

# Earthquake

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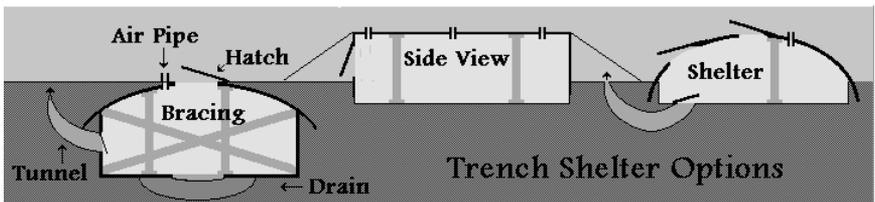
If you are thinking about constructing a shelter for your group before the pole shift which will take you through the cataclysm and beyond, the forces of earthquake are something you must take into consideration. During the pole shift their role will be more than major; and survival will depend upon total knowledge of the strength and hostility of your adversary.

After about seven or eight, seismic measurements on the Richter scale become pretty meaningless; 15 will be the order of the day during the pole shift. The shaking does not get much more severe as the magnitude rises above seven or so; it merely lasts longer. Since shaking increases as the force ascends from underground to the surface, it must be assumed that an underground structure, if properly built, will fare better than anything constructed on the surface. But nothing, however sturdily built, could withstand the pressures of an earthquake at or near a fault zone. How well could even the strongest steel fare against forces that can push up mountains and move and reconfigure entire continents? Still, even if one were to build a good distance from the epicenter, where there are no crushing forces, there are other dangers to consider, such as what are called surface waves. These roll along the surface of the earth like waves upon water, and have been seen to measure several feet from top to bottom.

Though it is theoretically possible to build a structure that would remain intact during these waves, being inside it and getting tossed around would be an unpleasant and dangerous experience. Modern engineering has now given up the idea of building solid, sturdy structures for safe passage during an earthquake, and flexibility is now considered a more viable option. Current thinking is that it is better to let the structures "go with the flow", rock along with the waves, rather than try to resist them.

If the shaking gets severe enough, the ground will simply become like a liquid, sloshing back and forth, and about the only thing that

would be safe in such an environment would be a submarine, with ballast to hold it upright. This would have to be built to quite specific parameters. For example: no winding corridors, or anything that could break off as the unit gets moved around. But how to dig yourself out if your entrances become blocked, and how to stop the rain coming in if cracks appear? Without going into too much technical detail, it would seem that the only way to be safe, if you must build underground, is to build into the bedrock itself. If this is not done, there is a good chance that as the ground liquefies; your unit could pop to the surface, exposing you once again to surface problems such as high winds.



For protection during the pole shift: one variation on the "dig a trench and put a sheet of metal over it" scenario could be to build a stronger-than-normal, but traditionally shaped concrete slab, with a concrete cellar. For the after-time, if you are in an area which may be prone to seismic disturbances, then study carefully all the material available on seismic failure in buildings, and the reasons therefor. This will help you to build a shelter having the best possible chance of being earth-quake proof. For instance: take the phenomenon known as shear failure. This occurs when the bottom of a building moves under the force of a quake, but the top does not.

One thing to keep in mind—a building is only as strong as its weakest link, and compensating for one failure and not for others could lead to downfall. Base isolation technology can be installed, which means isolating the building from the ground, using rubber bearings or sliders. When the ground starts moving during an earthquake, the structure will resist, due to inertia, and the bearings and sliders will take the heat. Between now and D-Day, it is highly possible that thinking in this particular area will advance further; so make sure your study of earthquake is ongoing.

# High Winds

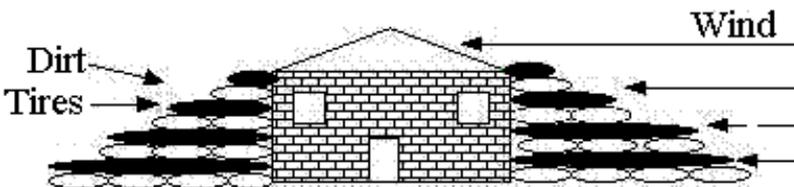
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The amount of wind damage that can occur to any structure seems to be partly dependent on the ability of the wind to get around any edges. The trick, therefore, is to build a shelter where edges or overhangs which could be grabbed by the wind, can be removed at a moment's notice. An alternative could be to "blunt" the wind flow by the use of concrete baffles. Such baffles would have to be at least 25% higher than the structure to be protected. According to the engineers at Monolithic, a 300 MPH wind will deliver a force of approximately 400 PSI to a flat wall. Very few structures can survive that magnitude of force.

Current thinking seems to put the monolithic dome at the top of the list when it comes to wind resistance; but, of course, high winds are not the only thing about which we must concern ourselves.

A carefully constructed shelter might possibly withstand the wind pressure; but how well would it do against flying debris? A small projectile traveling at 200 MPH could inflict a hefty amount of damage, and what will be flying around in the wind during and after the pole shift is not likely to be small stuff. Boulders, trees, and other unthinkable horrors will be cavorting around, acting as battering rams upon your precious dwelling.

It has been shown that structures with concrete walls reinforced with steel fare much better in this regard than unprotected buildings. But the best way to minimize the damage from this quarter is to partially bury your shelter underground. That way the target is smaller, lessening the likelihood of complete disaster.



# Being on Foot

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If for any reason - lack of financial resources, etc. - you must prepare yourself for a life on foot, here are some tips which may help you to exist more comfortably. Remember: There will be no shopping for supplies after the pole shift. Carry a backpack. Small mountaineering pack is recommended; has hip belt so eases load on shoulders. No bright colors; will attract too much attention. Brown/black recommended; pack should have straps on the outside for attaching bulky items such as one or more wool blankets (depending on where you are), wrapped in several layers of garbage sacks with the ends tied one inside the other; change of clothing, most importantly, socks. (Forget sleeping bags; not suitable for this kind of environment). Also strapped to your pack should be a small shovel (military type) for digging a trench in which to ride out the pole shift.

Pack should include the following absolute essentials:

- Home ax (not full-size); this will cut and split wood
- Wok, great for boiling water and cooking; you can eat from it
- High quality meat cleaver, and the means to keep it sharp, e.g. 2 x 4 inch "Arkansas stone". This can be used to chop slivers of wood from the outside, thus enabling one to get to the dry tender for starting a fire.
- Pliers, vise grips, heavy-duty sheet metal shears
- Two spools of wire: 100 ft twisted steel kind and 25 ft # 14 solid brass (for making traps to snare small game)
- As much salt as can be carried, (particularly ice cream salt) in sturdy ziplock bags. Good barter item after pole shift
- Water distillation kit: can be made from two one-gallon paint cans and a few feet of copper tubing; can distill water one gallon at a time from whatever source
- A book on edible wild plants (particularly one with pictures of mushrooms, mosses, and shade-loving plants such as the arrow-head (good substitute for potato)
- Medical kit. Pre-pole shift, try to build up defenses against pathogens that may be encountered post-pole shift; pay particu

lar attention to your psychological state and guard against depression.

Proper foot care is one of the most important requisites for survival. Always wear two pairs of socks: synthetic "wicking" socks against the skin with woolen socks over them. Change socks twice a day and hang dirty socks on outside of backpack so that they can air and dry properly. Boots should be big enough (surplus army boots recommended). Cooking corn starch makes a good foot powder. A hiking staff is a "must". This can be made as needed along the way.

General Tips:

- Appearance—low profile, camouflaged; there is danger from scavengers.
- Be prepared to eat insects. Grasshoppers, locusts and earthworms (properly purged) can safely be eaten raw. Grubs will be a source of fat; mix with arrowhead root, and steam.
- Bow and arrow can be made using your meat cleaver as draw knife; items of sheet metal found along the way can be cut into arrowheads
- Starting a fire: Charred cotton is good tender. When fire is going, wet wood can be added slowly. Problem: wet muddy ground in the after-time. Build your fire on an inverted garbage can lid.

## Drinking Water

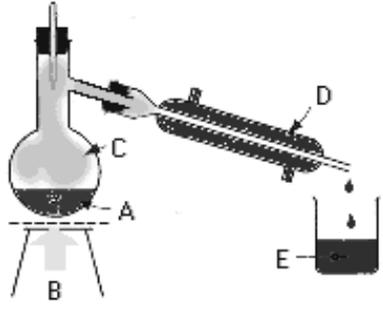
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This most important resource will not be readily available after the pole shift as it is at present. It will not be just a case of turning on a tap. Dowsing to find ground water; anyone can do this with something as simple as a coat hanger. Water can be collected from fog, using a cloth hoisted over a bucket, and from dew, using an air well, or by simply dragging a blanket around in the very early morning. There are all kinds of ways to catch rain water.

What water you may find will almost certainly be polluted in some way. Pollutants could include: various metals (notably lead), volca-

nic ash or forest fire ash, run-off from DOE dump site, hydrocarbons (mostly coming from the tail of the 12th planet as it passes near to the Earth), various waterborne diseases. Solutions to these problems could include: purifying by filtering, distillation, and boiling surface water. There are many ways to distill water. The process is relatively simple, as in this example. The dirty water:

- A** is heated
- B** to the boiling point, vaporizes
- C** (becomes steam), while other substances remain in solid state, in boiler.
- D** steam is directed into a cooler where it cools down and returns to a liquid, water
- E** and the end result is water, purified of additional substances found in it before distillation.



Distillation is an effective process and, what's more important, it can be done with a lot of improvisation. You can heat water with whatever is at hand: fire, electricity, or whatever. You can use almost anything that holds water for a boiler, as long as you can direct steam into cooler, which can also be anything from a long enough pipeline to a real cooler, just that steam cools down in it. In worst case, you can distill water with an ordinary household pot and two potlids. Boil water in a pot covered with first potlid. After a while, you'll see that water in a pot vaporizes, and condenses on a potlid (this is distilled water). Just replace potlid with a second one, and turn the first one vertically, so that all condensed water collects at one point, and pour over to a cup. Meanwhile, distilled water condenses on a second potlid, so just repeat the above steps again... until you have a full cup.

Distillation will remove from water almost anything, even heavy

metals, poisons, bacteria and viruses etc. However, it does not remove substances, that have boiling points at lower temperatures than water. Those are some oils, petroleum, alcohol and similar substances, which in most cases don't mix with Water, and can be removed with filtering. Also, remember that substances removed from water remain in the boiler, so you'll need to clean it up, every once in a while.

Proper storage: best for storage is a hard plastic container (polyethylene); make sure to keep it out of sunlight. Or: you could do what the old sailors used to do, scorch the inside of a wooden container, and this will ensure you have built-in carbon filtration. Double duty!

## **Eating Weeds**

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Weeds can be a wonderful way to stave off starvation, and this will hold true especially after the pole shift. Care must be taken, however, in deciding which ones to use, as some of them are toxic. What is provided here is merely a fraction of what is available out there; examples, if you like, to demonstrate what is possible and to encourage you to seek the answers to your own survival. Much literature has been written on this subject, and it is still not too late to consult some of this and teach yourself how to differentiate between toxic and non-toxic—and particularly edible—wild-growing substances.

### **Cattails**

More than just the seeds of the cattail are edible. Ripe pollen can be used as a flour substitute when cooking.

### **Lichens**

can have both edible and medicinal uses.

### **Bamboo**

can be eaten, and a bamboo shoot has about the same nutritional value as an onion, and is a good source of fibre.

## **Seaweed**

can be cultivated for food; but an intimate knowledge of this subject is needed before cultivation should be attempted.

## **Hickory**

can be easily cooked, but care must be taken in its cleaning.

## **Sorrel**

has its uses as a food enhancer. Wood sorrel is less acid than field sorrel, but when woods and fields are far away, field sorrel is well worth growing in one's garden.

## **Puff-balls and Fiddlehead Ferns**

are great when they are fried

## **Burdock**

roots can be harvested out of wet marshlands, and are like potatoes

## **Kudzu**

has many uses, producing edible roots. Stems yield a fiber called ko-hemp. Source of hay and forage for animals. Can reduce soil erosion. But Kudzu has an ambition to take over the world, and is capable of doing this, so must be rigidly controlled

## **Prickly Pear**

is easy to grow because drought-resistant, but can't tolerate cold. Not only edible, it is a source of water. Easiest way to obtain water: peel fruit or young pads, and eat raw.

## **Dandelions**

can be a good source of vitamins. Best collected towards sunset, when damp air has caused heads to close up. Also have medicinal uses. The entire dandelion plant is edible, and there are many recipes on the market.

Blades of grass can be eaten in time of need. They don't taste that

good, but contain most of the elements that comprise the human body. As far as we are aware, there are no poisonous grasses. Locate healthy patches of young grass in shade, or partial shade, for most nutritional benefit. Lemon grass is a great addition to one's herb garden, and Canadian sweet grass is a survivor! Scurvy grass has medicinal uses. Formerly used on sea voyages to prevent scurvy.

Some weeds are particularly good as salad substitutes. Examples:

### **Lamb's Quarters**

#### **Red-rooted Pigweed**

is recognized by its dark red stems. Leaves make a good substitute for lettuce. Can be steamed or stir-fried. More palatable in damp conditions, so will be most useful after the pole shift

#### **Chickweed**

can be used raw at any stage of maturity

#### **Mustard Family**

some of these can be used as a spicy addition to salads

Even flowers have other uses than just standing and looking pretty. Examples are:

#### **Day Lily**

young tubas can be used raw in salads, or boiled and eaten like potatoes. Young shoots can be prepared like asparagus, and buds cooked and eaten like green beans

#### **Violet**

leaves can be used in a green salad, or cooked and served like spinach. Dried leaves can be used for making tea, but best to do this only when plants are in flower, to ensure proper identification

# Bugs as Food

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Starvation is going to be a grim reality after the pole shift. Those of us used to popping out to the store whenever we run out of something, and who cannot picture any other way of life, will become its natural victims. There is a way, however, to avoid starvation, and this is by eating bugs. It is very important that we overcome the psychological barriers, which could cause us, in the end, to lose our very lives. If you think about it, though, what is the difference between eating a lobster, a sea arthropod, and an insect, which is a land arthropod? Surprisingly, insects contain a lot of nutrition.

Here are just a few examples.

- Insects are a good source of protein and fat
- Earthworms, extremely high in protein, can be eaten after a simple water purge, although, after experimentation by some Troubled Times members, subsequent rinsing and chopping has been found to be necessary
- Many grubs are edible: grasshoppers, locusts, ants, slugs, and maggots, to name but a few. They are also easily obtainable; just kick open a rotten log, or look under the stones, and bingo—dinner is served!
- Crickets actually contain amino acids

Cautions: Insects should be cooked when possible, because a lot of them contain parasites. Avoid insects which carry disease, are poisonous, have fine hairs, bright colours, or eight or more legs. Always remove heads, wings, and legs before cooking. When planning to eat bugs, it would be prudent to follow these time-honoured rules:

- Always attempt to cook insects
- Never eat a bug which you find dead
- Don't eat bugs that bite back
- If it smells really bad, don't eat it

A couple of interesting tips: Insects can be dried and ground up and the resulting powder used as flour, or soup and stew thickener. The

best time to catch insects is in the early morning, while they are still numbed by the cold night. A small light burning all night will likely attract next morning's breakfast. There are many recipes for insects. It would be a good idea to sample some of these while we still have time before the pole shift. In this way we can accustom ourselves to the prospect of eating bugs, and will have overcome the psychological barriers by the time our lives may depend on our having done so.



## Sudden Shelters

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If you are on foot for any reason, or have chosen the nomadic lifestyle, situations are going to arise—a sudden storm, for example—which will necessitate the building of a fast, very temporary shelter. Below are some tips in this regard; but once again it must be pointed out that it is not the purpose of this summary to give detailed instructions on how to construct such a shelter, but only to present a few ideas on which you can build, while there is still time. Maybe some practice exercises with your group could serve this purpose; but in any case there are many books on this subject which it may be in your interest to study.

### Sapling Shelter

A good trick for a fast shelter is to find a stand of saplings, and bend them inwards to make a temporary roof. Already anchored, they can then be thatched, and this will provide reasonable cover. When you leave, just remove the rope used to tie them, and the saplings will revert to the position intended by Mother Nature.

### Tarpaulin

A tarpaulin can be erected over a non-waterproof structure to make an area temporarily habitable. This does, of course,

assume that you have some way of anchoring the tarp, to prevent it taking off in high wind.

### **Debris Huts**

These are built from whatever debris can be found in the area, however if we are talking about the after-time, it may be difficult to find dry material for their construction. Also, due to the fact that it can take one or two nights to make it more or less comfortable, and because a few hours may be needed to build one, a debris hut may not be the best way to go. Really, if you have a tent, it is probably just as easy—and a lot faster—to erect one. But the two constants concerning debris huts seem to be ... if you have time to build a debris hut you have time to build something better; and, always insulate with dry leaves. Stuff everything with them, including your clothes.

### **Circular Huts**

These would appear to depend upon supplies of beams and poles, so are probably not as practical if you are constantly on the move.

### **Pit Shelter**

Here again, possibly more suitable for one or two people. Unless you are conversant with this kind of thing, a pit shelter should maybe be avoided. This necessitates digging some kind of pit—a "grave"—burning a fire in it for one to three hours, depending on soil moisture (burning not included in total construction time), then you can put the dirt from the pit walls over the hot coals. The dirt will supposedly put out the coals. There are several variations on this theme, all of which will help you to survive; but after the pole shift, when there is constant rain, this kind of shelter could be difficult to build and maintain.

### **Rock Overhang**

If you are near cliffs and find a suitable rock overhang, build your small fire across the wind, rather than away from it.

## **Survival Sacks**

Not strictly shelters, but I think they deserve mention here. These are made of tougher material and are apparently warmer than sleeping bags. One innovative suggestion is to stuff them with leaves for better insulation. One type of survival sack called ThermoSafe has a hood and drawstring, instead of just being open at the top. They are heavier than sleeping bags and a little larger to carry—but probably worth all of the effort.

# **Hygiene**

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Personal care will be something of a challenge after the pole shift. There will be no running to the store to procure modern-day products which, in our present-day society, are deemed necessary for clean living. From the point of view of morale, as well as the normal considerations of everyday living, it will be important to overcome this challenge. Problems of survival will loom so much larger if one is stinky, and sticky and itchy! Luckily alternatives are available. Some examples of what we will not have in the after-time are toilet paper, diapers, disposable products for menstruation, showers, soap and washing powder, toothbrushes and toothpaste, and eyeglasses.

## **Toilet Paper**

There are actually quite a few alternatives to toilet paper, i.e. wads of leaves, spruce boughs, and fir cones, and corn cobs (after removal of the kernels, of course!). The Arabs wiped only with their left hand. There are various ways to clean afterwards. One of these is to roll one's hands in the cooling ashes of the fire, or to sterilize hands by rubbing vigorously with aromatic herbs such as sage, juniper, and yarrow, which contain antiseptic properties. Caution: Learn to identify the dangerous plants and herbs in your area; then you can use the rest. Almost all highly aromatic plants have antiseptic properties.

## **Toilets**

As for a toilet seat, before the outhouse is built and functioning, a bent sapling can be quite effective or, more simply, place your heels on a piece of wood approximately two inches high—easier to squat that way.

## **Diapers and Pads**

There are quite a number of things that can replace modern-day disposable products for menstruation, including sponge products, rubber or plastic cups (which will catch the flow and can then be washed out), and washable liners. Sphagnum moss can be used as an effective absorbent, and can be packed in animal skins. The same technique could apply to making diapers.

## **Showers**

A simple shower can be rigged with a bucket, and one shower a week should be sufficient. If this is not possible, a daily strip-wash with a basin of water can be refreshing. If one is outdoors for much of the time, the wind tends to "air one out", preventing body odour that seems to plague city-dwellers. Also, a rubdown with almond oil, or a similar type of oil, will keep one's skin healthy and smelling fresh.

## **Soap**

Soap can be made from the lye water passed through campfire ashes and animal fat, both of which will be available to us after the pole shift.

## **Dental Care**

Dental care may not be as difficult as anticipated. If you have stocked up on toothbrushes, one can be used alone, without toothpaste, as long as teeth are brushed each time after eating. To remove more of the bacteria than the brush can get to, use cheek muscles to swill hot water around your mouth, and the heat of the water will help kill left-over bacteria. Alternatively, twigs from various trees can be used as brushes, but learn to identify the poisonous trees! Even a substitute water pick can be

fashioned from a small needle syringe (used without the needle, of course). Shoot water between teeth and into crevices where bacteria can hide. The force of the water will quite likely free any trapped food particles. A mixture of baking powder and salt can act as tooth powder, and adding some glycerin, or some drops of something like spearmint, with a few drops of water, can make palatable toothpaste. Prickly Ash bark can be chewed, if available. Oil of cloves can temporarily relieve toothache, and oil of oregano, as well as the time-honoured method of rinsing the mouth with salt and water, will help stave off gum disease.

### **Glasses**

For those who need glasses, it could be advisable to stock up with sets of glasses of progressive strength or, failing that, "poor man's glasses" can be made with cardboard. Cut out the glasses, leaving the eyepieces solid, then poke little pinholes through the eyepiece areas. You should be able to see with perfect clarity through these holes (something to do with the light rays going in a straight line without the need for focusing), and this seems to work whether one is near or far-sighted. However, a somewhat better idea might be to purchase pairs of glasses with solid plastic lenses and punch holes into these plastic lenses. This would obviously have to be done before the pole shift.

## **Mental Health**

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Mental health will be as important after the pole shift as is physical health, and so now, while there is still time, it is necessary to take a look at some of the things we will be up against, and make our preparations accordingly. Below are just a few of the situations we can expect to encounter—fear, panic, despair, severe depression, feelings of hopelessness, lack of self-esteem, relocation stress, loneliness and boredom, and spiritual distress. What to do: It is far beyond the scope of this summary to give detailed explanations of treatment for these afflictions, but simplistically: Fear is a natural

and, actually, a necessary response to any disastrous situation. The danger comes when one allows that fear to degenerate into panic. Knowing what is to come and preparing for it, both mentally and physically, will go a long way towards banishing panic. But be cautioned: disasters are never absolutely predictable; and no matter how much one prepares there is always the unexpected element.

Despair over the loss of loved ones, of possessions, of the known world, will overcome many, particularly right after the catastrophe. Once again, those who know what is to come will be much better able to handle it. The common sense remedy for this, as for all of the above examples, is just to have a lot of patience, a lot of understanding, and give daily reassurance. Try assigning various tasks so that people can keep busy and productive. St. John's Wort is a good herbal remedy for depression. As for relocation stress, find your survival site now. Get your group, and especially the children, familiar with this site. It could be an idea to build some kind of a shelter there and stay a weekend, or a few nights at a time. Then, by the time the catastrophe comes upon us, the chosen site will at least seem a little more like home to your group.

Books can be a great escape from the harshness of reality for a while; make sure you have a well-stocked and varied library. Music can also help in this regard; you will be well advised to ensure that there is music for all tastes, as well as a variety of other entertainment. All of this will go a long way toward alleviating the above-mentioned situations.

## Warm Clothes

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The type of clothing you will need post pole shift obviously depends on the location of your chosen survival site. Remember that in most cases the after-time climate will differ vastly from the present one, and make your clothing decisions accordingly. For those of you who are changing from a more temperate climate to a cold one, preparing adequately for this change, if you are unable to move away, cannot be over-stressed. Before the pole shift occurs you are

strongly urged to undertake a thorough study of your situation as it will be, and make your plans accordingly.

## **Outside**

With regard to outdoor clothing, and especially if you are traveling, your apparel must be chosen with extreme care. Cotton is definitely out. It has poor insulating qualities, and does not dry easily. It allows heat to be conducted through itself, even when dry, at a rate three times faster than wool, nylon, polyester, and acrylic fiber cloth. Wool, and some synthetics, will fill the bill here. For the upper half of the body, lightweight sweaters of open weave will insulate well. Over that, another synthetic-fabric shirt could be worn. For the rest, woolen pants as your outer layers are a good choice. Wool will not retain moisture. Within half an hour of getting soaked, although still damp, it will regain most of its insulating abilities.

## **Layering**

The key to staying warm is to layer clothing. The inner layer, consisting of your long underwear, should be capable of wicking perspiration away from itself to the next layer of clothing. It would be well worth stocking up on plenty of such items. If your underwear is wet, you will be cold. Layers should be such that they will not retain moisture. What not to plan for: non-layered, one-piece garments such as ski suits, quilted one-piece outfits, and single parka type coats. These do not allow for the wearer to remove layers, adjusting body heat as one works outside, or walks, and temperatures vary.

## **Belts and Suspenders**

Keeping these layered pants up could be a problem! One suggestion is to purchase the wide, two to three-inch suspenders made for holding the weight of a carpenter's tool belt. This will hold all the layers up at an even height, and prevent the wearer from becoming entangled. Make the layers of different sizes, each being at least a half-size bigger

than the previous, with the outer layers a whole size apart. layers of different sizes, each being at least a half-size bigger than the previous, with the outer layers a whole size apart.

## **Coats and Hats**

As for outer covering, leather will serve well in this regard at temperatures above zero. When the temperature drops below zero wear a cloth coat, as even with the same clothing underneath, leather can feel cold when the temperatures plummet. A soft, tanned, fur-lined coat could also work here. One thing to keep in mind: clean clothes are warmer than dirty clothes. In the matter of headgear, a balaclava or wool stocking cap, and for extreme temperatures a fur hat with earflaps! Since 80% of heat is lost through the head area, this is an absolute must.

## **Footwear**

For footwear, cloth, rubber-soled boots, made by Sorel or La Crosse, seem to be the most favored. There should be insulation between the insert and rubber. For the cold winter, inserts can be up to 13mm thick. The thing to remember about using rubber boots is to keep the moisture away from your feet. Here again, woolen socks will do well. Inserts, of course, must be removed to be dried. Keep in mind that whatever boots you eventually choose, if you stand in one spot for a long time, your feet will still get cold. Best to move around a lot and keep the body temperature up. One last note concerning footwear: panty hose—or an after-time equivalent thereof—will really help to keep the legs warmer.

## **Hands**

For the hands, high-cuffed mittens rather than gloves. At temperatures 30 below zero, your hands can frostbite in eight minutes. One caution for those who, not having been used to a cold climate, suddenly find themselves in one—when temperatures dip to frostbite levels, do not under any circumstances touch a metal object, such as a door knob, with bare hands, and especially if your hands happen to be wet. Your

hands will freeze to the object.

### **Inside**

inside your shelter, particularly if the temperature is fairly constant, special underwear will not be needed. Silk is a natural fiber which lets moisture out, and breathes with the body. Has the same warm properties as Polyester, good for winter and summer, dries quickly, but is expensive. For sleeping on those cold nights, flannel is warm but of course is a cotton-based material and does not dry quickly. Polarfleece, a brand name for 100% Polyester, is excellent. Plan to take products made from this into the after-time, since it could be a while before a warm equivalent can be found. Coats are also made from this substance. It washes easily and dries quickly.

## **Staying Cool**

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Warm Weather: Main rule—if you are in the sunlight you cover your head and skin. In the shade, or inside, you wear as little as possible. Bedouins, for example, do wear layered clothing. There is no shade where they are, and their thinking, presumably, is that the more barriers they can put between their skin and the merciless sun, the better. Another plus, of course, is that in deserts where there is not much water and people cannot wash frequently, layers of clothing do help to mask offensive odors! After the pole shift there will, apparently, be very little direct sunlight, owing to the junk and gunk thrown up into the Earth's atmosphere, but there will still be heat.

Regarding modesty versus comfort: If the modest members of your group have room for their extra clothing, then allow them to do this. Hopefully when they realize that not only are they not exposed to the sun but are uncomfortable with this clothing style, they will make themselves as comfortable as possible. And the way to do that, of course, is to go with the "little or nothing" scenario.

Whether in sun or shade, cotton is the best material for hot weather

wear; but whereas a tighter weave is best for the sunny scenes, for shady activities a loose-weave, gauze-like cotton is best. A long robe with loose pants underneath—although if the robe is long enough, forget the pants; no underwear. Cotton pants with drawstrings around the ankles will keep out bugs and crawly things; but this kind of thing would only really be needed if your group is in a tropical jungle condition, where nasty little biters and stingers abound. If members of your group feel that some sort of clothing must be worn, best for a muggy climate with no jungle around would probably be a bathing suit, swimming trunks, or the like.

### **Hats**

No hat. Hats are great for keeping out the sun; but if there is no sun, they simply make you hot.

### **Footwear**

Footwear? Sandals, to let the feet breathe! Definitely no socks. If you are on foot and traveling, though, you might want to wear something a little more substantial, such as running shoes or tennis shoes. Walking barefoot in a primitive environment may not be your most pleasant experience.

## **Heat**

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Of prime importance in the after-time will be the replacement of utilities which now, in our present-day society, we take for granted. There will be no going to the sink, turning on a tap, and watching water magically appear; nor will you be able to raise or lower your temperature by the turn of a knob, for furnaces will no longer exist. Flushing a toilet will not be an option; and no air conditioning unit will be available to cool the air on a humid, muggy day. This section looks at what can be done to keep us comfortable after the cataclysm, in the absence of our modern-day conveniences.

Heating: Traditional heating fuels, like gas and oil, will not be available. If you are settled, a simple wood stove will serve you well. Charcoal can be saved from the ashes of such a stove and

used to re-start a fire, or cook food. Different kinds of wood burn in various ways. Some of them will be available in your particular area; others will not. Wood from a fig tree is fast burning, while olive wood burns much more slowly. Oak and maple are excellent, and less messy than pine. Cyprus—messy, but okay; cedar—not as good as oak. Eucalyptus burns quickly but has the added benefit of a healing effect.

Some cultures seem to have made an art of building for heat. Shelters can be built into a hillside with accommodation for humans on the upper floor, and the livestock occupying the lower. Access can be had to either floor from ground level. Ventilation holes allow the warmer air created by the animals to circulate up into the human quarter—a cheap and effective way to keep warm! And for individual comfort on those cold nights, a hot rock can be wrapped in a thick piece of material and used as was the old-fashioned but effective rubber hot water bottle. Manure pits, buried garbage and compost heaps can also be used to furnish heat and hot water; but these methods assume that you have pipes, or a way to manufacture them, and such systems will need to be carefully studied in the time remaining to us before their implementation, or otherwise, can be decided. The same applies to the idea that hot water can be heated with a tube coil setup. If your group decides to take this route, ensure that the joints in your system are leak-proof.

If you are traveling, there are various ways to keep yourself warm. Starting a fire in the rain can be difficult, but it can be done. However, before the pole shift hits us, you must discover the myths and legends that adhere to the concept of doing this. For instance: In rain, there seems to be less oxygen to feed the fire. People will place the sticks further apart than usual, so that more oxygen can get to the fire. This is not the correct thing to do! Place sticks at least as tightly as usual, and force oxygen to reach the fire by vigorously fanning it. Do not reduce the amount of wood placed on the fire; in fact, add more wood and more wood to force the air through. There are other tips and tricks for doing this; but these have been well documented in books written on the subject of

survival.

There are battery-heated vests, but unless we come up with another energy source before the pole shift, these will have to depend on batteries which must be charged and re-charged, and may not be an option for long. Space blankets and sub-zero sleeping bags are another way to combat the cold. A space blanket could either be wrapped around one individual, or placed behind your fire, where, by reflection, it will increase the power of your fire and heat up your shelter space more effectively. Caution: these blankets are flammable, so do not place them too near your fire. Native Americans used thermal feedback in cooking and heating, which, while utilizing their resources to the fullest, also helped conserve them. This option would be worthy of study before the cataclysm comes upon us.

## **Light**

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From the very earliest times, light has been of paramount importance to humanity, not only in a visual sense but also psychologically. Life looks and feels a lot more secure when there is a lot of light present—and the brighter the light, the better. Unnamable terrors can lurk in darkness and shadows, waiting to pounce upon the unwary. After the pole shift there will be very little sunlight due to volcanic dust that will last for a couple decades, and, of course, even smaller doses of moon and starlight. Without electricity it will be difficult to create light, and any solutions in this regard will be short-term at best. Some of these are, however, mentioned below, so that at least in the immediate after-time your group will have light, and with it, a little hope for the future.

### **Oil Lamps**

Even in the most primitive situations, an efficient lamp, for both light and low heat, can be made from animal fat. The leanest animal will have some body fat stored (Maybe under the skin), but most often this can be found around the internal

organs, especially the kidney area. Ball up whatever you can find to about fist-size. Any plant fiber or twisted strip of garment (cotton) will do for a wick. Cordage can be made from many barks, grasses, or plant fiber. The wick can be made as big as required: but remember, although larger wicks burn more brightly, they also burn faster. Melt a small quantity of fat in a depression in a rock next to a fire, and soak the wick thoroughly. Form the ball firmly around the wick—and you're set! Make sure the candle is placed in a fireproof container, such as a hollow rock, to catch the fat as it melts. Try to keep the burning portion of the wick out of the oil. This candle/lamp can be used indoors or outdoors. For the rock mentioned, substitute any non-flammable container with which to catch the oil or "rendering", which results from the burning.

### **Light Sticks**

This is a plastic tube containing two chemicals, which will emit light for approximately eight to 12 hours. Cheap and durable (although nothing may be unbreakable when faced with the moving and shaking of the pole shift), these items are easy to stockpile and may see your group through the first year, until you are on your technological feet, and better ways can be found to produce light. Be sure to read the instructions if your intention is to stockpile; some of these need to be stored in a specific way, and the luminous stuff inside is sometimes poisonous. There is an expiration date, and once cracked or crushed accidentally, they cannot be used. With proper care, however, there is no doubt that these will be an excellent short-term solution, no batteries or accessories needed.

### **Candles and Matches**

Also good for stockpiling, of course, is the candle. The modern candle comes in many shapes and sizes. If you feel you must take some matches with you into the after-time, ensure that they are stored in airtight containers, and packed so as to reduce friction. Thus if the matches do ignite, there will be no oxygen to fuel the fire.

## Crank-Up

Also worth considering is the crank-up flashlight produced by a company called Applied Innovative Technologies. This flashlight does not use any batteries, and, although not especially bright, would be great for emergencies, needing only to be shaken for activation. “Starlight” is rather expensive, but would be a good product to take into the after-time since it needs no batteries or filament light bulbs. The housing of this light is, according to the company, durable, and practically indestructible. Cheaper is a flashlight made by a company which appears to be called Rush Ind. Inc. No good if you don’t have a strong hand, since activation requires constant squeezing, and the light does disappear quickly when the squeezing stops. Good for the short-term and for emergencies; but it does use standard flashlight bulbs, and given the fact that it has a spring-loaded handle with a gear that turns a small dynamo or generator as you squeeze, it is uncertain how long it would actually last.

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At this point, you and your group have survived the pole shift with little more than you could snatch at the last minute as possessions. If you have more time to prepare, or as time passes, you will settle and build a more substantial structure and begin to grow food.

It is this setting that the next topics address.

