if you have taken along the favourite lovey, teddy bear or blanket or toy.

Letting a baby or young child sleep in his own bag at home for a couple days before you set out will convince him he's got the real thing with him when he hits the road.

FINDING A CAMP SITE:

Choosing a camp spot requires a bit of observation. More so if you're off the beaten track than in a national park or forest, where locations are usually restricted to fixed campsites.

Even there, when on remote trails and waterways, away from these fixed sites, the considerate camper picks a previously established location wherever possible, in order to minimize man's intrusion into the wilds.

Not only does this practice preserve the same unspoiled beauty that you find for those who follow and who in turn are followed, in most cases it also assures you of one of the best spots available.

The campers of the past the woodsmen who unleashed their weapons upon arriving to make tables, dingle cranes, kitchen racks, bough beds, and sapling tent poles, all from native material seem in the camping world of today very destructive indeed, but fools they weren't.

They picked the best spot to be found within any given area sheltered, close to water, and usually with the grandest view around as well.

The **only** problem is that the natural advantages of these spots often lead to their becoming mini-slums.

Without trying to sound like a platoon leader assigning KP, let me suggest that if you come to a campsite where the previous occupants apparently revealed in leaving paper, cans & other garbage scattered all over the floor, help clean it up.

It **only** takes a couple of minutes, and it isn't asking much in repayment for the free use of nature. Hopefully, if everyone does the same, in a few years they'll be no need to continue the pro bono publico cleanup.

DOWN BY THE RIVERSIDE:

(Nice old song?)

One of the keys to a comfortable, nay even bearable campsite is water. There are other things to be said for camping some distance from streams, rivers, & even lakes. They do rise unexpectedly.

Most of the time you can spot the high-water mark by mud and other stains on nearby trees. But there's no such thing as the ultimate flood record.

For the same reason, although that grassy sandbank with a cosy ring of little pines in the middle of the river may seem the perfect place to pull the canoe in for the night what could be better than one's own island? **It could be mighty dangerous.**

A fine place for lunch, but not for an overnight stay. Although the rise in water will be small in most places, given the right conditions, water levels have been known to rise five or ten feet over night.

Also, keeping away from the very edge of the water, and preferably up from it as well, lessens discomfort from mist, dampness & often mosquitoes.

FINDING WATER:

There are no handy kitchen faucets in the wilds except in the larger campgrounds with their trailers & recreation vehicles bumper to bumper, & six-man tents guy line to guy line.

If you're not in one of these, and don't happen to be hiking along the course of a river or canoeing over chains of lakes, where do you find water?

Your map will help if it's detailed enough. Almost any water source of any size, including annual spring freshet, will be marked on a geodesic map.

Even so, it's a good idea to be aware of where water is most likely to be found, just in case you left the map at the last log rest stop.

Besides, knowing nature, being familiar with its habits, gives you a real sense of understanding & accomplishment that is very much a part of the joy of camping.

In mountainous and forest regions such as Eastern and Western Canada, & the USA and most of Northern Europe, water rarely presents a problem.

Almost any downhill country, be it a long slow valley or a deep gorge, will lead to it. These natural formations developed through water erosion, and the sculpture tells the tale.

As you walk, keep your eyes open for a change not only in terrain but in vegetation as well.

If you see a crooked line of willows or willow like trees in the distance:

IT'S ALMOST A SURE BET YOU'LL FIND A STREAM WHEN YOU GET THERE.

The mountain ahead is bare, with no water or greenery in sight. One side comes down steeply to a heavy rock formation; the other side slopes gently down to a valley and gently up to another mountain.

Head for the sloping side rather than the steep escarpment. It has a much slower run off larger surface area, and thus a greater likelihood of retained water.

Cottonwoods in arid country serve much the same purpose as willows in country more hospitable.

A chain of cottonwood in the distance indicates a river bed. Whether that bed turns out to be wet or dry is another question.

But if it's dry, examine the ground by one of the largest and most ancient of the cottonwoods, on the inside bank of the old river's curve; you will usually fund a small pool of water.

At least there should be enough ground moisture so that if you really need water you can dig down a foot or so and find seepage.

REMEMBER THOUGH THAT USUALLY IT DOES NOT PAY TO DIG FOR WATER.

With the amount of energy used the moisture lost in sweat usually far exceeds that gained from the hole you have dug.

Any lush vegetation in arid terrain indicates water in one form or another.

Birds, such as Doves or Blackbirds, in flock on the ground, quail in any quantity, are other signs of a water source nearby.

You will need 2 quarts a day under average conditions but in the desert or during periods of heavy activity this rises to 4 quarts or more per person per day.

WATER PURITY:

Once you have found a water source, you have 2 old drinking rules to choose from, depending on how healthy you are, how cautious you are and where you are.

The first is, when doubt about water, purify it. The second is, a lively bubbling stream cleans itself in 30 feet of flowing over rocks and sands.

Or as one old codger I know, referring to the same quality of stream bed, puts it succinctly, "If the cow's around the bend, the water's fit to drink."

Which rule you follow is up to you. We tend to use the second when in mountainous, wooded country.

Our stomachs might not be cast iron, but they are pretty resistant to Montezuma's Revenge and La Turista. Yet as pollution increases we lean more & more to the first rule.

Boiling takes a lot of fuel and a lot of time to cool off but in dangerous regions it is **better to drink a lot of tea rather than wait for the water to cool off.** Halazone 1 tablet per pint of water or 2 if in ANY doubt.

You **MUST** still let it stand 1/2 hour or more to be safe to drink but taste funny like a swimming pool.

Yet aerating the water by pouring it back and forth between two containers several times will eliminate most of the chlorine taste.

This chemical is quite volatile and if you hold your breath while drinking it, you will hardly taste a thing.

LAY OF THE LAND WHERE TO CAMP BEST: put near top with camping

The 3 traditional requirements for a campsite used to be Water, Wood & a flat area on which to lay out your sleeping bag or pitch your tent.

Wood is no longer a prerequisite, with the handy and convenient stoves on the market. Water is still necessary.

So is the relative flat stretch of ground. Flat ground can be as difficult a thing to find as water, if not more so, particularly in the mountains. There you may have to settle for a spot that slopes.

If you do, **MAKE SURE** you set up the tent or lay out the bags so that you will be **sleeping with your head up.**

Sleep with your feet higher than your head, and you will wake up in the morning feeling you have a nasty hangover.

Sleeping sideways on a slope will have all the occupants of a tent piled on top of each other on the downhill side before the night is halfway through.

If you are not in a tent, you don't know where you will wake up. The **only** certain thing is that it will be far from where you fell asleep.

So why not pitch camp at the bottom of the hollow? Well, usually because that is the wettest, coldest, foggiest spot around.

In the case of heavy rain it usually also means the morning will greet you with a small quagmire all around.

The top of knoll **AVOIDS** these problems. Its more positive advantage is ventilation. A good breeze will keep the bugs to a minimum.

Speaking of **BUGS** there you are in the middle of a beautiful mountain meadow, fragrant summer blooms swaying in the breeze. A perfect spot.

No! For several reasons. Tall grass is there the chiggers, ticks and other bugs like to camp. Also alpine meadows are fragile. Setting up a tent there for a week may leave a visible scar for years.

For your own comfort and that of the meadows, pitch your tent at the edge instead of the middle. It will be as fragrant and the view will be better.

At the edge of a meadow is also where you find bushes and trees to provide wind shelter and shade for the heat of the day.

FOR BEST RESULTS, PITCH THE TENT OR LAY OUT YOUR SLEEPING BAG ON THE EAST OR NORTH SIDE OF SHADE TREES.

This way you will be greeted by the warmth of a cheering sun in the morning. Yet during the heat of the day you will be shaded from its harsh rays.

If prevailing winds are known, take them into consideration the same way.

Camp on the lee side of rocks and trees when it's cold & you need protection.

When it's warm, make camp on the windward side so the breezes help cool your wilderness home.

But check the trees out. NEVER camp beneath a lone tree if there is any chance of thunderstorm.

With its limbs reaching higher in the sky than anything else around, it makes a natural lightning rod dear Mooses.

Dead trees are also a hazard, the heavy waterlogged birches in particular. One moment they stall tall & serene in the sky.

The next moment, sometimes without even the lightest zephyr having whisked across the ground, they lie uprooted and prone. Should your tent have been pitched beneath, well...

The same holds true, if to a lesser degree, for dead branches. Don't camp beneath them. Chances of a dead branch killing you in its fall are very slim indeed. But an injury is far from out of the questions, and the least it will do is ruin your tent.

MORE CAUTION:

When pitching your tent above the timber line in Mountainous regions, look up before you set up. Landslides are not a common occurrence statistically.

But why become a statistic? Slopes of loose rock, slabs, round boulders, or what looks like a frozen stream of smooth rocks down a gully may decide to move during a heavy rain or in the alternate freezing and thawing of the cold of night and warm of day. Give all of them a wide berth.

DO PICK A SPOT THAT IS SHELTERED AS MUCH AS POSSIBLE FROM THE WIND:

A firm outcropping of rock or large, well entrenched boulders are probably the best shelters you will find to pitch tent behind.

But take advantage of whatever you can. A determined mountain gale may hit a hundred and fifty to 200 miles an hour.

A good campsite is not that difficult to find, I hasten to add before proceeding with **one more small caution:** know what Poison Ivy & Poison Oak look like.

SETTING UP THE EASY WAY:

To really enjoy camping, the trick is to make it as little work as possible. **In pitching and breaking camp, each person doing specific task is the KEY TO SUCCES.**

When you find a campsite, you divvy up the jobs and go to it. One pitches the tent while the other gets the fire going or in reverse depending who's in the mood for what.

Certain tasks are primarily in one or the other's domain. If you have not camped before, to make your fist night on the trail the pleasure it should be instead of a trial & error of a guessing game.

Go through the whole routine of setting & breaking camp in your backyard before you leave.

If you are gearing up for extended camping, take a couple of overnight break-in trips. They will more than pay for themselves by instilling a rhythmic efficiency in your camping party.

Don't leave out the kids. **Making them part of the team is worth more than having a free rein.** It also helps wear them out. Of course it may not **ALWAYS** save time.

Genevieve started helping to pitch the tent when she was 14 months old. Getting the tent up took 3 times as long, but she was proud as could be.

Camping with 5 years old and up, take a night off occasionally and let them do all the work while you sit back and relax. (MMM!)

It is amazing how much a young child can handle in the wilds and what a sense of accomplishment it gives him.

By the way one of your practice runs should include a crack at setting up camp in the dark with a minimum amount of light. That is one flashlight or less. Once you have done it a couple of times setting up camp at night becomes automatic.

REMEMBER that no matter how well planned a camping trip is, at one time or another you are going to reach your campsite after sunset.

PITCHING THE TENT: put it near top

Clear the spot for your tent of any sharp rocks, twigs or other debris. **If a live root pokes somewhere, don't try to dig it out.**

The more you dig, the thicker it **ALWAYS** seem to get and the harder it is to break.

Sawing in a hole is not only difficult, but you usually damage the blade as well. You won't injure the tree much by pruning a root, but you will certainly wear yourself out.

Better to move your future tent location a bit. If that is not possible, set the tent up so that the root is where your sleeping bag won't be & pad it on the inside if you are likely to crawl over it.

Next if you have a self supporting tent of the Draw-Tite variety, all you do is roll it out, put the pole sections together, and lift the tent into place on them. If you have a peg and pole tent, you start the same way.

Roll out the tent. Stake down the 4 corners, making the floor snug and squaring the corners.

Position the poles and stakes out the guy lines, leaving enough slack so you can make the fine adjustments with the line tighteners later.

Next stake out the side pull-outs. Once the lines are all out, adjust them so the tent is taut and wrinkles free.

The KEY is balanced tension, not just tension. Although the lines should be taut excessive tension deforms the tent adding unnecessary strain

If you are using a rain fly, lay it over the tent poles. Stake it out, unless it's the exterior frame supported variety, so it does not touch the tent itself anywhere or it will cause capillary leaks. You can tie the end lines of your fly to your tent stakes.

But on windy days it is an added safety factor to use separate stakes for the fly.

By the time you're done with this your partner should have dinner well under way. Lay out the sleeping bags so they can maximize their loft before you crawl in. Then hit for chow.

SANITATION:

If you are in an established campground with latrines, use them. If as is more likely, there are none around, head for the woods.

Go a reasonable distance from camp & dig, scratch or kick a hole in one of the less accessible spots where you would not normally be walking.

The hole need not, in fact should not be deep. Most bacterial action occurs in the top 6 inches of the soil. So although a shovel might be handy it is not really necessary.

Cover everything well and stomp it down. If you are squeamish about stomping it down you have not covered it well enough. (OOPSS SHIITTT!)

For a party of several people on an extended stay, a longish trench again only 6 to 8 inches deep, is usually gauged and agreed upon spot.

As it is used, it is covered with dirt bit by bit. Leave toilet paper hung on a branch, an empty coffee can over it to keep it dry and conveniently nearby.

BASE CAMPING:

You wake up at sunrise and the campsite looks even better than it did before. It is a beautiful day and with some regret you think about breaking camp and moving on.

Why? Why not linger awhile instead. The go-go-go of the urban living is hard to leave behind. You are not in a race so relax. Keep coool.

SITTING ON A LOG ART OF HUNTING:

This mysterious old art of hunting recommended so highly by old hunters is a hard one to perfect. Yet is one of the best way to learn the woods and see the animals.

It consists of obviously, sitting on a log. But not just for a full minute's rest, nor on just any old log. Once you learn how to spot an animal runaway, choose a log a couple feet from it.

If you're just starting to learn the woods, pick a log close to a stream, or an inlet on bog pond.

In either case, take a pair of binoculars if you have them. Sit yourself down-for a couple of hours. Don't smoke, don't make any noise and move as little as possible.

Simply look around. Traditionally 4 o'clock or so is tea time for many animals which would be unseen a thousand yards away in the bush if you were strolling along, will sometimes walk by only a couple of body lengths from you.

Their sense of smell and sight and sound are as keen as ever. But somehow they refuse to believe that a human being can sit still like a bump on a log. And indeed most of us can't any more.

Keep practising. As you do, look about you, watch the leaves in action, the insects, the birds, the movement of the wind. Smell the damp earth, the pine needles.

If you sit by the side of a young mushroom for the better part of a dewy night which is surely the ultimate test in log sitting endurance, you can actually see it growing.

COME PADDLE YOUR OWN CANOE:

From spring break up of the waterways to winter freeze up, canoeing is the best way to escape into the wilds that I know.

The American Indian craft, fleet of keel as its designer was fleet on foot, goes where the city mortal dare not, and his motorized transport cannot.

Although one can be a traditionalist, when it comes to canoes the birch bark canoe went out of commission with the rest.

I almost **ALWAYS** use an aluminium one. It's a matter of upkeep, care and weight.

A canvas canoe is not as fragile as you would think, and for those whose travels are limited to lakes, they are the most beautiful and silent craft devised since the Indians ruled the American waterways.

They take the battering of rivers, rapids, rocks much more gamely than suspected. Still there comes a time when they **MUST** be recanvased a task that is arduous and demands skills.

So with the wistful hope that the wooden canoe will **ALWAYS** be around for some braver soul to lug and for me to admire, I have deserted beauty for functionalism.

We use a Kinabaly Queen which is 18 foot lightweight Grumman painted dead-grass green and complete with carrying yoke and gunwale covers, it weighs 67 pounds.

The main objections to aluminium have been its colour, heat problems & sheer noisiness. Shiny aluminium stands out in the wilds like a nude at the Vatican.

And if your paddle hits the gunwales as you stroke, it is about the equivalent to hitting the Liberty Bell with a tennis ball. The paint and gunwale covers don't solve the problems completely but they do minimize them.

Fibreglass would seem at first glance ideal for canoe construction. But when it comes to synthetics the aluminium canoe is still way out front in popularity.

This is mostly a matter of craftsmanship too many poorly designed & constructed fibreglass models have flooded the market in the early days and canoeists became wary of the stuff yet we **MUST** add that things have improved considerably since then.

BOTTOMS UP: (DICK- HIC!)

Viewed from the bow (or stern for that matter) a canoe hull has one of two distinct looks: flat bottom or round bottom.

The sides of a flat bottomed canoe rise vertically or sheer in slightly in what's called a tumblehome.

Those of a round bottomed canoe usually flare out slightly. Again, the round bottom is fine for racing.

For canoe camping, where shallow draft, stability and carrying capacity are important, the flat bottom is much preferred.

THE KEEL:

Most canoes have a straight line keel, which is what you want for canoe camping. A rocker keel line curves up, and again is designed for white water racing.

Its maneuverability is excellent, on a windy lake, however you are hard put to keep it from drifting sideways.

Keels become **MOST IMPORTANT** on the high-riding lightweight aluminium canoes, whose side drift in a gale can be disastrous if the canoe is not loaded.

The standard centre, or straight line, canoe keel is from half an inch to an inch deep, and anywhere up to 3/4 inch thick.

It should run the entire length of the canoe. Bilge keels are common on wooden canoes.

They are in addition to not substitutes for, the centre keel. Mounted on either side of the bottom in the proximity of the chine line, and running for about 5 or 6 feet.

They aid in protecting the canvas when the boat is dragged over beaver dam and other such obstructions. They also make the canoe turn like a water-soaked log. The shoe keel is flatter, broader version of the standard centre keel.

It makes for a quite #manouverable# canoe with lateral stability considerably above that of keelless or rocker keel models.

At the same time it affords hull protection over a broader base, making it excellent for white water.

HOW LONG: JOHN?

Within reason, the bigger the canoe, the better. The longer it is, the easier it is to paddle. A 15 foot canoe is the minimum practical length for 2 persons.

The same holds true for one person, if you discount the small duck shooters intended only for paddling short distances in the marshes.

And which I would heartily recommend a 17 or 18 footer instead, the 15 foot model has one distinctive advantage in portaging.

Surprisingly enough, this advantage is not its weight, the real advantage is carrying comfort. Once your party goes **beyond 2, a 17 or 18 footer is unreservedly the best.**

Not only will it cut through the water more easily, it will have plenty of room for passengers and gears without lowering your freeboard.

The distance between the waterline and your gunwale at its lowest point, that is the amount of free and clear of the water to dangerous proportions.

The minimum freeboard advisable is 6 in. & 8 in. on a choppy lake certainly does help.

WHAT TO PADDLE WITH:

Synthetic materials have made definite inroads on the traditional wooden hull.

When it comes to paddles, however **nothing beats good old fashioned natural maple or ash.**

Maple is the heavier of the two, also stronger. Both are springy, as they should be. Your choice can and probably depend on which of the 2 is more readily at hand.

Advice on paddle length is usually rule of thumb: eye level from the floor for the stern paddle and chin lever for the bowman.

If you have to have rule, this one is about as good as any, though in doubt you should choose a longer paddle over a shorter one.

The basic thing is to feel comfortable with it. To this end, renting a canoe and testing out various paddles before you buy it; is a very good idea.

Finding the paddle width comfortable for you is the same sort of thing. The wider the blade, the more energy it takes to stroke with it.

A parallel observation; the wider the blade the faster you will get where you are going. (Home Jamesss!)

That does not mean you should use a snow shovel for the job. But do get a paddle that takes a decent bite. The beaver tail and Maine guide have a rounded bottom edge.

Most other paddles are nearly squared off. Squared off paddles tend, although not infallibly to stand up to more abuse without major damage. Speaking of which when you go to buy paddles, buy two.

That paddle we're talking about is going to be in your hands a long time once you hit the water, so check that the grip fits in your hand comfortably. It should not be varnished.

You will be raising blisters on your hands easily enough the first time out, varnish on the grip will only help them along.

The blade of the paddle, however should have a light coat of protective varnish. **Not paint.** A painted paddle is covering up something usually a fault in the wood.

Sight your prospective paddle for straightness. Check to see that the length runs with the grain and that there are no knots or burrs.

The blade should be evenly feathered. If it is thinner on one edge than the other, you will have extra kindling before the trip is over.

A YOKE FOR THE TENDER SHOULDERS:

Well, just call me a kid. I would not own a canoe without a yoke. After you have taken a couple of portages, in all likelihood neither will you.

The yoke is by no means a necessary appendage. But it is certainly a comforting one to have between thwart (rear seat) and shoulder.

And somehow I have yet to manage to take a canoe trip that does not require **at least** one portage.

On most canoes the yoke is simply bolted onto the centre thwart, (seat) which is the natural balance point for the canoe when carried.

Probably the most predominant yoke is the double square pad made by Grumman for its canoes. The bolsters are serviceable but not entirely comfortable. The edges tend to dig in.

So I drape a shock absorbing horse collar in the form of a heavy shirt or jacket around my neck before I loft the canoe.

I suppose as an alternative I could gain a bit of weight so my shoulders would be less bony.

A quite efficient temporary yoke can be made by lashing the paddles blade end to the centre thwart in a wide V, leaving room between them, obviously, for your neck.

The blades are broad enough to distribute the weight well. Wear a heavy shirt, though for the carry.

Lashing paddles in place takes a bit of time. So does unlashing them at the other end. Also, although in all likelihood you will **NEVER** fall when portaging, with this yoke you nevertheless have a pair of sharp paddle edges at your throat.

The most comfortable yoke I have ever seen was a home-made one of fibreglass. The owner had a friend make a plaster cast of his shoulders.

From this he moulded a yoke in fibreglass, then added an Ensolite lining. With this rig, carrying an 85 pound canoe was easier that toting home the groceries.

CASTING OFF:

Once you have picked out your canoe, you have got to get it into the water and then you into it. Then, provided you are both still intact, you want to propel yourself some place with the paddles. Not too far, probably the first couple of times out.

A CANOE MUST BE FLOATING WHEN IT IS LOADED:

That means loaded with you, as well as with your gear- in order for the weight to be distributed both for balance and to **AVOID** damage to the hull.

If you are beached, ease the canoe into the water slowly and bring it around broadside, but not too close. You want to step into it without letting the bottom scrape the beach.

This is easier said than done, & you will no doubt get at least one foot wet. I usually take off my shoes, & roll up my pants, weather permitting. Starting from a dock is much simpler. You just step in.

Standard rules call for stepping right on the centre line of the canoe and lowering yourself gingerly into a sitting position.

Now caution is rarely a **dangerous** commodity, but too much has been reiterated about the instability of a canoe. I would not advise anybody to try standing in a kayak.

But in a canoe why not? Lots of people do it safely all the time. At first of course, you want to develop a feel for the canoe from the orthodox sitting position.

And when a storm springs up, it's best to kneel for added stability. Do so in front of the seat, resting your rear on its edge. By all means put some padding beneath your knees.

But for a start, the object of the game is to get a comfortable feel of your craft on the water. Period.

You will **NEVER** get that while sitting ramrod straight in the middle or kneeling in fear all the time, as if you are on a log about to roll over. **Hang loose.**

So there you are, or there the two of you are, sitting in a canoe, two paddles apiece at hand.

The old saying about being up the creek without a paddle has its origin in the fact that a paddle will break at the most uncalled for times. Knowing this you **ALWAYS** carry a spare for each man.

HOW TO PADDLE BEST:

Pick up a paddle, one hand over the grip, the other around the shaft a short distance above where the blade flares out. Keep your hold relaxed. Reach forward with the lower arm.

The upper arm should also reach forward, but not as far, keep a bend in the elbow. Now dip the paddle in the water, and pull the lower arm back, keeping it semi-rigid.

At the same time, push the upper arm forward. To get the most out of the stroke, your torso should follow the upper arm forward slightly.

The main force comes from your upper arm and you back. Keep the paddle vertical, don't bring the shaft in over the canoe like an oar.

That's it you are paddling. Remove the paddle from the water reach forward... This is what is known as the cruising stroke & is the one used almost exclusively by the bow.

With two to a canoe, the bowman sets the pace, one that is comfortable for the stern as well and paddling is done in rhythmic unison.

After a while you find yourself falling into a natural temp with a fractional rest break between strokes, just before you plunge the paddle back into the water. The whole thing becomes as unconscious as walking.

Switch sides every now & then; you will soon be able to flash the paddle across without breaking rhythm or missing stroke. It's best to get into this habit early.

If you don't you will find that as time passes you develop a distinct preference for paddling on one side. Not a serious problem, but somewhat limiting.

GOING STRAIGHT:

BEST PADDLING METHOD:

RUPERT HOUSE CREES STROKE OF GENIUS" (50% FASTER) pix need here

You would **NEVER** think there was as many different ways to paddle a canoe as there are. Actually the number of the strokes are simply variations on each other.

But this past summer I discovered an entirely new one which to me as far as I am concerned, relegates the "J" stroke, the pitch stroke, and most of the rest of the stern strokes to oblivion.

I just named it after the people who showed it to me, the Rupert House Crees of Hudson Bay.

It is so simple it is obvious. One of those things you keep saying "but of course" to and wondering why you **NEVER** thought of it.

This stroke consists of digging the paddle with a blade at a slight outward angle to the direction of the pull rather than perpendicular to it, as is customary.

This automatically compensated for the torque normally produced by the stern paddler's thrust being offside.

And it does so without the slightest bit of drag, since the paddle is not trailed as a rudder. Unlike all the other torque compensating strokes, this one delivers nothing but power.

It is also the most difficult of all strokes to master and I admit I still have problems with it on and off.

Since the blade is at an angle while passing through the water, it tends to slip constantly sideways.

HOWEVER IT IS WELL WORTH PRACTISING TILL YOU CAN CONTROL IT FOR IT IS PROBABLY 50% FASTER THAN THE STANDARD STROKES WITH NO MORE WORK.

The most common stern stroke is the J. After the paddle has been brought in the water, the blade is turned & pushed away from the canoe, the full stoke forming the characteristic "J" pattern. This of course produces drag, which slows down the canoe while steering it.

As far as I am concerned, once you master the Rupert House Cree stroke, all other strokes or combined propulsion and direction maintaining stern strokes becomes superfluous, not to say inefficient.

However there are some steering strokes for rapid maneuvering which you should master before you ever venture off the lakes onto even mildly turbulent river water.

STROKE TO STOP A CANOE BY:

The simplest of these is the backwater stroke, used to stop a canoe's forward motion or to reverse its direction completely.

All you do is paddle backwards. Almost equally effective in stopping a canoe is the jam stroke.

In reality it is no stroke at all, since it consists merely of thrusting the paddles into the water with the blades perpendicular to the direction of progress and keeping them there.

Both the jam and the backwater stroke require strong arms, wrists and back if the boat is well under way.

Practice them at slow speed first to get a feel for what is happening to the canoe and your muscles.

If you are going full steam ahead and apply the jam stroke for the first time you will probably find yourself paddleless, with a bruised wrist to boot.

SLIDING OVER:

Now that you have the canoe going forwards and backwards, its time to consider going sideways.

Paddling down river, it is necessary to keep the keel of the canoe ALWAYS almost parallel to the water flow.

If the stern swings too far from this direction, the current will grab it and turn the whole canoe around.

And should there then be a rock in your path while you are travelling broadside, you will end up with U shaped canoe.

The two most used lateral pulling strokes are the draw & the push.

A couple of moderately experienced people using the draw stroke can slip a canoe sideways over the waters 10- feet in 10 seconds.

If stern and bow paddler stroke on opposite sides of the boat simultaneously, they can literally turn on a dime.

All you do is reach straight out with your paddle as far as you can and dip into the water with the blade parallel to the keel. Now pull the boat over to the paddle.

The push stroke is the reverse of the draw stroke. You start with the paddle next to the hull and push the boat away.

Since it is easier to pull than push in the water, however, the draw stroke is the more effective of the two.

An easier to handle modification is the pry stroke. When the paddle is put in next to the hull, the shaft is brought to rest against the gunwale.

Then the grip is pulled sharply inboard, the gunwale acting as a fulcrum, the blade consequently pushing out with more force & setting the canoe over.

Wherever possible, stick with the draw stroke. The pry stroke is easy to master but because the gunwale acts as a fulcrum, you are actually pushing the canoe down into the water as well as sideways.

This considerably reduces the efficiency of the stroke in relation to the amount of energy you expend.

Also since the gunwale fulcrum is much stronger than your grasp can possibly be, it's an easy stroke with which to snap your paddle.

THE BOW RUDDER:

A last stroke is the bow rudder, used for swift turns. Again something to be practised many times in a slow moving canoe till you get the feel of it and learn how to gauge your strength.

As its name implies, this particular manoeuvre is **performed only by the bowman.** You thrust the paddle, its blade vertically, into the water "in front" of the canoe.

Set it roughly at a 30 degree angle from the keel line, with the blade not dug in fully. Hold it tightly in this position; the flowing water will do its work.

The paddle will try to pull out and push back into your chest, or even your face if you are short, so hang on.

For extra support, with both the bow rudder and the pry stroke, I wrap the fingers of my lower hand around the gunwale as well as the paddle shaft. Watch it so you don't pinch yourself.

TIP A CANOE AND RIGHT IT TOO:

If you can, take a few days to practice your strokes and get a general feeling for the canoe before setting out on a long trip.

To do a really good job of it, put on a bathing suit, find a sizable lake to launch the canoe in, paddle out a ways from the shore, and lean and twist in your canoe until it capsizes.

You will find it's a lot harder to upset than you thought. Loaded with gear, the craft will be even steadier.

Meanwhile you'll know how your canoe responds. You'll be confident and hopefully not overconfident however.

It's often recommended that when a canoe capsized, you should right it first and then bail it out with your hands while treading water next to it. I am all for righting it.

But unless I was several miles from shore, I would tow it to the beach rather than try to bail under those conditions. In any event, don't panic and leave your canoe behind if it capsized.

Canoe are either naturally buoyant or equipped with flotation tanks. Either way they will keep you afloat. Yet everyone who goes canoeing should know how to swim.

POLING:

The canoe honestly and truly is not the skittish, difficult craft of its undeserved notoriety. Obviously a broad beamed rowboat is more stable.

But the old maxim about **NEVER** standing up in a canoe is just so much bilge. Poling although not used often, is a method of propelling the canoe which definitely has its place.

And to pole you have to stand up. Like all other canoeing skills, furthermore, poling is an acquired one, demanding more than a little practice. So get your sea legs in a canoe.

Ash poles 12 to 14 feet long & about an inch and a quarter to an inch and three quarters in diameter are traditional.

One should also strip them from an accommodating tree along your way. Fibreglass are not only good they are even better. To grip the river bottom firmly, a canoeing pole is often shod with a cast iron shoe.

On a wooden pole, this serves the added function of keeping the pole end from fraying or brooding out.

A pole shoe is either cup-like or spiked at the end to aid in grasping submerged rocks. The bit of extra weight also helps the pole balance and sink.

The top of the pole may or may not have an elongated knob. It's primarily to remind you, when you are intent on the water, that you've reached the end of your pole.

To pole a canoe, trim it that is, distribute the weight. So that the downstream end, bow or stern depending on which you're heading, ride a bit lower than the upstream end.

This gives the canoe a tendency to align with the current flow.

In addition, angle the side of the canoe opposite that from which you are working the pole slightly into the current, to compensate for the side thrusting of the pole.

Set the pole into the water just behind where you are standing, at your normal paddling place if there are two of you, almost amidships if you are alone. Then push down.

The pole will flex and the canoe moves forward. Feed the pole back by going up hand over hand until you run out of pole. Finish off the dig by bending into a slight crouch & giving a firm but smooth shove.

Then retrieve the pole, without dragging it though the water, and start over. Bracing one calf against the rear seat or thwart add stability to your thrust.

Both parties pole on the same side, usually alternating thrusts so that while one is completing a push with a momentary halt to hold the canoe in place. The second member digs in and starts pushing before the first man retrieves his pole.

TRACKING:

When you reach a set of rapids your aren't sure you can handle **don't try.** The usual alternative and the one I opt for is to portage. Nevertheless, much has been said about tracking but I have **NEVER** seen anyone do it.

Tracking takes 2 people. Tying a line to the bow & another to the stern of the canoe, each man tending one line, you walk along the shore etc. and guide the floating canoe through. But it is easier to portage.

CANOE SAILING:

Although not often used in camping unless one expects to cross long lake after long lake, a sailing rig, available with many models makes a canoe more versatile for weekend use. The canoe week-end use.

Most canoes rigged for sailing use either a gunter or a lantern single-rig, with leeboards and a tiller arrangement.

We've often made a temporary square rig with a tarp for a lazy day's downwind run, and it's a good thing to keep in mind as a break in pace.

Our latest improvisation on this theme occurred during Genevieve's initiation voyage in Laverendrye, when after a week of rain we finally had a sunny day with a good snapping wind.

We tied Genevieve's diapers, washed but undried because of the continuous downpour, in a four-to-sail pattern & lashed the quartet between two six-foot paddles.

With the paddles held upright between my feet and the stern seat or thwart, we gurgled along at five or six knots averaging four dry diapers to every 15 minutes.

PORTAGING:

When you can not paddle, pole, float or maybe even track a canoe any farther, there is nothing left to do but carry it. The very word "portage" seems for some reason synonymous with hard labour. Yet it's really not that bad.

Besides, it gives you a certain feeling of accomplishment. And I **NEVER** cease to get a kick out of the strange walking on the moon feeling you have after putting down an 80 pound canoe you have carried for a mile or two. You are walking on clouds.

A portage trail usually begins by a natural mooring spot-some submerged logs, a clearing, a sandbank. In Canada established canoe routes often have signs at a portage.

Once you have nosed into the mooring, unload the canoe before beaching it. If there are two of you, travelling light, you can make a portage in one trip.

Over long portage, or if we ran aground on blueberry bushes, one would keep a sharp lookout for suitably forked trees to park the canoe in.

A portage trails often too narrow and twisting for you to comfortably put the canoe down to rest. Besides if you put it down, you have to pick it up again.

To AVOID this, if you find a tree forking out at about the 8 to 10 feet level, all you have to do is approach it slowly, raise the bow of the canoe until it's even with the V, and prop it there, bow in the wedge, or stern on the ground.

Bend down and walk out from under the canoe. When you're ready to move on, just duck under the canoe, stand up and back out.

HOW TO PICK UP A CANOE FOR PORTAGING:

The basic principle is not pick it up, but to literally throw it onto your shoulders.

With a bit of practice, you'll find it takes surprisingly little effort. **There are 2 ways to properly heft a canoe unto your shoulders.**

The first, the shoulder hoist, is the easier but can only be done comfortably if the bow thwart of the canoe is so spaced that when the yoke is resting on your shoulders, your outstretched hand will just reach and be able to grasp thwart.

This happy conjunction of measurements generally occurs on a 15-16 foot canoe if you are roughly between 5' 8" tall and 6 foot two.

To proceed, put the canoe on the ground lying as if it were in the water. Stand beside it slightly behind the bow thwart and facing the stern. Bend down. Take hold of the bow thwart, placing your hands close to the gunwales.

Then in one swift, continuous operation, yank up hard, swing the canoe onto its side, over & up, bend your knees & twist so you're now facing the bow.

With the aid of the momentum from the original yank, the bow of the canoe has swung over on top of you.

Duck your head as it drops down on your shoulders, yoke in place. The stern will now lift off the ground. Don't stop halfway through the sequence to think about it.

The whole pickup is one fast, smooth movement culminating the first time in surprise that the canoe is actually sitting on your shoulder and it all happened so quickly.

It's much easier than it sounds. Just **REMEMBER** you're literally throwing the canoe around.

A longer canoe say 18 feet will react differently. Instead of the yoke landing neatly on your shoulders, the inside hull will land on your head, that confounded yoke somewhere uselessly behind you. Some people do manage to use the shoulder hoist on the larger model.

They'll rest the canoe lightly on their head as it swings over, stern still resting on the ground, switch their handhold from the thwart to the gunwales.

And then inch back into the yoke by sliding their hands down the gunwales. It's nowhere near as graceful, but it can be done smoothly.

The other way to hoist a canoe is the knee roll. Standing midway between bow and stern of your beached canoe, roll it into its side so the keel faces you.

Now reach over it for the centre thwart, placing the far hand around it by the gunwale, the near hand grasping the near gunwale.

The hand grasping the far side should twist your shoulders slightly so your back is turned partially towards the bow.

Bend your knees slightly, just enough so they dip under the keel of the canoe, still lying on its side.

Roll the canoe onto your knee by pulling up with the far arm and pushing away with the near one, give the canoe a slight shove with the knee and literally throw it upwards and over.

Again duck your head under and into the yoke as the canoe swings over your shoulder. Grab the gunwales as it comes to rest on your shoulders, and you are all set.

Here again the procedure sounds much more complicated than it is, and here again, the whole secret is to hoist it in one continuous swift movement.

Oh yes, about putting the canoe down when you get to the end of the portage: just reverse the pick up procedure.

Plan to roll it off your knee so the bow lands in the water if you're going downstream the stern if you're going upstream. The current will swing whichever end hits the water first downstream. Bow first?

You're headed in the right direction for going down the river. Stern first! The current will swing it downstream, directing the canoe upstream.

STOWING THE GEAR:

Canoe camping allows more flexibility in gear than, say, backpacking or ski touring.

There is no reason to set off without a reflector oven for instance. In fact there may be good reason to have it along if you're going to be out of buying distance of a loaf of bread for a long time.

Don't get carried away even though a sturdy 17 foot canoe can carry between 8 and 1200 pounds **REMEMBER** the portage.

Try to keep the cargo down to the point where you can portage everything in one carry, or **at least** a maximum of two.

Once you have assembled the gear you want along, you're faced with the question: to waterproof or not to do so.

Even without spilling the canoe, a certain amount of splash and drip will find its way into the bilge.

Voyageur Enterprise makes a waterproof polyethylene bag with a sliding bar closure that conveniently seal the package at any height.

Ranging in size from 22 to 36 inches to 24 by 60 inches, these versatile envelope bags not **only** keep your equipment dry, but will float should you capsize.

A common waterproofing procedure is to lay a tarp over the gear & lash it down.

I go one step further, laying the tarp out along the bottom of the canoe on a bed of spare paddles spread lengthwise across the ribs as an extra precaution against bilge flooding in heavy rain.

The paddles can be pulled out easily enough if needed as long as the cargo is not too heavy.

After packing in the gear, I fold the sides and corners of the tarp up & over the thwart like a Christmas package, and batten it down with some rope. Keeps everything dry from all sides.

CANOE PACKING TIPS:

ALWAYS pack the gear so that the centre of gravity is kept as low as possible and most of it is a amidships.

NEVER pack a canoe that is not floating. It won't break the back of an aluminium of fibreglass canoe, but it's a poor habit to get into.

If you're expecting to run into white water, the load should be tied down securely once everything is in place.

Lashing it all to the canoe may be cumbersome and time-consuming. On the other hand, trying to find a soggy sleeping bag somewhere along shore down river is much worse.

A COUPLE OF WORTHY EXTRA ITEMS:

Who would ever take a sponge canoeing? Well it doesn't take up much space and weighs nothing. Mighty handy for mopping up the bilge.

Being more or less flat, the bottom of a canoe is hard to scoop up water from unless it's ankle deep.

Outside of this one homely little item and some extra quarter-inch nylon rope for a painter, towing and such about a 100 feet should do, there is no special equipment needed beyond a good canoe, spare paddles and a repair kit.

REPAIRS ON THE RIVER:

Neither aluminium nor fibreglass is indestructible. Aluminium one will acquire small dents while banging into rocks and boulder.

The larger ones can be pounded out by a hard rubber hammer or wooden mallet methodically wielded. If you don't carry either, put a heavy rock inside your shoe and pound with the heel.

Tap firmly but gently on the inboard side of the hull using a sock or similar sack filled with sand to cushion & spread the load on the outside. Most small dents are best left till you get home.

To mend a break in an aluminium hull, first pound out the dent that accompanied it. Then apply some epoxy and an aluminium patch over the break till you can rivet a patch on permanently.

If don't carry a patch kit and there is really no need to unless you're going to slop around in some mighty rough white water.

An unexpected crack can be filled quite satisfactorily with a gob of pine sap and some needles from the same tree.

Fibreglass boats usually come supplied with a small cloth and epoxy repair kit able to solve most of the problems you will encounter.

If you somehow manage to stove in the whole side, repairs will have to wait till you get home.

ON THE RACK FOR THE WINTER:

Your chances of damaging an aluminium or fibreglass canoe while on the water are slim.

The chances of damaging it at home are great. Probably more canoes are ruined by careless storage than by any other factor.

The best place for a canoe is upside down on the rafters, if you have rafters in your garage. The second best place is upside down on sawhorses in your basement.

WEARING A KAYAK:

Canoes were designed to transport freight, food and passengers across the watery web of North America.

Kayaks are designed to carry one hunter out to sea in search of game, whale, seal etc.

As a hunting craft on turbulent, ice-choked oceans, it had to be as agile and fast as its target & so it became a craft one literally wears.

A kayak will turn you into a mermaid of the waves, taking you down remote rivers inaccessible to any other craft. You will probably want to start your inland nautical career in a canoe.

But after a while, no matter how fond you are of it, you will begin thinking about switching to a kayak.

It's not as stable as a canoe, generally speaking. You'll have to cut down the bulk of your camping equipment.

And although there are two man models, it is primarily a one passenger craft, which usually means each man for himself.

On the other hand a kayak is swift, incredibly maneuverable and seaworthy. Dr. Hans Lindemann sailed a Klepper across the Atlantic in 1956.

And since you're wearing it instead of sitting in it a kayak gives you a feel for the water no other craft does.

RACING AND TOURING MODELS:

They come either in fibreglass or with folding rubberised hulls.

For camping and touring the folding model is the roomiest with the added advantage of being the only boat a city dweller can dock in a closet. The selection of a folding one usually means a Klepper.

It's the oldest and best made of the folding boats, it's also the only one available in many regions.

Built-in-air filled sponsons make the craft much more stable than most kayaks, and thus ideal for the beginner.

Packs into three bags. Assembles in less than half an hour, no tools needed. They sound so fragile but it is not the case unless you are really unlucky.

THE PADDLE:

A kayak paddle is double bladed and usually feathered; that is the blades on both ends of the shaft are set at a right angle to each other.

If they were set parallel, when one was in the water, the other would be exposing its flat side to the wind, causing a not inconsiderable amount of wind drag as well as steering difficulty.

The blades themselves may be either flat or lightly spooned. The spooned blades look racier and are a bit faster.

On the other hand it's more difficult to brace with them. Also reverse paddling with spooned blades is more complex, less effective.

Paddles range in length from about 82 inches for white water up to 102 inches for cruising.

Sometimes the paddles are jointed in the middle of the shaft so they can be disassembled for storage and transportation.

However this joint is a potential weak spot. A happy combination is to use a one piece paddle and carry an easily stored jointed one as your spare.

PUTTING ON THE KAYAK:

The first time I climbed into a kayak, I was on my own for less than 10 seconds with he inverted boat floating rapidly down river. The second time it was still well under thirty seconds. Later we became partners.

To MAKE SURE you get into a kayak dry, squat down beside the cockpit, facing the bow, the long double paddle horizontally across the deck of the kayak behind you.

Grasp the paddle shaft and cockpit rim together in one hand. Now lean the kayak and the paddle slightly towards shore so the paddle touches ground, making a brace.

Shift one leg over the gunwale into the boat, **MAKING SURE** you keep the weight distributed slightly towards the shore side so the bracing effect of the paddle remains. Shift in your second leg, followed by your seat. You're in.

PADDLING:

Since the kayak double-bladed paddle is a two cycle engine, so to speak, the stroking pattern used for canoe propulsion is inapplicable.

The basic kayaking stroke uses a considerable amount of wrist action because of the feathered blades.

And much the way canoeists tend to favour one side for stroking, kayak paddlers favour one wrist. Usually the right if they are right-handed as fixed hand.

It's the one that keeps a firm grip on the shaft, setting the angle of the blades for each stroke.

Starting on your fixed-hand side, as you dip the blade into the water, the wrist is bent slightly upwards.

When the stroke is completed as you're switching to the alternate side, the wrist drops down, rotating the paddle ninety degrees so the opposing blade will now dig cleanly into the water.

Meanwhile the other hand holds the shaft, but loosely enough to let the paddle twist freely. Watch out for blisters your first couple of times out.

The shaft should be roughly 45 degrees to the horizon during a power stroke, the blade fully submerged.

Back-paddling is the reverse of forward. There is no need to reverse the blades.

Practising back-paddling is **important**, not only to master the manoeuvre itself, but to help you develop a feel for setting the blades quickly.

The strokes used primarily for white water include such advanced strokes as the Duffek besides modification on the draw, the sweep and others.

However, white water kayaking really **MUST** be learned visually. You can work on it yourself once you have watched it.

The best thing to do is search out one of the numerous clubs founded by river runners and learn from them. Pass your swimming test before you go.

MANEUVERING:

The simplest way to change directions in a kayak when all that's needed is a broad arc to drag the paddle as a rudder at the completion of a stroke, one the side you want to turn towards.

For an abrupt change in course use the forward stroke on one side and the backward one on the other. With practice you'll just about to be able to make a right-angle turn.

THE BACK BRACE:

It may not be walking on water but it's as close as you'll get. With the back brace you're actually leaning on the water. It can be used as a maneuvering stroke.

But its primary function is to enable you to brace yourself against capsizing particularly in turbulent waters where an eddy will suddenly sweep towards you sidelong.

Its secondary function is to get you cutting straight into the eddy. Hold the paddle shaft at waist level directly in front of and close to you.

The blade on your leaning side should be slightly behind you flat on the surface of the water with its leading edge slightly higher than the trailing edge.

What you have then is **ESSENTIALLY** a water ski as an outrigger. And as a water ski can support your weight, so can the paddle blade.

There are 2 variable that dictates how much the back brace can bear; the speed of the water and the distance of the paddle blade from the hull.

The farther out the blade planes, the greater the leverage action. The faster the water speed, the more support it offers.

Back bracing will help you keep your balance when you first start out kayaking. Any time you feel yourself tipping just push yourself upright again against the brace.

Once you're whizzing along with real momentum, even on a quiet lake, because of the aerodynamic properties of your hull the back brace can also be used for turning while at the same time giving you something of a feel for the rakish angles of a white water run.

As the blade planes across the water or slides just below the surface and you lean with it, the kayak hull candles out of the water so it rides asymmetrically on the water surface.

Now the current pulls at the hull on the side opposite that on which the paddle is brace. You swivel around the paddle almost as if it were nailed to one spot in the water.

THE ESKIMO ROLL:

(OVER BEETHOVEN?) pix

It may sound like an Arctic breakfast bun but the Eskimo roll is a **vital** part of kayaking one that puts you underwater and out again.

It is **very** difficult to perform in the sponson supported Aerius, on the other hand the stability of this craft practically eliminates the need for it.

Should you feel yourself tipping in the Klepper boat, a simple back brace will set things properly.

Still if you get a get a chance to practice the roll in a racing kayak, not only it is fun, but it is a challenge that will give you an immense amount of satisfaction & boost your kayaking confidence as well.

Before you begin practising the manoeuvre we're certainly presupposing you can swim by now, capsize your kayak a few times as you would a canoe, to get a feel for its stability.

Theses upsets will also relieve you of the nagging suspicion that you get trapped in the snug fitting boat if it overturned.

So automatic it is to fall out of a kayak when it spills, you'll have to work at staying in long enough to practice your Eskimo roll.

In an Eskimo roll, as the kayak tips over, say to the left, instead of struggling to restore your craft's balance, you help it along until you have turned all the way upside down.

Then, with the aid of the momentum gained in going that far around, and with the flat of a paddle blade extended out perpendicular to the kayak for maximum leverage you pull yourself.

With what almost amount to an upside-down brace, the rest of the way around on the right side until you are upright again.

If at all possible, learn the roll from someone experienced in the maneuver.

It is difficult to figure out from a book, more importantly, it is very difficult to analyze your own moves as you go around underwater.

A pair of snugly fitting goggles, which offer less water resistance than a snorkel mask. And a nose clip will help a bit too, making you more comfortable and permitting more careful study of your underwater antics.

But first, to visualize the maneuver, picture a large clock in front of you. Sailing in the clock as if it was sunset in a kayak and its paddler.

Let's say he is rolling over to the left or port side. His kayak's tipping toward the horizon call it 9 o'clock.

Now he leans from the waist in the opposite direction, to the right as he goes over. Once he submerges, he starts straightening out his back.

By the time he reaches 6 o'clock, the completely upside down stage, his back should be straight. Now he begins to lean to the left.

As his torso begins to reemerge from the water, he leans to the right again, if he's leaning properly, from the waist, his hip motion is pushing the kayak further upright.

That takes care of swinging his torso around. Now about his head.

For maximum momentum & smooth rolling, it's important that the head be the last thing to leave the water, not the first as it is instinctive.

The paddler waits till his body is almost clear of the water to snap his head up, straightening his back and returning to an upright position.

Now you do it. As you perform the stroke, relate all movements to your own body, not up or down.

While you're performing this double sideways jackknife with your body, you will be using the paddle to pull yourself around with.

As you capsize, let's say to port again, slide you left hand along the shaft till it reaches the left blade.

Twist the shaft so the right blade is feathered, ready to slice through the water rather than fight it, by the time your head is at 6 o'clock.

Now reach out with the right blade till it lies horizontally on the surface of the water somewhat towards the bow of the kayak.

In effect this gives you an upside down brace. Pull the extended paddle towards you as quickly as you can.

It should make a wide arc from 3 to 4 o'clock, and from somewhat in front of you to slightly behind you.

By the time the paddle has completed this arc, your body will be out of the water, only your head still submerged.

Keep the back braced, and using hip action pull your head out. Resume normal paddling position. Your circular momentum may be surprisingly strong, however.

Be prepared to brace on the port side to keep from rolling over again & again & again...

Verbal description makes the Eskimo roll sound much more difficult than it is, not to mention agonizingly slow.

Which is why, although you can learn to do it yourself, it's best to see it in action & to have some help around the first times you try it.

50 years ago the roll was considered a feat almost impossible to perform unless you were an Eskimo and your survival depended on it.

Today it's a stroke every kayak racer can perform, strenuous but not impossibly difficult.

STRAIGHT ON:

THE PRIME RULE IN RIVER RUNNING IS ALWAYS TO REMAIN RELATIVELY ALIGNED WITH THE CURRENT.

In a one man kayak you're on your own; keeping your bow to stern line parallel to the water movement is thus easier.

In a 2 man kayak or canoe, the paddlers **MUST** operate in unison. Good communication, good rapport, and experience as a team are **ESSENTIAL**.

It's particularly important for the bowman to **REMEMBER** that he has a whole long canoe following him.

Under the pressures of trying to read and follow a swift following river, it's all too easy for him to think in terms of the boat's bow, and maybe a couple of feet behind him, clearing an obstruction, forgetting about the rest.

All rules have an exception. When running over the haystack or big standing waves, that form when large amounts of water drop over a ledge or boulder, don't head straight into the waves.

Take them at a slight angle, to keep the bow from burying itself in each successive wave flooding the boat.

READING WATER:

The only way to learn how to run a river is to run one. Obviously you start with the easiest rivers, sometimes going over them time and time again to gain confidence and skill, until the roaring siren of spray lures you on to ever more difficult waters.

There are however several basics to take into account before you set out, things to watch for or to learn from.

First, know your canoe or kayak. Secondly, know your river. It's sound practice to walk the banks before you shoot wild rapids, mapping out which route you intend to take

You can **ALWAYS** change your mind once you're on the water if for some reason you need to.

But by having your actions planned in advance, you have something specific to deviate from. This makes it much simpler to respond.

Grade 1 & 2 rivers, classified by local clubs and usually marked on canoeing maps, need not be inspected before you descent.

However, if it's your first run, you may want to pull over to shore occasionally to give yourself time to think?? Running rapid calls for a lot of split second decisions.

REMEMBER that water flowing in a channel is slowed by friction at the sides and the bottom. **That means your fastest current is at surface centre.**

However obstructions such as boulders, drops and ledges introduce hydraulic phenomena which vary this centre flow from spot to spot.

Also there's the fact that when the channel narrows, the water speeds up, when the channel fans out, the current becomes more sluggish.

There is an old maxim that in order to stay on course your boat **MUST** be travelling faster than the current. It is not even necessary to paddle to maintain that speed, though you'll probably be doing so.

Merely by floating on the fast centre of the stream, you are already exceeding the speed of the remaining flow of water & thus have some control.

To fully utilise this differential in maintaining direction and stability, you should leave a paddle in the water between strokes that are spaced out, to act as a brace leeboard or rudder in the slower current.

CHANNELS: (TV?)

The strongest current usually leads to the most open channel, and the best.

If a river fingers out, the channel that begins to drop the soonest is generally the least violent.

Those that look smoother and seem to have less of a drop to them are apt to end in one large, abrupt plunge. **REMEMBER** they all have to reach the same level.

The one that starts first has the smallest gradient. Water in a channel will run faster as the banks narrow.

The main chute is usually marked by a tongue of relatively smooth, swift surface water rippled by small standing waves.

Those are the ones that seem to remain in the same spot relative to the riverbank. The more even the pattern of standing waves, the more clearance your hull will have.

Since the widening out at the end of a channel reduces the water's velocity, the fast flowing channel water itself runs smack dab into a much slower current below it.

This cause large standing waves or haystacks. Fierce in appearance, they are an indication of good depth. Small broken waves are not.

The same principle holds true when a river fans out into shoals. The largest waves are produced in the deepest channels.

RIVER CLASSIFICATION SYSTEM: (INTERNATIONAL STANDARD)

Grade 1) Very easy. Clear passages. Small regular waves. Obstructions include sand banks and bridge piers. (Grade 1 and 2 are for beginners)

Grade 2) Easy. Clear if somewhat narrow passages. Small ledges. Enough spray to ship some water.

Grade 3) Medium. Passages clear if sometimes only one canoe's width.

High degree of maneuvering skill and teamwork needed. Backwash eddies, rocks, high waves. Spray shield recommended for canoes. **Visual inspection needed.**

(**Grade 3 to 5)** Experienced only Crash helmet necessary.

Grade 4) Difficult. Extended rapids. Wave boiling high and irregular. Rock obstructing passage. **Pre shooting inspection and spray shield ESSENTIAL**.

Grade 5) Very difficult. A ladder of violent rapids. Sharp drops, whirlpools, obstructions like those of a pinball machine.

Powerful crosscurrents. Steep gradient. **PRE-SHOOTING INSPECTION ESSENTIAL** often dissuading.

Grade 6: Good luck Charlie Brown. Beam me up Spock. Even Rambo says no go!

ROUND THE BEND:

The deepest channel is ALWAYS on the outside of a bend in the river, but that is also where erosion is the quickest.

And crosscurrents and water rolls flowing under the weakened banks can cause many a quirky current with fast flow.

Often these crosscurrents together with centrifugal force can suck your craft up against the outer bank.

To AVOID ramming, you have to keep the boat as close to the inside of the bend as possible.

There are 2 ways to handle the curve itself. There's the hell-bent-for-leather paddling forward approach where you swing the bow in the direction of the curve, your craft's trajectory being similar to that of a racing car.

This method is exciting, flashy and gives you not time for mistakes. Hold off it till you become more experienced.

What might be called the Bank of England turn is more sedate, gives you time to rectify mistakes.

Sober but safe. Paddle backwards with enough force to keep the stern **ALWAYS** angled slightly towards the inside of the curve.

Your hull will then be more or less parallel with the current it does not go around the curve the way a car would either.

OBSTACLE COURSES:

Solid obstructions like rocks and water-permeable ones like trees have very different effects on the current.

A boulder will deflect enough water to form a cushion between your boat and itself. This deflected water also helps you skit the obstruction.

A fallen tree will stop your canoe as effectively as a rock. However, water ducks under it and flows through branches as if they were sieves.

So there's no water bed to land in. Because of this you **MUST** take evasive action much sooner than with a solid object.

If you do run into a tree, once you're broadside, the canoe will almost certainly capsize, by the undertow along the tree's trunk. Grasping at a branch only aggravates the problem.

Bracing well out on the side away from the tree will sometimes offer relief. **But the best solution is to AVOID the problem by giving it wide berth.**

SETTING:

So there's a huge boulder or a tree right in your path and you've been to told to stay away from it.

What do you do, stop and get out of the canoe? Not quite but almost. You stop the canoe's forward movement by back-paddling.

Then you cross the river, canoe or kayak set at a fractional angle away from the steam flow, till you get in a line that clears the obstruction.

After all that hurried back-paddling, however you may need a brief rest. In rough water, it may not be possible to reach shore. So you find a nice little eddy to park in for a while.

Any obstruction that breaks the water's surface has an eddy behind it.

Very roughly the eddy is twice as long as the obstruction is wide. And in the eddy the water flows upstream at a mild speed.

Set your canoe into it stern first - or you will spin around, executing a manoeuvre similar to that you used to **AVOID** an obstruction dead ahead.

Besides serving as a rest spot, eddies have another practical use. They are equivalent to the old locomotive roundhouse turntables.

The occasion may come when during a manoeuvre your stern swings out of line far enough so you can't keep control.

The current sweeps it around till you're descending the river broadside in a suicidal fashion.

In this case it's easier to continue the swing by paddling forward until your bow is facing upstream. It's embarrassing to shoot a river backwards but it can be done. Broadside it cannot.

Once you have realigned your reversed canoe or kayak with the current, find a large eddy to pull into if you can. Then nose your bow into the current upstream, keeping the stern in the quiet eddy.

Just as the bow enters the current, which will head it downstream, lean and brace to the inside of the turn to **AVOID** capsizing. Several maneuvers like this and you will eat hearty and sleep well come evening.

SELF PROPELLED BIPED:

(WALKING TRICKS!)

The concept of walking any distance has almost vanished from urban man's existence.

In the woods there are a few tricks to help along and particularly handy if you are carrying your home on your back.

YOU GOTTA HAVE RHYTHM:

To get back in the wild for a while one needs training to get himself back into shape. Swimming is one of the best as well as good walking.

A dozen or so week-end hikes preferably with a rucksack will do wonders in building your stride and endurance for that 3 week excursion into the Sierras.

Besides they will just make you feel great. Start out with a light pack load, just a fine picnic lunch, a tarp and a sweater. Graduate to heavier gear each time.

Forget about the charts that say so and so many miles an hour is good for desert country, and x numbers if you've had a double serving of breakfast.

Like anything else walking can be turned into a fetish with schedule 10 minutes breaks exactly every 50 minutes for 150 calories' worth of GORP to recharge the old batteries.

You are out to enjoy yourself, not to become an automaton. So taking up a few minutes after you think you need one is about the right pace.

REMEMBER THE TORTOISE AND THE HARE:

Although I am convinced that everyone has a natural walking rhythm that comes to the fore given half a chance, the same can not be said for speed.

Revved up by urban living as we are, and eager as we are to get away from it through camping, we have a tendency to start out too fast.

A dashing charge for the first mile or so of backpacking trip can destroy most of what follows.

Start out at your normal pace, consciously reminding yourself that you have all day, so what's the rush?

And by all means slow down when the ascent begins. The classic concept here is to try not to expend much more energy on the upgrade than on the flat ground, which means slowing your pace in direct proportion to the gradient.

If the climb gets really steep, of course, this may make it mathematically impossible to go on at all. Still it's a good idea to bear in mind.

LIMPING ALONG:

When you see a backpacker limping down the lane, it usually doesn't mean he has sprained his ankle. Chances are he's just doing the limp step, or doggie drag or Sierra Shuffle.

Designed to relieve the knee- the joint that takes most of the strain and vibration of walking - of some of its pressure, it consists of simply limping.

As you put forward foot down and just before you shift your weight onto it, you relax the leg completely for a second or two.

Relaxing the trailing leg instead for a second before carrying it forward is just as effective, and for some people and easier habit to acquire. Half a dozen limps does a lot to relax your knees.

THE INDIAN STEP:

MORE EFFICIENT & SAVE ENERGY A LOT.

If you want to take the trouble of learning to walk all over again from scratch, like a baby, you can switch to the Indian step.

I would recommend it more highly than I do except for the fact that it really does mean developing a while new walking habit, one that becomes hard at that.

Still it deserves mention because it is so much more efficient than our usual stride.

Step forward with one foot, at the same time swivel that hip forward from the waist and lean into the step.

Now do the same with the other foot. And so on. The feet should come down one in front of the other as if you were walking on a log.

The Indian step tends to develop a longer stride, but more importantly, when you are using it, that bounce often associated with walking disappears, **it means a lot of energy saved lifting your pack up & down.**

SLOSHING ALONG:

Water is vital when you`re exerting yourself. Any appreciable activity, including walking with a heavy pack, will cause you to perspire much more than in your every day humdrum existence. **You can only compensate for this by drinking proportionately more.**

Since you will surely get thirsty so take advantage of that urge but **REMEMBER** to do it slowly. Sip your water, don't chug it, particularly if it's from a cold mountain stream.

Ditto for ice and snow in wintertime. Salt tablets are usually recommend for extended trips involving continuous strenuous activity.

END OF THE TRAIL:

Falling into the sack after a day`s hiking with a pack is no different from any other camping bedtime except that you have to be more careful how you do it.

No one would take a racehorse directly from a long run on the track and put him in his stable. First he would be walked to bring down the sweat and keep the muscles from stiffening. Maybe you couldn't care less about the perspiration, but watch those muscles.

Walk about packless for **at least** an hour, it's a good idea to have along a light pair of camp moccasins to cool your heels in - before you go to bed your first day out. Otherwise you may decide to skip the 2nd day.

UP AND DOWN:

The old " because it's there" syndrome seems to be pretty deep rooted in man. But even if we have the urge to go over rather than around the cliff.

REMEMBER THAT IT TAKES MORE ENERGY TO GO OVER THAN AROUND MOST OF TIME AND IS MUCH MORE DANGEROUS.

However as long as a mountain can be walked up, all that is required is common sense caution, stamina and an awareness that in many cases it will be more difficult to come down than it is to go up. Knowing that, you will want to conserve your strength as best as you can.

One way to do so when you **MUST** constantly take large climbing steps is to use your hands for extra body leverage.

After raising one foot, place your hands on the forward knee and push, thus helping your second foot to lift the weight of your body and pack.

AT ALL TIMES WATCH YOUR BALANCE AND REMEMBER THE PRINCIPAL RULE OF HILL CLIMBING: KEEP AS VERTICAL AS POSSIBLE.

The force for your feet will then be straight down. If, instead, you scramble uphill, your weight is distributed back and out, down the face of the hill.

On loose soil or talus, this can mean starting a slide. On firm rock face, as long as your shoes are gripping the surface, everything is all right, should they slip, you may well end up with some nasty abrasions or break.

Technical rock climbing is what we all think of as real mountain climbing. Walking up somehow does not count.

If you enter the world of technical rock climbing, you'll become acquainted with such equipment as swami belts, ascenders, wedge nuts, pitons and carabiners not to mention the all-**ESSENTIAL** rope. (NOT DOPE)

However, you can not enter this world alone or with a book. Personal teaching is the only passport. In many areas there are professional climbers who will give you lessons.

Such climbers usually post their notices on the bulletins boards maintained by most mountaineering and camping equipment shops.

Eastern Mountain Sports has one of the best known climbing schools in the country offering courses for the beginners as well as intermediate and advanced climbers. Do take them, your life could be on the line. With proper training all should go well.

GETTING LOST AND UNLOST:

Any camper who tells you he's **NEVER** been lost is either lying or hasn't ever been off the beaten track. The great art, of course, is finding your way again.

And the only real danger is panicking, and not being able to think what to do. A little preparation will go a long way towards ensuring your safety in the wilds. As for the sense of direction it does not really exist even in those who think they have it.

Tests have demonstrated time and time again that the most experienced guide will walk around in an ever tightening spiral when blindfolded and let loose on a flat field on a cloudy windless day offering nor external clues as to his direction of progress.

This phenomenon of circle walking has **NEVER** been explained.

What people with the so-called sense of direction have are powers of observation honed far beyond the average individual's and a certain familiar feeling for the terrain, that's all. This means you too can have a sense of direction.

DEVELOPING A SENSE OF DIRECTION:

The first thing to do when trying to get the fell of an area is to stop, look and listen.

Look at how the vegetation changes as it goes up or down a valley, becoming sparser or lusher, the trees taller or shorter, which species grow where and so on.

Observe which way the fallen trees lie usually the direction of prevailing winds. Check how a stream has cut its gorge, to see the thickness of the soil layer, the direction of rock outcroppings, and variations in plant life.

The moss growing on the bark of that tree over there, is it really on the north side as legend as it?

Well, yes and no. If the tree is blocked from the sun by others, there will be more moss on the northern side.

Then again it may well be all the way around the trunk. And there's a lichen that looks almost like the moss in question, but which grows on the sunniest side, which may or may not be the Southern side.

Find a trail, look for animals tracks, figure out why the animal chose the run that way, where it was going, where it was coming from.

Now listen. Close your eyes, so you focus your hearing more.. What does the stream sound like when your back's to it? When it's at your side?

Rub your feet across the gravel, sand, a mossy surface, leaves. When you can tell the difference in the sounds immediately, you're well onto the way of laying down some rudimentary sensory paths in your mind.

Listen to the rustling of the birches. Strange, it's louder when the wind blows up the valley then when down.

Cup your hands behind your ears to simulate an animal's way of hearing, and you'll be surprised how many more sounds you pick up.

Touch a boulder on the sunny side. On the shady side. Of course there's a difference in temperature, but you want to be so intimately aware of it that when you're climbing up a hill hand over hand, passing from shade to sun to shade, your fingers register it as automatically as your eyes, or the back of your neck.

Feel the bark of a pine, of a birch, of a maple, of anything you can get your hands on. Register as much texture, temperature, shape and size as you can.

Take a series of short sniffy breaths. Gracious, it's really smelly out. There's a musky scent from the river, a dry, acrid one from the oaks by your side, even a burning smell, the campfire way on the other side of the ridge.

You had not thought it possible to smell it all the way over here & so it goes. Soak & saturate the sense till the wilderness, at least the part of it where you are, becomes second nature to you.

Pick a path running from your camp to a landmark a couple of thousands feet away, a large boulder, a lone tree, a bend in the creek or a rotting log. Walk slowly towards your object.

Look behind you frequently to see how landscape features changes as you approach, pass and go on. Get rid of that urban tunnel vision.

Look up into the trees, down that path, to the side, but not just at eye level. Check things out from ground to sky. What's that growing over there?

And is that a bird's nest up by where that fluttering sound comes from. Walk the same trail in the morning, on an afternoon and at night without a light.

Approach your goal from different directions, fanning out in an arc from left to right.

Soon that little patch of ground will be familiar to you as a walk down your own street corner. In all probability even more so.

Fine, you're well on the way to developing a sense of direction for that type of terrain. Now as time passes & you camp elsewhere, do the same thing again & again.**Observe! Focus!**

Forget everything but your 5 senses in relation to where you are at the moment - slowly you'll build up your 6th sense.

YOUR FATHER THE INSTRUMENT:

A feeling for the wilds is best communicated from father to son, companion to companion. But how many of today's campers have an intrepid Indian guide or trapper for a father?

Yet technology can come to your rescue here. For ex. How cold is it, is probably one of the most frequent asked questions in the woods.

A metal cased Taylor pocket thermometer measuring from -30 to + 120 is only 5 1/2" long, weights an ounce and half and clips onto your shirt pocket like a pencil.

One can **ALWAYS** count cricket chirps too, of course, if they are around. Take the number of chirps to one minute. Subtract 40 from that number. Divide what is left by 4. Now add 50 and that's the temperature almost to the degree.

(Next time check your thermometer or turn the radio on?) You will also find that it's a full 10 degrees cooler down by that tiny creek than up on the hillock only a 100 yards away.

ALTIMETERS:

If you go camping in mountain then it is a most useful pocket instrument to bring along with a geodetic map, its couple of extra ounces might be worthwhile.

2 expensive models to look for are the German Lufft and the Swiss-made Thommens which are temperature compensated. You can use to sharpen your sense of weather forecasting as well as determining altitude.

If your altimeter takes a nose dive, it's not the mountain collapsing but merely the **barometer rising, indicating a fine day ahead.** Yet in the desert it's useless instrument

EYE EXTENDERS or BINOCULARS:

Binoculars can be a real help in mapping out a route visually from high vantage point to **AVOID** dead-end canyons and difficult fording and to pinpoint helpful landmarks.

For camping purposes, a lightweight is best. Not an opera glasses. You need both fairly decent magnifications & a respectable light-gathering lens.

When you look for a pair of binocular, you'll see numbers like 6X25, 7X35 etc. stamped on the casing.

The first number indicates the magnifying power, the second is the diameter in millimetres of the larger or light gathering lens. Usually except for naval night glasses, the ratio of the two figures is between 4 and 6.

You can get binoculars with a magnification considerably higher than the 6 or 7 commonly seen but these require a bulky tripod, so **AVOID** them for camping purposes.

A diameter number exceeding 35 also can be found readily. But again you don't need it unless you expect to use binoculars frequently under adverse light conditions such as dawn, dusk or night.

One good type is the Bushnell 6X25 selected by NASA for the Gemini missions, weighs only 11 oz. and is small enough to fit into your jacket pocket.

THE COMPASS:

It's a rare trip away from the civilization on which a compass need not be carried.

You many **NEVER** have to use it, but it's a friend of whom you **ALWAYS** can ask the question. "How do I get out of here?" and be properly enlightened. (Beside calling Spock.)

Old Silva compasses are about the best one can find around. There is also the new Suunto KB-14 but it is hard to use while wearing glasses.

Then there's the matter of keeping your eye on 2 things at once; the compass and the object on which you are trying to get a reading.

Just holding the compass in your hand, looking at the needle, then at your goal, then back at the needle and so on, is not only bound to induce errors, it'll drive you batty.

The problem of sighting is solved by one of two means. The lensatic compass has a small lens on a hinged arm that opens vertically, while the compass itself remains flat.

As you look through the lens, you sight the distant object through a slit opposite the lens, the lens permits you to read your compass dial at the same time.

The second method and the one I find the most comfortable, employs a hinge mirror for the same purpose. This is the way the Silva Range works.

Silva's experimental floating dial compass promises even better results, since most people find it easier to take a reading from a floating disc than a needle.

USING THE COMPASS TO GET THERE:

Before you start taking bearings, **MAKE SURE that you are well away- six to 10 feet at least from any magnetic objects,** like the axe head, the car hood for instance, that would cause the compass to deviate.

Way in the distance is Raintree Mountain where you want to go. To find your bearing, sight your compass on whatever side of the mountain you want to head for. Let the needle come to a complete rest pointing to Magnetic North.

Now twist the compass housing on which the degree scale is engraved till the housing's north marking lines up exactly with the north point of the needle. On the Silva compass the housing has a north arrow point of the needle.

On the Silva compass the housing has a north arrow outlined on it; all you do is line it up so the needle and arrow point together. Now read the degrees where the dial crosses your sighting line.

This your bearing. Say it turns out to be 265 degrees. Pick a good landmark in line with your mountain- tall twin trees, a rock formation, maybe a creek bend- and walk to it.

You're descending into a valley and can no longer see old Raintree, but you get to your first goal. Find another one with a bearing 265....

Well, after you've walked awhile, stopped for lunch, cooled your feet in a stream and gone looking for that rabbit you thought you saw in the bush, you suddenly discover you don't know which way you're wandering any more. (Rats!) Just take out your compass.

Line up the 2 Norths again, and you'll know which you get there, take out the compass once more, find another 265 degree landmark.

And so on, till you've crossed the valley & find yourself on the side of the mountain you were looking at when you started out.

THE COMPASS AND THE MAP:

Hand in hand with a compass goes a map. Even if you don't need a compass to show you the way, it will show you how to orient your map.

When you unfold your map in the middle of the woods, which way do you lay it out so it conforms to the actual terrains? Well, the top of the map is **ALWAYS** North.

So you just take out the trusty old compass and set the map so the North needle of the compass points to the top. Right? Wrong!

REMEMBER being told back in high school that there was a difference between the true North and the Magnetic North? Well, here's where the dichotomy comes into play.

At the bottom of a topographic map you'll see a small V, composed of a half-arrow and a line running true North-South, usually labelled "Magnetic North declination at centre of sheet."

If you lay your compass down and turn the map so that the half arrow of this V lines up parallel with our compass needle, the map will be in tune with the terrain. Proceed from there.

The compass can also be used for triangulation. If you don't recognize where you are on the map, pick out two distant landmarks in the terrain that you can also locate on the map.

Orient the map as usual to compensate for magnetic deviation. With your compass, take a reading on the two landmarks, and jot down the figures.

Through each of the landmarks on the map, draw a line running at the same degree or angle, from the magnetic North direction line indicated at the bottom of the map as the visual reading you got.

Where the tow lines intersect is your location. That's triangulation, using two known points to fix the position of a third, but unknown one.

How to take your bearings with the compass, how to use it to make your map conform to reality, and how to locate where you are on the map by triangulation, are all you will probably need to know for most general camping purposes.

If you plan to do a lot of hiking in new country or are interested in orienteering races the standard manual on the subject is Kjellstrom's: Be Expert with Map and Compass.

STEPPING INTO YOUR MAP:

The best maps for camping in this country are those made by the US Geological Survey and in Canada the Department of Mines and Technical Surveys.

Unlike the planimetric maps you get at a gas station, which show everything in a flat two-dimensional perspective.

You know where the roads and river are but you can't tell about the hills and valleys - the Geological and Technical Surveys maps are topographical. They may be printed on flat paper, but they do show the terrain very much in 3 dimensions.

And as with 3-D movies projected on flat screen, you can learn to step into a topo-map visually that is.

At the bottom of each map is a heading "Contour Interval" followed by the specific interval for that map. Say it's 20 feet. That means every one of those countless brown lines on the map are in reality 20 feet apart.

If the lines are very close together, this means a steep rise, far apart, a shallow rise.

You can mentally walk down a steep mountain, watch the lines widen out in front of you as approach a lake, which of course has no contour lines because the top of the water is flat.

Instead it will have a number like 1528 which indicates the height of the lake from sea level.

If an adjoining lake has an elevation of 1922 and they are say 2 miles apart, the river connecting them is almost a waterfall the whole way.

If the second lake has an elevation of 1534, well then, the connecting river is probably as smooth and soft as a cat's back.

Unless you see a marking for marshes along its bed, in which case it may be impenetrable even by canoe.

The US topographic maps usually come in a scale of 1:62,500 or 1:24,000. That is 1 inch on the map equals either 62,500 or 24,000 inches in the real world it represents.

The decision as to which map is made depends on the terrain. You get what they got as the saying goes.

The same thing holds true for the year when the map was made. Usually unless a big flood or earthquake has made big changes around the area. Check it out.

HELP & HOW TO AVOID CALLING FOR IT:

Whenever you're going camping, familiarize yourself with the area beforehand, either by talking to people who've been there or by writing ahead for information.

Not only can advance information make your trip safer and you more self-sufficient, it can make it more comfortable.

You can **AVOID** the May-June black fly season or the September rains, or whatever other early phenomenon plagues the area.

You aren't trying to learn all about the place where you're going, just enough to gear up properly for it and **AVOID** any seasonal drawbacks it may have.

Second to knowing something about where you're going is making ready for it. Particularly for any sudden adjustment it may involve for your body.

Take water into arid land, sweaters and maybe a space blanket into cold. **Be sure** you've got your snakebite kit with you if you're heading for poisonous snake country. Know the simple basics of artificial respiration before you take the kids out to a lake.

By all means add calamine lotion to your first-aid kit if you happen to be allergic to poison ivy, and have a tetanus booster shot if you had not gotten around to it somehow in the routine of the last couple years and so on.

CHICKEN VIA BE CAREFUL!:

Probably more accidents are caused by campers and not just beginners but even experienced one who should know better- forcing themselves into situations they know are questionable.

Before you get into trouble, admit you can't balance across that slippery log. If the trail is steep and dangerous, don't call it duck soup. If a storm is brewing, make camp rather than pressing on.

A veteran wild-land backpacker Harvey Manning says, **"Beginners die on trails because they don't have the guts to be cowards."**

AVALANCHES:

Predominantly an occurrence on young, sharp mountains exposed to severe weathering, avalanches come in two varieties; rock and snow.

Any slope with a gradient of over 25 or 30 degrees is susceptible to slides. Whether they will actually occur or not, and particularly when, would be hard to predict.

Probably the majority of fatal avalanches are triggered by people crossing a slope that is ready to run. If you stay away from these, your problems should be minimized.

A rock slide that is ready to let loose usually looks like it. Boulders, stones, those small stones piles called scree and talus flowing down a mountainside in what looks like a frozen river are obviously potentially a flowing river - of stone. Check rpt

Don't walk across it. Any sloping surface with a layer of loose rocks, large or pebble sized should be considered a hazard, not fun to try sliding down on.

THE CARDINAL RULE WHEN CROSSING SUCH A LAYER IS TO KEEP A VERTICAL POSTURE. IF YOU CAN'T! DON'T CROSS!

By bending over and using your hands to steady your walk, you automatically force the weight concentrated on your feet back and out down the hillside.

It may be just the extra push of a hillside of talus in exact balance with gravity needs to start it sliding.

If you do get caught in a rock slide, your one and only hope is to outrun it.

If that's impossible, and there's a ledge or outcropping you can reach & duck beneath, the slide may pass over you, then again it may bury you.

Prevention is as usual much easier than the cure. Admire possible rock slide areas from the distance.

Potential snow avalanches may be harder to spot. Treeless streaks running down a steep mountainside are usually indications of past disasters, as are piles of uprooted trees at the bottom of a clear run.

Avalanches tend to occur on slopes exposed to wide temperature fluctuations.

They are particularly likely when old snow has frozen into a solid crust of slippery ice, upon which new snow settles. **Anything can set it off.**

If you are skiing or snowshoeing across a slope and you notice cracks running ahead of you or making semicircles up a hill, a slide may well be imminent.

Get back to safety if you're less than a third of the way across the slope.

If you're more than a third across, its usually faster to go on than to turn around. **Don't stop to look at the view.**

Should the slide already be descending on you, drop your poles, kick off your skis or snowshoes and try to get the rucksack off as well before it hits.

As it hits, try literally to swim up the wave of snow, keeping your face as high as possible.

If you get buried, try to cover your face and mouth as well as you can with your hands and arms.

Should you not be too deeply buried to move, you might be able to dig yourself out. But which way is up? If you can't tell, spit. **REMEMBER**, spit doesn't fall up.

FALLING THROUGH ICE: Brrrr.

The safety of walking across unknown ice, even in the middle of wintertime is questionable. However sometimes it **MUST** be done.

If so, it's not a bad idea to carry an opened knife in your hand. Should you fall through it can be used as an ice pick to help pull you out.

Gauging ice thickness can be difficult, since it rarely freezes evenly. **One tell tale sign of potential trouble ahead is dark ice intersped (mixed) with lighter coloured ice.**

DARK ICE IS DANGEROUS ANYWHERE IN THE WORLD:

Dark ice means that something thawing, a rapid current or a subsurface obstruction for instance has thinned the ice layer, usually to the point where you are actually seeing the dark water underneath it.

If it's that thin there is a risk of you or your equipment falling through. **This is an important point to REMEMBER** if you are covering slough or swampy territory. 2 RPT IN ARCTIC

Even with the temperature hovering around zero and the surrounding lake frozen to a depth of several feet, the slough ice can be paper thin in spots.

What happens is that decaying organic matter on the shallow bottom generates heat, which rises to the ice, melting and thinning it. Within 5 yards, you can go from firm ice to ice-cold water.

Should you fall through the ice, the sudden cold could be enough to make your heart stop literally, if it is not in good shape.

If you feel yourself falling, go spread eagle at once. Hopefully your arms will strike the ice around the edges of the crack, keeping you from going under.

Then although your first reaction will be to struggle out, take a few seconds to break off the surrounding thin ice of the hole.

Flutter your feet & literally swim out and onto the ice. The knife will be very handy for hooking into the ice and pulling yourself along with.

Stay low and crawl till you get well back along the path you came on and know to be solid enough to support your weight.

If you are close to a soft bank on shore, **roll in it quickly**. Should your clothes be at all water repellent the snow will sponge a great deal of moisture off. Get a fire going and soup warming.

Change your clothes as quickly as possible and drink plenty of hot liquids.

HYPOTHERMIA AND FROSTBITE:

Hypothermia or exposure or just plain freezing to death is a condition that develops when external circumstances are such that the body cannot maintain its normal temperature, even in the central cavity where the vital organs are located.

When your core temperature drops 15 to 20 degrees below normal you are dead.

Percentages wise the number of people who die from hypothermia as compared to those killed crossing the street is small.

Someone who has fallen through ice or been otherwise exposed to such a degree as to hazard hypothermia should be watched for the symptoms of it.

HYPOTHERMIA SYMPTOMS:

Fatigue, lack of coordination in speech and movement, loss of memory and rationality. Also dilated pupils, slow pulse and breathing. In extreme cases foam will foam around the mouth.

Keep the victim as warm as possible, particularly internally with warm liquids. (**NO BOOZE, NO)**

Don't let him assure you through his shivering that he's all right - a **common false reaction on his part.**

In below freezing weather, before you get a good case of hypothermia, you'll get frostbite, which is much more common. If you **should get frostbite don't rub it with snow.**

Frostbitten areas should not be rubbed at all. They should be warmed up slowly by wrapping gently a blanket, wool scarves or something else warm and soft or by immersing in tepid water.

The water **MUST** be about body temperature, **NO WARMER.** Severe cases lead to gangrene, lesser cases will thaw out with excruciantly slow and painful feelings.

QUICKSAND:

SHOULD YOU BE ALONE REMEMBER THAT SWIMMING IS YOUR KEY OUT.

As wilderness hiker your chances of running into quicksand are probably better than you realize.

If you frequent flat low lying areas with a high degree of soil moisture, they're in fact quite good.

However your chances of getting sucked down into it are almost nonexistent, particularly if you have a basic knowledge of the phenomenon and know how to react since quicksand is ordinary sand.

Should you come across quicksand, if you are just beginning to sink, ankle deep, you can usually still move quickly back to the way you came.

In most cases the quagmire or quicksand only goes down a couple of feet and can support this kind of movement briefly. Shout a warning to your companion, if you are with one.

IF YOU'RE SHIN OR KNEE-DEEP, FREEZE. The less you move at this stage, the slower you will sink.

Should you be carrying a pack, remove it slowly and with as little shifting as possible. **If you are sinking fast, drop the pack at once.**

If as is much more likely, you've only sunk another inch or two in taking off the pack, throw it as lightly as you can towards firm ground.

Best of all is to have a length of all purpose rope along. Shirts, sweater and other such articles of gear can also be knotted together to make a line.

By attaching it to the frame or one of the accessory or shoulders straps before you throw the pack, you can usually pull yourself to solid ground alone.

If everything else fails, or if you are sinking very quickly, lie down flat.

Quicksand is basically a hydraulic system. The larger the surface area over which your weight is distributed, the less the sinking.

Spread your arms out 90 degrees from your body for extra support and lie there. If there's any possibility of rescue, stay motionless and wait.

Should you be alone **REMEMBER that swimming is your key out.** Propel yourself slowly forward on you stomach with a shallow breast stroke.

EMERGENCY SITUATIONS:

If in your wanderings you should become trapped or inured and be unable to go on, and if people know your whereabouts and expected date of return, as somebody should whenever you venture into the real wilds.

That's another of those common sensible precautionary measures to take, just in case prepared to aid to the search party.

First stay calm, take stock of your situation, make yourself as comfortable as possible, and **WAIT TO BE RESCUED.** As for signals see

MAKING CAMP IN WINTER TIME:

Cold is one thing, wind another, **so in Wintertime make your camp in a spot as shielded from the wind as possible.**

If you pile enough snow up on the weather side of your tent site, it will break the wind very nicely.

Don't pile it against the tent itself however. As long as you stay below the tree line, you should be able to find a grove of trees in which to set up camp.

MAKE SURE you check to see how heavily laden with snow the trees are, however before you start unpacking your gear. Large quantities of snow and rime bumbling down unexpectedly could flatten your tent.

Camping in groves of shorter and younger trees usually enables you to **AVOID** much of this problem. **Along the same line, don't make camp in front of potential avalanche.**

To be really safe, that would include any hill with a gradient of over 25 degrees.

Snow somehow manages to get tracked into a tent no matter what you do. A tunnel is your best defence against it.

But even if your tent is so equipped, in setting up a snow camp, flatten a platform of snow for your tent that is big enough to give you plenty of walking around room on the outside and a big porch in front.

It will save a lot of mopping up with the sponge. Keep pushing back any drifts that encroach. An evergreen forest offers you free for the finding, winter's own brand of insulation.

If you can locate the beds of needles that collect beneath the trees, they will make a good ground cloth to keep your tent off the snow. Often it's not possible to find a spot level enough on the beds of needles themselves.

Still if you can get at them, it's worth mining and scattering them over the tent site, not only because of their insulating qualities but because they will help keep the tent floor from freezing to the snow as well.

Should such a freezing occur incidentally don't try to rip your tent free, it will just do that rip. **The only safe way to detach** the tent is to steam it free with boiling water.

Real winter weather is where the self-supporting tents like the Eureka, Bishop or Bauer Draw-Tites come into their own.

Sometimes it's almost impossible to drive in tent stakes. In deep snow you can use deadmen long fallen branches or logs to which you can attach your lines so that log and line, form a T. pix 264

Then you bury the log well in snow and stomp it down. Pour some cold water over the deadman to freeze it in place.

Tighten up the lines & you're set. Rigging to well-anchored bushes and trees is easier and advisable wherever possible.

Once your tent is up, pile snow all along its bottom edge, on top of the snow valances if you have them to a height of half a foot or so.

Don't cover any fabric that is not waterproof. If you're using a full fly & you should this won't be a problem. If you're not, pile the snow **only** half the height of your tub floor.

If you've come in on snowshoes you'll soon discover they make excellent snow shovels as well.

If you're skiing it's a good idea to have along a light weight aluminium snow shovel. One with a demountable wooden handle weighs barely over 1 pound.

The snow around your tent should be packed down well. But down don't press too hard against the tent itself or you may strain it.

In the mountains, lacking snow, pile boulders on what you now call "sod cloths" instead of "snow valances" to help keep the tent in place and prevent cold winds from rushing in under the floor.

INSIDE AND OUTSIDE:

The difference between inside and outside a tent may only be 10 or 20 degrees, still you would be surprised how much heat just your own body will give off.

There is also the heat from the stove if you're Cook-King in a vestibule or cook-hole and that from a lantern.

Make full use of the heat you have and bring saw and axes inside the tent. Steel becomes more brittle with a drop of temperature.

You should also bring in some wood, tinder and kindling, even if you don't expect to use wood fires. Put it on a piece of plastic and let it dry out.

If you **NEVER** use it, you can **ALWAYS** throw it out, but in an emergency you have the makings of a small fire enough to warm you up and dry out logs for a larger one.

As for boots, take them off the tent while knocking off most of the snow and mop up the rest with the sponge.

In a tent it's best to wear extra pairs of wool socks instead of shoes. Leather stiffens up in the cold.

To keep it from getting too stiff, wrap shoes and boots in plastic bag and put them in the foot of your sleeping bag.

But **MAKE SURE** that they are as dry as you can get them first, wiping them off with a rag or sponge.

ICEBOX GALLEY &WINTER COOKING:

Cooking in an icebox or winter cooking. Put a piece of Ensolite underneath the stove if it's a pressurised type.

The cold ground will otherwise cut down its efficiency considerably. Also you'll need a lot more fuel than for a comparable summer trip.

Your stove will be working much harder and longer not only in cooking but in melting snow. (It takes a bushel of snow to make a pint of water.) and add almost 15 min. to that as well.

REMEMBER that melting ice is quicker than snow to get water, so if there is any ice around, reach for it.

Dehydrated and freeze dried foods are a real boon here since they can't freeze.

Winter campers tend to drink less than they should.

When you are not perspiring much because of cold weather, the purification function of your kidneys becomes primary **and you should drink more, rather than less.**

So take along lots of soup and hot drink mixes. **HOT LIQUIDS WILL WARM YOU UP BETTER THAN HOT FOOD, THERE IS MORE HEAT IN THEM.**

(Leave a cup of soup and a cup of rice standing sometime & see which one stays warm longer.)

SUNGLASSES, LIP BALM & CHEWING GUM:

In winter camping don't overextend yourself, stay dry and keep in shape. In other words, try to **AVOID** trouble. Every winter camper should have sunglasses along.

Snow blindness caused by the white glare is painful and can be permanent yet simple enough to **AVOID** with sunglasses. Yellow tinted ones will only aggravate the glare conditions thus to be **AVOIDED.**

Polarized lenses are best. As for the nose and ear pieces put moleskin on the inside of them for comfort.

Lip balm is self-explanatory item of winter gear. In below freezing weather, check your face and hands and those of your companions occasionally for telltale white spots of frostbite especially on your cheeks, chin, ears, nose or forehead.

If any of your limbs begins to feel numb while you're moving around and active, warm up by a fire and get some hot soup into you.

Chewing gum as long as you chew with your mouth closed, keeps the circulation up around your face, reducing the chances of frostbite.

CABIN FEVER: 2 put in psycho & cold

When it is storming out what do you do after you've slept yourself silly? You talk for a while, a long time even, but then sooner or later, cabin fever sets in.

That strange psychological malady of confined quarters that has turned genteel trappers into murderers, peaceful loving couples into fighting minks.

And solitary campers into strangers to themselves, who convinced they're on a tropical island, shed their clothes in the snow and decide to go for a stroll on the beach.

So, for lengthy winter camping or if there's any chance you'll be weathered in bring a chess or checker set, some cards and a thick book or two like the bible and a book on plants etc.

TOBOGGAN:

When you are packing it on snowshoes it is a great idea specially if you are planning to set up a base camp and are hauling a lot of gear as Indians and trappers used to do. Dog sled is another matter discussed in another chapter see.

STALKING WILD GAME RULES:

REMEMBER the old rule: hard ground = toe first, on soft ground = heels first. Also check the wind.

Smoking is perceived by animals up to the next county so snuff out before you stalk. Not only do you have to move slowly but to **move arhythmically.**

Taking one step forward, then 3 then 1 or 2. The even noise of a biped & no matter how careful you walk, you'll make some noise has no resemblance to any of the forest's quadrupeds.

ANY SOUNDS YOU MUST MAKE YOU TRY TO COORDINATE WITH WIND GUSTS RATTLING THE LEAVES.

You stop often to look around to check the tracks when possible and to observe the distance.

What you're looking for is not a deer but part of a deer, With covers all around, it's highly unlikely you'd see the whole animal that only happens in clearings. Wild animals also check their backtracks so you should look behind you at times.

The best way when possible is to hunt with the wind blowing onward (towards you). More on this in hunt.

FISHING:

For hand line get small hooks with long shanks. They're easier to remove from the fish. A # 6,8 or 10 hook is fine for pan-fish.

If you're going bottom fish such as catfish and carp which live in turbulent and muddy waters skip the float and use a lead sinker instead.

Use a strong line say ten pounds or better you might catch a bigger fish then you think (Whale!) The fish will nibble, do not yank it right away, be patient, then bingo go for it.

WHERE THE FISH ARE:

(Where the boys are!)

Think fish!? The more you know about a fish's habit the more likely you are to catch it.

Most of the lakes are empty, the reason is there's no food around, it's too hot, current too swift, too muddy, etc.

Like people they have special places and bars they hang around. Fish are found where there's a bit of variety and scenery in their underwater domain.

It's where there are more insects and smaller freshwater life and where the fish can find shelter from predators, weed beds, lily pads on hot days, deep cool holes to loll in waiting for a good meal to fall their way.

Places where streams enter lakes, washing oxygen & food for them, coves, inlets and other irregularities in the shoreline.

When it comes down to rivers the preference is for downstream from boulders, where the swimming is easy and around undercuts, waterfalls and backwaters.

There are seasonal variations as well. The fish are in shallower water during spring and fall.

Come **Summer** heat or Winter cold they search out the more even temperature of deep water. In both hot and cold weathers they are semi-dormant and sluggish.

The cycle of the day and night also affects the fish. They'll be in shallower shore water during the morning and evening again because of temperature and in deeper water at midday. In a good flowing river they love to hang around calm spot in front of rocks or boulders.

WHAT TO FEED THEM: (Caviar?)

You are limited to what you can dig up unless you brought along many different lures. There is the classic worm, crickets, grasshoppers or any bugs you find under the river rocks when you overturn them.

Once you have catch a fish, clean it on the spot and check its belly for signs of his last meal. Then go and get the same stuff it has been stuffing itself upon. (Caviar? Champagne!)

FISH NOTE:

Catfish need not to be scale but to be skinned. Beware of its back fin which will give you a sting every bit as nasty as of a bee. Be careful when catching and cleaning them.

If you get stung, mix up a paste of meat tenderizer & water and spread it over the wound. Works well for other stings too. P/S Don't overcook the fish.

EDIBLE PLANTS:

There are so many that it would take 2 more books just on the subject. We have included the most common in the world.

There are several good books guide to edible plants which you can add to your list of items to bring along while camping.

Among some good books are the Euell Gibbon's such as Stalking the Wild Asparagus & Stalking the Healthful Herbs by far the most enjoyable in the field.

One more note about the mushroom repeated time and time again. Know what you eat.

MUSHROOM ARE OFTEN DEADLY AND HAVE VERY LITTLE FOOD VALUE.

CRAYFISH:

This is one more of the wilderness delicacy often used only as baits and yet is often tastier than the fish you may or may not catch. Boiled up whole with salt, a bit of onion (wild) & a pinch of sugar will shame the best lobster.

Campers with kids should put them on the job of catching them by hand thus a guarantee of an afternoon peace with dinner supplied to boot. They will see them darting backwards in slow streams and by the rocky edges of lakes.

Kids will have a great time wadding around in water after the crayfish and this pastime will absorb and delight them while parents watch from shore in case of accidents.

(Kids should be taught to swim as soon as possible.)