

Survival Notes

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1. SITUATIONS

I've followed survivalist stuff for a bit now, and one of the overriding beliefs I see is that everybody will find a safe haven, stock up, and ride it out in community and (relative) comfort, while the rest of the schmoes die in a variety of ways.

In my opinion, this is a foolhardy assumption. More on this in section 4., but the fact remains anything can happen at any time, from a terrorist nuke to an earthquake, tornado, or hurricane. You could be anywhere - your house, the store, visiting Aunt Jane 300 miles east, or a stuck car in the middle of nowhere. Making assumptions can get you killed. That isn't so good, but chances are you'll get others killed in the process, which *is* kinda making a bad deal worse.

Since many of the people reading this are interested in "Earth Changes," I thought I'd contribute some ideas for those of us who may have to "bug out." This is a military term that is not usually mentioned, because it means (in effect) "to flee the assigned area, usually in a disorganized manner (see ROUT)" (my own definition.) I'm talking about people who, for various reasons (usually economic,) must live in a city to be able to make a living. If something happens to force you to leave, there will very probably be enough disorder to qualify for the term. Remember, you are trying to live long enough to learn to live.

This isn't that much of a hardware book. If you want gear lists, there are some below, but there are others in many of the books listed in section 6. There's almost no technique discussed. There are, again, many references written by experienced professionals. This book deals more in concept and in areas very few people admit as a possibility, such as having to care for children in a field environment.

Don't treat what you see below as "instructions" or some low level of holy writ. It isn't. I'm not you - not your age, not your condition, not your experience level, and not at your house or job site. Our kids, if you have any, probably don't go to the same day care. I don't have your level of disposable income. When you look at the things we don't have in common, you can see the right way to use this - as a framework of ideas and knowledge for your own solutions. I like to think there are some hard-earned lessons here, that may save you from the same mistakes I've made, but remember -

Do not ignore the wisdom of others, but also do not allow yourself to be enslaved by it.

2. BASICS

Keep in mind the stuff you are reading about below applies to a **survival** situation. It's you, maybe some friends and/or family, on the road or in the backwoods with **no** modern amenities to help, save what you bring with you. There is no house nearby to duck into if you get wet, no 911 if you get injured. That is why I say things that are otherwise absurd, like "Cotton kills in the cold." In a city or a backpacking trip on a summer weekend, cotton clothing is fine, I wear it myself, but that's not what we're talking about here. It is more like the dead of winter in the middle of nowhere - that cotton clothing gets wet, you're lucky or you're dead.

Another point is that gear replaces knowledge (to an extent,) and knowledge replaces gear. I have a friend I mention in 2.1.7 (Knives) whose major survival requirement is a good knife, although he wouldn't turn down a good flint stick. An old mountain man would die laughing at the greenhorn he'd see below, but I, and possibly you, don't know what they did, so I need gear. I expect a lot of it will hit the ground as I learn more - a lot already *has* hit the ground, if you can believe that. The more you learn about what your needs are and how to address them (as opposed to wants,) I think you'll find you need less gear, or different gear, than you think.

Another basic concern is mobility, as in limits to same. Weather is a common limiting factor, so I'll handle it separately, but if you're in a car, the relevant limits are negotiable roads, load, and gasoline. "Negotiable roads" can mean a lot of things, it depends on what you're driving, but think on this - unless you are leaving at just about the absolute first sign of trouble, there will be a lot of people with the same idea. Expect and plan for traffic jams, try to plan routes that will avoid them. People are creatures of habit - if they know one convenient way out of town, that's the one way they will most likely use, so forget interstates anywhere near a major urban area. If you *can't* forget interstates or some other basic choke points (think about trying to leave Manhattan in a panic, for example,) take the car as far as you can and plan to abandon it. That's right. When you haven't moved for 45 minutes and the road is a parking lot as far as the eye can see, dump it by the side of the road, get out, load up, and start walking. Plan for power outages, which will limit access to gasoline via pumps. And remember, the more you put into a vehicle the more gasoline you use and the more you strain the suspension and drive train - a 4WD vehicle loaded to the roof with people and gear will probably not handle steep roads or potholes well at all.

Foot mobility is a little simpler, because the limits are load and water, assuming you have some means of acquiring food as you go. Load is relative to your physical condition - an 80 pound pack on a 100 pound person who hasn't exercised in ten years will immobilize said person. Also factor in terrain. You can carry more, farther, faster, on flat terrain than on hilly terrain, and mountainous terrain is a bear unless you know what you're doing and are in decent shape.

The water limitation is more subtle. Population pressure, agriculture, and industrialization have pretty much obliterated the ability to safely walk up to a stream and drink from it without purification, so the need to be able to purify water adds weight and bulk to the load. Also, the amount of water you can carry and the speed you can carry it at defines how far you can get from a water source. If it takes 3 days to get from A to B, but you only have water for 1 day and no place to refill en route, you can't get to B, unless you can come up with an alternate route or a faster means of travel. If you load up with 3 days of water, how much has the load reduced your speed? Water is eight (8) pounds per gallon, plus the weight of the containers if you even have them - think about it. You may have to abandon nice, flat, hard roads and go stomping through the boonies just because there is no water near the road for 100 miles or so.

Then there's weather. Nobody minds a fair spring day, but rain, snow, and extremes of either hot or cold can really mess life up. Rain per se isn't that big a deal - you get wet, you keep walking. Makes it real easy to keep water in the canteen, too. Problem is, it also swells rivers, restricts vision, and softens soil. Make it cold, about 40 degrees F, and you have uniquely bad weather for a hike, capable of producing hypothermia with even a little bit of wind if you have no rain gear. We all know what happens with cars in rain regardless of temp.

Snow can be a real problem, because you can't, under a close to worst case scenario, bet the plows will be out, while places like TX will be a madhouse regardless. Crossing deep snow on foot is a heartbreaking experience. If you don't have and can't make adequate snowshoes (see "Made For the Outdoors", ref in sec 6,) if there are no cross-country skis, about all you can do once it gets waist deep or

more (assuming it's unpacked) is to either crawl or, if it's a group, the trailbreaker has to flop (on their back, preferably) forward to pack the snow enough to walk on. Progress is measured by body length. If it's less snow than that, it's still exhausting, because it's more like climbing than walking. **Never** try to travel in a blizzard - it's too easy to get disoriented, lost, or dead in a variety of ways.

Extreme hot weather follows the old advice about travel at night or the early morning. I don't care who you are or what you are, or what condition you're in, if you start walking in the heat of the day you are going to need *lots* of water and electrolytes or you will get heat stroke/ heat exhaustion. It's a stupid waste of water and energy unless it is necessary, so hole up in the shade until the sun goes down. Needless to say, how well you can see at night plus the availability of water and shade all affect your ability to cover ground, almost always negatively.

Extreme cold is as serious a mobility limitation as heat, regardless of the presence or absence of snow. We aren't talking about 20 degrees F here, we're talking 0 or less, and don't forget wind chill. First, the clothing required to survive it is not necessarily heavy, but it is bulky, so carrying it is a pain. Second, awareness is paramount. Hypothermia and frostbite are ever-present dangers, you can't just put your mind in neutral and walk. You lose some time just making sure your pace and level of insulation match - "You sweat, you die" is the adage in Army Arctic survival training. Stops, especially in windy conditions, tend to become more elaborate - you may not set up the tent, but you'll want to get out a tarp. You'll also *need* hot noon meals or at least hot drinks, so there's the time spent heating a cup of soup or whatever. This takes time, and time is distance.

A word about pace. A normal walking speed is about 3 mph. A person in good condition with a light load can beat this. A person who is facing a lot of "up hill/down dale", or is carrying a heavy load, or is out of shape, is not going to be able to keep this up for very long. You may not even get ½ mph, and there are some circumstances, such as heavy snow, where the pace is ½ mile per *day*. Unless you are literally on the run, it is more important to have a pace that is **sustainable** over a long period of time than to move fast. The faster pace will tire you faster, and you develop a sprint - stop - sprint style of movement that buys you nothing in terms of ground covered for a period of time. In fact, if you're dealing with layering, you will *lose* the time spent adjusting your heat retention, while in hot weather you risk overheating. You will also become more tired, because the faster pace uses energy faster than your metabolism is used to providing it (I think I said this right.) Speed will come with conditioning - find your pace and keep to it.

Also about pace, plan for a day or two off once a week or so. You have to rest, hunt, mend things that need it, and take time to think about what to do next. At the beginning, as you try to put more distance between you and "the crowd," it may be a solid week or more on the trail. OK, but as time goes on, food runs low, weather changes, and the nice straight line to your objective may not be looking like such a good idea after all. Allow for this.

2.1 PRIORITIES

The topics are listed in rough order of priority of need. Now about *setting* priorities...

The first priority is a goal. It may be as nebulous as "We'll leave in this direction, then settle down and figure our options," or as definite as a spot on a map. If you know where you're going to start with, that's a big plus. It gives you a route, defines resources and potential problems, and gives you a defined "we are almost there," which can be as important to reaching your goal as any piece of gear.

The second priority is a plan, which (if you are bugging out) must cover four very distinct phases. The first phase starts after you come out of shock and realize "It Is Time To **LEAVE**." This means you have to account for where you may be and what you will need to do to pull together last minute details before starting the journey to priority one, your goal. The second phase is short-term survival, what resources do you have, what obstacles do you face as you and yours try to leave the afflicted area. Next is medium term survival, which is you (+) on the open road to the goal. Again, try to account for possible obstacles and assets. Fourth, once you reach your goal - what next? What do you have to aid your efforts to reestablish yourself?

One thing people leaving a city on foot, bike, or by other non - automotive means tend to forget is, even **you** have to plan for traffic jams and avoid them. How do you think people are going to feel watching you and yours tromp along, fully outfitted, *obviously* prepared, and equally obviously making progress, while

they are sitting in a traffic jam, scared to death, with whatever they could scrape up at the last minute from their kid's cub scout days, plus a little more? People in our culture tend to think they need what's on your back, not what's in your head. Some will kill for that "pack of gold." Avoid crowds when you leave, I strongly suspect they will be **highly** dangerous.

Even if you are in a survival community, planning is still necessary. How do you intend to treat stragglers and strangers? How likely is it you will need to defend the community, and what assets do you have to accomplish that? For that matter, what is the threat level (small groups of starving people, large groups, armed gangs, something else?) What items have you relied on that come from outside sources, and what substitutes are available? How well do you really know the surrounding countryside, and what it has to offer your community?

If the fit hits the shan and you are left with gear, a plan to leave, but no defined ultimate goal, life is more complicated. Where you are, time of year, current and expected weather, what kind of gear you have (especially how much water you can carry,) who's with you and their amount of gear, everybody's physical condition (what kind of shape are they in, what injuries, etc.,) the local condition (riots, road blocks, military involvement,) local knowledge (location of farms, parks, small towns, rivers, roads, railroads,) available transport (car, foot, horseback [don't laugh - there are stables not 2 miles from my suburban house], bike,) all these things count, and many of them count for the first option above. It's no fun to realize your destination is 300 miles away but you're on foot in the dead of winter (or for that matter, the heat of summer.) There are many factors to weigh and judgement calls to make here.

If you have no definite destination, pull out your map and look at it. You need water, food, fire, and shelter. It should be relatively remote from what's left of civilization (more than 150 miles from the nearest significant town or city, further (250 + miles) if near an interstate or main highway) and the route to it should avoid large metropolitan areas. If you have skills, like paramedic, woodworker, chemist, or whatever, you can try to approach a small town - you have something to offer them, they *definitely* have something to offer you. I would, however, advise prudence trying to make contact - scope them out and make sure they aren't shooting people out of hand, for example. If you decide the towns are too dangerous, pick a location and head for it. It gives you a purpose, and that's the biggest thing going.

DO NOT assume forests are "the place to be," especially at first. *Everybody* thinks of them, and that's the problem - even if you only assume a 1% escape rate of unprepared, panicked people, that's 2.5 *million* people running around the countryside. Put 10,000 of them in a nearby National Forest, and consider what's going to happen in terms of water quality (Sanitation? What sanitation?,) food supply (there just aren't that many squirrels, much less deer,) and local reaction (as a lady friend of mine once said, "Yeah, I was born in Paris, Texas. They shoot the umbilical cord off when a kid's born there.") Do you *really* want to try to deal with ten thousand confused, manic, desperate people? Even one at a time? So be creative in deciding where to go. If the woods are your big thing, no problem. That ten thousand will probably be less than one hundred in one year. The statement is brutal, but it poses the opinion that leaving your home town behind is just the beginning, not the end. If you don't plan for both, you may make it to your destination, but you'll have difficulty surviving long once you get there.

Another basic aspect of setting priorities in a survival situation is "return on investment." If it costs you one ounce of sweat to get ½ ounce of water, or 1000 calories to get 800 calories of food, you're losing. You need to at least break even (OK, there are exceptions if you're trying to avoid a lynch mob,) and preferably improve things a bit. This means it makes no sense to load a pack with 100 pounds of gear, because unless most of it is food (which allows the pack weight to diminish as it's used) you are increasing your need for food and water (you need water to metabolize food.)

For survival on the road, less is more. More freedom of movement, more speed, more range. The more you carry in your head, the less paper and other "stuff" you carry in your pack or your pocket. You have to prune things down to what you **need** to survive in the conditions you expect to encounter, although one of the things you need is some stuff for morale. Yes, that's right, you need some stuff you don't need for physical survival. Part of the "fun," of course, is figuring out what **you** (and, if applicable, yours) need. Do not fall to the temptation to see "needs" as short term physical survival only. If things go badly, you will need to give thought to short term needs (a few weeks,) medium term needs (a few months,) and long term needs. This means you need to plan for psychological, intellectual, emotional &etc. needs, as well as physical. There is no sin in carrying a good book, or planning a journal. Don't shun others simply because you meet them on the road. If you want to meet these needs, it might help to spend some time

thinking about who you are, rather than what you are. The fact you may not be able to carry everything you need does not mean you can't plan other ways to meet those needs. The body is not just a survival chamber for a brain. Remember that when you pick your gear.

Also remember, you aren't coming back, at least not for quite a while. If you can come up with a way to transport things more useful for the long term, like muscle power tools, do it. Even if you walk into a house that's in perfect condition, it's your home. You are going to be there a while, and that means you get to maintain it. Look around, and think of what it will take to provide yourself with the basics for a week, a month, a year, longer....

The problems of longer term survival will be alluded to at various other places in this text. The equipment list later on will last you for about two weeks to two months or so for the consumable items. That's food, medical items, and so on. Face it - you cannot carry five thousand rounds of ammo on your back, or one year of food, or an indefinite supply of water filter elements, or whatever. That just ain't gonna be. What you **can** carry is knowledge, so keep learning.

2.1.1 WATER

The ability to carry and purify water is **vital**. You can live for about three weeks (max) without food, but people have died in less than one day without water, and three days is considered tops. The US Park Service, for example, started demanding every backpacker going into the lower Grand Canyon in summer carry at *least* one gallon of water per person in summer. They did this after several members of a church youth group died when their leader and several teenagers became deranged by thirst and walked off the side of a cliff. They had been walking in 100+ degree heat with no water for about half a day.

Don't think that heat is the only time you really need water. Cold climates can drain you of water almost as fast. Remember seeing your breath condense on a cold day? That's water from your body. Trust me on this one, dry cold can dry you out fast. Worse, people tend to not notice it's happening so they end up more prone to dehydration, hypothermia, frostbite, and other unhappy situations. On top of that, you get a *massive* headache.

Another thing about cold climates, **do not** eat snow. It takes energy from the core of your body to warm it up, so at least melt it before you try to get it into your body. Melt it a little at a time, adding more snow as the last batch melts. If you pack a cup with snow, what tends to happen is the bottom inch or so melts, boils away *without* melting any more down, and you scorch your melting pan while wasting fuel.

The recommended **minimum** consumption for cold/mild weather is 2 quarts per person per day. Hot weather can be brutal, requiring 1 gallon / person /day. If you don't have to piss but once a day, and/or your urine is dark yellow, you are getting dehydrated. Drink more water. Also, keep your water intake constant. If you get real dry and "slam" a large amount of water all at once, you can literally knock yourself unconscious.

One thing, you don't know when or where things will start. One man told of needing his "bug-out bag" when his car gave out on a lonely road in upstate Michigan. He and his young daughter had to hike out, when he discovered an oversight - he had his bag, he had water purification, but he had no water and no source available for some time. Moral - the car gear gets 2 quarts of water, but remember to change the water periodically and **DO NOT COMPLETELY FILL A CANTEEN IF YOU EXPECT FREEZING WEATHER DURING STORAGE**. Remember, ice expands and a full canteen will be destroyed, so fill it about ¾ full. If the canteen water is frozen, take 1 canteen and put it under your shell so your body heat can thaw it as you walk. NOTE: I inadvertently discovered a bit of trivia about Army canteens - they *do* survive freezing when full. If you look at one, one side is convex, the other concave. When a full canteen freezes, the concave side expands outward, preventing destruction.

Purification is the other issue. Biologically contaminated water is bad news. Acute Giardiasis or dysentery can kill you by dehydration, typhoid and cholera are no fun, and so on. The choice is filter or tablet. For the personal kits, the real choice is which tablet. Filters can go into car kits, but be aware that unless you are willing to carry some reasonably serious weight (7 pounds), none of the filters you find at the backpacking store will work on salt water, a consideration in coastal areas.

If you have to boil water for biological purification, the texts used to say ten minutes, then five minutes, now they just say get it to a rolling boil. Giardia cysts are destroyed long before that, but some viruses are more resistant. Also remember the boiling point of water drops as you gain altitude, so maybe 5 minutes at 5000 feet is not a bad idea.

Always get your water from the cleanest source possible.

One thing I've noticed about the purifiers, when they are in use there is no problem of keeping the inlet and outlet separated, but after you put them up, guess what - the inlet and at least some of its associated hose, which is still wet with contaminated water, can contaminate the outlet. Solution - carry a small ziploc bag. Before you consign the filter to its carry place, put the OUTLET into the bag and seal it as tight as you can.

Another thing about filters, pump them as dry as possible after you finish. Water left in there can start algae growing in some of them, and in all of them, if it's cold enough, the water can freeze and crack the filter element. That means you get unfiltered water the next time you use it.

Water from a purifier tastes "bleah." Real scientific description, I know, but it's the only way I can describe it. There's nothing wrong with it, it doesn't have a lot of the things in it normally associated with public water supplies, and it also has no air in it. You can't get the public water, but if you stop when the container is about half full, cap it and shake it vigorously, you can at least get oxygen into it. Me, I just cope.

If you have food but no water, **do not eat**. Metabolizing food requires water. Yes, I did repeat this.

2.1.2 FIRE

Currently, in many "primitive" camping sites, it is **illegal** to start a fire unless you are clearly in a survival situation - you carry a stove or you eat Gorp. If you're running ahead of the crowd, the Park Service Ranger is your *last* worry, so starting a fire is an option for:

- boiling drinking water
- warmth
- cooking food
- drying clothing (don't do this to polypro, it shrinks)
- building your spirits.

Most of us start a fire (if we start one at all) the easy way - matches, fire starter or fire log, newspaper. In the wilderness, this can get a bit dodgy, due to the lack of things like newspaper, natural gas, pre-processed compressed wood logs, grates, chimneys, and such.

Still, it can be done. Gather your wood, then build the fire pit. Remember to get ALL THE WAY TO DIRT if you are in a forest. If you just get down to packed wet leaves or pine needles, you may wake up a fricassee, as in a victim of a forest fire. For more specifics on pit construction, check the survival books in the references.

Technology can still help, there are a number of artificial flint/tinder sets on the market. There are small lenses available for daytime use, and for the truly trainable there are the old-fashioned methods of flint/steel (the commercial flints replace this) and fire bow. The main thing with the commercial flints is you now get to make your own tinder, which is easy if you remember a few basic rules:

- NO green wood
- Make small fuzzed pieces of dry wood that can catch and hold a spark
- Even if the wood has been wet, down branches will be dry in the middle, so split them with your knife to get to the dry wood
- Keep the tinder out of the wind
- Be patient
- Practice.

Once the tinder is going, be careful not to add too much too fast. You have to build up the base of the fire. As you add larger chunks of wood, remember a fire has to draw air from the bottom, so don't just pile

wood onto the twigs and tinder you are hoping will start the whole thing. One way to do things is to lean 3-4 small logs together like an "Indian" tipi, with the tinder in the middle. You have to have an opening large enough to work the flint without knocking the whole thing over, or you have to know how you'll arrange things once the tinder is lit, but the method does work.

If you choose to take a stove of some description, it should be a multifuel backpacking variety. Face it, the supply of Coleman fuel will not be inexhaustible in the wild, but a stranded car may well be good for a pint or two of gasoline. Currently, Coleman (Peak 1 / Apex) and MSR about own the backpacking stove market, with MSR having (in my opinion) the best multifuel stoves on the market (Whisperlite International / XGK II,) although there is a multifuel Apex stove. Triangia makes an alcohol stove, which has good long term possibilities ("white lightning," anyone?,) but alcohol is actually not a good fuel, it burns cold relative to just about everything else. This also means Sterno is a waste of space and weight. Still, alcohol will be with us for a long time yet, and it's better than nothing.

Stay away from propane stoves. Easy to use and inexpensive, they have trouble in cold weather (pressure drop) and are going to be about impossible to refill.

2.1.3 SHELTER

This can be vital. You don't want to sit in the hot sun all day or sleep with the rain falling on you. The ability to hole up with *some* cover can do wonders for morale at least, and it can save your life. Even the personal kits can carry one of those mylar plastic "survival blankets." They are not very durable, they make lots of noise, but they are *much* better than nothing. If you are contemplating having to leave in winter circumstances, adding a tent to the car gear can make all the difference. Just be sure to get a good-quality backpacking tent - it can cost some bucks, but it's lighter and more durable than the \$30 Sport City special. Be sure to seal all seams, and **add a ground cloth**. Usually a piece of thick plastic tarp, cut it to be slightly **undersize**. You want the tarp to prevent things like gravel from destroying the floor of your tent (which is one reason you never wear boots in a tent.) You want it **slightly** undersize because I don't care what waterproofing they put on the bottom, a tent is not a boat. Even two inches oversize will collect enough rain to pool water under the tent, which will seep through and get things on the floor (like sleeping bags) wet.

A further note about tents - There are "3-season" and "4-season" tents, which are the step up from "bivvy sacks" (more later.) Three season tents are lighter, have rain flies that are great for cold weather as well as rain, and are generally, in my opinion, far the best choice. Four season tents are bomb-shelters - designed to survive 100+ mph winds followed by burial in snow - literally. You see tents like this on K2, McKinley, and Everest. They also tend to be hotter - sometimes *much* hotter - in summer and the strength adds weight. A good 3-season tent like a Sierra Designs Sphinx 2 was not cheap (~\$230,) but, **properly** guyed and oriented, can withstand 40-50 mph winds. A good 4 season tent, if you insist, is the North Face VE 25 or the SD Tiros 1, and there are others just as good or better. Sierra Designs, North Face, REI, and even Eureka have good three season tents. The Absolute Top of the Line, No Holds Barred tents, which are both stronger and lighter than any "stock" tent, are either Bibler or Stevenson - and they cost like it, too (\$500 +, for a two person tent.) I'll stick with SD, thanks.

One problem with cheap tents is ventilation - they don't have it. Not only do you cook in summer, it just so happens you give up about one pint of water every night from respiration. In cool weather, this will condense on the tent wall and rain on you, especially if it is humid outside. Makers like Sierra Designs, North Face, REI, and so on use what's called "double wall design." The bottom and the lowest 6 or so inches of the sides are waterproof fabric, but the rest of the tent is light weight mesh. When it gets cold or rainy you put on the rain fly, a cover of impermeable fabric. Condensation tends to form on the fly and drip outside the tent proper. Bibler and Stevenson tents are the "dreaded" single wall design because that's lighter, but they paid serious attention to adequate ventilation.

One more point about tents, you have the choice of "free-standing" or not same. Free standing tents, like most dome designs, don't have to be staked out to work. You can install the poles, then pick the tent up as a unit and move it about (so can the wind, so be careful,) shake out dirt and leaves, etc. Very handy. Not-free standing tents are lighter, but have to be staked out to work at all. In forest areas, no sweat, but unless you want to carry the 16 oz. hammer to drive the toughened stakes, avoid this at most tent pad sites, and good luck on solid rock. Also, pitching such a tent in the rain is no fun.

Yet another point about tents, unless it has a **sizable** vestibule (a covered area provided by the rain fly but outside the tent proper,) de-rate the accommodation rating by 1 to allow for reality. I'm sorry, but my Sphinx 2 is a 2-person tent in name only. The vestibule is vestigial, and I like my gear near me. I suppose if I was with someone I really liked I could take it for a while, but two people confined in such a tent for any period of time is torture - basically, you would have the space allocated by your sleeping bag, no more.

Vestibules can be nice in snow or rainy weather, if they're big enough to allow cooking, and some are that large. Mine on the Sphinx is useless for that with an MSR stove (I have no intention of torching the tent and its contents as a burnt offering to anybody,) but it *could* work, WITH PROPER PRECAUTIONS, and **only** if necessary, with (drum roll please,) Hexamine tablets or the US Army surplus Trioxane fuel. The flame is not that large, the area affected actually quite small. If you're stuck in cold weather for days on end, this kind of compromise may be necessary, but DO NOT TRY THIS WITH ANY TENT UNLESS IT **IS** NECESSARY. And that's not just boilerplate for the lawyers, either. In areas where winter or malaria are significant survival considerations, jeopardizing your tent is jeopardizing your life, not to mention the fact plastic fires are **nasty** regardless of the season. A stove fired up *in* a tent is a disaster waiting to happen, be it fire or carbon monoxide poisoning.

Now about bivvy sacks. This is, bar none, the lightest tent concept about. It holds you, your sleeping bag and pad, and a water bottle, but not much (if anything) else. It will have a hoop to keep the net away from your head, but it will have to be staked out to work. Better than nothing, and probably a very good idea for soloists, but you have to be Houdini to dress yourself in one.

Try to pitch any tent or bivvy sack in the shade if you pitch during the day. The UV in direct sunlight will attack the nylon fabric and, over time, it will start to fray. This isn't a one month thing, more like six months to a year in desert conditions, but it's advisable to think long term.

The first place to set up either a tent or a bivvy is in the back yard or, if it's free standing, maybe in the living room. Yes, I have set up a tent in total darkness at five in the morning with hands half numb with cold, but I learned to do it on a pleasant afternoon. It's always nice to have a good idea of what goes where and how it works when you have the instructions and the phone for customer service in hand, **before** it becomes a problem at the camp site.

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Tent stakes seem a kind of "why bother" subject, but the aluminum wire stakes normally supplied with new tents, even good ones, tend to be (a) weak, so they tend to bend easily in rocky ground, and (b) have indifferent holding ability in soft soils, which is important in high winds. The plastic stakes are reputed to self-destruct easily, but the ten inch nail stakes survive rocky ground (and park tent pads) well, while there is an aluminum stake shaped like a quarter moon, available from REI, that is stronger than the standard stake and holds well in soft soil. Be careful here, though, and be sure the stakes fit the stake loops on your tent **loosely**. If they fit tight, over time they will cut the stake loop, rendering it useless. About 2-4 nail stakes (they are heavy) plus some of the quarter moon stakes (for putting out guy lines for windy conditions) seems the best choice.

2.1.4 MEDICAL

You can now buy kits that will take you just shy of the ability to do minor surgery. For most people, this is a bad (and expensive) joke. The people can't do CPR, they've never even *read* a first-aid book, and their concept of the injuries they may encounter is limited to what's happened around the house. Sometimes, especially if they have kids, they've encountered things like broken arms and such, but (1) the ER was a short drive away, and (2) our society is so civilized you can't even guarantee people know basic things, like how to recognize a serious fracture. Fortunately, there are some good books for starters, then there are courses at community colleges for CPR and First Aid. Be advised you will not be

allowed to enroll in the advanced courses beyond this unless you are sponsored by a hospital - it is assumed you will not get enough experience to remain current unless you are a paramedic.

If you have any special medical needs, **plan** for them. Carry extra medication. The pharmacies won't be open after the city closes down.

For longer term survival, a knowledge of herbal remedies can be invaluable. Supplies, no matter how carefully hoarded, will not last forever. Nature offers many alternatives to the drugstore.

Ideas for what to carry can be found in the references and in section 3.

If you build up a small kit, remember the basics you need to address - lacerations (cuts), sprains and fractures, burns and blisters, infection, analgesics (pain/fever relief,) wound cleaning, "bodily dysfunction" (severe diarrhea or vomiting can cause serious problems, even kill you, beyond the embarrassment,) vitamins, Lite salt or some other electrolyte replacement, and accommodation for any special personal needs. Don't forget - wounds need to be cleaned before bandaging, so set some things aside for the purpose.

I added vitamins to the list because you **will** need dietary supplements at first, if for no other reason than to support your immune system. Stress of any kind - temperature extremes, dietary, psychological, you name it - is notorious as an immune suppressor, and you will need all the help you can get to avoid sickness.

Electrolyte replacement for small kits is never Gatorade powder. Gatorade does taste lots better, but there just isn't enough "bang for the buck" that you can get out of a film canister of Gatorade compared to the same amount of ThermoTabs or Lite Salt, which has a good balance of sodium and potassium.

One thing about sun blocks - you can't carry all of it you need. Let's face it, the number of office jobs in a "brave new world" will be quite limited, which means working outdoors, either some of the time or all of it. If you do not have very fair skin, getting a "working" tan early on is not a bad idea, in spite of current medical opinion. Your skin manufactures vitamin D from sunlight (currently we get most of it added to our milk) and a tan does provide limited protection from sunburn.

2.1.5 FOOD

Always a subject near and dear to my heart. The standard advice is that survival food should be lightweight, low bulk, low fiber, and easily digestible. True, but even my car bag had a backpacker's curry soup in it before I changed concepts (it's now in the house kit.) Good food can brighten your outlook on even the most detestable situation. Just remember, any food you carry should take no more than 10 minutes to prepare. Longer than that and you risk using too much fuel in circumstances where it isn't readily available.

If you are "on the road," you are exerting yourself. The US Army has a base daily caloric intake of 2000 calories. Add 1000 calories if "engaged in heavy work" (such as wandering around for 8 or so hours with a pack on your back,) add 1000 calories for cold (not cool) weather, and yes, it's cumulative. That's 4000 calories for hiking in cold weather. That's a lot. Some people report losing weight while consuming over 5,000 calories per day (then there are those who do well at 1500 calories a day.) On top of that, you have to keep enough vitamins in your diet, especially C, to avoid dietary deficiency diseases.

The base criteria for the food you pack initially for the road are low weight, low bulk, little packaging, lots of calories, and nutritional balance. This lets out most canned food - it weighs a bit, the packaging is bulky and not really light, and the "lite" stuff is about useless - you **want** calories. Face it, this isn't an hour at the fitness center, it's six to eight hours (or more) a day of serious exertion. Ramen noodles can be put into a ziploc if necessary and used as the base for a meal. Lipton noodle and rice dishes (in the bags) are terrific starting points. Get rid of useless packaging before you hit the trail - it's weight and bulk you don't need. It isn't even good for starting fires in most cases. This is one case where the backpacking "Milkman" powdered milk is worth it - tastes like (and keeps like, after rehydrating, so use it fast) real 2% milk. No kidding. Very handy with the Lipton noodle dishes.

Oddly one of the things most touted as a survival food source is one of the worst in some ways - Army MRE's. The entrees are nice, once you take them out of the cardboard box, but the full blown \$6 (retail)

package is bulky, heavy, and frankly mostly packaging. You get calories and nutrition, but the MRE was designed for long term storage, ease of manufacture, durability of packaging under field conditions, and resistance to contamination by CBR (Chemical, Biological, Radiological) agents. They aren't so bad once you remove the heavy plastic cover and get rid of some of the other extra packaging (note the foil bag labeled "accessory packet A" or whatever is **not** extra, as you'll discover when you open one,) but I'd rather have Mountain House than an MRE.

The food you start with won't last forever. Comprehensive herbals are invaluable for the vitamin side of the situation, as they can tell you about the nutritional value. Snares, fishing, and/or hunting for deer and other medium to large game where feasible will be the order of the day, because long chases for small game are out - too much energy expenditure.

You do not need a lot of utensils and plates. I actually don't carry a fork - a knife and spoon worked for literally thousands of years, a fork is a luxury item. I carry a plastic plate for the kid when he's along, the wife eats out of the pot lid/frying pan, and I eat out of the pot. Saves a **lot** of cleanup. Freeze dried meals say you can reconstitute in the bag, saving even more cleanup, but the bags are prone to tip over, and it's hard to mix everything well. There is a cheap plastic mug for soup or coffee that I marked half cup levels with a file, plus a sierra cup for those occasions I need two cups, like after you make a drink and want to measure water for the meal.

Cleanup after a meal is utterly different than it is at home. I "dry camp" a lot - that is, I establish camps where any available water is too far away to be used for washing. I can clean up after three people (myself included) with less than ½ pint of water, including rinse, and that may get less. In places with clean sand (a beach or desert,) you can just use sand to scour out the pots. I'm rarely this lucky (dirt just doesn't seem to work, usually,) so I'll use a small spatula to remove as much as I can, then pour maybe one inch of water into the pot, along with a little soap. That is all the water I use, or need, to adequately clean everything including utensils. It takes about as much to rinse. Go easy on the soap, you don't need that much and soap is a laxative - bad news if you skip the rinse cycle. Don't clean up near too camp, because the food you toss with the water will attract critters.

Speaking of attracting critters, raccoons, squirrels, chipmunks, and assorted other sundry similar critters have been known to know through a pack shell to get to the food, so either bring the pack into a tent with you or make an anti-critter container using a section of PVC pipe or something similar, being sure to cap both ends. They also sell bear-proof food containers, but they are somewhat small (600 cubic inches small, 900 c.i. large) and weigh a bit (3 pounds small, 5 pounds large.) They do, however, reportedly work. Also make great camp stools.

Many people expect to resupply themselves by going back into cities or towns to loot the local gro and market. You can try, but it could well be a dicey proposition. When food delivery stops, the food riots will hit everything that even *looks* like a store, with tremendous waste and destruction. Houses will be better, sorta, but be careful. Not everyone or everything will leave. Packs of wild dogs could be a particular hazard.

2.1.6 CLOTHING

The first section deals with basics - boots, socks, underwear, and so on. The second section gets into the vagaries of bad weather gear, and oh, can it get vague.

2.1.6.1 BASICS

This can get interesting. Ideally, you should be dressed appropriate to the weather at all times, but what's appropriate for the weather and the situation is not often very useful if you have to leave. A professional is not really up to a five mile march, especially if you're a woman in heels. The problem is compounded if you are a train commuter in some place like the Northeast Corridor.

There are no easy answers here, but I can give you a few ideas.

1) Feet are your foundation. If you can't walk, you can't escape. This may mean that, as a train commuter, you carry some stuff in a sports bag "for the gym" or even just a pair of tennis shoes and socks in the

briefcase. Car commuters have it easier, because you can put a daypack in the trunk with some selected items, including real hiking boots and socks. You want "real" hiking boots if possible because they have stiffer soles, which do a much better job of protecting your feet from rocks, roots, and uneven ground, and give better support when trying to ascend a steep face. Don't think mountains are the only time you'll have to climb a steep grade - think about trying to climb up the side of a dry riverbed. More on boot selection under training and in the reference section. One thing, and this will be repeated - allow for the fact your feet tend to swell slightly if you are on them a lot. Rough terrain also calls for good ankle support.

2) Next to shoes, socks are **vital**. They pad your feet, preventing blisters. They keep moisture away from your foot to some degree, which is an absolute requirement in cool/cold weather especially. Remember to wear the socks you intend to use when you buy your boots - the sport socks tend to be thick, and can radically change the size of the boot/shoe you need. Avoid cotton socks - they make your feet cold in the winter, and tend to promote blisters in the summer, plus the difficulty mentioned in the next paragraph. You can also use very thin polypro liner socks with the normal sport socks - this is handy to help prevent blistering.

3) A hat is necessary. In cold weather, most of the heat loss comes from the head, neck, and the tops of your shoulders. In hot weather a hat is your portable shade. "The Complete Hiker III" has an excellent section on hats.

4) In cold weather you want more light layers, rather than two or three heavy ones. A shell (windbreaker,) sweater, shirt and polypro T-shirt is much better than a heavy jacket and a heavy shirt, because as you change activities your need for insulation changes. If you're bushwhacking (going cross country, not on a trail) you will be working hard. Too much insulation means you'll sweat, which gets your clothes wet, which can make you feel miserable and increases evaporative heat loss when you stop. Take off the sweater and put it in your pack while you walk, then put it on first thing when you stop. As one backpacker put it, "If you're comfortable at the trail head, you're way overdressed." From experience, I'll agree - start to reduce your heat retention capability **before** you set out. In camp I wore a balaclava, shell, jac-shirt (a very heavy, lined shirt), heavy shirt, and undershirt - and needed **all** of it. After less than one mile on the trail, the balaclava, shell, and jac-shirt were in the pack, the shirt and cuffs were unbuttoned, even the undershirt top buttons were open, and I still sweat some. This in mid-thirties weather with high (50%+) humidity and a light breeze on a cloudy day, which makes for a "to the bone" cold.

Remember, the outer layer blocks the wind, the inner layer keeps any sweat you generate away from your body and begins the process of trapping air for your body to warm. Everything in between is just an air trapper.

5) Hot weather clothing needs to cover you to prevent sunburn, but also needs to allow ventilation. Thin polypro briefs work well here (if you wear that sort of thing) because they move sweat away from the skin so you don't feel like you're taking a bath. In general, loose fitting clothing works best. Cotton/poly blends work reasonably well in this environment.

6) Your experience in the wild will probably be neither sanitized nor short. That being so, you have to account for the ability to repair clothes, so get a small sewing kit together. Not necessarily one of those store bought "travel" sewing kits, which have a lot of brightly colored weak thread. If you get one, fine, but use it as a base to start from. Add a quantity of good thread so you can make lasting repairs to things like buttons.

7) Please be advised the wilderness is no place to make a fashion statement. Fit and function matter far more than color coordination. That does not mean it (whatever "it" may be) has to look bad, but it **does** mean you need to set your fashion consciousness aside, which some people can find amazingly difficult.

2.1.6.2 RAIN GEAR

Gore Tex or impermeable fabric? Poncho or jacket? The decision may not be as easy as you think.

Jackets are nice. They are rain gear, windbreaker, and the outer shell of any cold weather layer system. What kind of fabric is another question.

Gore Tex is a permeable fabric - it "breathes," as long as it isn't blocked by mud or salt from your sweat. Each square inch has millions of tiny holes, each larger than a water molecule but much smaller than a rain drop. This is nice, because you don't have as much moisture build up in the shell when you're working - clothes tend to stay dry, rather than sweating them wet in the rain, although nothing really helps when it's 80 degrees F. Gore Tex comes in 2-layer and 3-layer. 2-layer bonds the Gore Tex to an outer shell material, such as rip-stop nylon, for mechanical strength. 3-layer bonds an inner lining, usually nylon taffeta, for better feel and better protection of the membrane. The 3-layer construction is worth it, being much more durable. When you buy a jacket, make sure it has zippers in the armpits ("pit zips") - the fabric can only pass so much moisture. Exceed that amount and you'll start to get damp, so the pit zips are crucial for ventilation.

Campmor's "Camp-Tech" is a recent competitor to Gore Tex. At least one user in the BACKPACK forum has used it under real conditions and says it's just as good as Gore Tex, and it tends to be less expensive. Beyond that one user report, I have no idea about durability, especially over time. Check it out.

The downside of Gore Tex is cost - My North Face "Climb Light" jacket, just a simple 3-layer shell, long, no liner, good pit zips, on sale for \$169. This is a *real* good price, since these jackets started (the model is discontinued) at \$225. \$350 is not uncommon for a quality Gore Tex jacket, and I've seen up to \$500 (the US Army surplus ECWS stuff is reputedly quite sturdy and the prices on it are good.) Impermeable fabric rules the lower cost range, be it poncho or jacket. The Helly-Henson Squall Parka, actually a long shell with a hung taffeta liner, is about \$80. A good jacket with few vices, the worst being the liner - it sticks out past the cuff with any provocation, and wicks rain inside the cuff.

But what about ponchos? They are light, inexpensive, highly compressible. Put a stick in the hood, guy it out, and you have a nice, small, well-ventilated shelter that was quickly set up. The downsides of ponchos, unfortunately, are several. First, nobody seems to make one from good fabric. Store it for a while and the plastic backing will stick to itself or crack, although some are worse than others. Second, ponchos are **not** that windproof. The fabric is, but they billow in the wind, plus the fact they are split down the sides, which makes for very poor insulation value. Third, being so loose, they catch on things as you walk. If space is an overriding concern, get a decent poncho and tie it around you with string to keep it from flopping about too badly. Otherwise, invest in a good jacket.

2.1.6.3 COLD WEATHER CLOTHING

There is a lot of cold weather information scattered around this document, so I decided to pull some of it into one place. Not unsurprising - I've had hypothermia, and this tends to focus your attention on the difficulties associated with being cold.

Like anything else, you want gear that is as light and versatile as possible. As mentioned above, you want layers you can easily add or remove rather than a few very heavy items. Clothing items have to be able to dry fast, have good "warmth to weight" characteristics, be durable, and be as easily packed as possible. Let's start by looking at fabrics.

Cotton kills in the cold. Dry it's OK, but it retains moisture and loses 90% of its insulation value when wet, and it doesn't dry easily on its own in cold weather. Worse, evaporative cooling will hasten heat loss, leading to hypothermia and death. Cotton socks increase your chances of trench foot, a lovely cold-related problem that will literally rot your feet off, which is why you must keep your feet as dry as possible in cold weather. Soggy (not just slightly damp) feet plus cold weather plus time (one day, maybe less - check the medical refs) can get the problem started. Not finished, mind you, that takes time, but it is a bad idea to this thing started.

Wool works when you can find it, but some people are allergic to it. Polypropylene (Polypro, if you want to sound like you know something) wicks moisture away from the skin, dries fast, and has excellent insulation qualities. In general, you want synthetics or wool / synthetic blends for cold weather. Capilene and Thermax are two brand names for good cold-weather underwear. Down for vests and jackets have the highest warmth/weight, but they are useless when wet and take a long time to dry. If you may be thinking about *very* cold weather in the future, a down vest might be a good investment for camp wear (pack it so it will stay dry,) but down jackets seem a bad investment to me.

To look at what the layers are or can be, let's start at the top and work down, from inside to out. The assumption is camp conditions (low activity,) 10 degrees F, some wind (5 mph,) exposed (not in tent - probably waiting for water to boil after setting up camp.)

Head:

- Balaclava - It should cover the mouth and neck well, even moving around. You want to cover the mouth to allow some pre-heating of the air you breathe. Polypro is the best choice.
- Hat - Should be possibly slightly oversized, to allow it to fit over the balaclava, but not so stiff or oversized it cannot fit under the shell cover.. Nylon is a good choice. Does not need ear cover, but it doesn't hurt.
- Scarf - can be a backpacker's towel, a real scarf, whatever, very handy for adding insulation to your face, neck, tops of your shoulders, whatever.
- Jacket - The hood. Windproof, be sure it can cinch down well to keep out wind from coming in around your face.
- Eye Cover - The **only** non-fogging eye cover I have ever used (I've tried several that claimed they were) is some Army surplus goggles. Great for lots of things like spray painting around the house, inexpensive (\$12, 1996) effective, allows the use of glasses, light, handy in more severe wind than what we are talking about here, but will significantly cut heat loss in our hypothetical camp.

Body:

- T-shirt. Long sleeve, medium weight polypro.
- Shirt - Last time out it was cotton, against my own advice. It was also only a weekend trip, and I got lucky at that. I also have a wool Pendleton shirt for the next winter run.
- Jac-shirt - Cotton shell, polyester fill, quite windproof. I accept the shell material because the fill works and it's a good (Coleman) shirt.
- Jacket - North Face Climb light shell. Three layer Gore-Tex, good pit zips, long enough to fit me to crotch level (6'3") No longer in production, but a long jacket has its benefits, especially in the rain.

Legs:

- Underwear - Cool-max briefs.
- Long underwear - Medium weight polypro.
- Pants - Campmor Rail Rider Weather Pants. Very light, quick drying, windproof. The windproof feature really works as long as it isn't too bad (over about 20 mph.) The cuffs have a velcro strap to allow them to be tightened up.
- Overpants - For serious weather, consider getting a pair of nylon or Gore-Tex overpants. One more layer, more trapped air, very wind- and waterproof. They often have zip lower legs to allow you to put them on while wearing boots.

Hands:

- Gloves - Double layer, shell over liner. Liner is reasonably thick polyester, shell is close-weave nylon with leather palm reinforcement. You can wear just the liners, just the shells, or both together.
- Overmittens. - Available from people like Outdoor Research, frequently Gore-Tex, some are quite sturdy. Used a lot in more severe weather, because mittens retain heat much better than gloves - less surface area for heat loss.

Feet:

- Liner socks - can be thin or thick polypro.
- Socks - I just use Thorlo Hiker socks. Works for me, even in hot weather. You may want or need more.

- Boots - Normal high ankle hiking boots. Be sure they don't fit too tight with your sock combination, or your feet (starting with the toes) will get frostbite from lack of adequate circulation.
- Gaiters - If you expect to be doing a lot of walking in snow, nylon gaiters can keep the bottom of your pants legs from getting soaked. Also useful walking in tall wet grass in less cold circumstances.

As you can see, real cold-weather gear can be a lot. When it's winter and you are wearing it, you hardly notice it because the weight is evenly distributed around your body. When it's summer and it's on your back, it can be real hard to remember that in six months you'll need it very badly indeed. Choose wisely what you carry and what you don't at the start.

2.1.6.4 HOT WEATHER CLOTHING

It occurred to me after a while that I address cold weather quite a lot, but I live in Texas. Hot weather, sometimes *very* hot weather, is a fact of life around here. Being a fact, you almost never think about it. Well, that isn't too bright. If things go up and it's summer, I may have no choice but to leave in the middle of a scorching day, and keep going for at least a while. Water and electrolytes are big enough problems, but I know people who have been sent to the hospital for sunburn - no kidding. One close call to this fate was a good buddy of mine, and I was there when it happened. We were on a river, he was wearing shorts, and he never bothered to reapply sun screen (this in the days when sun screens were mostly alcohol based.) Looked like cooked lobster some eight hours later. Not good - ended the trip for him.

If you have to leave, sun screen is a precious resource. There isn't enough in an eight ounce bottle for three to six months under normal circumstances, so you have to conserve by wearing the right clothing. That means hats, long sleeve shirts, and long pants. The pants and shirts should fit loose to allow for ventilation, while the hat has to both cover your ears and the back of your neck at least reasonably well, while allowing adequate ventilation. The fabric should be quick drying to allow you to stay cool while not getting so wet it sticks to you.

Hot weather gear is currently (1996) high fashion. Understandable, considering how doctors tell us the sun is so dangerous every day. Currently, a good hot weather shirt is about \$60. They have mesh panels, close-weave cotton/synthetic blend fabric, are very light, long sleeved. Cotton painter shirts cost a lot less (\$8) and work well until they get wet - then you get cooked through the fabric. Hot weather hats run from \$5 boonie hats to \$30 and up major creations. Pants are a real problem - durable cotton blend pants that are loose are hard to find, but you can't go too far wrong if you get a pair of the new NyCo cotton/nylon BDU pants from a surplus supplier like Brigade Quartermasters. More expensive than the old cotton twill version, they are that much more durable.

I like hats and tend to be a gear-head anyway, so I'm trying out a Sequel "Desert Rhat" I just bought. Quite a fancy creation, it is basically a baseball cap with a bit of velcro to hold a nice sun cape for the neck, plus a reflecting "scalp protector." At \$30 from REI, I debated a long time about buying it. What decided me was (a) it fit well - the adjustment is a lot better than the ordinary caps, (b) the cape is long, impervious to the sun, but seems to breathe well and is very adjustable in its own right (although a safety pin improves it even more,) (c) The chin strap is an intelligent design, (d) it fit all the criteria - reasonably light, packable, covers what needs it but has good ventilation.

I also decided to try a Sportif "Trinity" shirt. Less expensive and more practically constructed than some other varieties, fewer useless doodads, light, mesh panels front and back, good pockets. I'll see how it works out.

Most people forget their hands. I did, but it is a whole lot of no fun to get the backs of your hands toasted. About the most sensible solution I've seen here is cotton gardening gloves. Cheap, light, available at any home or garden center, just make sure they fit well, and not too tight. Light cotton inspector's gloves from a place that sells industrial hygiene items may be a better bet.

Shorts work in more shaded areas (woods) or for brief exposure, but remember, they give zero protection against mosquitoes and ticks. I have never felt comfortable about the "2-in-1" pants with the zip-off legs. A nice idea, but the zippers are a failure point. Maybe they do work well, but I've seen enough stuck and mangled zippers to make me want to steer clear of them.

I have to say, the hot weather stuff I have is a triumph of function over form, and a study in total fashion dysfunction - a tan hat over a light green shirt over Woodland camo pants (that's all they have) over grey

(or brown, depending on circumstances) boots. If it keeps me as cool as possible and doesn't let me get sunburned, who cares.

2.1.7 KNIVES

Yet another subject dear to me. The article in SRVKIT.ZIP is about the best I've seen on the subject, but I thought I'd add a few things.

Knives are basic because they allow you to do things like clean fish, make deadfalls for game, skin the game you get, make tinder, make tools (a stone-head axe may not be Estwing, but it's better than trying to butt a tree over with your head,) and so on. There are some folks of my acquaintance who are quite willing to go in the clothes they are standing in, just give them a good knife.

I will say I love good carbon steel knives, but unless you know how to care for them you would do well to get 440C stainless just to avoid the displeasure of seeing them rust. Another problem that will cause rust is a leather sheath. They hold moisture, and a lot of leather these days is "chrome tanned". Potassium Chromate is used in the tanning process, and it's corrosive stuff, so go with a Cordura nylon sheath.

The criteria for a good survival knife are:

- 1) Good steel for the blade, that will keep and hold an edge.
- 2) A grip that fits your hand.
- 3) A good, versatile blade design.
- 4a) A folding blade knife should have a lock of some kind for the blade.
- 4b) A sheath knife should have a full tang (a tang is what is held when the blade is being forged or shaped.) "Full tang" means this metal goes all the way through the handle to the pommel. For best strength, it should **not** be welded on.
- 5) A sheath knife should have a solid metal pommel (a.k.a. butt.)
- 6) A good guard or slip-resistant shape.

Good steel is a relative term. Something with the edge in the Rockwell 55 (+) range is a good compromise of hardness and flexibility. Too soft, it won't hold an edge, too hard (about Rockwell 60 and up,) the blade is too brittle and will snap. Good stainless steels are 440C, 154CM, and ATS-34. O-1, O-6, and 5140 (used for truck leaf springs) are good carbon steels.

When you grip a sheath knife, your middle finger should just touch the palm of your hand. Much larger, it's hard to hang on to, much smaller, it's hard to control. Make sure the grip is long enough. With a folder, hold it in your hand and feel it. It won't be the best thing you could possibly have - a folder is inherently weaker than a full tang knife, but if it fits your hand well, meets your other criteria, and it's all you can have, buy it. Shaping and size count here - the closer you can get to the ideal, the better off you are.

Blade design is a bit of a touchy subject. SRVKIT.ZIP calls for a drop point design and nothing but. I'll say that *is* a good design - the back of the knife curves down while the edge curves up, resulting in a very good knife for gutting game, plus it has a strong point, making it less prone to snap when you do some prying with it. In general, you want something with a strong point that can be easily controlled as to depth of cut - if the point goes too deep skinning game and you nick the bladder or bowels, you just ruined a lot of meat.

A folding knife needs a locking blade, no two ways about it. It can be a back lock or a liner lock, but you do **not** want the blade folding over on your fingers.

A lot of cheap sheath knives do not have a full tang. This is **real** bad, because it makes the connection between the blade and the grip iffy at best - under hard use, the blade could just fall off. A full tang strengthens the grip, and is usually threaded so the pommel screws onto it, holding everything together. **Much** stronger construction.

A solid metal, preferably steel, pommel allows you use the butt of the knife for a field hammer for things like tent stakes, nuts (as in pecans and such,) and anything else that needs some light bashing.

A sheath knife needs at least a half-guard, preferable a full guard. When you are exerting pressure trying to pry something open, or the handle is slippery, it is no fun to have your hand slip and run down the blade. I haven't seen a good folder with a guard, so look for a shape that resists slipping.

Daggers and fighting knives are about useless for survival use. The point is weak, and a back edge makes it useless for game. Also ignore the hollow plastic handled "survival knives," they are too weak to be of any real use. Tanto designs aren't too bad, they have a strong point, but they are difficult to use with game because the design of the point makes it tend to go deeper into the game than it should. This tendency can be overcome with practice, but **practice**. Be advised the more "peculiar" the shape of the knife, the more you need to use the knife to learn to use it. A kukri, for example, is a good blade, but the best ways to use it are **not** obvious.

A serrated blade has its uses, such as cutting strapping, rope, seat belts, and such, but it is **not** a good choice for a primary blade. Very difficult to whittle with, and few blades with serrated edges have enough weight for any use chopping.

Get a sheath knife that is at least 1/8 inch across the back, and preferably 3/16 to 1/4 inch. This knife will be used in some pretty abusive situations, and I don't care how good the steel is, there needs to be enough of it there to survive things like prying joints on game apart, splitting wood, getting dropped on a rock, etc. Some people even expect a survival knife to be used as a digging tool. In a classic short term survival situation, this makes sense. For longer term use, this is silly. If it comes down to it, use the knife to make a digging stick.

Keep your knife sharp. Contrary to what some people say, a dull knife is more dangerous than a sharp one. You have to force a dull knife to do its work, which increases the chance of slipping and cutting yourself, and a dull knife produces ragged wounds that do not heal well. Learn to sharpen a knife with one of those 50 cent paring knives or some such - you will make mistakes, and there's no sense wasting money. You don't need a lot of pressure to sharpen the knife, just enough to keep the edge in firm contact with the stone while you keep the angle constant. You are going for a chisel edge, not a razor edge, because you need a strong edge more than an incredibly sharp one. The difference is hard to explain without a picture, but I'll try.

Imagine the edge of the knife as a "v". For a razor edge, the v is tall and narrow, maybe 20-25 degrees between the legs. This is *real* sharp, it can cut you and you won't feel it (I can testify to this.) Problem is, that's great for skin and flesh but the narrow edge doesn't have enough steel supporting it when you have to do things like whittle wood to make a trap. You can literally break small (very small) notches out of the edge, which is a bad way to dull a knife.

Now imagine that "v" as being shorter and wider, about 30-40 degrees from leg to leg. Not as sharp, but there is a lot more steel supporting the edge, so it won't dull so quickly working in hard materials.

Some people will sharpen to a razor edge, then give it one quick pass on the stone or hone with light pressure at a different (higher) angle to give it a "micro-bevel" for a good working edge. Works for me.

Test an edge the safe way - rest the edge on your fingernail, then pull the knife down your fingernail **away** from the cuticle. The shallower the angle you can raise a sliver of nail, the sharper the blade. Rubbing your thumb across the edge tells you very little, and running your thumb along the edge, well, don't cut yourself too deep. Don't laugh - it's happened (but *not* to me.) You can look for nicks by holding the knife edge up to a strong light source and looking down the edge - a sharp edge won't reflect light.

One thing I will say here, although it really applies more to training, is **use** your knife. Learn how to sharpen it, learn how to use it. A knife is not an anachronism, but the knowledge of how to handle one safely is not inherent. Remember to cut **away** from your body, and be aware of where every piece of you is in relation to the motion - real or potential - of the blade.

One thing all the survival books say is to drill a hole in the butt of the knife for a wrist loop, so you don't drop your knife places you shouldn't, like in the water if you are near a stream. They forget to tell you that unless the knife has a scale grip (basically two slabs of wood or plastic on either side of the tang,) drill the hole **off center**. Failure to do so will have you cutting the tang in two pieces - it is like cutting the pommel off your knife. Bad idea.

One note about axes and hatchets. Unless you intend to learn use them, DON'T bring one along. There are too many true stories of inexperienced users putting the edge into a foot, a leg, or a hand to make me

recommend them. No they aren't dangerous if you think about it when you use one. Yes, they can be useful. HOWEVER. You >>MUST<< "follow the arc" to see where it goes if you miss, avoid trying to chop wood that is resting at an angle (chance of glancing blow,) and do **NOT** try to steady the log by holding it with one hand or a foot. Better to pound a couple of wood stakes in the ground and use those to steady the log if it's prone to rolling, or lash up a couple of X-braces to hold the log.

2.1.8 SLEEPING

You are going to have to sleep sometime. Good gear, if you have it, can make a difference, especially for us older folk.

Let's start at the top end, for the backpackers and the car gear. First question is the sleeping bag - what's the fill (insulation), what's the shell (the outside cloth), what's the liner, what's the style, and what's the temperature rating.

The fill is either down or synthetic (Lite Loft being the newest and one of the best synthetics, by reputation.) Down gives the best insulation value per weight, is the most compressible, and is (as you can guess) the most expensive. Problem, once it's wet it's useless until dry, and that takes a *long* time. Synthetics are less compressible, weigh more for a given temperature rating than down, are less expensive, dry quicker, and retain their insulation value when wet. Survival says take a synthetic bag, although you might get away with a bag that has a down filling and a Gore Tex shell.

Shells can be various weights of nylon taffeta, that have zero water resistance and ability to stop wind, or Gore Tex, which makes the bag wind proof, water resistant (they tend to leak at the baffle seams unless you seal them,) tends to give a slightly better temp rating, and raises the price. There are several other shell materials out now, but I don't know enough to comment.

The only liner material you want is nylon or other synthetic. Leave the cotton-lined K-mart specials to those who don't know better.

The style can be rectangular, tapered, or mummy. Rectangular is what you grew up with as a kid, most likely. They're roomy, bulky, and usually designed for higher temperature ranges. They are never used by backpackers for 2 reasons - first, the bulk, second it takes more body heat to warm one up and keep it that way.

Tapered ("Semi-rectangular") is a compromise. Still roomier than a mummy design, it tapers more to fit the body better. Not as efficient as a mummy design, but **much** better than a rectangular bag.

Mummy designs are just about form-fitting. They are absolutely the lowest bulk and fastest to warm up. Some people find them claustrophobic to sleep in.

Temperature ranges are a fiction, based on an "average" human. They can be a useful guide, but be advised you may sleep hotter or colder (women tend to sleep somewhat colder, for example) than advertised. "Know thyself" applies here.

Needless to say, try before you buy. Take off your shoes and any projecting oddments and get in the thing, right there on the showroom floor. If you intend to put down good money for one, you should know if it's long enough, roomy enough, and nice enough to justify the cost. Roll over in it if you sleep on your side - make sure your hips don't compress the insulation on top. If your presence in the bag significantly compresses any insulation other than what's under you, it's too small. You will have a ground pad of some kind under you, so don't worry about that, but if you compress the insulation anywhere else in your normal sleeping posture, that's a cold spot.

Be advised you can't store a sleeping bag packed and ready to go. The fill will compress and lose it's insulation value if stored packed for a long time (a problem blankets don't have.) Remember to shake a bag after you take it out of the stuff sack on the trail to restore loft.

One idea occurred to me recently. Over a period of time, the liner of a sleeping bag will get pretty filthy from dirt, body oils, and etc. You can either buy a sleeping bag liner (which all seem to be cotton,) or you can get some nylon taffeta from a fabric store and have it made into a liner (a "silk" sheet would probably work as well.) Just remember to leave one long side open so it doesn't interfere when you unzip the side of the bag. Then, when laundry day comes, you can wash the liner - **much** easier than washing a bag.

Survival sleeping bags are the same mylar as the blankets, formed as a bag. Compressed, they are the size of your fist and very light. The problem is durability and conductive heat loss on cold ground - that plastic is thin. There is a bulkier step up that is better insulated and much more durable, which I describe in section 3 as an experiment.

Pads are the next question. Sleeping on rocks is hard on the bag, sleeping on snow or cold ground, even with a tent, is hard on you. Ground pads can be closed cell foam which are light, pretty hard, and incompressible. Thermarest pads are "self-inflating" air mattresses that are remarkably thin, tough, and (relatively) soft. Not cheap, but I swear by them as a backpacker. The company that makes Thermarest pads now makes the Z-rest, a closed cell pad in an egg-crate pattern. It folds up into a sizable, and utterly incompressible, brick, but it's lighter than my $\frac{3}{4}$ length Thermarest and, while not as nice as a Thermarest, is more comfortable (in my opinion) than other closed cell pads. In cold weather, some form of padding is NOT optional. Cold ground is a very effective heat sink, and, being asleep, you aren't generating much heat. This is a lethal combination. You can sleep with your clothes on, or sleep on your clothes, but you will need some form of insulation between you and the ground in cold weather. No, the sleeping bag isn't enough, because you compress the insulation under you to near uselessness.

When you set up for the night, remember a few things. First, sleep on high ground if you can. High ground catches more wind, more wind means fewer mosquitoes, and if it rains you won't be flooded. Look at the ground and avoid areas that show erosion - if it rains, guess where the water will go. In winter, low ground will be filled by snow drifts (assuming snow is a problem,) but you obviously will want to be in the lee of some wind-break. To avoid lightening if you expect bad weather, avoid ridges and lone trees or small stands of trees - camp about 20 feet away from any tree.

Second, check the ground for the tent/sleeping area. Remove rocks (if you can,) and find and avoid roots. They aren't just hard on you, they're hard on your gear.

If it's dry when you wake up, turn a down or synthetic bag inside out and set in the sun to dry (if you can) while you make breakfast. You do perspire in your sleep, and the bag needs to be allowed to dry.

2.1.9 GEAR TO CARRY GEAR

The biggest consideration, of course, is how much do you have? If it's a personal "carry-always" kit, a small belt pouch will do it. One of the books in the reference section puts the whole thing in a small cigarette tin (yes, that's a small tin box for cigarettes - Maybe Sucrets has something for us Yanks,) and the whole thing fits in a pocket.

When it comes to car gear or the house "bug-out" kit, the possibilities multiply. Fundamentally, it comes down to backpacks, day packs, and military gear.

Backpacks come in two flavors, external frame (e-frame) and internal frame (i-frame.) An external frame pack is what most non-backpackers think of when they think of a backpack - an anodized aluminum frame supporting a nylon bag. I-frame packs are a much newer concept, replacing the aluminum frame with aluminum or carbon-fiber stays (strips). All backpacks worth having have hip belts and sternum (chest) straps. To water down the differences between e-frame and i-frame, a subject of constant conjecture between backpackers,

E-frames are:

- 1) Lighter to start with
- 2) Carry heavy loads better than most i-frame packs
- 3) More versatile - you can remove the bag and, say, strap a deer to it to carry it back to camp
- 4) Are cooler in hot weather
- 5) Are less expensive initially.

I-frames are:

- 1) Better for people with bad backs (loads ride *much* closer to you)
- 2) Are better for off-trail hiking (fewer projections to catch on foliage)

- 3) Tend to carry a load more stably
- 4) Are less noisy
- 5) Handle small loads better if they have compression straps.
- 6) Made with heavier duty cloth.

To make the situation even more amusing, you have the choice in either style of top-loading vs. panel-loading. Top-loading is pretty much what the name implies - there's a hole in the top of the bag, and you load the bag through the hole, although i-frame packs tend to add a heavy-duty zipper at the bottom of the bag as well, for loading the sleeping bag. Panel-loading is a bit different, the top is sealed but the back of the pack unzips for loading. Top loaders tend to be sturdier bags, panel loaders are easier to load and easier to find things in.

Good, near top of the line I-frame packs are Dana Designs and Gregory. If you want the No Holds Barred Best, it's McHale, but it's a semi-custom pack and costs like it, plus the six month wait. Kelty is still, as far as I know, the king of the E-frame packs. If you have children, ask a local Scoutmaster what most of his kids have - likely it's a Coleman because it's so adjustable. Whatever you get, get it because it's comfortable, **not** because it's a name I mentioned. Shop around. If it's a Jansport or North Face or Camp Trails pack, who cares, as long as it's at least reasonably well made? Put some weight in it and walk around the store a while. Check seams for raveling and quality of stitching. Learn how to adjust it. Rent it for a day hike if you can, load it up and go for a walk. A pack is a bit like underwear - if it does its job right, you hardly notice it. If it *doesn't*, you can hardly notice anything else.

The step down is daypacks. About 2100 cubic inches or so of capacity, they lack amenities like hip belts, outside pockets, and anything approaching a frame. Only a masochist or the truly desperate would load one of these things with more than about thirty pounds, less if it lacks a sternum strap. Not designed to carry much, they still have their uses. Get one made with thick cloth from a sports or backpacking store - the cheapos made from thin fabric for students are about useless.

The step from here is military surplus. Designed to be sturdy rather than weight-conscious, I guess it succeeds in its design goal. Treat the ALICE pack as a daypack unless you get the LC-2 frame (see either the US Cavalry or the Brigade Quartermaster catalog for what I'm talking about.) What I'm really discussing here is the lowly pistol belt. Add a belt pad and it becomes useable. The nicest thing here is, it's a "roll your own" solution, where you add the accessories (pouches, canteens, etc.) you want. Since it rides on your hips, it can carry a surprising amount of weight well. Some folks might want to add the shoulder straps to help it ride better. Stay away from the Taiwan clones of the "3-day" pack. Tried one, had the stitching on the handle rip under light use. Get the real thing.

The step down from here is military style LBE/LBV gear. That's Load Bearing Equipment / Load Bearing Vest for those not enamored of military acronyms. The prices on these things tend to range from reasonably priced junk to overpriced to GACK!, but gun shows and places like the EAA Fly-In at Oshkosh, Wisconsin (first week in August) tend to have pilot survival vests used for more reasonable prices. The idea is nice and worth considering. Highly compartmentalized, there's a place for everything. Accessibility is a given. On top of that, load distribution is quite good since the weight is distributed all around you, and it rides very close to your body so you can move better in tight places (like doors.) It also tends to make you get serious about prioritizing what you REALLY need as opposed to want.

The next step down is the commercial butt pack, like the Jansport Oasis (in the Daypack section of the Summer '96 Campmor catalog.) Actually a nifty idea, takes the military pistol belt idea and downsizes it a bit. 2 22 oz. water bottles are included in the \$30 price tag. I haven't seen one of these up close, so I have zero idea about durability.

There is a step down from here, believe it or not. I mention it because it worked for countless thousands of Rebel soldiers and mountain men before them - the blanket roll. During the Civil War, it was (usually) a wool blanket, a rubber blanket or oilcloth, letters from home, and damn little else. Food was carried in a haversack (a small pouch) slung over one shoulder. Canteens were avoided as heavy and unreliable, so a strong tin cup (which was also used for cooking) was carried on the belt. I actually have a reproduction of such a cup, it's heavy as the dickens (for a cup) but I can well see how it would become a standard in that day and age. A more modern variant of the above get up might be a wool or polyester blanket, a heavy-duty tarp or space blanket, rolled around spare socks, maybe underwear, the water purification, a sewing kit, any other small odds and ends. Tie the ends of the blanket together with sash cord or some

such, put it over one shoulder, then hook a canteen and a Sierra cup on your belt, add a small pouch of your preference for carrying food, put on your hat and hit the road. The best thing about this system is, all the major weight is dual-use - the blanket you carry stuff in is also the blanket that keeps you warm. Set it up properly, and it's even reasonably comfortable for temperate climates.

Thanks to Gordon DeSpain, there is another option available in the transport category, and it makes life with gear plus the very young potentially **much** easier. Don't know why I didn't think of it before - The Travois. You can buy it (or a sled, or a child's wagon) or build it. You can make it in the field by simply lashing poles together. If you are in rough terrain, it can be just a single pole trailing behind you with some of your gear tied to it. Want to reduce friction on the roads? Attach some castors to a piece (or two) of wood that can clamp onto poles you cut.

Several things, though. First, don't tie the carrying device to you by a long string/rope, it will bump you in the butt/legs as you walk - very uncomfortable. Second, it will be advisable to attach the thing with some kind of "quick release" knot, because if it gets stuck, you need to untie it to turn around and free it. Third, ALWAYS carry the "essentials" on your person at all times - you never know when things, or what things, will happen. Fourth, if you make the three pole travois, don't make it any wider than you are unless you are certain you will always be operating in open terrain. Fifth, again relating to the three-pole variety, make sure you put the cross piece high enough that it doesn't easily snag on roots and brush as you walk, about 6-8 inches vertical clearance. Sixth, consider adding a length (10 feet or so) of ½ inch or thicker (for ease of grip) polypropylene or nylon rope - when you get to steep inclines, use the rope to help haul up/lower down the travois (or sled or whatever,) rather than try to negotiate steep terrain with it attached to you.

If you attach castors or wheels to a travois or buy a wagon, remember they can negotiate barriers up to 1/3 the height of the wheel, and that ground pressure is a function of how many square inches of the tire is in contact with the ground as well as how much weight is being carried. The lower the ground pressure, the better the performance on soft ground (the tires tend to float rather than sink in.) This means the best technical choice is something like magnesium wheels for an off-road bike, because they are relatively wide and pretty tall, but cost, weight, and technical complexity (how do you install an axle that will clamp to a block of wood?) will probably dictate castors, or wheels from a child's cart (assuming you don't just use the cart.)

Carry gear **TO AVOID** if you're on foot includes things like suitcases, ice chests (unless you're in a canoe, which might be a real trick,) duffel bags (better than a suitcase, though,) briefcases, lunch totes (they aren't very durable,) - in short almost anything commonly used for transport within the city limits. Perhaps I'm just a bigot, but it seems to me that planning for the long term means that you want carrying gear that is durable and **designed** to carry a load long distances well in rough terrain. Normal people do not try to carry their Samsonite any further than the distance between the terminal and the parking lot. Even somebody with rock forearms would be challenged by the prospect of, say, 100 miles carrying a suitcase. A decent e-frame pack is about \$120, a good daypack is about \$40, a low-end i-frame is about \$200, a surplus pistol belt setup is about \$50 by the time it's decked out, a blanket roll is about \$30. It isn't that much money to give yourself the ability to carry a load in some comfort, so spend it. Spend according to your evaluation of your needs, get what you feel is appropriate, but unless you are already a backpacker, pack in to hunting sites, or are otherwise experienced and already equipped for outdoor trekking, **do not assume you have what you need.**

Why did I include this? There was a message thread in BACKPACK forum that mentioned some of the odd sights on one of the three *long* US trails (in this case the AT - Appalachian Trail.) Apparently, somebody really did set out to walk the trail with two large, full suitcases. Another fellow told of seeing somebody with one of those heavy 2 burner Coleman stoves strapped to their pack (**way** too heavy/bulky.) A couple of guys with an ice chest between them. Some poor Scout whose well-meaning (and utterly ignorant) mother packed his pack. Just strange stuff. I don't want to insult anybody, but it truly brought home the potential level of ignorance of the reading public. The assumption had been that everybody might not know what they *did* need, but they knew what wouldn't work. Obviously, the man with the suitcases didn't. You're going to have enough trouble being comfortable without making things worse. Even if you leave by car and it looks like smooth sailing all the way, never assume. Besides, once you get there, you'll need it for foraging anyway.

Carry gear for long weapons is an odd subject, but it has come up. You bought or made the thing, either a bow or rifle, and your life may depend on keeping it working for a long time. That means you care for it - you don't drop it, throw it, let it knock around when you don't have to, let it get rained on (unless in use) or cook in the sun. You can buy commercial cases, which work but often use open-cell foam or blanket-type padding, or you can make your own from heavy nylon cloth and the cheapest backpacking closed cell foam sleeping pad you can find. Reason? Closed cell foam does not absorb water. dries fast if it gets wet, and does not hold water close to the weapon.

2.1.10 MISCELLANEOUS

This is the "stuff" category, random things that really don't fit any category too well.

1) Nylon string, about 250# test. Use it to make a carrying loop for something, tie something to you or your pack, whatever.

2) Compass. Always nice to know where you're going. Wet compasses are easier to use than dry ones (the needle stops swinging sooner,) and the new ones are just as reliable as the old dry compasses.

3) 550# parachute cord. If you're in bear country, you **need** this stuff. To try to keep bears from eating your food, you end up suspending your pack between 2 trees, at least 10 feet horizontal from each tree and 15 feet vertical from the ground. The rope has other uses as well, from mending clothes (unravel some the rope to get nylon thread) to a fishing lure.

4) Map. Could be something as simple as a road map of the US or, if you are working in a known area (backpacking, for example) you can get a topographic map from the USGS for the area. One of the great unrealized map resources is the aviation "sectional" chart, invariably referred to as a "sectional." Available wherever there is a flight school or via some mail order houses like Sporty's Pilot Shop (check "Flying" magazine for the address [available at almost any bookstore magazine rack,] ask for the catalog), these maps are a treasure. They are intended for VFR (Visual Flight Regulations) travel, which means they show all kinds of landmarks - like cities, towns, small towns, lakes, rivers, major roads, railroads, quarries - ANYTHING a pilot might want to use as a landmark (or want to avoid, such as radio towers.) They fold well, they're light (although a full set is not without bulk,) they have elevation and latitude/ longitude information, and they're about \$6 each (a full set of maps for CONUS is 37 maps.) Scale is 1:500,000. They also show every military base in the country that affects flight (most do, namely, "Don't Fly Here".) If you have trouble reading the legend, get a copy of AC 61-21A (Flight Training Handbook) or suitable substitute, which has a section on map reading. There are also TCA maps that cover a **much** smaller area in greater detail, and are associated with major airports - Chicago O'Hare, DFW, LAX, and so on. Good for finding resources close to major cities. Even stock ponds show up.

5) Wonder bar. This is a small, lightweight wrecking bar. Useful for opening trunks or doors, levering heavy objects, splitting wood. Also makes a good makeshift shovel or pick. Especially useful if you may be involved in a disaster rescue effort.

6) Coffee filters. Tie around the inlet for a water filter to extend the life of the filter.

7) Pack towel. Handy things, light and absorbent (**much** better than terrycloth,) very like a sponge. One use that came to mind was finding a thin film of water when you're running low. Drop the towel into the water, pick it up, squeeze the water into a container you don't mind contaminating, and filter it. Also useful for a makeshift arm sling, tying splints to a broken limb, a neck covering in hot or cold weather, or yes, you can use it as a towel. If you want to make it in this universe, you really have to know where your towel is.

8) Large, heavy duty garbage bag. Garbage bags are incredibly useful. Depending on how you cut one, it can be an emergency poncho, a rain skirt, a tarp, or a ground cloth. Use it to line a depression in the earth, it becomes a sink or a filter point for water. If you must cache something, garbage bags become a must item, to protect what you're caching. "Contractor cleanup" bags from do-it-yourself stores are great.

9) Walking staff. Some people look at you like you're a loon for carrying a staff, but I swear by them. A 4 foot piece of 1 inch diameter hardwood dowel, a broomstick, something found on the trail, whatever, they can be quite useful. They help you balance on difficult terrain. You can prop one end on a tree and use it as a toilet seat if it's strong enough. They clear spider webs from the path in front of you. Tie a line to it, it becomes a fishing pole. Use it to prop up a tarp for a quick shelter. It's one of those things that's limited mainly by your imagination.

10) Birth control. The smallest survival kits use unlubricated condoms for water carriers, but in this case we're talking about the original function. While I doubt many people reading this are going to turn into monsters of lust and rapine, let's face it - you are probably healthy regardless of gender. "The urge" is natural, normal, and human, not to mention (usually) fun. No woman should have to look at her man as a potential danger, nor should any man have to see *himself* as such. Melodrama? Once you get to more

established circumstances, OK, but until then, pregnancy is probably a bad idea. Think about a woman trying to keep a pace going or carry a load at six months.

11) Zippo lighter. I didn't think about these until recently, but they **are** handy. Immune to wind, refillable with white gas, gasoline (light at arms length,) possibly kerosene (have to test - no guarantees,) they never overheat and are immune to cold as well. Flints are very light and cheap, and you can salvage flints from empty disposable lighters (as long as they aren't electric ignition.) Keep them full of fuel and the wick lasts forever. Unaffected by everything that will cause a disposable lighter to fail except running out of fuel.

2.1.11 PACKING

Load management is what I'm talking about here. If the load "rides funny", it can tire you out or unbalance you at inconvenient times. Another consideration, however, is arranging access - put the commonly used and/or most vital gear in places it's most likely to come quickly to hand, and arrange the rest in more out-of-the-way places.

Think about how much weight you are going to carry. The Boy Scouts are trying now to insist on 30 pound packs, no more. That's fine if you can spread the load for things like stoves, fuel, tents and so on around over 2 to 12 other people, but it becomes a bit less realistic if you are it, the one beast of burden. Still, the ultralight packers are managing 30 pounds for 1 week in summer, which is pretty damn good. The standard for normal backpackers says a pack should be no more than 25% of body weight, perhaps slightly more if carrying water on a desert trip, but let's face it - we aren't SAS. I doubt very many of the people reading this are up to 40 mile hikes with 120 pound loads. Try to treat the 25% figure as a **maximum**, because load carried is energy spent. If you feel you have an all-weather, all-encompassing, reasonable term solution that comes in at 20 pounds, go for it. Better yet, tell me about it, I'm *always* willing to listen.

Prioritizing access is, for the most part, fairly easy. Ready water and ready medical supplies are top priority items. Next on the list (especially in winter) are the emergency fire starting supplies - if you get really soaked, you need a fire *now*, not ten minutes from now. Noon rations and toilet gear, if any, are about middle of the list - you don't want to unpack everything to get to it, but it's hardly a frequent use item. Camp items like the sleeping bag and such are dead last, with lighting topping the list - the candle lantern may not be necessary during the day, but it is **much** easier to set camp after dark if you have some light. Shelter construction items, like a wire saw or other type of saw, may be the only things that come after items for a temporary camp, while hunting gear depends - in a vest, the item is already quite possibly in hand, while the chance something worth taking will present itself while you're toting a travois is pretty minimal.

Load Bearing Vests tend, for obvious reasons, to cluster the greatest amount of storage in the front pockets. The back pocket, if one exists, is generally a large panel affair useful for holding gear that has more than normal bulk. Try to balance yourself front to back and side to side - you won't get it perfect, but putting the water filter wrapped in a spare undershirt for padding (much appreciated when you lean against a tree, for example) will go a long way to counter the 1 liter water bottle in one of the lower front pockets.

Daypacks are simple to pack - keep the heaviest stuff as close to your back as possible, put the frequent use and vital-access gear in the top pocket.

Backpack packing is dependent on pack type and conditions (trail or bush.) According to one highly experienced female backpacker, gender is also a concern. Her recommendation for women with I-frame packs was to ignore the traditional packing instructions and put the heavy gear in the bottom, sleeping bag in the middle, light stuff up top. The normal packing instructions for an I-frame pack are, sleeping bag at the bottom, heavy gear in the middle and as close to the back as possible, light gear in the area farthest from you and on top. This way, you control the pack, rather than having the inertia of all the heavy items whip you around as you walk. I've heard the suggestion that if you are on an easy trail, move the heavy items to the top. Never tried it myself, I never seem to be on flatland trails.

E-frame packs were designed as load haulers. The sleeping bag and pad are suspended from the bottom of the frame, although some put the pad on top and the bag on the bottom. Since loads ride farther from

your back, it seems smart to put heavy items as close to you as possible, with ready water in one of the side pockets or under the top flap if you don't have another carrying arrangement. Be careful to keep your weight a little forward when descending a steep incline, so that you don't fall backwards.

Note, there is no such thing as a waterproof backpack. Repellent, yes - that means a light mist might not penetrate too badly, but if it rains for real an item is either in a waterproof container or it's wet. Period. Be prepared to invest heavily in freezer ziplocs and garbage bags. Another idea, get as much of the air out of the ziplocs as possible. This reduces bulk and can prevent them from popping open while packed. A friend of a friend forgot this running a river, and the ziploc with his dry clothes popped open after a dump in a rapid. The bag was in a daypack, so nobody noticed. When he got back to camp, he reached for his "dry" clothes - and found they were wetter than what he had on. You probably won't be running a river, but finding your sleeping bag soaked after a hard rain or fording a river will not improve your disposition.

Travois packing is something I've never tried to do, but I will give you my thoughts. As I mentioned, you may now have the possibility to overload yourself beyond your wildest imagination, so please remember to use common sense. Pack by component, so it will be easy to unload/reload, you will lose less time when it gets stuck or you have to line it down or haul it up a steep incline - you probably won't want to do that with a full load. Remember to lash things on securely, so they don't bounce out. Make the net tight, so things like bushes are less inclined to snag it. Consider wrapping a tarp around any items not in a backpack or whatever, so that tools, clothes, food, or whatever don't get soaked by rain or dew. Remember, water splashes, so put as much protection under items as you do on them. If you are on an easy trail or road, consider moving some items closer to the brace, so the ground carries more weight - this increases friction, but decreases the amount of weight you are carrying on your legs. On rough terrain or soft ground, shift the load so that you carry more - it's harder walking, but wheels (if you are using them) are less prone to get stuck, and it's easier to pull over obstacles.

2.2 WEAPONS

Some people abhor weapons, some people go way overboard. A lot of it depends on what you intend to use one for. Some people say "self-defense." Uhhh, maybe. The best self-defense is to not be spotted, which means you should at least be using subdued colors and staying away from areas likely to be dangerous, like the Arkansas hill country. If you want to load up to duke it out with the forces of evil, okay, remember the base load is 180 rounds, the caliber is either 7.62x39 or .223 (a.k.a. 5.56x45,) avoid rock&roll, and stay away from me. Please.

The options regarding potential uses makes choosing a survival weapon a complicated business. You have to look for something that you are comfortable with, can practice with, will take game that is readily available in the area you expect to go to, is robust, and has ammo that is light and/or **very** widely available.

First, what are you using the weapon for? If you expect to hunt, what kind of game do you expect to be able to take? Yes, you can shoot a squirrel with a .30-'06 or a broadhead arrow, but there won't be enough left for more than a bite, if that much. On the other hand, if you are heading into deer country, a .22 LR is a limiting weapon - sorry, you'll never bring one down at **any** range save by pure luck. Wild boar or peccary? Don't even think about it with less than a .223 or 7.62x39, and .223 is marginal. Are you expecting to have to get seriously involved in self defense? You want .223, 7.62x39, or 7.62x51 to be able to engage at range, with 7.62x51 (a.k.a. .308 Winchester) being much the best choice over 100 yards (this is also a reasonable game round.) For arrows, you want good quality shafts with threaded tips, to allow the substitution of a variety of points, mainly broadheads (for larger game) and field points (for target practice and smaller game, possum and such.) Ask around (GO FIREARMS or GO HUNTING on CompuServe are good starts) about what is a good caliber for the game you expect to encounter. Try to avoid using a less effective caliber even if you can carry more of it, because you will tend to wound game rather than getting a clean kill. Wounding means some will get away, some will have to be chased, and some will be down but need a kill shot. This means you are wasting two very limited resources, ammo and energy. Also, avoid full metal jacket (FMJ) ammo, it doesn't have the knockdown power of a good lead point hunting bullet.

Second, personal comfort. If it's a firearm, is it comfortable to hold? Is the stock too short or too long? Easy to aim? Too heavy? Too much recoil for you to handle? Is the bow easy to pull, or so heavy you can't reasonably hope to train into it? Is the crossbow easy to cock? Does the slingshot have a good wrist support? Shop around, because comfort counts.

Third, availability of training and practice. Sorry, watching Rambo movies is **not** training, or even very educational. If you are ignorant of firearms and want to find out about them, call the local NRA chapter or a local gun store and ask about what courses are available. Obviously, rent before you buy if you can, and start small. A .22 is quite enough to teach the basics. Community colleges sometimes have intro archery courses, and the archery shops (real ones, the chains usually have pretty ignorant sales help) will know about local ranges and instructors. I would recommend a rifle or pistol course even for pellet guns, because the basics are the same as you use for any weapon of that type. For slingshots, you're on your own - find an area and practice, be **certain** of what's down range - the things I'm talking about are not toys. A good trap will save ammo.

Another consideration is ammo, as in how much is enough, plus how much can you carry? One hundred rounds is not enough (unless it's a bow or slingshot) to justify the weapon - you'll run out of ammo in a couple of weeks to a couple of months, depending on the weapon, your proficiency, and the type and amount of game you are trying to bring down. Gordon DeSpain said 10,000 pellets was about right for an air gun, but this assumes you have the means to carry that much or are stocking a retreat. That's 100 cans of 100 pellets each, which is still a lot of ammo, a lot of weight, and a lot of space. Crank up the caliber to something like 7.62x39, and 1,000 rounds is a *lot* of weight and space. No problem in a community, plus you can set up reloading gear. Maybe not much of a problem if you have a large vehicle like a Suburban. I'm assuming, unfortunately, you're on the road, and not necessarily in a car. A larger caliber is even worse, while a smaller caliber like .22 could be acceptable. Also consider availability - .22 is everywhere, .223 (SS109/M883) is the official US military round, and 7.62x39 is very much here to stay, as is .30-'06, 30-30, and .308. In pistol calibers, .38, 9 mm, and .45 (plus .22, of course) seem to be dominant. The only real choices for shotgun (as far as availability of ammo) are 12 and 20 gauge, but the bulk/weight factor for the ammo is considerable. The .410 shotgun caliber can be useful against birds and other small game at short ranges (about 20-30 yards,) the ammo is not nearly so bulky or heavy as 20 gauge (though still **considerably** greater than .22,) but it isn't as prevalent.

SRVKIT.ZIP has the best discussion of survival firearms. The old Savage .22LR/.410 over/under rifle/shotgun combo is good here - the .22 is fine for small game, and .410 slugs can (if you're good) bring down a small deer, but you'll have to be a *good* hunter to do that consistently. It also has its uses with #8 shot as well. The Armalite AR-7 Explorer .22LR (LR = Long Rifle) is tried-n-true, been around for years, great for small game.

Pistols can be used, but you need to be a *very* good shot and a good stalker as well. In my opinion, either get a .22 LR and stick to small game, or get a 10mm or larger caliber for medium-size game. Practice a **lot**, and I don't mean just punching paper targets.

Black powder arms are actually worth considering, particularly for long-term use. Black powder has its problems - it absorbs moisture and becomes useless until dried (**DO NOT** use a fire for this - just put it out and let it dry,) it is sensitive to sparks (**ABSOLUTELY NEVER** pour powder down the barrel directly from the flask,) it's prone to misfires, it fouls the barrel incredibly, and you **must** clean your weapon soon after shooting - a few hours, not a few days, or it will rust to uselessness. That said, remember it won the Revolutionary War and the Civil War, not to mention the Appalachians. Black powder is easy to make, it cleans up with hot soapy water (unlike modern nitro powders,) but you want a little oil after cleaning to stop rust. Buy a flintlock and learn a bit about how to knap flint, and a bit of flint, agate, or chert becomes your spark source. With a mold, pot, ladle, and some plumber's lead (not tire weights, at least not for conical bullets) at the base camp, you're set. Be advised max accurate range is about 100 yards (less for round ball,) and accuracy drops after the first shot. You'll probably have to swab the bore after the fifth shot. That said, they are very successful hunting weapons even today.

One point about black powder arms. First, more than ten pounds of the real thing in one place qualifies you as an arsenal in many cities, and most won't allow an arsenal within city, or even county, limits. That's OK, ten pounds is quite a bit. Second, Pyrodex is a black powder substitute that is less subject to moisture difficulties, fouls the bore somewhat less, and is less prone to ignite by random spark. The lack

of spark sensitivity makes Pyrodex **useless** for flintlocks. Even if you have 4F black powder in the pan, the chances are it won't ignite the Pyrodex.

Next in line is bows or crossbows. Silent, effective, potentially reusable ammo or learn to make your own, they have their place. You want a weapon that "takes down" into 2 pieces for easier storage. A 40 pound bow will be adequate for medium game. Be advised that bows in particular are noted for requiring **frequent** practice if you want to be able to hit anything with one. Bows are excellent upper-body exercise, and the skill to hunt well with one is the mark of a true hunter, since most game is taken at under 30 yards. In dense brush, you probably won't get a shot until you get within 20 yards. For long-term use, you should avoid compound bows (the ones with pulleys,) because the mechanical parts will wear out, leaving you with a bow that's very difficult (at best) to string and use. A bow with a 40 pound pull is quite adequate for large deer. Also keep in mind the fact arrows are rated by the "weight" of the bow (i.e., the bow above has a "weight" of 40 pounds, but doesn't weigh 40 pounds.) Getting a shaft that's too light can have the spectacular - and disastrous - result of causing the arrow to shatter as you release it, potentially impaling various portions of your anatomy like your hand. Be advised a bow or crossbow should never be left strung for long periods (days, maybe weeks) because they will take a "set", a permanent curvature that reduces the weight of the bow. When you get a broadhead for larger game, be careful - most of what is out there does not look durable. It works, probably very well, but hit a bone and the blades just look flimsy enough to break. Find a traditional archery store and look for Zwickey Archery Inc. Black Diamond broadheads. No personal experience yet, but they are the only ones I have seen that looked designed to be resharpened easily, and the blades are frankly thicker than some knives I have seen. Small knives, but still...

For arrow shafts, there is wood, aluminum (with several variations,) and graphite. Wood has a nice feel, works well in a longbow, some say better than aluminum. Aluminum is pretty much a standard, works well, takes abuse better than wood. Graphite is about the ultimate in many ways - tougher than aluminum, lighter, smaller (when I first saw the shafts I thought they were toys.) Put it this way - my friend who likes knives has a 90 pound long bow I made for him. He broke aluminum shafts hitting standard targets (yes, he hit the target.) He hasn't lost a graphite shaft yet.

Pump pellet guns are a possibility for small game. They combine the ease of sighting a rifle or pistol with minimum bulk for the ammunition. Get a good one in .22 caliber - .177 may have a higher muzzle velocity and lighter/less bulky ammo, but the lighter pellet sheds energy faster, reducing its effective range relative to the .22 pellet. Putting a low-power scope (say, 2x to 4x) on it is not a bad idea, particularly for aiming at things in shade (like a squirrel in a tree.) If you do put a scope on, BE SURE to sight it in. This applies to mounting a scope on any weapon, of course.

Sling shots are OK for small game. Get a folding variety, some pellets, and practice. There's no sight, so you will have to learn what looks "right". Nice thing is, if you run out of pellets, the right size pebble works too.

Now, about carrying the weapon. That depends on what it is, where you are, and what you think you are headed into. Since it is a potential source of food supply, I would consider it a main item for longer term survival. You must comply with all laws regarding ownership and transport, which may mean you have to leave it at home until *you* leave home, at which point the relevant law is that of the jungle. When you go, you may have to consider a way to carry it concealed on the way out of town - consider the types possible encounters on the way out. You don't want to raise undue alarm, but you also want access as readily as possible. If we're talking exit before the event or during the period of shock immediately afterward, concealed carry may well be more important than instant access, which makes a travois **very** handy for long arms. If riots are starting to break out, however, open carry can save your life.

A rifle slung over the back of one shoulder is reasonably quickly accessible, relatively non-threatening, and works even with a backpack on. A rifle slung in front of one shoulder is different enough to put people slightly off, and it should - this is an instant access, fire from the hip carry - you use one hand to bring the barrel down while one hand goes for the trigger. Once out of town, carry depends on terrain as much as anything else. If you're in dense brush with no anticipation of immediate need, you can strap it to your pack. If you want it readily accessible, it works best slung over the back of the shoulder. If you are negotiating steep terrain, sling it *across* your back, to keep it from flopping around. Rifle-stocked crossbows can be carried the same way. If you ford a stream, be sure to drain any water in the barrel after regaining shore, then oil the barrel when you stop. DO NOT try to ford a stream with a loaded black

powder arm - if the gun gets dunked, you'll need a ball puller or a breech wrench (an adjustable wrench will do) to get the bullet out, because it almost certainly won't fire.

Pistols are, of course, much more easily carried concealed but ready for use. There are belt-pouch/holsters on the market now, from places like Brigade Quartermaster's and US Cav. Harness for chest-height cross draw or thigh holsters are OK from a purely tactical perspective, but even I give another look to people in this kind of setup unless I know them. Good for hunting or tactical situations, but not "politically correct" during egress from an urban locale, although the chest harness might be adequately concealed by a loose jacket.

Do not carry a firearm with a chambered round unless you are expecting to need it quickly.

Carrying a bow is much like carrying a rifle, the only difference is strung or unstrung. Either way, the bowstring acts like a sling. If you are going to be carrying it long distances with no anticipated need, save the bowstring - take off the string and use some nylon string instead. Carrying arrows calls for a quiver - if you just strap them to the pack the fletching will get mangled, destroying accuracy. There are quivers that attach directly to the bow, holding a few arrows ready for immediate use, but you will need a larger quiver or two, capable of carrying up to two dozen shafts (or more) total. If you expect to hunt with the quiver, get a hunting quiver or adapt the one you have by lining the throat with soft cloth, fur, or anything else that will deaden the sound of rattling shafts. Store the arrows in the large quivers with field points on them. This protects the threads, is safer (broadheads are **literally** razor sharp,) and saves the keen edges on the broadheads. These storage considerations also apply, of course, to crossbow quarrels. To carry broadheads, you can impale them in foam or rubber. I intend to try something using velcro and a small block of wood - cut slits in the wood to take the point, staple velcro to the block so it goes over the heads. You can also go all out and use heavy nylon attached to the wood with a velcro closure to completely encase the heads.

Learn the foibles of your weapon. Firearms and pellet rifles must be kept clean and oiled, which means you need a rod, brush, oil (or Break Free, better than WD-40 in my opinion,) cloth for cleaning patches, and modern firearms need nitro powder solvent. Just about any weapon needs some protection from the elements, especially bowstrings - damp strings are much less of a problem with Dacron or Spectra, but natural strings are useless when wet. Spare parts for things easily lost or damaged are a prudent move - spare tubing for a slingshot, extra bowstrings, that sort of thing. Firearms are a bit more tricky - talk to a gunsmith or check out the forums to get some ideas about the weak points of the weapon of your choice. Air rifles need things like O-rings for the pump. Be sure to get some detailed literature on the weapon - the field is no place to figure out how to replace a broken firing pin or disassemble a pump mechanism, and it is *especially* no place to find out you left the necessary tools at home.

2.2.1 HUNTING

[The following is courtesy Gordon DeSpain, who is also (it appears) a **very** experienced bow hunter.]

In hunting, I both "Still" hunt and "Stalk," but, I also taught myself to move quieter than a Shadow (got th' noisiest Shadow in town, drives me to distraction) and, I ***NEVER*** take a shot over 20 yards. There is too much risk of wounding an animal that'll run away and hide. ***Never*** shoot at the whole Animal, pick out a Hair and try to hit that Hair.

If you're in a survival situation, and, desperate, OK, stretch that out to 30 yards, but, expect to spend a lot of time on your hands and knees trailing wounded animals (stick an Arrow down beside each drop of Blood, line 'em up and search out ahead).

[Author's Personal note - Remove the broadhead from the arrow before you do this. Use a field point to keep the threads clean.]

Learn the habits of the game you'll be hunting. Use those habits to your advantage. Both Deer and Antelope Herds will have one animal that acts as a Sentry, this is the one you should watch closely during your approach (ideally from downwind or cross, but, forget about upwind).

A Deer (and, Antelope to an extent) has Eyes positioned so that they cannot see anything but what is directly in front of their face when feeding. This is important because it means that with their Heads down, they can't see you moving. So move only when the Heads are down.

Use *anything*, and everything, to camouflage yourself, to break up your outline (branches with Leaves, Blanket, etc.). It helps, believe it or not, while stalking, to be good at duck-walking. Or, rise up, take as many steps as your count allows, and squat down, slowly and as quietly as possible. But, it's not necessary to be perfectly silent, they *expect* to hear sounds of other animals, if things are too quiet, they'll start getting nervous. If they are grazing toward you, don't move, let 'em come to you, and, shoot while the Heads are down.

They feed on a pattern, the heads will all rise at the same time and go back to feeding at the same time, except for the Sentry (he will spend more time with his Head up, time him). Establish the pattern by counting the time th' Heads are up *and* down, and, move only when all Heads are down, one or two careful steps at a time (while counting) using any available cover.

If you hit one, again, don't move, set down and wait at least one hour. A Bow does not kill by Impact Concussion (or Shock), it kills by Hemorrhage. They will run 60 or 70 yards, then lay down to watch their backtrail. Let 'im lay there and get stiff, or Bleed to Death.

And, remember, we're talking about you, and your family, surviving a worldwide disaster, don't let Bambi's cute looks, or empathy for th' life he represents stop you from shooting. This is no time for "Bleedin' Heart Sympathy," you gotta survive.

Where did I learn this?? A Scientist, th' late Dr. Robert S. Leakey Sr., the world renowned discoverer of Olduvai Gorge and "Lucy." I read his book, and saw the Documentary where he walked up to a wild Antelope..... and touched it with a stick. He could as easily have cut it's throat.

2.2.2 CAMOUFLAGE

Gordon mentioned the first principle of camouflage - Break Up Your Outline. You don't need US Army "Woodland" camo, people have been successful in plaid shirts (believe it or not,) but the idea is to "fuzz the edges" so that you don't look like a human (a.k.a. a threat.) "Made for the Outdoors" (in sec 6, below) talks about a "ghillie suit," which takes the idea one step further - instead of having what are essentially normal clothes with a strange color pattern on them, you have what is essentially a suit or smock that has a physically fuzzy outline as well as a color pattern. Custom (home made) suits are actually usually best, because they allow you to account for things like your own height, bowstrings (a suit that interferes with the draw or release of a bow is worse than useless, if you're a bowhunter,) how baggy you want it (I've seen some suits that left the wearer, when he was squatting, looking like nothing so much as a green-brown lump with eyes, if you knew where to look for the eyes,) ventilation, and so on.

Another thing is scent. The military doesn't care about it so much, but animals care a **lot**. Their sense of smell is many times keener than ours. Strong scents (deodorant, cologne, aftershave) are nice in the city, but forget them in the wild. You can start with commercial scent-killers, but eventually you'll want to make your own concoction. It may look vile, it may have strange things in it, but this is survival, and any advantage that helps you put food on the table is OK. You will have to experiment, but use common sense - bear grease is not going to help you catch a deer.

2.2.3 FISHING

Not as much to say here, most people have at least tried it (even I have,) but there are a few things I found in "Made for the Outdoors" I thought I'd pass on, in case you have trouble finding the book.

First, floats. I figured I'd just whittle something up that would secure the line and hope for the best, but the book mentioned using "child-resistant" pill bottles. They're watertight, inexpensive, and can be used for other purposes when not functioning as a float. The book said to use a rubber band to secure the line to it, then put some bright vinyl tape on the bottom so a nibble will show.

Another section concerned lures. Now, I'm not a fisherman, but I do know several. They have more lures than most anything. The four "field expedient" lures that caught my eye were (1) a hook with one of those bright yellow ear plugs on the shaft, (2) a lure using 550# parachute cord, with one end frayed to (sorta) hide the hook, (3) an old shoe lace smeared with bacon grease, and (4) a bird feather tied to the hook. The claim is that all four have caught fish. You never know what will work, I guess.

2.3 **HYGIENE**

Some people neglect this aspect of survival, and it will cost them dear. You and your clothes **MUST** stay as clean as you can manage it. You may not be able to manage it very well, but try anyway. Lice, fleas, and mites have killed more people than all wars put together. Disease has single-handedly ended military campaigns, by killing most of the troops involved. Several campaigns were ended by mosquitoes (Malaria - in Europe) I'm sure there's an Army Field Manual (FM) on the subject, but here's a few tips:

- 1) Never camp near stagnant water if you can avoid it (mosquitoes).
- 2) If you're at a base camp, set up washing stations for personnel and cooking items at least 50 feet from your water source.
If you're backpacking for training, courtesy says don't wash clothes or dishes in a stream or lake.
- 3) Latrines need to be at least 100 feet away from your water source as well, preferably farther. Lime, if you have it, will speed decomposition. If you backpack, courtesy demands you use "cat sanitation" - dig a hole, crap in it, bury it. Some heavy-use areas are now insisting you pack out your crap as well as other trash. No, I'm not kidding.
- 4) Keep trash well away from food and living areas to cut down on problems with flies and mosquitoes. Put it in a pit and you can burn it to reduce the volume.
- 5) Dirty socks not only promote athlete's foot, they lose some of their value with regard to insulation, padding, and, for polypro, some of their ability to wick. Clean them, you can tie them on your pack and let them dry as you walk (a good reason to have 2 pair.) Keep your toenails short to prevent cutting through the toe of the sock.
- 6) Keep your clothes clean, they'll last longer. Also, lice, fleas, and mites lay eggs on clothes - if you clean clothes often enough, they don't get the chance.
- 7) Keep **you** as clean as feasible, even if it's only a skinny dip in a stream. You'll feel better, and it helps prevent problems with lice and mites.
- 8) If you are in tick country, at long stops (1 hour or so,) disrobe and check yourself, get somebody to check where you can't (or use a mirror,) and shake out your clothes. Lyme Disease is a *whole* lot of no fun. You can buy a "tick picker" kit or use tweezers if you find one. See the medical refs. Use gaiters or pants that allow the cuff to be tied/taped to help keep the beggars from climbing up your leg.
- 9) Do the best you can to keep your teeth clean. Gum disease is a long term problem, but it's a nasty one.

2.4 **TRAINING**

Action guided by training will work.
Action guided by thought *may* work.
Action guided by panic can't work.

The more you know from experience, the fewer misconceptions you carry into the planning process. Misconceptions are the ideas that cause you to make erroneous or inappropriate choices when you try to think it through - you just don't know better. Also, trying to think in the middle of a real emergency is **very** difficult. Training counts here, because it allows you to process information fast enough to avoid overload.

Do not be afraid of the wilderness or your presence in it. Not every spider is deadly, silence does not mean that you will be alone. It may mean you are alone now, but as some are wont to say, "This, too, shall pass." The road can teach you things, but only if you let it.

One of the great temptations is to indulge in the Great American Pastime, known as "shop 'till you drop." You get this horrendous amount of stuff, admire it, pack it away, and never see it again. This is bone stupid. Sometimes all you can do is read the book, but gear must be used if at all feasible.

You don't want to learn how to use the flint stick on the trail. You don't want to find out you are packing too much gear, or the wrong gear, for your physical condition the first day on the run. You don't want to find out your boots pinch your toes or cause blisters when they really count. You don't want to find out the gear you have is packed wrong, so that it "rides funny" and tires you unnecessarily when you need all the energy and speed you can get, or makes you almost completely unpack to get to the toilet paper.

On a more positive note, think of it this way. The more you know first hand, the more confidence you have. The more confidence, the less stress you feel. The less stress, the more you can cope with, which will be quite a lot anyway, thank you.

So use your gear. Start slow, maybe buy a cheap tent (or get your real one) and go car camping. Just getting used to not being in climate control can be a major adjustment for some. Try using your flint stick at the campsite. If it doesn't succeed, the car and the Coleman stove are still there. Try the food you're going to use while you're at the camp. Better to find out it's hideous gunk now than later. Check out your clothes, especially your boots - go for a small hike of a mile or so, just to see. Make sure you don't just walk on level ground - the boot should grip your feet firmly but not tightly. When you buy your boots, allow for the fact your feet tend to swell as you walk, so something that's good in the store may not work after a mile on the trail, but you can compensate by removing socks or going to thinner socks. If your foot is sloshing around in the boot, you **will** get blisters.

Later, you can go a step further and go backpacking, possibly with the car gear. Hit the trail with only the personal gear if you're feeling brave. It still isn't a real emergency, but you are trying to deal with the unknown - relative isolation with minimum gear. This is a major stressor in times of crisis. You may have to deal with it someday. Better to do it and go home with lessons learned than have no home to go home to, and no time to act on the lessons learned. After you make changes and replenish supplies, make a date to do it again, and keep to it. Practice counts.

On the subject of getting used to not being in climate controlled conditions, acclimation is important before a trip. Don't go jogging in the heat of the day or stomp out into a blizzard, but it is a good idea to spend at least thirty minutes a day outside for a week before going on a trip. If that means ten at night during a hot Texas summer, fine, but your body needs time to adjust to the prevailing conditions. This has other implications for being ready to leave - if you don't know when it will happen, you should have some level of acclimation all the time.

This is hardly Army Ranger training, but it's better than finding out you have the wrong stuff at the wrong time, and are too out of shape to make it anyway. If you're really interested, there are wilderness survival schools you can attend. Check the references under "Survival", many of them have listings for schools and videos.

Besides, it can be kinda fun. If you add a little bit, like a deck of plant recognition cards, you can start learning what's what. Going on a day hike with a mondo plant book or an animal tracks book allows you to learn a few things about the outdoors, which is a good thing in and of itself.

For contribution to a community, learn something that doesn't require power tools. Woodworking in its various guises, metalworking, beer-making, gardening, healing arts including herbalism, Reiki, and/or Chi Kung (a.k.a. QiGong,) poetry, guitar, history, pottery, math, martial arts, military skills, gunsmithing, chemistry, **anything**. The more the merrier. If the balloon goes up, everybody will have to contribute. Learning is something you should do anyway, just to broaden your knowledge beyond your narrow professional skills.

2.5 CHILDREN

I have a very young child, and I frankly do not look forward to the prospect of getting out of the proverbial Dodge with him. Children feel, but do not understand. This means they'll feel the tension, but they won't know why you're tense. They will be upset, they will be cranky, they will probably be bawling - look at any news footage of refugees on the road and you'll know what I mean.

Much as we love them, young children in a bugout situation are a daunting problem. They are highly, if not utterly, dependent on you, at a time when you have enough trouble coping yourself. Oh well. He/she/they are your responsibility and your future, so you get to handle it.

Attitude is vital, which is why this section comes after TRAINING. The better your attitude, the better you can deal with the special needs children have, and the better their attitude to start with. Confidence counts here. If you take the children along on the car trips, the more *they* know, too. You can even take them backpacking - the book I've seen recommended is "Backpacking with Babies and Small Children" by Goldie Silverman. Check it out.

Point is, you must plan for their needs. If they aren't toilet trained, you need cloth diapers, Vaseline, and wipes. In a survival situation a limit of one wipe per, no matter how bad it is, may be required, or you may have to substitute a sponge, Handi-wipe, or some other towel you can rinse. You need food they'll eat, which can become a case of "sorry, eat this." If they are finicky eaters, you may be in for a rude shock about your language. I'm lucky in this respect, he'll eat anything (including the cat food.) I hope you're as lucky as I am. Beware of dehydration from diarrhea due to the change of diet, plus any effects of cold, it can kill them quickly.

Speaking of dehydration, you can't carry Pedialyte most likely, but you can carry an oral rehydration therapy, available from Adventure Medical Kits. Having some Tang or similar "taste enhancer" is probably a good idea.

Liquids should probably be given in a bottle. Water is precious, and youngsters are clumsy. If they're fully mobile, four or five years old or older, they're probably OK. Use your judgement here, but remember the circumstances. Be sure to tie the bottle to the carrier, and forget using bottles with disposable liners, they are no way durable enough. Also, be sure to at least **double** the amount of water allocated to a non-potty-trained child. Remember the suggestion about using a sponge or other reusable "wipe"? Guess what - reuse implies the ability to at least rinse it off after every use, because failure to do so will have obvious results. Also, diapers that have been peed on need rinsing, or the child will get diaper rash.

For less-mobile children and infants, get a good backpack-style child carrier like the Tough Traveler series, sold at places like REI. They are designed like backpacks, they're at least reasonably sturdy, and they put the weight on your hips. Unlike cheaper varieties, the kid also can't kick you in the kidneys. In cold or wet weather, remember the legs and head - the TT shields the body to a remarkable degree, but the legs hang free and the head is, of course, exposed. You can still carry a daypack on your chest by slipping your arms through the straps - sorta wearing it in reverse. Also, see the mention of the travois in section 2.1.9, it's nice to think of pulling the weight rather than carrying it. I will say from recent experience, add earplugs to your kit if you use this thing - there's nothing quite like hearing "DADDY, WADDER!" at volume 6 inches from your ear about thirty times to make you wonder what the little (*&('s *real* fate would be.

Another carry option that occurs is a "papoose" style rig with the child in front, slung perhaps using a mini-hammock tied around you. The hammock has other uses (ghillie suit, gill net, sleeping,) and it certainly reduces the weight associated with the child (the carrier goes away.) For some children, however, this may not be an option.

Beware of children's clothing. Most of what I've seen is cotton, because (1) it's inexpensive and (2) children are not supposed to be outdoors for long periods of time in anything approaching bad weather (except for snow.) The Campmor catalog has a selection of children's outdoor clothing, none of which I've seen but it looks good in the ads.

Carry some toys for smaller children. A small, light, brightly colored ball does not seem to be an optional item. A smaller stuffed animal or doll. An old Transformer toy, or a Matchbox Toys car. Whatever you bring, make it small, brightly colored, and at least somewhat similar to something they already like. Also, a child's picture book or two. You don't need the inventory of a toy store, but you **must** provide a foundation for their entertainment. Your sanity and theirs depends on it, and that comment is only half

joking. Some candy is also useful for keeping their spirits up. You don't need much, it can be a special treat, but the rewards are worth it.

One thing I would also say, especially if winter is on the agenda (and it may well be,) a tent is not an option with very young children - you need one. Yes, children are tougher than adults give them credit for, but unless they are teenagers or pre-teen (say, ten,) they have nothing like the stamina or the immune system required for dealing with camping in cold weather for protracted periods. Many won't stay in a sleeping bag, and no way do they have the heat-generating capacity of an adult (to warm a tent or sleeping bag.) Many people talk about snow caves and such. Well, it's about ten degrees F outside as I write this, and there isn't a speck of snow on the ground.

Try to include the children in activities like gathering wood and setting up camp. It keeps them mentally as well as physically active. This gives them a sense of purpose, it distracts them from grim realities, and it makes them feel like they are contributing to the family, all good things.

The older the child is, the more you have to worry about culture shock. Let's face it, our society is based on stimulation, whether it's toys, books, movies, TV, radio, Sega, CompuServe, or whatever. In my opinion, we are actually *overstimulated* as a culture - take away the stimulation and see what happens. People become bored easily, restless, and irritable, a kind of psychological "withdrawal." Be prepared to stop and whittle a stick into a toy, or bring along something like a Kush ball or Hackey Sack, something small, light, simple, virtually indestructible, and capable of being used as the basis for a variety of games. One of the great challenges will be to develop the child's inner ability to stimulate him/herself, rather than necessarily relying on expensive or complicated things like television to bring stimulation to them - it becomes active, rather than passive.

Older children, of course, aren't going to be amused with stick toys. One thing you can do is explain the planning and response process - if you can get them to understand what you're doing and why you're doing it, they learn *how* to think (rather than necessarily *what* to think,) and the knowledge that *you* have put something like cogent thought into the situation will hopefully give them more respect for your judgement. Teaching is the best aid to mutual understanding.

You may see corpses. It could happen if things get rough. This may be time to get a religion (PLEASE note the "a" before "religion," I have no agenda here,) because you'll have to explain it to young children. Death is one thing on a movie or TV screen, the real thing is a totally different story, especially since many people are so isolated from it in our society. Secular Humanist nihilism is OK if death is distant, but it's no comfort in a harsher world. The old saw "there are no atheists in foxholes" is not too far from the truth.

3. GEAR

One point here, there are pre-packaged one and two person kits. Read the books in the reference section below before buying, you'll be less than amused at some of the things that are missing. That doesn't mean the kit can't be modified, but treat what you buy as a base to start from, not a finished fact.

I mentioned earlier that "less is more." In spite of the list below, I still hold by that dictum. THINK before you buy, it will save money in the long run, not to mention weight. Think about where you are, where you are going, and what the challenges are, the real ones, not the imaginary ones. Satisfy the basics and you will have satisfied the real challenges. If you try to account for every possibility, you'll spend a lot of money buying stuff you'll probably just dump. Remember, you don't really know *when* anything will happen, you don't know *what* will really happen. Don't cater to your preconceptions, but try to live (and buy) by the motto "Semper Gumby" ("Always Flexible".)

One point about gear is **versatility**. OK, a shirt is just a shirt, boots are just boots, pants are just pants. Let's take the boots. It makes little sense (unless you live in a clime where this stuff is absolutely necessary, like Alaska, the Canadian interior, or the North Central states) to buy mukluks or sno-pak boots. They are only useful in the dead of winter, and maybe not even then. Good hiking boots and gaiters are lighter, will work in rain, and (without the gaiters) work as well in summer as in winter. If you buy a stove that only burns Coleman fuel, what happens when you run out? Anything you have should serve as many uses as possible, or have as few limitations as possible if it's a basic like clothing, consistent with being effective.

Another point about gear is **durability**. Poorly made gear is prone to let you down when you need it most, so shop around. Name is not necessarily a measure here - I had a pair of North Face "Backpacker's Gloves" come unstitched on me after 2 days use. Look around, ask around, buy the best quality you can afford, and use it. Case in point, I bought a new backpack 2 weeks before going on an overseas trip. The night I bought it, I put some stuff in it, cinched the waist belt tight, and went for a walk in the park (literally.) The fastex waist buckle *broke* after 10 minutes use - one of the prongs had a completely concealed bubble in the plastic at a major load-bearing point. If I hadn't tested it, the failure would have been in a location where repair was out of the question. And no, this was **not** a cheap pack.

Another thing, **remember your consumables**. You know, those things with expiration dates. They won't turn into deadly poison or useless junk one minute after midnight of the last day, but do you *really* want to hit the road with medicine that's six months over the line? How about my spirulina in the personal kit - just replaced it, the tablets were starting to turn to powder (I now have capsules.) Consider making a list of items and their expiration dates and putting it in with the kit, close to the top so it isn't a pain to find. Make sure you check your kit every six months, so you keep up with the dates (and spot problems developing in storage, like cracking plastic, leaking packets, and so on.)

Still, there's a problem. It shows up in backpacking, and it shows up (albeit usually more subtly) in the survival references below. Backpackers choose where and when to go, and how long they will be on the trail. The survival texts assume you will be in a situation where you are either trying to be rescued or are waiting for state and federal disaster relief to get organized, and you may have to fend for yourself for some relatively short period of time (usually 2 weeks or less.) Talk to a homeless person, you may find there's a lot of things you can do without, but... There's a problem with this - rescue or relief or, these days, even homelessness, assumes the continued existence of an organized state, which is, if things pop even close to worst case, an unlikely assumption. You may, if you're lucky, be able to choose where. You will *not* be able to choose when, and that means you have only relatively limited ability to choose how long. Put it this way - if things pop in late spring, you are in Kansas, and your destination is 300 miles away, your destination is only 2-3 weeks away on foot, assuming no problems with water access, local population, etc. However, if there *are* problems with water access, or "it" happens in the dead of winter, or if you get to your destination and find it looted (or find the "friends" you thought you had made weren't so close after all,) what you have is **ALL** you have. It is clothing for winter and for summer, it is every tool you own, it is your home - and it's on your back.

The reason I put this with GEAR instead of NONPHYSICAL CONSIDERATIONS (Section 4. below) is, there are subtle effects. Backpackers will tell you (as will survival specialists) don't take much clothing - it's weight, it's bulk, and you don't need it. Theoretically, that's correct, BUT - if you guess the season

wrong, you'll either cook in summer wearing winter clothes, or freeze to death in winter wearing summer clothes. What happens if you start in summer, but are still on the road in late fall, even winter? Packing for the end of civilization as we know it is not the same as packing for a week on the Appalachian Trail.

3.1 SMALL KITS

This is stuff you can carry on your person at all times. It's not much (although it's sumptuous by some standards,) but it can save your life.

WATER

- Plastic inside of a cheap flexible leather bota
- 1 qt ziploc bag, use with bota and string to give mechanical support and protection
- jar of Potable Aqua tablets for purification

FIRE

- 2 electronic ignition lighters
- 1 Sparklite flint with 10 tinders
- 1 "tea light" candle (also used for illumination, with leather holder)
- small lens

SHELTER

- 1 mylar "survival blanket"

MEDICAL

- 8 bandaids (Sports variety, they stay on better when wet)
- 2 Betadine swabs
- 3 tribotic packets
- 1 Burn Jel packet
- 3 Benadryl capsules (good for my allergic reactions to fire ant bites)
- moleskin (for blisters)
- tweezers (in knife)
- 1 pad "Buzz Away" citronella bug repellent
- small tube of Bullfrog SPF 15 sunscreen (pocket)

Hygiene

- 2 Wet Naps
- 2 pads of toilet paper from US Army MRE accessory pack
- toothpick (in knife)
- dental floss (also good for snares, fishing line)

FOOD

- One film canister spirulina (get at a health food store like GNC)
- One film canister Lite salt (the sodium/potassium mix is better for electrolyte balance)
- One film canister, half multivitamins and half NON-LAXATIVE fiber tablets to cut cravings
- one packet unsweetened Koolaid (for vitamin C)
- Assortment of fishing hooks, with hanks of 8# and 25# line and weights
- "P38" (C-ration) can opener (pocket)

CLOTHING

- "Come as you are"
- Selection of sewing needles (5 total)
- 2 buttons
- 2 safety pins
- thimble
- threader
- short hank coat thread
- short hank button/carpet thread

- short hank cotton/polyester thread

KNIVES

- Victorinox Hunter (pocket)
- Gerber Multitool (belt)
- DMT pocket hone (fine grit)

MISCELLANEOUS

- 8 feet 250# test nylon twine
- piece of ripstop tape (for mending blanket)
- Handkerchief (never for the nose, can be used as cover for head, mouth, neck) (pocket)
- Forever Lite flashlight - solar rechargeable, LED element, about the size of an Eisenhower silver dollar (pocket)
- compass
- wire saw (the woodworker in me finally broke down)

Weight - roughly 12 oz all told. For the amount of stuff, it's very discrete.

What isn't in my pockets is in a leather pouch that also has my wallet, checkbook, car keys, a pen, and journal.

Notes:

The Forever Lite is small, and surprisingly bright. Since I work in a tall office building, it would be dangerous going down multiple flights of stairs in the dark after a power failure. Use silicone sealant on the seam for a water resistant seal.

The sewing "kit" is basically an admission of reality - clothes tear. What I have here is based on a small "traveler's" sewing kit I bought years ago. I added a cotton darning needle and an embroidery needle (very large eye, good for heavy threads/sinew.) Tossed the box and the supplied thread (**way** too weak,) added good thread, kept the needles, threader, 2 of the buttons and safety pins, and thimble. This stuff adds no weight to speak of, and takes a ridiculously small amount of space (except for the thimble.)

The wire saw has its uses if, for some reason, I am utterly unable to get back home - stranger things have happened in the middle of a mass panic. It would also have some validity as a snare (I got the one with different sized thumb rings.) That said, about the largest size log these things can really cut (unless you are also *really* patient) is about 3 inches diameter. Much more than that, the saw starts to heat up dramatically, which will destroy the temper of the steel and cause it to break. A cup of water to dip the saw in would keep the heat down, but unless it's stainless, it will rust from such treatment.

This could be trimmed quite a bit. Medical items could be pared back, hygiene items could be removed, the food could be cut back to just the Lite Salt, or just Lite Salt and spirulina, the tea light could go away since I have the Sparklight (or vice-versa,) and etc. I can carry this, so I don't mind it, but your situation may well be different. Don't hesitate to add or remove items to fit **your** evaluation of your needs and ability to carry.

3.2 CAR KITS

Car kits are, in many ways, the backbone of any effort at long-term planning. They force you to think in terms of your daily situation, and, if applicable, the daily situation of your family, which is the foundation for any planning about when and how to leave your current location (assuming you need to.) You may not have everything you want for the long term in the car kit - see section 3.2.2, especially the notes at the beginning explaining why section 3.2.1 no longer details my car kit.

The fact is, for most of us the car is close to us at all times, work, play, or home. It has the excess carrying capacity required to add items that can substantially extend our ability to survive, without drawing undue attention. If you're single, you can put together a kit like the one in 3.2.1. When things happen, you just jump in the car and go, safe in the knowledge you have immediate access to what it takes to go the long haul. If you're not alone, you can still put together a kit that will allow you to get where you need to be to pull the situation together, in spite of many obstacles.

3.2.1 DAYPACK/PISTOL BELT CAR KIT, FOR A SINGLE PERSON.

This has a clothing change and longer term stuff. Some recent changes are the result of reading "Complete Disaster Survival Manual".

The listing has been reorganized to show not only *where* it's carried, but what category (water, food, fire, shelter, medical, clothing, miscellaneous) it is supposed to serve, plus there is now a "totals" section, to show total contents in each category.

Daypack

Main bag

CLOTHING

- Vasque hiking boots (change into these first off)
- 1 pair US army wool pants (Winter wear)
- One cotton painter shirt (hot climate wear)
- one polypro long-sleeve t-shirt (cold weather)
- 2 pair polypro liner socks
- 2 pair hiking socks
- web belt
- 1 pair medium weight polypro long johns (cold weather)
- 1 pair underwear
- "boonie" hat
- balaclava (cold weather)
- North Face "Climb Light" Gore-Tex shell (cold weather or rain)

MISCELLANEOUS

- "wonder bar" a small, light wrecking bar
- 1 pair work gloves
- back support
- pack towel

GUIDANCE

- Hammond US road atlas

Top Pocket

HYGIENE

- 1 roll toilet paper (core removed)
- 1 "u-dig-it" folding trowel

FIRE

- 6 spare candles for candle lantern

MEDICAL

- "Extractor" venom removal plunger
- small bottle calamine lotion

FOOD

- plant recognition cards (also recreation)

CLOTHING

- long hank coat thread
- long hank button/carpet thread
- long hank cotton/polyester thread

Pistol belt (US Army surplus) with belt pad

WATER

- 2 1 quart canteens (full)

FOOD

- 1 canteen cup
- 1 canteen stove
- 1 square of heavy-duty aluminum foil for cup cover

Butt Pack

WATER

- PUR Scout water filter with carbon cartridge
- 50 coffee filters
- 3 yellow plastic garbage bag ties (for coffee filters)

FOOD

- folding slingshot with pellets
- food, including 1 jar Food Reserves Survival Tabs
- plastic spoon

FIRE

- Candle Lantern
- spare candles for lantern
- 7 tubes hexamine heat tablets, for heating cup, in 1 qt.

Ziploc bag

SHELTER

- survival sleeping bag
- 50' 4mm nylon climbing cord (650# test)

HYGIENE

- camp soap

MEDICAL

- extra sunscreen

MISCELLANEOUS

- 2 large "leaf" size trash bags.

- Medical Pouch
 - 1 wire mesh splint
 - 4 "Trau-Medic" large wound dressings
 - 12 Band-Aids (various sizes) (Sports variety)
 - 7 tri-antibiotic packets
 - 2 Burn-Jel packets
 - 1 roll gauze bandage
 - 1 "muslin triangular bandage"
 - 3 Betadine swabs
 - ½ fl oz bottle Betadine
 - 1 pill jar extra-strength Tylenol
 - 1 pill jar Vitamin C
 - 5 Benadryl capsules
 - 2 3"x4" moleskin
 - 1 eye bandage
 - 2 packs Biersdorf CoverStrip II, ¼" x 3"

Utility Pouch

MEDICAL

- Natrapel bug repellent (2 fl oz)
- 2" Ace bandage, self-cling type
- extra Betadine pads

HYGIENE

- Toothbrush and paste
- 4 wet wipes

FIRE

- Gerber StrikeForce flint/steel
- extra tinders for flint
- Short Kutt saw (also for SHELTER)

TOTAL ITEMS BY CATEGORY

Water

- PUR Scout water filter with carbon cartridge
- 50 coffee filters
- 3 yellow plastic garbage bag ties (for coffee filters)
- 2 1 quart canteens (full)

Food

- 1 canteen cup
- 1 canteen stove
- 1 square of heavy-duty aluminum foil for cup cover
- folding slingshot with pellets
- food, including 1 jar Food Reserves Survival Tabs
- plastic spoon
- plant recognition cards (also recreation)

Fire

- 6 spare candles for candle lantern
- Candle Lantern
- 7 tubes hexamine heat tablets, for heating cup, in 1 qt. Ziploc bag
- Gerber StrikeForce flint/steel
- extra tinders for flint

- Short Kutt saw (also for SHELTER)

Shelter

- survival sleeping bag
- 50' 4mm nylon climbing cord (650# test)

Clothing

- Vasque hiking boots (change into these first off)
- 1 pair US army wool pants (Winter wear)
- One cotton painter shirt (hot climate wear)
- one polypro long-sleeve t-shirt (cold weather)
- 2 pair polypro liner socks
- 2 pair hiking socks
- web belt
- 1 pair medium weight polypro long johns (cold weather)
- 1 pair underwear
- "boonie" hat
- balaclava (cold weather)
- North Face "Climb Light" Gore-Tex shell (cold weather or rain)
- long hank coat thread
- long hank button/carpet thread
- long hank cotton/polyester thread

Medical

- "Extractor" venom removal plunger
- small bottle calamine lotion
- extra sunscreen
- 1 wire mesh splint
- 4 "Trau-Medic" large wound dressings
- 12 Band-Aids (various sizes) (Sports variety)
- 7 tri-antibiotic packets
- 2 Burn-Jel packets
- 1 roll 2" gauze bandage
- 1 "muslin triangular bandage"
- 3 Betadine swabs
- ½ fl oz bottle Betadine
- 1 pill jar extra-strength Tylenol
- 1 pill jar Vitamin C
- 5 Benadryl capsules
- 2 3"x4" moleskin
- 1 eye bandage
- 2 packs Biersdorf CoverStrip II, ¼" x 3"
- Natrapel bug repellent (2 fl oz)
- 2" Ace bandage, self-cling type
- extra Betadine pads

Hygiene

- 1 roll toilet paper (core removed)
- 1 "u-dig-it" folding trowel
- camp soap (2 oz. bottle)
- Toothbrush and paste
- 4 wet wipes

Guidance

- Hammond US road atlas

Miscellaneous

- "wonder bar" a small, light wrecking bar
- 1 pair work gloves
- back support
- pack towel
- 2 large "leaf" size trash bags.

Notes:

All the heavy stuff is on the pistol belt, all the clothes (which are light but bulky) are in the daypack. Hips carry heavy loads **much** better than shoulders.

The Medical group is big, but surprisingly light. Most of the individual items weigh a fraction of an ounce and fit comfortably in the First Aid pouch, although the Extractor pump is an item of some bulk (but still pretty light.)

The balaclava is Brigade Quartermaster's "Survival Wear" model. Personal two thumbs up. It's warm and covers the nose better than some of the pricier alternatives. Covers the neck *much* better than the alternatives.

The emergency poncho went away, but I saw a use for large bags of transparent plastic - tie one around a branch with a lot of leaves, and you'll collect the water the tree or bush transpires. Nice idea - when there are leaves on the trees.

There was a specific reason for the candle lantern, but I'm not sure if it will last. It has the advantage of providing heat as well as light (15+ degrees in a tent with the rain fly on,) but a solar rechargeable flashlight may replace it.

There is a lot of bug repellent. The prospect of being driven nuts by mosquitoes does not appeal in the least. People are complaining DEET is toxic and absorbed through the skin, hence the reliance on citronella. Smells, but it seems to work.

The 330# cord became 4mm (that's millimeter) climbing cord instead of 550# cord because I couldn't find the other locally. The 550# cord has no difference in size, little difference in weight, the difference is the 550# cord has a load bearing core rather than fiber filler. The climbing cord is slightly heavier, is stiffer, and is sold by the foot (\$.18/ft). The 3mm cord is 400# and \$.14/ft, but I wanted the extra capacity. I found the 550# cord at Brigade Quartermasters, 100' for \$5.98

I finally obeyed my own dictum about getting a map, the trouble being finding one that was a convenient size. The road atlas I found is about 12"x9" and spiral bound, large enough for some detail but small enough for convenience.

The "Trau-Medic" dressings are sold by Brigade Quartermaster's. They are a US military field dressing for severe wounds.

I just tested a pair of Campmor's "Rail Rider" brand Weather Pants. Personal Two Thumbs Up. Very light (13 oz.,) they really do block wind quite well. Worth the money, especially since I got mine on sale.

I am actually carrying a lot of food. I have a young child to share with, and I suspect the butt pack will get much lighter real fast. If it comes to walking out with him, I'll have to do the "front and back" routine, child carrier on the back, daypack on the front (learned that portaging canoes in the wilderness) until I can lash up a travois. I do not look forward to the prospect.

Tea lights were the original cooking heat source, but they went away, replaced by hexamine cooking tablets from an army surplus store. Tea lights are cheap, available, and work (sorta), but melt in hot weather, are easily affected by wind, and heat very slowly. The hexamine tablets are smaller, lighter, hotter, are only kinda less affected by wind, but don't last 4 hours. That's OK, it doesn't take 2 tablets 30 minutes to warm a US Army canteen cup of water, either. HOWEVER - be advised one tablet will heat **one** cup - that's one pint - of water. That means I can heat (not boil) 42 pints of water, or start 42 fires, or some combination of the above. Since a covered pot heats the contents faster, I'm adding a patch of heavyweight aluminum foil to act as a cup cover.

The citronella pads went away because they leaked - my car trunk was beginning to smell like a citronella factory. If it's leaking now, it will be useless later.

The mylar emergency sleeping bag may be retired soon. Seems I listen to myself, and realized that while the current bag will prevent radiant and convective heat loss, the conductive heat loss from cold ground would be substantial. Sleeping on or in clothes could work, but they're lumpy and also need a chance to dry out. So I am about to embark upon an experiment. Brigade Quartermasters has US Army surplus poncho liners, which are nylon shell/poly fill blankets (no head hole) that weigh in at under 1.5#. Get a Space Blanket at several ounces, put grommets in it to allow it to be laced up as a sleeping bag, and you have a relatively light, waterproof (except at the seams) sleeping bag that has a wide temp range, is easy in/easy out, has an easily field repairable closure, and can be stored ready to go because the blanket, while thin, is functionally incompressible. The design chosen is a tapered bag, beginning at the Space Blanket midpoint. This increases the number of grommets and the amount of parachute cord needed, but see above why tapered bags are better. Be sure to lace it up with the reflective side out, then turn the bag inside out to put the excess material inside. I used enough cord to be sure there was lacing on both sides of the material, not just one side (tighter seam.)

This whole setup is about to undergo a weight review, which means it will be pruned of less-useful items. Items on the pistol belt are a particular target. Problem here is, water is water and it weighs 8 pounds per gallon, which means I have 4 pounds in water alone. Since this is still only basic temperate weather water rations, it stays regardless. The army canteen cook set stays, it's all I have to cook on, so one canteen might as well stay too (the other might become a lighter substitute.) The water filter stays, it's an absolute necessity. We'll see about the rest.

Another product I saw (in the hands of a user, no less) was the Sierra Zip Stove. An intriguing concept, it has 2 AA batteries that drive a fan, working much like a forge. The ads said 6 hours per set, he was getting 4 hours. If you added some extra rechargeable batteries and a small solar recharger (from Real Goods or Campmor, see sec 6.), this could be a good deal, because the fuel is leaves, twigs, and small sticks, and it is supposed to be **quite** hot. I must say, the cook set that came with it (sold by Alpine Adventures, which can be found in the classified section of Backpacker Magazine, so I was told) very much made me sit up and take notice - light, compact, capacious for its reduced size (boiler might hold 3 cups of water, fry pan is small but deep), it looked a very good deal. In fact, that cook set plus an XGK stove... Hmmmm.

3.2.2 CAR KIT - MARRIED WITH KID(S)

Light dawned (after a fashion) that the kit above was fine - as long as it was a case of jump in the car and bug out, or jump in the car, grab the wife and kid, and bug out. Well, there's this problem. The kid is in day care, about 14 miles from where I work. The house is less than one mile from the day care. I'm not going to abandon him if I can avoid it, adding the extra mile to the house is trivial, so let's consider the following scenarios -

Terrorist pops nuke on city govt - we weren't told about it ("It would start a panic!") so, when possibility becomes a reality, you have a lot of panicked people, many of whom are blind. Result - traffic gridlock.

Martial law is declared for some reason (you fill in the blank.) Things look flaky to a whole lotta people as well as you. People start to get out to buy "stuff" to survive they don't know what. Result - panic, leading to gridlock.

A UFO lands. God announces the Second Coming in no uncertain terms. Whatever. The fact remains, if something occurs that is a clear threat to the established Way Things Are, many people will freak. They

will take to the streets (that being the way to the stores and/or the high hills, whichever seems more appropriate.) Things like roads will shut down rapidly.

Now consider my position. I'm 14 miles away from my son. I want to get there ASAP, preferably in a healthy condition, and as rested as possible so I can get on the road again ASAP, but there is an excellent possibility I'll have to abandon the car. Since I'm all but going home again, carrying all the above car kit makes NO - zip, zero, zilch - sense. Some items yes, most no. I would be carrying an enormous amount of gear (read: weight) I don't need for a simple 15 mile trek.

I need something that will enable me to get from Point A to Point B in some degree of comfort, regardless of the weather or time of day. I have my personal kit, so let's add what we might want as extras.

PISTOL BELT

- 2 Army canteens (15 miles is not a short walk, especially if it's hot)

Medical Pouch

- 1 wire mesh splint
- 4 "Trau-Medic" large wound dressings
- 12 Band-Aids (various sizes) (Sports variety)
- 7 tri-antibiotic packets
- 2 Burn-Jel packets
- 1 roll gauze bandage
- 1 "muslin triangular bandage"
- 3 Betadine swabs
- ½ fl oz bottle Betadine
- 1 pill jar extra-strength Tylenol
- 1 pill jar Vitamin C
- 5 Benadryl capsules
- 2 3"x4" moleskin
- 1 eye bandage
- 2 packs Biersdorf CoverStrip II, ¼" x 3"
- 2 2" non-stick pads
- child's medicine syringe

Butt Pack

FOOD

- some, but not much. Soups or some other quick to prepare meal
- canteen cook set
- spoon
- Gatorade (summers can get bad here)

FIRE

- 2 tubes hexamine tablets (overkill perhaps, but not by much)
- candle lantern and 3 candles (what if things happen at night, and I'm not home?)

WATER

- nothing extra - I can use the Potable Aqua from the personal kit

SHELTER

- nothing extra - I have the blanket from the personal kit

MEDICAL

- Ace Bandage
- moleskin
- back brace

CLOTHES

- Boots
- Socks

- liner socks
- gloves
- hat
- Gore Tex shell

MISCELLANEOUS

- 2 lawn size garbage bags
- city map

NOTES

Moleskin is an adhesive felt material that is used to pad areas that may blister.

Compare this list to the bug-out kit in 3.2.1 above, and consider how much *lighter* this is. The boots and socks are on my feet, the clothing is more bulk than weight, and I can bypass (I hope) major choke points, which I imagine will be filled not only with cars, but lots of scared and hostile people.

Note the addition to the medical kit - the syringe and the pads. If you have a shallow wound, you can use a pad dipped in a canteen cup mix of water, 2-3 Betadine pads, and a pinch of salt (remembered this from when I got some stitches.) A deeper wound may require using the syringe to try to flood out debris using the above mix. I am not a doctor, nor have I cleared the above with an MD or EMT, but I have no intention of trying to close a dirty wound.

3.2.3 BACKPACK KIT

This section follows the other scenario very closely, which is why it's here instead of section 3.3 below, "Leaving In Style."

Our intrepid adventurer has rescued his son from day care, but the roads are a hopeless mess. If a nuke was popped, we'll assume the prevailing winds took the fallout from the ground burst somewhere else (otherwise, we're stuck in the house for 10 to 14 days waiting for the fallout to reach the 90-95% decay level, or walking in a mask with a HEPA filter, which is bad news - very tiring.)

First, I get some wood from my shop (whatever comes to hand, probably about 1" x 1" material) and lash up a travois. I destroy some shop stands to put castors (big ones) on the ends of the poles, to reduce wear, friction, and noise. I take some cord and weave it (more wrap than weave, really) to form a net. The child will be on my back as long as possible, but, realizing I may encounter terrain that makes the travois unsuitable, the longer term essentials go into a backpack, and they **MUST** go in as if the travois didn't exist - always have a fall-back position, another way to carry things, if at all possible.

Backpack is a Dana Designs "Terraplane" pack, which is very large but ideal for carrying light/bulky items. Design is I-frame top loader, with very heavy zipper for stowing sleeping bag in pack bottom. The top pocket can be removed and mated with the pack hip belt for a day pack. There are several additions - a Gregory "Pocket Office" on the right shoulder strap (good for pens, maps, repellent, other small sundries,) a Dana Designs front pocket (incredibly useful, keeps your ready water bottle right there in front of you, plus some larger items,) and I can grab the medical pouch from the pistol belt and put it on some webbing (Major medical supplies close to hand? How novel.)

Medical Pouch

- 1 wire mesh splint
- 4 "Trau-Medic" large wound dressings
- 12 Band-Aids (various sizes) (Sports variety)
- 7 tri-antibiotic packets
- 2 Burn-Jel packets
- 1 roll gauze bandage
- 1 "muslin triangular bandage"
- 3 Betadine swabs
- ½ fl oz bottle Betadine
- 1 pill jar extra-strength Tylenol
- 1 pill jar Vitamin C

- 5 Benadryl capsules
- 2 3"x4" moleskin
- 1 eye bandage
- 2 packs Biersdorf CoverStrip II, ¼" x 3"
- 2 2" non-stick pads
- child's medicine syringe

Front Pouch

- 2" Ace bandage
- ½ liter water bottle (used with Gatorade and such)
- 1 quart bicycling water bottle
- Short Kutt saw (also for SHELTER)
- Gerber StrikeForce flint/steel
- "Extractor" venom removal plunger

Pocket Office

- pen/pencil
- pad of paper
- bug repellent
- can opener
- plant recognition cards (also recreation)

Pack - top pocket

MEDICAL

- Natrapel bug repellent (2 fl oz)
- 2" Ace bandage, self-cling type
- small bottle calamine lotion
- extra Betadine pads
- sunglasses

HYGIENE

- Toothbrush and paste
- 4 wet wipes

FIRE

- 6 spare candles for candle lantern
- extra tinders for flint
- 2 tubes hexamine heat tablets
- 1 container "lifeboat" matches

FOOD

- slingshot and ammo
- Richmoor Pilot Biscuits (good for lunch)

MISCELLANEOUS

- sunglasses (in ziploc bag)
- whistle

Pack - left outer pocket

- 1 roll toilet paper (core removed)
- 1 "u-dig-it" folding trowel
- tent stakes
- 2 lawn-size garbage bags
- 4-5 ziploc bags of various sizes

Pack - right outer pocket

- pack towel
- PUR Scout water filter with carbon cartridge
- 50 coffee filters in ziploc bag
- 3 yellow plastic garbage bag ties (for coffee filters)
- candle lantern

Pack - main bag

FIRE

- stuff sack
- MSR XGK II multifuel stove
- maintenance kit
- aluminum bottom of a tea light candle (to use hexamine tabs with stove)
- 22 oz. fuel bottle with white gas ("Coleman fuel")
- Coleman Peak 1 "Solo" cook set (less the cup)
- 120 "strike anywhere" matches
- small pad of coarse grit wet/dry sandpaper (for matches)

WATER

- 2 liter soda bottle of water

FOOD

- Survival Tabs (bottle of 180 tablets)
- other freeze-dried foods

CLOTHES

- summer clothes
- light long sleeve shirt
- BDU pants
- winter clothes
- Gore Tex shell
- jac-shirt
- 2 long sleeve polypro undershirt
- balaclava
- 2 polypro "long johns"
- gloves
- "Rail Rider" pants
- generic clothes
- boonie hat
- 1 pair underwear
- 2 pair liner socks
- 2 pair Thorlo "hiking" socks

CHILD SUPPORT ITEMS

- cheap bottle/nipple
- small container cornstarch baby powder
- small tube Vaseline
- small acrylic blanket
- mylar "emergency" sleeping bag
- pack towel portion
- clothes as needed

MEDICAL

- back support

SHELTER

- tarp/blanket sleeping bag
- Z-Rest pad
- tent

MISCELLANEOUS

- compass (Silva type 27)
- map

Notes:

The pack contains extras that are highly desirable for improving long-term chances. The travois has some extra capacity, though, allowing me to start carrying things that are nice, but not desperate needs - an axe, a saw, more food, more water, more kid clothes, whatever - but care must be taken to NOT overload the thing. If the wheels start to dig in on grass or less than rock-hard ground, forget it, the load will wear you out.

The MSR XGK II stove is reputed to use just about anything that burns - from Coleman fuel to kerosene to unleaded gas to paint thinner to jet fuel. I'm not sure about alcohol, but it may work as well. The MSR Whisperlite International (Coleman fuel/kerosene) has been my stove for years, and as near as anybody can tell, it supports the same set of fuels. I did a review of the XGK II vs. the Whisperlite International for the CIS CAMPING forum, and the only serious downside to the XGK is the possibility of bending the tank connection tube. The XGK is easier to prime, comes up to heat faster, is less affected by wind, and is more stable on soft soil, sand, or snow. You really can't go wrong with either stove, in my opinion. I trust the company and their products.

The sandpaper for the matches follows a long-ago learned backpacking lesson. I'm using the smaller matches, and the strike strip along the side of the box is useless - it tears very easily. Dip the heads in

molten wax (be **VERY** careful heating it) to improve usefulness in damp climates (oil-based varnish may also work,) and be sure to store in a ziploc bag regardless.

Child clothing will be packed at home. He's growing fast, so it's pointless to pre-pack now, it would just be too small when needed.

Sunglasses are nice for lots of reasons, especially in areas prone to lots of glare (snow, water, sand.) Add a strap like Croakies or whatever to make them less prone to falling off or shifting position.

I added a whistle to the backpack kit because they *are* handy for signaling. When a person gets split off from the group, they may find themselves in a classic survival situation, and it's best to be prepared.

3.3 LEAVING IN STYLE

Also titled, "The Way We Hope It'll Be".

We all want things to start slow enough we can gas up the car(s), make decisions about extras to carry, call the friends, organize, and drive, not walk, into a brave new future. This could happen, nobody's said "no" that I've heard recently. Here's to hoping.

I really can't say much else here, because everybody has different vehicles, different stuff, different destinations. Needless to say, your transport possibilities just got a lot better, BUT...

Carry **AT LEAST** one more tank of gas in approved containers. Also carry some hose, to siphon gas out of underground tanks in (presumably abandoned) filling stations. Remember, the pumps don't work if the electricity is off.

Use common sense. You aren't coming back most likely, this isn't moving day, so don't stock up on shirts and forget the medicine. Don't overload the vehicle. If it's a useful item but you can't take it, cache it.

If you get a group together, travel as a group. Having physical and psychological support close to hand is not something to sneeze at, after all. In spite of what I said about weapons, a car convoy is a very tempting target, so this is one time I'd say yeah, put two people in the lead car with no cargo, one driver, one armed. This is your point team. They travel far enough in front of the convoy they can spot trouble before everybody is in the soup. The next car might have cargo, but it does have an armed passenger. This is the slack team. The slack keeps the point in sight at all times. Then comes the rest of the convoy, and the lead car keeps the slack in sight at all times. If the point finds trouble, if he even *thinks* there's trouble, he comes back and reports, so people can decide what to do. Rotate point and slack at regular intervals - point is a high risk, high tension job.

Remember, the best way to win a fight is to not to fight it. This "military style" setup (called "traveling overwatch") should be used to **AVOID** trouble, not confront it. If you're odd enough to wonder why, read a chapter describing wound dynamics for modern ammunition. Then realize there will be no 911 ambulance. It may pay dividends, however, to think about how to respond if you *do* get ambushed.

It may be your "convoy" is you in the lead, wife and kid(s) in the back. Be alert, travel safely, remember to scan the sides of the road ahead of you. Don't be afraid to stop and rest. If you're a two car family, consider sizing the load to fit into the smallest car, then put half in one car, half in the other. That way losing one car to mechanical failure is an inconvenience, not a major problem. Of course, if the small car is a Chevette and the other car is a Suburban, forget it - take advantage of what the Suburban can do.

Spend time thinking about the unthinkable and how to deal with it. It isn't fun, but it might save your life. If nothing else, you may gain a greater appreciation for the skills required to be a serving soldier, unusual in a day when so few serve.

3.4 LIGHT TOOLS FOR THE LONG TERM

I have added this section because it seemed silly to talk about long-term planning but ignore the means to accomplish the goal. These are some possibilities,

First, any construction requires measuring, marking, trimming, shaping, and fastening.

Measuring means bring a 25 foot tape measure, then use that at site to measure things like a one foot or three foot stick. Make inch marks with a knife. You can make larger measuring lengths for things like house construction using the tape measure with longer lengths of cord. You can get a six foot pocket tape measure that is much smaller and lighter, but the tapes are only about 1/4" to 3/8" in width, which will break easily. Add a try square, a 4" machinist's square, or a good combination square and you have a good right angle reference. A piece of paper with an uncrumpled corner will do in a pinch, but the other devices are more sturdy and less prone to bend.

Marking in wood usually means a knife. A good pocket knife works here, although a scratch awl or special purpose knife can be used. Stone or masonry is not a specialty of mine, but limestone as chalk would be my solution here.

Trimming means getting it to the length you want. For wood this can be an axe or saw, for stone it means mason's tools about which I know nothing, save that a good steel chisel and a hand sledge will probably get you through the worst of it. at the first. Face it, you'll be doing field stone construction at first, which is more like doing a jigsaw puzzle than laying up a course of brick. For a bow saw, which is basically a blade fitted into a frame, you can carry a Sven saw for backpackers and such, or you can carry a piece of band saw blade and make your own bow as you go on. One thing about saws - I love the Japanese saws because they are light, take down into very low bulk, and cut very quickly. They are also about impossible to sharpen and set without considerable experience. A Western-style saw like a Disston is less expensive, much more bulky, cuts like you'd expect, and just happens to be **much** easier to sharpen and set. Take your pick. If you choose to go with an axe or hatchet, get a good one. I have a Japanese carpenter's hatchet, and it's more versatile than most. Very expensive for a hatchet, it is quite well made and balanced, and can be used as a plane as well, not unlike a broadaxe. A good (and much less expensive) idea is a drywall hatchet. Hatchet on one side, hammer head on the other, with a nail lifting notch, about \$16 from Sears and probably better made than the "5-in-1 Frontiersman's tool" you'll find in the catalogs.

Shaping in wood can mean many things, from hatchet and drawknife for log construction to planes, chisels, and spokeshaves for furniture construction. For log construction, use the hatchet for lopping off limbs, then use the drawknife for removing bark. After the felled tree has dried for a while (best to just drop the tree, trim and de-bark it right there and let it dry for a week stacked on some of the lopped branches to keep it clear of the ground - the water loss will make it lighter,) take it to the construction site and use the hatchet for making the notches. Find a leaf spring and make a froe for splitting shake shingles. To find out what a froe even is, look in sec 6 at the reference to Roy Underhill's Woodwright's Shop series. For furniture, you can use the drawknife and a spokeshave for making round things like chair legs, spade handles, and such. Some spokeshaves are curved to allow you to (slightly) hollow things out like spoons and chair seats, but a scorp or inshave works as well and can also be used for things like bowls. Get a brace (as in brace-and-bit, a form of manual drill) and a selection of bits for drilling holes for things like fitting chair legs to the seat. Chisels are necessary for many things, a good 1" and 1/2" will get you by most things, although 1/4" will be useful for smaller work. When I say good I mean good here - a \$.98 Ace Hardware special is junk - it won't hold an edge. Go to the Garrette-Wade catalog and mail order a couple of Marples or Sorby chisels. For putting a surface on something like a table you can use the ever-present hatchet or a plane - get a #5 (jack) plane, which is long enough to flatten a piece of wood pretty well, short enough for more general work. Not light, but there are times you want a good, true piece of wood.

Shaping steel for things like knives, hinges, and such is not a specialty of mine, but most of the stuff you need can be forged for. Bellows can be made, along with the forge. A piece of railroad rail makes a good anvil. The only thing that's hard to come up with are the files (for finish shaping) and the proper hammers - sorry, a 16 oz. claw hammer is not really what you want. There is a ref in sec 6 for a good basic intro to blacksmithing.

Shaping earth calls for a shovel. I have little advice save this. The "3-fold" paratrooper spades are small, light, sturdy, and available cheap. A real shovel is large, fairly heavy, bulky and can cost. On the other hand, for the long term, once the paratrooper shovel breaks, it is finished - you will never repair it. If the normal shovel breaks, the local woodworker can make you a replacement handle fairly quickly. Think about it.

Fastening things together in wood will be mostly wedge or wood pin construction unless you (a) have a blacksmith to make the nails for you or (b) can find the recipe for hide glue (which is not waterproof, by the way - use for furniture only.) One thing you can do to ease the pain of making dowels is to get a scrap of 1/4" steel and drill some holes in it of various sizes. get a piece of wood to close to the right size, whittle down the end to fit into one of the holes, then tap it through with a hammer. I've done this, and it works surprisingly well. Just don't get *too* aggressive at tapping or you will snap the wood. I'm going to avoid talking about masonry and stone work because I don't have a good "made in the field" recipe for mortar or cement. Clay with grass or straw binder will work OK in moderately rainy climates if you pay

careful attention to drainage when you fit the stone. If you feel like doing something different, you can buy (or make) a wood threader. The ones I've seen cost about \$30 and work on 1" dowel.

And now a word about keeping things sharp. I love Japanese water stones. They give the best edge of any stone I have ever seen. They are also not a good long-term investment under non-technological conditions because of how you get that edge, which leads to dishing and fairly rapid wear of the stone. Get a set of DMT diamond stones and, from what I have heard (and the little I've seen) you won't regret it. Medium or Coarse grit can be used for setting an initial bevel or removing nicks, Fine is good for general sharpening, and X-Fine will put a good final edge to things. They aren't even that expensive - about \$65 is tops for one of the big stones. If you feel up to it or are planning for setting up at a site, they still make hand-powered grinding wheels. With a piece of cord around the handle and a piece of wood, you can make it foot-powered. Invest in a set of good wheels and sharpening things like axes goes much faster. Also a consideration for blacksmiths.

Gardening is another "not specialty" of mine, but hoe and shovel are bare minimums. Plows for furrowing tend to be complicated affairs, but the earliest plows were not actually horse drawn. You need a harness for pulling it, a point (preferably iron or steel) to pierce the soil and a board to turn the furrow, plus handles for the person guiding. Nothing you haven't seen, but it helps to think about it.

Clothes from leather is a very good possibility, There is a ref in sec 6 for buckskin. Spinning is the way to make thread. An art in itself, there are references for it, but I haven't found them yet. Bobbins are not too hard to make without a lathe, but you will need a length of 1/4" pipe and some carding boards (file cleaners on steroids) as things you bring.

For writing, consider going to an art supply house and getting some nibs for a drawing quill pen. Very small and light, made of steel, one or two nibs and a bottle of India ink will outlast many disposable pens. Ink itself can be lampblack (very fine carbon soot, hence the name) suspended in water, with the solution stabilized by things like shellac (unlikely) or soap. Places like The Nature Store have been known to have small "for the kids" paper-making kits.

One thing, if space / weight is a major concern (when isn't it?) consider removing and getting rid of easily field-replaceable handles for things like hoes, spades, froes (if you carry one) and such. Keep the handle on something like a hatchet, you will need it for cutting down and doing the basic shaping for the replacement handle when you get to site. Carry a set of wedges for things like hammers, froes, and such.

4. NON-PHYSICAL CONSIDERATIONS

Keep in mind people are always predicting things like the end of the world (usually in a specific way,) the decline of the Roman Empire ... uhhh, Western Civilization, and so on. Fine. We're still here, life goes on, we still have bills to pay. That doesn't mean it won't happen, but it's pointless to obsess about when and how. The more you attach your beliefs to specifics, the more open you are to being disappointed, and each disappointment erodes your belief. Believe in the ends, and the means will show themselves.

It's possible nothing will happen, ever. I have doubts on this score, see below, but I feel the exercise is a good thing regardless. First, you learn things. Whether it's herbalism, woodcraft, hunting, or whatever, it's an experience that can teach you about yourself, about the person you are with if you don't go alone, and about nature. This is all to the good. Second, if you go the "I'll buy a house and set up there" route, you just planned your retirement.

As for "Why I think it's a very real possibility," well, feelings, for one thing. I've been through enough I trust them. Now the CSICOP types can, quite reasonably, pass the whole thing off as mutually induced mass hysteria. I am, however, reminded of the comment, "No man can go so far astray as one who thinks too much." Those who think too much feel too little.

Even if you insist on going on reported evidence, these are not stable times. The Cold War actually stabilized diplomatic and intra-national relations by artificially imposing a duality on the world scene for 50 years. This duality is now giving way to a much more complex situation. When the USSR collapsed, it lost the power to control ethnic tensions within its own borders, and then there's ex-Yugoslavia going back to its old ways. The Chinese are preparing to assert regional supremacy, the Japanese are rearming (as is the entire Far East), nobody is real certain what will happen in the Middle East, Africa is its usual self, North Korea is acting up, and Pakistan has "The Bomb" and a real (and returned) antipathy for India. The US is also subject to some instabilities, most notably terrorism in recent times. If somebody pops a nuke, you may need some of these skills even if it isn't the cataclysm we've been bankin' on.

For those who see this as a spiritual shift, and thus most likely a relatively mild experience...

When a person undergoes a major spiritual shift, things change externally as well as internally. Those things and, all too often, people they had drawn to themselves become less appropriate, sometimes downright toxic. There is a **major** housecleaning, and it is sometimes unpleasant.

Now apply this idea to much of an entire race. If it happens to enough people over a short enough period of time, the chaos will be phenomenal. In effect, the spiritual (and I use the term *very* loosely) foundation of Western Civilization will have been largely destroyed. Many people would find this level of change uncomfortable. The massive level of discomfort will tend to do for the physical foundation as well, what with panic, riots, hoarding, and general brouhaha. All too often those who most need to shift are those least open to the concept, so they fight the change tooth and nail. More to the point, they will probably try to fight it by declarations of martial law and so on, which, for a variety of reasons, will most likely be like pissing on a forest fire - it won't stop the conflagration and it will get a lot of people killed.

The point about fighting change brings another thing to mind. You should believe you have a right to try to survive. If somebody tries to deprive you of that right, you have the right to self-defense. Avoid a fight if you can, that's only sensible, but if you are saying you will not fight to survive, you are, in effect, saying your survival and/or (potentially) the survival of those for whom you are responsible (e.g., children) is not important. Don't fight unless you must, but if you must, fight to survive. If that means you do and they do, fine. If it means you survive and they don't, oh well. If you did everything reasonable (and perhaps some things not so reasonable) that you could think of at the time to head off the event and it failed to do so, you have, in my opinion, nothing to be ashamed of. Don't second guess the past, but learn from the event and go on.

When a civilization goes splat, the technologies that supported it tend to go with it. This is particularly true of systems that are based on highly interdependent technologies. To cut a long ramble short, counting on living in a city - **any** city - is a dangerous thing. "Earth Changes" folks seem to focus their danger criteria on things like earthquakes and water levels, and not much on the fact the behavioral veneer called civilization is very, very thin. Social and technological collapse are bad news when you're packed with thousands or millions of others into an area that is totally dependent on technology. How reasonable do

you think people are going to be when their children are dying of dehydration, they can't take a bath, they can't cook a hot meal? Yes, there are hurricanes and floods. There have also been the Red Cross, FEMA, and local National Guard units. If they aren't there, or aren't effective....

Most people have never had to cope with sustained, substantial levels of fear, either in themselves or in others in close proximity. My own experience is limited. I will say I believe you should be prepared to see and deal with behavior you would never have believed possible from civilized humans. The reason I said you should avoid crowds has to do with the fact that individual frustration is one thing, but the frustration of many people feeds individual frustration and fear, which, of course, feeds the frustration of the crowd. The cycle will feed itself until either the root source of frustration is relieved or there is a catastrophic event, such as a riot. Don't be there to be the trigger of the event, and learn how to help defuse fear and frustration in your own group.

There is a grimmer possibility that comes with "things going splat," one quite literally much closer to home. What if your Significant Other doesn't believe things *can* "go splat"? "It's never happened *before!*" Well, I'm sorry, but (a) that isn't true (Roman Empire, anyone?) and (b) this is one of those things that neither Humanity nor Nature makes a habit of practicing frequently. It only happens once in a very long while, and it only *has* to happen once to make a lasting impression. That trivia aside, denial can kill you all - in my opinion, to be taken with *many* grains of salt, you have no more than 1 week to leave after the general failure of residential power (food spoilage), and you have no more than 48 hours to leave once local water supplies fail - even if *you* have a filter, most people don't even know they exist. If you are leaving because of a declaration of martial law, move ASAP, by the most remote back roads you can think of, because it won't be announced until they are ready to lock down. The sooner you can organize and beat feet, the greater the possibility you are ahead of the crowd, not in it. The longer you stay, the worse things will get all over.

I can't tell you how to deal with the problem, where a person you love just says "no". Whatever they do, try to remember two things. First, you must trust your judgement and be willing to follow through. That may mean you look REEEAL STUPID when the lights come back on in one hour, but I'd rather look stupid and learn some things than be right and dead anyway, because I listened to somebody who was wrong. Doubt can kill. The second thing is, you **cannot**, no matter how you try, make someone want to live when they don't want to. If the TV/VCR and all the other amenities are more important than life itself, forget it. To such a person, living in a world without such things is a form of living death, a torture. There are many, many people like this.

Some people will try to trick their partners into going ("Gee! I have some time off, let's go camping!"), and all I can say is, good luck. You'll need it once the trick is discovered. A person so tricked will likely turn on the "trickster" and, *regardless* of the reported circumstances, demand to be taken home. When you consider that if things really go to spit, martial law will be declared and the Constitution suspended (which will turn reports of conditions into bland reassurances.) You won't have a leg to stand on if you try to argue with them - you lied at least once to get them there, what are the chances you're telling the truth now? This leaves you with a really ugly set of choices - do as demanded, and lose the time and distance and probably gas you expended to get there (twice that if you dump them off and go back,) or dump the person there (with what for food and water?) and go on. If you're honest up front and they say "no," you tried. Sometimes it's hard to understand, and hard to live with, but people make their own decisions.

Needless to say, children change the subject much for the worse. If the child is old enough to talk and reason to any significant extent, say, ten or so, they may decide to go with you, they may not. If you can't make your case to the child or children and one partner is opting out, do not assume your concerns give you the right, or that it *is* right, to just grab the kid and go, abandoning the other partner. Group survival under **any** circumstances is a cooperative venture, and forcing somebody to accept your decision, which has major consequences for their life style and world views, will destroy that cooperation, and your chances of survival with it. In my opinion, you cannot count on having them "come to" on the road and accepting your decision. More likely they will focus on their anger and resentment than the facts.

Most of the people reading this live reasonably sheltered lives, as do their children, but a survival situation isn't TV where the kids rule and adults are stupid. Don't give an order unless you must; this is a cooperative venture, you are still at least a portion of a family unit. You need to listen to others around you, including the children, and take them and their information into account. But if you **must** give an order, it must be obeyed without question unless there is a **very** good reason. You can explain later, but it

gets done **now**. Too often, kids as much as anybody carry their culture with them. That means they carry the values that have failed and are being swept away. That means they don't (in many cases) accept the need to hunt for food, or the need to remain unnoticed, or to accept orders (the real kind, as in issued with fire in your eyes,) or a host of other things that may be necessary, and danger is a problem for someone else, usually on TV. If the need is not accepted, that which is required to meet the need is (usually) not done. When needs are not met, people get hungry, get hurt, get sick, or get killed.

I suspect many children, especially younger teenagers, will elect to stay out of simple complacency or perceived inability to change (remember the paragraph on culture shock in 2.5, above.) That is their right. Remember what you are asking them to do - leave their home, their friends, their entire social sphere and support mechanism, plus (maybe) one parent, to run around and play cave-person for the remainder of their natural lives, whether it's a week, a month, or even a whole year (by their thinking.) If both parents are in agreement on the issue, you *might* be able to get cooperation, especially since this (hopefully) means the child was raised to consider the possibility that all might not remain as it is, but you must remember to account for the culture (beyond the family unit) the child has been raised in. That culture says, pretty much in so many words, that (1) the collapse of society is impossible under any circumstances, and (2) if it does collapse, nobody in their right mind would want to survive. Not an easy thing to overcome while you are busy coping, packing, and praying, all as fast and as best as you can.

If the child is too young to really understand what's being presented and one parent is opting out, again, the options suck. Sorry for the language, but the comment stands because again, you're either right or wrong, and the child either stays or goes with you. If you're wrong and they stay, that's OK, maybe you can save the marriage if you want to. If you're wrong and you grabbed the child, that's kidnapping, the divorce will occur with you in jail, and forget joint custody (plus a lot of other things.) If you're right and the child stayed, they are almost certainly dead, and that's going to be *real* hard to live with, speaking as a parent. If you're right and you grabbed the child, you're both alive, but it will be real hard to take when you're asked "Where's Mommy/Daddy?" If you divorce to seek a more suitable mate, what happens to the children you leave behind? I guess you hope things pop during visitation, because otherwise the kid(s) may not even be in the same state you are, much less the same city.

One suggestion you may hear, from a spouse or a soldier at a road block, is to head for a relocation camp. My feeling here is, **don't. Not for any reason.** The government employee who wants you to go there is not stupid, malicious, on a power trip, or anything else particularly bad. The camps are not like Auschwitz. The government just wants to keep control of the situation, which is hard if you have a bunch of half-assed civilians "trying to play Rambo," which is most likely how they will see you. Upon admission to camp, expect to be "relieved" of everything except clothes, personal items like rings and wallets, personal medical necessities (which may be put under control of the camp medical facilities,) and children's toys. All your survival gear will be almost certainly be taken, because it puts you apart from the other survivors, while things like knives make you "armed and dangerous." These people are out to maintain order, pure and simple. That means no favorites - no special gear like purifiers, no knives or guns, no wire saws (possible garrote,) no herbs or food, **nothing**. It isn't that they want you helpless, they want you and all around you docile. They don't want to have to deal with people stealing your food, or you cutting somebody defending your stash, or anything else. If that leaves you helpless, just remember they're from the government and they are there to help you. How they expect to handle things if (when?) the transportation net breaks down is another matter entirely - no food, no water, no heat or cooling, no cooking. Sounds like the basis for a riot to me, only this time rioters will be facing people armed with automatic weapons and a nasty disposition. You faced collapse once, at home, with gear. Go to a camp and you will face it again, in a tent city, with no gear. Think about it.

Welcome to the real world of social collapse, where families are sundered, and children and good, knowing people die because of the complacency, confusion, and naiveté' of the unaware, which are at least as hazardous as weather, injury, and malicious action. All the gear in the world is useless if you will not use it, and sometimes the decisions that go into using it are very hard indeed. These human factors involved in survival are as important, if not more so, than any piece of gear. It is human to give someone you love and like the benefit of another chance, more time, more discussion. It is natural to look at the potential for catastrophic consequences of a failure of judgement and back off. Yet I will be so bold as to warn you now - if this stuff ever *does* come to pass, time counts. If you wait until the riot is two blocks down the street, you and yours will leave in a panic, with little on you but the clothes you are wearing. If you manage to leave under load at that point, you will likely be overtaken by others. If you wait until the

proof is all but literally staring you in the face, survival for any significant period of time, much less the long term, will be a matter of supreme luck.

You must learn to tell the difference between Knowledge and Preconception.

Knowledge will tell you that something will happen. It may define the scope of the happening. Preconceptions concerning events try to tell you "how," not "what," just as preconceptions about people try to tell you "what," not "who."

The relevance here is, forget the movies and the books. They may have good ideas, which should be used. They may be entertaining, which should be appreciated. But if you're looking for The One Defining Event, forget it. While you're waiting for what *you* think is supposed to happen, you'll talk yourself out of reacting to reality. This is a Bad Thing.

Of course, if you leave, it's nice to know where to go. You can go to a city and hope it works out. You can follow the idea many have of setting up shop in a small town, living there, becoming part of the community, then manning the ramparts against the fleeing hordes. I still have some problem with this, because (1) the town is on the power grid, which will most likely be history, and (2) towns are on maps. When the second wave comes out, they will know where to find you, and you won't want this crowd (gangs) to do it. Still, there are long-term benefits if nothing happens, and the idea has merit generally speaking. One possible advantage is the increased chance an overly skeptical spouse will be willing to cooperate. After all, you aren't asking them to play Daniel Boone (or Mad Max, depending.)

You can form your own community. Finding suitable land won't be easy or cheap, but *you* have control over things like power generation, water supply, housing/zoning, food production, communications, &etc. Whatever happens, you're there, you're ready physically and mentally, as a community. This has the additional effect of making most of the gear I mention irrelevant, although the ability to travel for forage, if nothing else, means *some* of the gear above would be useful. Just be sure you're ATF approved.

A variation on this theme is "community by stealth." Somebody buys land, sets up, stocks up, then tells their friends where they are. The friends cache some "nice to have" items on the land, visit once in a while, and nobody around is much the wiser. The place is on no map, so the base isn't a primary or secondary target. When things pop, everybody has a base to head for to set up shop. Mind you, if you do this, you had better be way in the country, or the townsfolk will be very, very pissed. The downside is your base is lightly defended, so it could get looted as a target of opportunity, and it may take some doing to get to, but on the whole I like this plan best. It's discrete but allows for planning.

5. LONG TERM PLANNING

Planning for the long term, even assuming you have a pre-stocked base, is not easy. All the basic criteria mentioned above - water, fire, food, shelter, clothing, and medical - need to be provided for, two or ten years after the event. Many items you start with will last the long haul, but food, medicines, boots/shoes, children's clothing, cleaning supplies, and many other items will be used up, worn out, outgrown, gone, and/or expired after about a year of hard use. What you have is a flying leap into the unknown future, with enough stuff to get you to it, but not through it (the future, that is.)

Assuming you want to buy a rural property, the problem essentially divides itself into several aspects:

- 1) Money - to buy land, construct housing, prepare for long term habitation, plus live a normal life
- 2) Defining the criteria for land you wish to purchase
- 3) Finding that kind of land for sale and buying it
- 4) Initial construction or occupation
- 5) Preparation for long term

Items 1 and 2 really go together, because each affects the other. Basic criteria include things like accessibility, year-round availability of reasonably uncontaminated water, an adequate amount of surface area to house (and provide sanitation for) as many people as are in your group plus (1) some allowance (not necessarily purchased) for growth (2) off-grid power if you go for it, soil quality and growing season for crops (what type crops,) and other long-term food and construction material availability. If you don't have the money to purchase the property required to meet all the criteria, you need to select an area where you can "appropriate" adjacent property with some degree of safety and success at the proper time..

If you plan to live on the property full time, access to employment may be a serious consideration. If you can telecommute, OK, otherwise you may have to settle for a setup like one friend has, a travel trailer in the city and land in the country for weekends, because land too close to an urban area is worse than no land at all. Buying land that gives a false sense of security is a bad investment.

Once you have some idea of what you can afford and what you want, you have to find it. Commercial real estate agents, the Internet, newspapers for potential areas, anything else you can think of are the idea here. Be prepared to **look** at the land, in the title office as well as the land itself. Make sure you find out about easements, water rights (at least,) prior use (a friend of mine discovered a buried toxic waste dump on some property the hard way,) and whether the title itself is clear and free of encumbrances. Also, be aware of projects and industrial plants that affect your water source(s). Look around for shallow mines, quarries, salvage yards (great for pre-smelted metals,) truck parks (the trailer for an 18 wheeler makes a great basis for pre-fab housing, especially refrigerated ones - they're insulated,) grain silos, forests and/or clay deposits (for brick.) Find out about hunting in the area - game is an important resource for both meat and pelts. Year-round rivers are good for water and microhydroelectric. In short, make a serious effort to be aware of every significant resource - and hazard - in the vicinity of the land you want to purchase. It doesn't have to be exhaustive, but you should have a good idea what kind of resources you have - not enough resources can mean big trouble shortly after things break.

Initial construction depends on **planning**, as well as remaining funds. You may have the usual architectural considerations - planning to cope with weather, soil stability, positioning for natural lighting, drainage, and on, and on... Plus you get the thrill, chill, and spill packed adventure of urban planning. Even if you don't break ground for a single dwelling or garden plot, live in a house trailer, and indulge in a minimal impact lifestyle, where are you going to put the rest of the group? How much building material do you need - and where do you get it? If you're planting crops, how do you intend to till the soil - then store the tilling tools/machinery? What are natural traffic patterns between houses, between farm fields and storage, between the stock pens and the cattle pond, whatever? Don't necessarily work it all out on the ground or on a model. You can start by just drawing boxes on a piece of paper and connecting them with lines. Put numbers next to the lines to show the number of people who might routinely use the paths, plus number of times per day. Info like this can help you determine the relative position of various structures.

There are things that take you well beyond your boundary lines. Concern about defensibility leads to siting with regard to most likely avenues of approach, while an alternative settlement policy means you

need to scan the maps of the area to tell stragglers where to go and how to get there (no nasty comments, please.) Why this for initial occupation? Site planning. If you know what you have potentially available, you know what you have to plan for. What do stragglers have to do with site planning? For one thing, where you put them/send them to may affect growth plans and resource use. Remember, dreams are fine, but needs are first. Get the USGS map of the area and check it **all** out.

Preparation for long term habitation takes into account the results of all the previous steps, then adds what you need to survive in a technologically minimalist situation. Tools for construction and farming, seed for planting, herbs for medicine, weapons and ammo for hunting and defense, and books - practical books, fun books, children's books, history books, whatever. Don't necessarily try to preserve the culture - if it goes splat, it will do it for a **very** good reason or set thereof. Still, not every aspect of *anything* is bad, and just because something fails does *not* mean nothing of it is worth preserving.

When something is lost, learn the lessons that you may build what should be. Don't rebuild what has failed, because a lesson is presented until it is learned.

The resources you have are not infinite. For farming, you have to account for fertilizer, water, weather, and pests, plus planning for the preservation of a surplus for next year's planting. You need trees and/or clay (for bricks) for building materials, but if you have trees, you must have a harvest and reforestation plan, while clay pits aren't inexhaustible. You can't allow your group to over-hunt an area, or there won't be any game. This might imply access to livestock, which have to be grazed, watered, cared for, and housed. Try to plan your resource usage as wisely as you planned their availability.

Sanitation is a nasty problem, no pun intended. Septic systems in place require maintenance, and how do you propose to add new ones once it falls apart? Drainage, water table, water sources, decomposition aids (real wetlands are a big help,) and many other considerations come into play here.

One thing I have never seen adequately addressed is long-term provision of potable water. Many books tell you how to store it, but what about the remote site? Hand purifiers are rated for a certain number of gallons max, and that maximum isn't that large. The only idea I've been able to come up with is a large, permanent solar still. You have a pond in it, preferably with a black plastic floor, a large window to let in sunlight for heating, and you have a shaded condensation area that allows the condensate to drain into a trough for consumption. Another possibility is a parabolic reflector made from aluminum, possibly foil over wood, with a pipe near the focus point. run water into the pipe and let the sun boil it. A slightly less complicated variation would be to suspend a metal drum at the focus point and boil your water 30-50 gallons at a time. Whatever. I can't say I've given enough thought about the feasibility of what I've suggested.

At some point, there are going to be other people wandering in your neck of the woods. Early on, it's very possible they are hungry, desperate, and not too picky about how they solve their problems of food and shelter. Remember your planning, and develop a routine to handle the situations stragglers can present. Even if you have an "open arms" or alternative settlement policy, some people can't stand the thought of not being in charge. It does no good to empathize with an axe murderer - the fact you understand *why* he is trying to kill you doesn't change the fact he's trying to kill you.

Consider trade as time goes on. If you sit along a natural trade route, think about things you'll need, like (probably) salt, and what you can trade for it. Art objects aren't much use, but blades, smelted metals in ingot form, cast items, pottery, leather and items made of it, some items of wood, bees wax, herbs, etc. will be Find a book about trade in the ancient or renaissance world, or trade among the native American tribes. It's the best market research you have.

If you have a group but no base, it's hard. Everything depends on knowledge of what's where, so planning has to include maps, travel, and reading. Get to know some of the possibilities. Remember, you must be ready for the winter. That includes housing and basic sanitation. Of course, if it *is* winter, head for an area you can hunt in, build temporary housing, and hole up until spring. Use the time to plan your next move as best you can. Almanacs can become an invaluable asset here, since they list things like products by state. Don't go looking for Eden (unless you feel you should,) but also don't assume that your winter stopping spot is where you *should* be. If can find a better place on the map, go for it. This might mean you pull up stakes and move six months after leaving home, but look at it this way - you survived winter, you learned a lot, and you still have a purpose.

If you're on your own, it's difficult. As an individual or family, you are less of a threat than a large group when you approach a town. You are also an easier target and have fewer resources in adversity than a group. I have little advice save follow your instincts. If solo, maybe you can become a bard - travelers were sources of news in the days before the telegraph, and sometimes offered hospitality on that basis.

Most people think of survival as a negative - "I **won't** die." When you turn around and start thinking as "I **will** live," you open the door to thinking about *how* you will live - and, maybe, how you're living now. I'm reminded of a line from the movie "Thunderheart," where one of the protagonists mentions knowing the difference between freedom and the illusion of freedom. Be that as it may, the psychological distinction between the negative and the positive can be significant. The positive gives you a purpose, which guides efforts and gives support in adversity. The negative lacks a purpose that lends guidance beyond the day-to-day efforts - it isn't what *has* happened that a negative person measures, it's what *hasn't*. This lack of purpose - lack of future, really - can be lethal.

6. REFERENCES

Backpacking

Complete Walker III, Colin Fletcher, 1984, Knopf, ISBN 0-394-72264-7. I usually buy books on technique until I spend as much as I do on equipment. This was the third book I bought, and I stopped buying. Has aged well, because it's more idea-oriented than equipment oriented (though it does use stuff to illustrate ideas.)

Desert Hiking, Dave Ganci, 1987, Wilderness Press, ISBN 0-89997-086-9. Desert hiking is a study in living well in extremes.

How to Shit in the Woods, Kathleen Meyer, Ten Speed Press, 1994, ISBN 0-89815-627-0. This book is priceless. A very funny book, but the subject is real, as is the advice.

Land Navigation Handbook, W.S. Kals, 1983, Sierra Club Books, ISBN 0-87156-331-2. Includes a topographic map section to help with map reading skills. Good, handy book.

Supermarket Backpacker, Harriet Barker, Contemporary Books, 1977, ISBN 0-8092-7307-1. The first and one of the best for getting good camping food from the supermarket, which is **lots** less expensive and usually tastes better than freeze-dried.

The One Burner Gourmet, Harriet Barker, 1981, Contemporary Books, ISBN 0-8092-5883-8. Another classic backpacker's cookbook.

Roughing It Easy, Dian Thomas, 1974, Brigham Young University Press, ISBN-8425-0892-9. Mostly car camping food, but it's fun.

Simple Foods for the Pack, Claudia Axcell et al, 1986, Sierra Club Books, ISBN 0-87156-757-1. Uses lots of grocery store foods that aren't main-stream, like falafel and couscous. Good food, if you like that kind of stuff.

Gorp, Glop, and Glue Stew, Yvonne Prater & Ruth Mendenhall, 1982, The Mountaineers, ISBN 0-89886-017-2. The Logan Bread recipe on page 12 is the closest thing to Tolkein's elven waybread I've ever seen or tasted. Get this cookbook if no other.

Medical

Wilderness Medicine (4th ed.), William Forgey MD, ICS Books, 1994, ISBN 0-934802-93-9. The Standard. Well written, well organized, right size for the pack.

Medicine for Mountaineering, James A Wilkerson, MD (ed.), 1985, The Mountaineers, ISBN 0-89886-086-5. A large and comprehensive backpacking medical guide.

ST-31-91B, US Army Special Forces Medical Handbook, US Army Institute for Military Assistance, no date, Paladin Press, no ISBN. Check gun shows or the US GPO for this one. Covers *everything*, from bandaids to delivering babies. A must for the long term.

NOLS Wilderness First Aid, Tod Schimepfenig/Linda Lidsay, 1991, Stackpole, ISBN 0-8117-3084-0. Bigger than some medical books above, covers "gender specific" difficulties, water purification, more. Quite worthwhile.

Ditch Medicine, Hugh L. Coffee, Paladin Press, 1993, ISBN 0-887364-717-3. Written for EMT's or "PHCP" (Pre Hospital Care Provider) personnel - i.e., medics. This is a medical book, complete with the jargon and the pictures that make it ill-advised for the squeamish - gunshot wounds, amputations, burns, etc. This book is just about an instant favorite for me, not because it's medical or bloody but because it was written by somebody who knew about dealing with medical emergencies under truly difficult conditions. Discusses the use of sugar and iodine as an antiseptic, and has the medical literature refs to back it up. Very useful, if you can handle it.

Herbals and Plant Books

Herbal Medicine, Diane Dincin Buchman, Grammercy, 1979, ISBN 0-517-32093-2. A good beginner's herbal, it tells how to prepare herbs for use as well as discussing the properties of some. Better organized than most.

Culpepper's Color Herbal, David Potterton (ed.), Sterling, 1983, ISBN 0-8069-8568-2. Herbals that show color prints of the plants are rare, this is one of the most complete.

Today's Herbal Health (3rd edition), Louise Tenney MH, Woodland Books, 1992, ISBN 0-913923-83-4. A decent book, and the only one in the list to actually discuss the vitamin content of herbs.

Medicinal Plants of the Mountain West, Michael Moore, 1979, ISBN 0-89013-104-X Medicinal Plants of the Desert and Canyon West, Michael Moore, Museum of New Mexico Press, 1989, ISBN 0-89013-182-1. Interesting, gives info on plants other books don't even admit exist.

Tom Brown's Guide to Wild Edible and Medicinal Plants, Tom Brown, Jr., Berkeley, 1985, ISBN 0-425-10063-4. Once you get past the stories, there's good info in this one.

Peterson Field Guides - Edible Wild Plants, Lee Allen Peterson, Houghton Mifflin, 1977, ISBN 0-395-31870-X. Covers Eastern and Central North America. Thoughtfully arranged, the markings to the side of the entry for a quick guide to types of preparation are useful.

The Wild Food Trailguide, Alan Hall, Henry Holt, 1976, ISBN 0-8050-1345-8. Has one highly useful feature - it not only tells you what to look for, it tells you the time of year to look for it.

Survival Medicine, Marilyn Moore, Desert Publications, 1980, ISBN 0-87947-440-8. Available from Delta Press, see below. This is actually a homeopathic herbal. No drawings of any of the plants, and I wonder about some of the suggested remedies, but this is the **only** book that lists the vitamins and the herbs that supply them in one special location. Also the only thing I've seen that listed Pine Needle Tea as an antiscorbutic (vitamin C source.) Takes careful reading to dig it all out, but worth it.

Identifying and Harvesting Edible and Medicinal Plants In Wild Places, Steve Brill with Evelyn Dean, Hearst Books, 1994, ISBN 0-688-11425-3. Another good find. Covers medicinal plants of all varieties, has illustrations, recipes, vitamin info listed in index. Has time-of-year info as well.

Survival

Survive Safely Anywhere - The SAS Survival Manual, John Wiseman, Crown Publishers, 1986, ISBN 0-517-56250-2. A good, readable book covering a wide variety of survival situations, personal kits, etc.

Wright's Complete Disaster Survival Manual, Ted Wright, Hampton Roads, 1993, ISBN 1-878901-80-X. Written by a survivor of the Battle of Britain, as a teenager he dug people out of bombed houses. Now he lives in California. Some very good ideas here.

FM 21-76, Survival, Department of the Army, October 1970. I'm sure there are later editions of this (yep, 1992.) Covers a wide variety of locations, hazards, and techniques, but you need motivation to read it for very long at a time.

Desert Survival Handbook, Charles A. Lehman, Primer Publishers, 1990, ISBN 0-935810-34-X. Covers some interesting ways to get water, aspects of dehydration. Not a bad little book.

CompuServe file SRVKIT.ZIP, Doug Ritter, 1995. GO AVSIG, get this from Sec 4 library. 384k download, uses PKZIP 2.04g. Written for pilots, but **absolutely** worth it. As far as I can tell, the author has no use for "Earth Changes"/apocalyptic individuals, but is more than happy to engage in general discussions of survival gear and technique.

CompuServe file SRVKITCP.ZIP, Doug Ritter, 1996. GO BACKPACK, get this from Sec 8 library. 152k download, uses PKZIP 2.04g. Son Of SRVKIT.ZIP. A more generalized survival manual, includes several kit descriptions, still **absolutely** worth it. As far as I can tell, the author still has no use for "Earth Changes"/apocalyptic individuals.

Primitive Fire and Cordage, John McPherson, Prairie Wolf Publishing (P.O. Box 96, Randolph, Kansas 66554), 1987, **no ISBN**. Found this in a traditional archery store - that's a store that caters to traditional

archery, not the name of a chain. I always seem to find the oddest things in places like this. As far as the book goes, the fire stuff is good but not much of a surprise - bow drill, hand drill, but the pictures are good and go well with the text. The cordage making info alone is worth the \$3, though.

Makin' Meat - 2, John McPherson, Prairie Wolf Publishing, 1988, **no ISBN**. The best illustrated book I've seen on how to make and set traps that work, plus a new weapon - the atlatl (spear thrower.) Not hard to make, and quite effective precursor to the bow. Makin Meat - 1 was about primitive bows and arrows, so I didn't pick it up.

Odds & Ends

Country Savvy, Reed Blackmon, Republic of Texas Press, 1993, ISBN 1-55622-251-3. Subtitled "Survival Tips for Farmers, Ranchers, and Cowboys", it has more odd knowledge about stuff than I've ever seen in one place, like using aspirin to perk up a dead battery. Well worth the price.

Made for the Outdoors, Len McDougall, Lyons & Burford, 1995, ISBN 1-55821-329-5. Got this as a present, it's **VERY** good. Good survival tips, interesting projects. Almost put this in Survival above, but the projects are not really survival oriented.

A Guide to Animal Tracking and Behavior, Donald and Lillian Stokes, Little, Brown, 1986, ISBN 0-316-81734-1. A very complete guide to all kinds of common animals, most of which are also good to eat.

The Woodwright's Eclectic Workshop, Roy Underhill, University of North Carolina Press, 1991. How to build a small log hunter's cabin starting with standing trees, and using no power tools. After you build the cabin, build everything that goes in it - without power tools. The discussion on how to chop down a tree is interesting - more difficult to do safely than most people realize. This guy is on PBS, he's wonderful (IMO).

Knives '95, Ken Warner (ed.), DBI Books, 1995. This is actually an annual publication. Has a long list of knife makers, suppliers, everything.

Step-by-Step Knifemaking, David Boye, Rodale Press, 1977, ISBN 0-87857-181-7. Has an excellent section (chapter 3) on designing knives, which also just happens to explain what you the buyer are looking for in that kind of knife, be it a paring knife, a skinning knife, a bread knife (!), whatever.

Weathering The Wilderness, William E. Reifsnyder, Sierra Club Books, 1980, ISBN 87156-266-9. Haven't had this long, but it has some interesting things like time-of-year climate information for some significant areas of the US and general micro-meteorology, Not a bad book, at least by first appearances.

Practical Blacksmithing and Metalworking 2nd Ed., Percy W. Blandford, Tab Books, 1988, ISBN 0-8306-2894-0. A good basic beginner's book on blacksmithing, covering a wide variety of topics.

Sharpening - The Complete Guide, Jim Klingshott, Guild of Master Craftsman Publications, 1994, ISBN 0-946819-48-3. Talks about how to sharpen *any* tool, and does a reasonable job of explaining it. Well organized, too.

Blue Mountain Buckskin - A Working Manual, Jim Riggs, M.C. Andrews Graphic Arts, 1980, **no ISBN**. Check with Bois d'Arc Press, P.O. Box 233, Azle, Tx, 76098, they may still have it. A wonderful little booklet that goes all the way from skinning to making clothing.

The Basic Essentials of Knots for the Outdoors, Cliff Jacobson, ICS Books, ISBN 0-934802-57-2. Part of The Basic Essentials Series (includes camping, survival, trail and emergency shelters, backpacking, and so on) this is actually a good little book. Includes a short discussion of rope materials, talks about what the knots are used for. I can't vouch for the rest of the series, but this one looks good.

7. SUPPLIERS

SRVKIT.ZIP suggests several good suppliers, such as REI and Campmor.

Here are a few more.

Campmor
Saddle River, NJ
1-800-226-7667

OK, I just got my first catalog from these people. Check it out, it has more backpacking gear of all kinds, from more manufacturers, than you can shake a stick at. The name brands are good, the prices are OK, the selection is awesome.

Gander Mountain
Wilmot, WI
1-800-558-9410

A hunter's catalog, has black powder arms, bows, crossbows, clothes, hunting gear of all kinds, some knives. A good catalog of its type.

US Cavalry
Radcliff, Kentucky
1-800-333-5102

Knives, military clothing, survival gear, police supplies. Fast delivery and good prices.

Brigade Quartermasters
Kennesaw, Georgia
1-800-338-4327

Competition for US Cav in price and type of stuff. They don't have quite the same gear, so get both. Again, fast delivery and good prices.

Food Reserves, Inc.
Concordia, Mo.
1-800-944-1511

Survival foods. Their Survival Tabs taste a bit chalky but good otherwise, 6 tablet samples may still be free. 12 tablets is 1200 calories, and one bottle is a 15 day supply (180 tablets.) The bottle will also fit a US Army canteen holder. They are also a supplier for bulk freeze-dried foods. The pouches are not available as of 9/95, but they sell #3 tall cans (that's about 4" diameter by about 10" tall) of all kindsa stuff. A mom-n-pop shop, you can hear the kids in the background sometimes, but they're good folk and deliveries are fast.

Emergency Essentials, Inc.
Orem, Utah
1-800-999-1863

This group supplies Mormon families with their one year staples as a single package (delivered one pallet per person - *big* package,) plus they have MRE, bulk grains, canning supplies, you name it. Several "72-hour" packs, books, videos. Not bad prices, either.

Adventure Medical Kits
Oakland, CA
1-800-324-3517

Medical kits and a good selection of refill supplies.

Outdoor Research
Seattle, Washington
1-800-421-2421

More than just medical kits, they also carry some very good backpacking clothing. Their "Seattle Sombrero" is excellent for cold or wet weather.

Garrett Wade
NY, NY
1-800-221-2942

Woodworking tool catalog. Good selection of stuff, including hand tools, finishes, you name it. OK prices.

The Japan Woodworker
Alameda, Ca.
1-800-537-7820

Japanese woodworking tools. Not cheap, but they are **VASTLY** better than anything you'll ever see in Home Depot. Check out a ryoba noko saw - difficult to resharpen, but they are **much** lighter than western style saws and cut twice as fast. Put it this way - I haven't used a western style saw since I bought one 4 years ago, and I use it quite a fair bit.

Lindsay Publications
Bradley, Ill.
1-815-935-5353

Ask for their catalogs for metalworking and technical books. Priceless reprints of turn of the century books, stuff you never thought you'd find. Some of the books are about how to build tools.

Cumberland General Store
Crossville, TN
1-800-334-4640
1-615-484-8481 (in Tennessee)

I didn't think they made this stuff anymore. Quality anvils, farriers tools, old-fashioned washboards, you name it, they got it from yesteryear. A hoot to look through.

Real Goods
Ukiah, Ca
1-800-762-7325

This is the bunch to call of off-the-power-grid power. Micro hydro, solar, wind generation, they also have designers on staff. Get the Solar Living Source Book for \$23, it's also got all the utilities to go with the power generation such as high efficiency refrigerators, lamps, water heaters, and on and on. Good people, good products.

MTG Publishing
P/O Box 792
Murwillumbah, NSW 2482
Australia
CompuServe ID 100236,342

A thoroughly pleasant man, Earl Montague teaches Tai Chi combat and healing, Bagwa (an internal martial arts form,) QiGong energy work and healing. He comes highly recommended by a friend, and his selection of training videos has me seriously drooling.

Jeffers Livestock, Equine, and Pet Catalog
West Plains, MO
1-800-533-3377

This is **the** catalog for gear of all kinds for horses, cattle, pets, hogs, poultry, you name it, including medical supplies like sutures, antibiotics, wormers, scalpels, and castration kits. Also has some books, pet toys, grooming gear. Interesting just to look at.

Delta Press
El Dorado, AR
1-800-852-4445

This is *the* source for survival and survivalist literature, but it is not for the politically correct. Has many military Field Manuals (FM), books on many aspects of survival including medicine, nuclear survival, etc. Also has books on how to make silencers, mines, traps, and poisons.

Zwickey Archery, Inc
St Paul, MN
1-612-777-1965

Source for broadhead arrows and several other points. They have two broadhead styles, two edge and four edge, with four edge being the best for larger game, two sizes, 5/16" and 11/32", and three weights, 110 grain, 125 gr., and 135 gr (these weights apply to the 5/16" size - ask for 11/32".) I have 125 grain 5/16", but I also have a 55 pound bow. Ask for suggestions from a dealer or other archer you trust. If you fit your points to a threaded insert, you will need to get adapters because they are sold to be glued directly to the shaft.

8. HORSES

This section was added after a talk with the wife of a friend of mine. Seems she was a farm girl for a while, and had had to care for 37 of them at once. Since horses are a valid form of primitive transportation, I decided to pass on these notes she gave me.

Go to the library and get a child's picture book about horses. Verbal description of the types and their history (including usage) really aren't adequate.

Avoid Arabians. Beautiful beasts, they are **not** for the beginner. They don't always mind and they're skittish. In our horse-keeper's terms, they are called "knotheads". No kidding.

When you select a horse, look for one that is flat across the back and is barrel chested, that's an indication of strength. Look for the description of a quarterhorse in the book.

Take a horse that does **not** shy away from you when you walk up to it.

From personal experience, approach a horse from the front or the side. Put your hand on it and KEEP it there if you want to go close behind it for some reason. If you put your hand on a horse from behind, he didn't know you were there. You run the risk of startling it and getting a kick.

Do **NOT** take a female horse that seems to have an unusually large stomach. I can testify that riding a pregnant mare is no fun.

Remember reading about trench foot above? Surprise - it can also happen to horses, cows, and mules. Never keep a horse in an area that has deep mud for a long period of time. Also, keep the stall clean of the crap, hooves can get infected if they have to spend a long time standing in it.

Make sure you keep stones out of the hooves, they will lame the horse. Check it daily, or more frequently on stony ground.

If a horse starts limping, GET OFF THE HORSE. You may be able to leave the saddle on, but *you* are probably the biggest load on his back. Don't make a temporary injury worse. Check out the hoof, make sure it doesn't have a rock in it, isn't cut or cracked, etc.

If you get a horse hot from riding, walk it for a while to let it cool down before you let it drink, otherwise it will get colic.

Colic shows up as stomach pain. The horse may try to roll, or get "antsy", or whatever. The problem is, you have to know the horse well enough to know what you see.

Colic can also be caused by a sudden change of diet, such as taking a grass-fed horse in an alfalfa field.

If it gets colic, **walk** the horse, do **not** let it roll. When the horse starts farting and crapping, the problem is about over, you can leave the horse to its own devices.

Give hard corn to horses in the winter, one scoop in the morning and one again at night. "This helps them keep warm." Fermentation? Complex carbohydrates? Not sure, but I'd do as the lady says. After all, the farm she worked on was in Minnesota, which is not prone to warm winters.

Horses like short grass better than long grass, short grass tends to have more nutrients.

Look at pictures of saddles. Western saddles were all designed as working saddles, and roping saddles in particular have more attachment points for gear. English saddles are lighter, but were never intended for long haul riding or working. McClellan saddles, if somebody tries to palm one off on you, are abominations that were despised from the moment they were first issued to the US cavalry to the day they were withdrawn from service, but I understand they are made even in this day and age. Great for causing massive saddle galls on *your* backside.

Horses do **NOT** hibernate. Somebody really did get Animal Control called down on them because they stopped caring for the horses when winter came on. When asked what the deal was, he asked in all seriousness, "Don't they *hibernate*?" He was informed otherwise.

9. MAKING A TRAVOIS

A note about woodworking terminology. A rip cut of a board is a cut with the grain. Measurements, such as 2x2 and such, are the nominal size of the board in inches. In reality, the size of a board is less - a 2x4 is actually about 1 3/4 x 3 1/2.

I listened to my own advice again, and decided to make a basic, no frills, no castors, travois. I went to the local home center (Home Depot, Payless, Ace, whatever else is in your area) and bought a single 2x4 stud, about 8 feet long. I ripped it in half on the wide side to make 2 2x2's. I trimmed the corners of the wood with a knife to make them less sharp - nylon is notoriously bad for abrasion resistance. I found a piece of wood that was about 1x1 (true measure) by about 2 feet long, which I adopted as the lower cross-piece. I grabbed some 30 feet or so of 300 pound test nylon cord I have, then laid out the wood like a letter "A" (except the two long legs of the letter cross over at the top) and cut some notches in the wood to keep the cord from sliding around. Be sure you notch the lower rung as well as the two side pieces or the rope will slip and narrow everything when you try to tighten up the webbing. Tie one end of the rope to a leg and secure one end of the lower rung with an X-pattern of cord. Then, making sure you keep the cord next to the lower rung, secure the other end. Now run the cord up the side of the leg and fit it to a web notch, making sure you wrap it so it won't tend to slip down. Continue from side to side, When you get to the top, wrap from side to side. Initial tests indicate you don't need to wrap top to bottom as well. Use the remaining cord (there's a lot) to fasten the pack and other items to the travois.

Remember the long rope I mentioned? Seems I forgot another benefit if you have about 20 feet. Tie it into a circle (square knot) and loop it through the top. Now grab both ends of the loop and put them over your shoulders, **under** the sternum strap of the Tough Traveller. Not wildly comfortable, but going under the strap keeps it from slipping off your shoulders, and removal for dealing with snags is much faster. The shoulder pads give some protection from rope burn.

The resulting contraption flexes a bit but appears to work in the back yard test. To reduce flexibility and the tendency to slip, you can notch the area where the lower rung crosses the legs.

10. MISCELLANEOUS NOTES

The information in this section doesn't really fall into any good category. It's presented in no particular order, but I hope somebody finds it useful.

1) "Spruce Traps" - In an evergreen forest, wind tends to pile snow up against the base of the trees. If it gets deep enough, the snow starts resting on (and concealing) the lower branches as well. If the snow hasn't been packed down somehow, air pockets will be there, waiting for you to step close to the tree. The result is more of a pain than a peril, but what happens is you get a sudden drop into the pit, with the ends of the branches pointing **down** at you, which means you can't just climb back out - the branches pin you until you dig your way out.

2) If you find yourself caught in a hail storm in the open, use your ground pad for shelter. The tent is way too weak, the pack, while useful, is way too short. Be advised a culvert in such a situation is **not** usually considered cover - the chances are the runoff will fill it, and you risk having your gear washed away, or being drowned yourself.

3) You can improve ordinary "strike anywhere" matches to resist damp better, burn hotter, or both. Dip them in molten paraffin to improve damp resistance (BE VERY CAREFUL TO AVOID IGNITING THE PARAFFIN.) To improve some burning characteristics, wrap some heavy cotton thread just behind the head before you dip it - it will absorb some of the paraffin and the matches will burn a little longer, and slightly hotter.

4) Very fine steel wool (000 or 0000) makes a good, cheap fire starter, as long as it isn't rusty.

5) Interesting discoveries about those "strike anywhere" matches.

First, make sure the strike surface is not *too* coarse - 320 grit is about right. Second, the strike surface works **much** better if it has a stiff backing. Could just be your thumb, but without it you tend to just abrade away the ignition portion of the match without lighting it.

6) Learn weather patterns where you live, as well as where you will be going. Things like what cloud formations and wind directions *mean* things, in terms of near term weather, which can save your life.

7) Beware of metal in severe cold! If you touch it with bare skin, it will stick to you like Superglue until it warms up enough to thaw.

8) Stay **well** away from any bear cubs you encounter, and **never** get between a cub and its mother. Momma bears have no sense of humor about such things, and will attack to kill.

9) Stay away from elk and moose in the fall rutting season. They have terrible eyesight, and tend to treat almost any moving object as a potential rival. I've even had a moose swim into a lake (they swim quite well) to try to attack a canoe I was in. My partner and I had to put some fairly serious effort into our paddling for about 50 yards, before he decided we must not be much of a threat.

A true story about another moose hazard. Seems a couple had been on the trail a while, so they washed *all* their clothes and set them out to dry on some bushes. A moose decided those bushes were its road, and no noise making, shouting, or waving would stop it. It got a little stuck, thrashed around some, then made it though - except for the bra dangling from an antler, it shredded the clothes. It was summer, so the couple had to walk out with their boots, packs, and smiles on their faces.

10) If you end up building a log cabin or shelter, remember to remove at least a strip of bark the full length of the log or sapling to let the wood dry. If you don't, insects and fungus will attack the wood.

11) If you carry a butane lighter in cold weather as a flame source, carry it in an inner pocket to keep warm. Butane lighters lose pressure in when they get cold.

12) One of the best preservatives/lubricants for steel is non-medicated petroleum jelly (Vaseline.) Tenacious and effective in thin coats, this stuff is great for knives and such, but be warned - thick coats attract dust and sand like a magnet.

13) If you have a flintlock rifle or pistol, carry a supply of small metal paper clips - they make great vent picks.