

like spores which are commonly found in the soil. This means that *C. botulinum* can be brought into your life on raw produce, tools, hands or anything else that came into contact with dirt. To further complicate matters, botulinum spores are extremely heat-hardy. The bacteria itself can be killed by a short exposure to boiling water (212° F AT SEA LEVEL PRESSURE), but its spores can not. To kill them, the food product and container must be exposed to temperatures of 240° F (AGAIN AT SEA LEVEL PRESSURE) for a long enough period of time to allow all of the food in each container to come completely up to the proper temperature. Only a pressure-canner can reach the necessary temperature.

It's not the bacteria or its spores which are directly deadly, but the toxin the bacteria creates when it grows and reproduces. In its pure form, botulism toxin is so potent that a mere teaspoon would be enough to provide a fatal dose to hundreds of thousands of people. It is this lethality that is why every responsible book on home canning, food preservation, and food storage hammers constantly on the need for care in technique and method and why spoilage must be taken seriously.

Like any other life form *Clostridium botulinum* must have suitable conditions for its growth to become a danger. One of the most important of these is water - the botulism bacterium needs moisture in the 35% range to grow making it a danger only in improperly processed high moisture foods. Another requirement is suitable pH, which is the measure of acidity or alkalinity in a substance and is measured on a scale of 1-14. Anything above 7 is considered alkaline and everything below 7 is considered acid. If the acidity of your wet pack food is BELOW pH4.6 then *C. botulinum* is unable to grow. Keep in mind that in foods pH is not necessarily stable and could possibly change if other spoilers like mold are able to grow. If the product should change to a lesser acidity than pH4.6 your previously botulinum proof food may start allowing the lethal spoiler to grow (see *molds in canned goods*). This is why it is vital to use proper technique, even for acid foods like tomatoes. It has been found that when this pH shift occurs allowing *C. botulinum* to become active producing its lethal toxin the bacterium also produces minute amounts of acid which can lower the pH of the poisoned food back into what should have been the safe zone had the pH not jumped up and allowed the bacteria to grow. Again and again — use good technique and pay attention to what you are doing.

Unlike fungal mycotoxins Botulinum toxin can be destroyed by boiling food briskly in an open vessel for fifteen minutes. Because of this, if your canned food shows any safety problems you should follow this procedure. If the food shows even the slightest mold growth, keep in mind that mycotoxins are not for the most part broken down by heat and dispose of the food safely.

I won't go into the hows of home canning here. For that I strongly recommend that you read the *rec.food.preserving FAQ*, the *Ball Blue Book* or most especially the book *Putting Food By* for in depth information on this subject.

ENZYMATIC ACTION IN FOOD SPOILAGE

Every living organism uses enzymes of many sorts in its bodily functions as part of its normal life cycle. Enzymes are used in creating life. After death, enzymes play a role in the decomposition of once living tissue. The enzymes in a tomato help it to ripen and enzymes produced by the tomato and whatever fungal and bacterial spoilers are on it cause it to decay.

Fortunately, slowing down or stopping the action of a food's enzymes is much easier than slowing or stopping some of the bacterial spoilers mentioned above. Enzymes are most active in a temperature range between 85-120° F and begin to be destroyed when the temperature goes above 140° F. Cold also slows down the action of enzymes, which is why fresh tomatoes last longer in the refrigerator than they do on the kitchen table. Most enzymatic action also requires moisture to occur. In foods stored at 10% moisture or less, there is not enough moisture for most enzymes to be active.

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RECOMMENDED FOOD STORAGE TIMES

FOOD

At 70° F.

Keep the product:

STORAGE TIPS

Baking powder	Till can date	Sealed & bone dry
Baking soda	2 years	Sealed & dry
Biscuit, brownie, muffin mix	9 months	Sealed, cool, dry, weevil proofed
Bouillon, cubes or granules	2 years	Sealed, cool and dry
Cake mixes,	9 months	Sealed, cool, dry, weevil proofed
regular	1 year	Sealed, cool, dry, weevil proofed
angel food	2 years	Cool & Dry
Canned food:	12-18 months	Cool & Dry
metal can, Non-Acidic	2-3 years	Cool & Dry
Metal Can, Acidic	18 months	Cool and dark
Glass jars	2 years	Cool & tightly sealed
Chocolate, semi-sweet or unsweetened, bars or chips	18 months	Cool and cool
Chocolate syrup	2 years	Sealed and cool
Cocoa,	8 months	Sealed and cool
powder or mixes	9 months	Sealed and cool
Coffee creamers, powdered	1 year	Keep dry & weevil proofed
Cornmeal	18 months	Keep dry
Cornstarch	3 months	Keep dry & weevil proofed
Crackers	8-12 months	Dry & weevil proofed,
Flour,	4-6 weeks	refrigerate/freeze for longer shelf life
refined white	3 months	Cool
whole wheat	8 months	Dry and cool
Frostings,	6-12 months	Cool, sealed, weevil proofed
canned	18 months	Protect from moisture
Mix	2 years	Dry and weevil proofed
Fruits, dried	1 year	Cool, tightly sealed, dark
Gelatin, all types	2 years	Dark, cool, tightly sealed.
Grains, whole	6 months	Tightly sealed
Hominy, hominy grits, masa harina	1 year	Cool & dark
Honey	2 years	Turn over every 2 months
Jellies, jams, preserves	2 years	Bone dry and cool
Molasses & syrups	6 months	Cool and Dark
Mayonnaise	1 year	Cool and dark -- better Refrigerated
Milk,	6 months	Cool, dry & dark, better refrigerated or frozen
condensed or evaporated	3 months	Dry and weevil proofed
non-fat dry	4 months	Dry and weevil proofed
Nuts,	2 years	Sealed, cool, dark
vacuum canned	6-9 months	Dry and weevil proofed
other packaging	2 years	Dry and weevil proofed
in shell	6-12 months	Dry and weevil proofed
Pancake mix	1 year	Cool and very dry
Pastas (macaroni, noodles, etc)	2+ years	Dry and weevil proofed
Peanut butter	3-6 months	Dry & weevil proofed, better refrigerated or frozen
Peas and beans, dry (not soybeans)	6 months	Sealed, dry and weevil proofed
Potatoes, instant	10-12 months	Sealed, dark, cool. Better refrigerated
Pudding mixes	6 months	Sealed, dark, cool. Better refrigerated
Rice,	6-12 months	Cool and dry
white	1 year	Cool, dark, tightly sealed.
brown	1 year	Cool, dry, and weevil proofed
flavored or herb	2 years	Tightly sealed, Dry.
Salad dressings	18 months	Tightly sealed, Dry.
Salad oils	2+ years	Dry
Sauce and gravy mixes	8-12 months	Sealed and cool
Shortening, solid	1 year	Cool, dark, dry, weevil proofed
Soup mixes	1 year	Sealed
Sugar, brown	2+ years	
confectioners		
granulated		
Syrups (corn syrup based)		
Vegetables, dried		
Vinegar		

Storage Life of Dehydrated Foods

Determining the storage life of foods is at best an inexact science as there are so many variables. These range from the condition your food was in when you first purchased it and includes many other factors. This page was written with input by Mr. Stephen Portela who has over 30 years of professional food storage experience. This information should be used as a general guide only, and should not be followed "as the gospel truth" because your results may be different.

Four Factors that effect food storage:

Factor #1: The Temperature:

Temperature has more to do with how long well dried foods store than anything else. The USDA states, "*Each 5.6 C. (10.08F) drop in temperature doubles the storage life of the seeds.*" Obviously, there is a limit as to how far this statement can be taken. However I expect it basically holds true from room temperature down to freezing. No doubt, the inverse could also be considered true. "*Each 5.6C. (10.08F) rise in temperature halves the storage life of seeds.*" This theory holds true for non-garden seeds as well.

Storage Life Differences Depending on Temperature

Constant Storage	Storage life
Temp in degrees F	In Years
39.76 - - - 40	
49.84 - - - 30	
59.92 - - - 20	
70.00 - - - 10	
80.08 - - - 5	
90.16 - - - 2.5	
100.24 - - 1.25	

Note: the above chart is not for a specific food but shows the relationship between temperature and storage life.

Lets look at a couple of real life examples of

good and poor food storage practices:

About a year ago we got an unopened paper bag of white flour which had been stored at 70 degrees F, in a dry climate. It had been sitting for 3 years in a closet. It made fine looking bread but had such an 'old' and bad flavor that it was difficult to eat. For another example, a couple of years ago in the Puget Sound area we were given a 4 gallon can of wheat that had been stored up high in a garage for about 30 years. This part of the country is not as hot as some places, yet in the summers the average garage still gets up into the 90's. Even though wheat will store for 30+ years under good conditions, the bread from this particular wheat was very bad tasting and after a few batches we ended up throwing the wheat away (something I always dislike doing).

Counter these stories with several examples told by Mr. Stephen Portela, Walton Feed's manager. He stores his long term food storage in his basement where the temperature hovers around 60 degrees F. The experts give brown rice a 6 month storage life because of all the oils in it that go rancid. Yet, Mr. Portela has been eating from a supply of brown rice that has been in his basement over 10 years. It is still wholesome! In another example, there is a family living near him who purchased a supply of food in #10 cans 30 years ago. Their basement hovers around 58 degrees F. After 28 years, Mr. Portela took a sample of many of these items to the Benson Institute at BYU to have it tested. The results can be seen at the bottom of Mr. Portela's welcome page. You will see everything tested had a 'good' to 'satisfactory' rating except for the eggs which had a 'minimum passing' rating. After 28 years I think it is most interesting that it passed at all. Mr. Portela tells me as 30 years have now passed, their storage is still in very good condition.

The bottom line is even with the very best packaging methods, if you are planning on storing your food in a warm environment, it will only last a fraction of the time it would last if stored in a cool, dry place. You can expect good storage life if your storage temperature is at 60 degrees F or below. Optimum storage temperature is at 40 degrees F or less. It is important you also find a place where the temperature

remains constant. Frequent temperature changes shorten storage life. If you don't have a cool place for your food storage, plan on rotating your storage quickly enough to prevent food loss.

Factor #2: Product moisture content:

By looking at the USDA nutritional tables, dry beans, grains, and flours contain an average of 10% moisture. Although it is very difficult and unnecessary to remove all moisture from dry foods, it is imperative that any food be stored as dry as possible. Foods with excess moisture can spoil right in their containers. This is an important consideration when packing food with dry ice as moisture condenses and freezes on the outer surface of the dry ice. For long term storage, grains should have a moisture content of 10% or less. It is difficult to accurately measure this without special equipment. See the misc.survivalism faqs for a quick and easy way of getting a rough estimate of the water content in your foods. It is also important to know that you can not dehydrate foods at home that reach these levels. Food that is dried to a moisture level of 10% moisture crisply snap when bent. Those of you who dehydrate foods at home know dehydrated foods from your dehydrator are quite pliable when bent, especially fruits. These will not store well long term.

Factor #3: Atmosphere the product is stored in:

Foods packed in air don't store as well as in oxygen free gasses. This is because air contains oxygen which oxidizes many of the compounds in food. Bacteria, one of several agents which make food go rancid also needs oxygen to grow. Food storage companies have a couple of different processes for removing the oxygen:

- Displacing the oxygen:** This is done by purging out all the air in the product with an inert gas. Nitrogen is almost always used because it is the most inert gas known. People doing their own packing occasionally use dry ice which gives off carbon dioxide gas, and probably works just about as well.

- Absorb the oxygen:** Oxygen absorber packets do just that. Air contains about 78% nitrogen and 21% oxygen, leaving about 1% for the other gasses. If the oxygen is absorbed, what remains is 99% pure nitrogen in a partial vacuum.

If oxygen absorber packets are used, care must be

taken to use a storage container that can stand some vacuum. If it's not air tight, air will be sucked into your container as the oxygen is absorbed, reintroducing more oxygen that must be absorbed. Before long, the oxygen absorbers will have absorbed all the oxygen they can. Obviously, your product won't be oxygen free under these circumstances.

- Seeds store better in nitrogen.** On the other hand, seeds you plan on sprouting, such as garden seed, or seeds set aside for growing your own sprouts store better in air. For this reason Walton cans their garden seed packs in air.

Oxygen absorbers also contain a minute amount of moisture to activate the absorber. Sometimes, with the heat generated by the absorber, they can cause sweating if you use glass bottles or tupperware type containers.

Factor #4: The container the product is stored in:

To get the best storage life out of your product it must have a hermetic (air tight) seal. Containers that do this well are:

- #10 Cans (Use only cans that are enamel lined, otherwise your food flavor will be tainted by the steel it comes in contact with. An enamel lined can also prevents the inside of the can from rusting.)
- Sealable food storage buckets
- Sealable food quality metal (lined) or plastic drums.

Whatever container you use, be sure it is food grade as your product can be tainted with whatever the container is made from. Plastic sacks are not good air tight containers, for even if they are sealed, the relatively thin plastic 'breathes,' allowing air to pass through. Paper sacks are of course even worse.

There is some concern as to how good a seal is made by the lids on plastic buckets used by food storage companies. Manufacturer studies show an extremely small amount of air transfer. This amount is so small, however, that it can be considered a hermetic seal. It has also been found that the lids can be re-used several times without dramatically degrading the performance of the seal.

People who purchase products from food storage providers are often concerned about receiving their buckets bulging or with one side collapsed in. Collapsed buckets occasionally occur when ordering from Walton's as the elevation of their packing facility is above 6,000 feet. As the buckets are shipped to a lower elevation, the increased ambient air pressure can sometimes push in one side. If a side is popped in, it is a great indication that the bucket is indeed sealed. And this also holds true for buckets that might be under a slight amount of pressure. If either condition concerns you, crack the lid to equalize the air pressure. You can do this without seriously degrading the storageability of the product within the bucket. Remember to re-seal the lid after doing this.

Bulging cans:

Some bulging cans have been returned to Waltons. In almost every case, these cans held mixes that contained baking powder or soda. It is believed that occasionally the extremely small amount of moisture found in the product interacts over time with the baking powder or soda and creates a small amount of carbon dioxide gas. Oxyten absorbers can also react with the baking powder causing the cans to buldge. These cans have been sent off for bacteria analysis and and in each case came back negative.

Storage Life Notes About Specific Foods:

The Soft Grains Barley Hulled or Pearled, Oat Groats, Rolled Oats, Quinoa Rye.

Soft Grains have softer outer shells which don't protect the seed interior as well as hard shelled seeds and therefore won't store as long. Hermetically sealed in the absence of oxygen, plan on a storage life of 8 years at a stable temperature of 70 degrees F. They should keep proportionately longer if stored at cooler temperatures.

Buckwheat, Corn, Dry Flax, Kamut, Millet, Durum wheat, Hard red wheat, Hard white wheat, Soft wheat, Special bake wheat, Spelt, Triticale.

The Hard Grains all store well because of their hard outer shell which is nature's near perfect container. Remove that container and the contents rapidly deteriorate. Wheat, probably nature's longest storing seed, has been known to be edible after scores of years when stored in a cool dry place. As a general rule for hard grains, hermetically sealed in the absence of oxygen, plan on a storage life of 15-20 years at a stable temperature of 70 degrees F. They should keep proportionately longer if stored at cooler temperatures.

Beans

Adzuki Beans, Blackeye Beans, Black Turtle Beans, Garbanzo Beans, Great Northern, Kidney Beans, Lentils, Lima Beans, Mung Beans, Pink Beans, Pinto Beans, Small Red Beans, Soy Beans. As beans age they lose their oils, resist water absorbtion and won't swell. Worst case, they must be ground to be used. Storing beans in nitrogen helps prolong the loss of these oils as does cool temperatures. Hermetically sealed in the absence of oxygen, plan on a storage life of 8-10 years at a stable temperature of 70 degrees F. They should keep proportionately longer if stored 10-20 degree F cooler temperatures.

Dehydrated Vegetables

Broccoli, Cabbage, Carrots, Celery, Onions, Peppers, Potatoes.

Dehydrated vegetables store well if hermetically sealed in the absence of oxygen. Plan on a storage life of 8-10 years at a stable temperature of 70 degrees F. They should keep proportionately longer if stored at cooler temperatures.

Dehydrated Dairy Products

Cheese Powder, Cocoa Powder, Powdered Eggs, Butter/margarine Powder, Powdered Milk, Morning Moo, Whey Powder.

Dehydrated Dairy Products generally store very well if stored dry in hermetically sealed containers with the oxygen removed. Plan on a storage life of 5 to 10 years if stored at a stable temperature of 70 degrees F. They should keep, probably 5 years longer, if stored at cooler temperatures. One exception is Morning

The Hard Grains

Moo. As a new whey based product, it hasn't been tested for long term storage. Plan on rotating this product after 5 years. Our dairy powders (excluding our sour cream powder) contain no fat, an agent that markedly decreases the storage life of dairy products.

Flours and Other Products made from Cracked / Ground Seed.

All Purpose Flour, Bakers Flour, Unbleached Flour, White Flour, Whole Wheat Flour, Cornmeal, Mixes, Refried Beans, Cracked wheat, Germade, Gluten, Wheat flakes.

After seeds are broken open their outer shells can no longer protect the seed contents and seed nutrients start to degrade. Don't try to store unprotected flours longer than a year. Hermetically sealed in the absence of oxygen, plan on a storage life of 5 years at a stable temperature of 70 degrees F. They should keep proportionately longer if stored at cooler temperatures. Note: Granola is not a long storing food because of the nuts. They contain high concentrations of oil which go rancid over the short term. Expect granola to last about 6-9 months.

Pasta

Macaroni, Noodles, Ribbons, Spaghetti.

Pasta will store longer than flour if kept dry. Hermetically sealed in the absence of oxygen, plan on a storage life of 10 - 15 years at a stable temperature of 70 degrees F. Pasta should keep proportionately longer if stored at cooler temperatures.

Dehydrated Fruit

Fruit doesn't keep as well as many dehydrated items. Hermetically sealed in the absence of oxygen, plan on a storage life of 10-15 years at a stable temperature of 70 degrees F. They should keep proportionately longer if stored at cooler temperatures.

Honey, Salt and Sugar

Honey, Salt and Sugar should keep indefinitely if stored free of moisture. Watch out for additives in the honey. It is possible to buy honey with water and sugar added. This honey generally doesn't crystallize like pure 100% honey does when stored for a long time. If there are additives, there is no saying how long it will last.

Peanut Butter Powder

Peanut Butter Powder will not store as long as wheat flour. Hermetically sealed in the absence of oxygen, plan on a storage life of 4-5 years at a stable temperature of 70 degrees F. It should keep proportionately longer if stored at cooler temperatures.

Brown and White Rices

Brown and white rices store very differently. Brown rice is only expected to store for 6 months under average conditions. This is because of the essential fatty acids in brown rice. These oils quickly go rancid as they oxidize. It will store much longer if refrigerated. White rice has the outer shell removed along with those fats. Because of this, white rice isn't nearly as good for you, but will store longer. Hermetically sealed in the absence of oxygen, plan on a storage life for white rice of 8-10 years at a stable temperature of 70 degrees F. It should keep proportionately longer if stored at cooler temperatures. Stored in the absence of oxygen, brown rice will last longer than if it was stored in air. Plan on 1 to 2 years. It is very important to store brown rice as cool as possible, for if you can get the temperature down another ten degrees, it will double the storage life again.

Garden Seedor Sprouting Seed

All viable seeds are hibernating tiny living plants that only need moisture and warmth to sprout. And much like a chick in an egg, all the nutrients this little life needs to spring into existence is contained within it's shell. Like boiling an egg, heating a seed will kill that little life within it. However, unlike an egg, a seed can withstand cold temperatures. As seeds usually remain edible after the life within it dies, we must use different criteria when determining sproutable seed storage life. And again the big deciding factor is temperature. Plan on a storage life of 2 to 3 years at a stable temperature of 70 degrees F. They should keep proportionately longer if stored at cooler temperatures. And remember, you want to store all of these seeds in air. Packed in nitrogen, the viability of some seeds will last longer than others. This is still to a large degree an unexplored science, and therefore we recommend you store all the seeds you plan on sprouting in air. Alfalfa is a unique seed as it

actually germinates better if the seed is 2 or 3 years old. Most any sample of alfalfa contains 'hard' seed and 'soft' seed. Soft seed germinates within two days while hard seed germinates in about a week. The problem is, by the time the soft seed sprouts are ready to harvest, the hard seed may not have germinated yet. As storage time draws on, the hard seed turns into soft seed. Older seed germinates closer together. Stored in cool conditions, alfalfa seed should have a good percentage of germination up until it is 8 years old.

Total Vegetable Protein

Total Vegetable Protein, made from soy beans, has an unusually long storage life. Hermetically sealed in the absence of oxygen, plan on a storage life of 15-20 years at a stable temperature of 70 degrees F. meat substitute should keep proportionately longer if stored at cooler temperatures.

Yeast

Yeast, a living organism, has a relatively short storage life. Keep yeast in the original metal foil storage containers. If the seal remains intact, yeast should last 2 years at 70 degrees F. However it is strongly recommended that you refrigerate it, which should give you a storage life of 5 years. Frozen yeast should store for a long time.

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Water Treatment

Water Storage

Quantity

A water ration of as little as a pint per day has allowed life raft survivors to live for weeks, but a more realistic figure is 1 gallon per person per day for survival. 4 gallons per person/day will allow personal hygiene, washing of dishes, counter tops, etc. 5 to 12 gallons per day would be needed for a conventional toilet, or 1/2 to two gallons for a pour flush latrine. For short-term emergencies, it will probably be more practical to store paper plates and utensils, and minimize food preparation, than to attempt to store more water.

In addition to stored water, there is quite a bit of water trapped in the piping of the average home. If the municipal water system was not contaminated before you shut the water off to your house, this water is still fit for consumption without treatment. To collect this water, open the lowest faucet in the system, and allow air into the system from a second faucet. Depending on the diameter of the piping, you may want to open every other faucet, to make sure all of the water is drained. This procedure will usually only drain the cold water side, the hot-water side will have to be drained from the water heater. Again, open all of the faucets to let air into the system, and be prepared to collect any water that comes out when the first faucet is opened. Toilet tanks (not the bowls) represent another source of water if a toilet bowl cleaner is not used in the tank.

Some people have plumbed old water heaters or other tanks in line with their cold water supply to add an always rotated source of water. *Two cautions are in order: 1) make sure the tanks can handle the pressure (50 psi min.), and 2) if the tanks are in series with the house plumbing, this method is susceptible to contamination of the municipal water system.* The system can be fed off the water lines with a shutoff valve (and a second drain line), preventing the water from being contaminated as long as the valve was closed at the time of contamination.

Water can only be realistically stored for short-term emergencies, after that some emergency supply of water needs to be developed

Water Collection

Wells

Water can only be moved by suction for an equivalent head of about 20'. After this cavitation occurs, that is the water boils off in tiny bubbles in the vacuum created by the pump rather than being lifted by the pump. At best no water is pumped, at worst the pump is destroyed. Well pumps in wells deeper than this work on one of the following principles:

1) The pump can be submerged in the well, this is usually the case for deep well pumps. Submersible pumps are available for depths up 1000 feet.

2) The pump can be located at the surface of the well, and two pipes go down the well: one carrying water down, and one returning it. A jet fixture called an ejector on the bottom of the two hoses causes well water to be lifted up the well with the returning pumped water. These pumps must have an efficient foot valve as there is no way for them to self-prime. These are commonly used in shallow wells, but can go as deep as 350 feet. Some pumps use the annular space between one pipe and the well casing as the second pipe this requires a packer (seal) at the ejector and at the top of the casing.

3) The pump cylinder can be located in the well, and the power source located above the well. This is the method used by windmills and most hand pumps. A few hand pumps pump the water from very shallow wells using an aboveground pump and suction line. A variety of primitive, but ingenious, pump designs also exist. One uses a chain with buckets to lift the water up. Another design uses a continuous loop rope dropping in the well and returning up a small diameter pipe. Sealing washers are located along the rope, such that water is pulled up the pipe with the rope. An ancient Chinese design used knots, but modern designs designed for village level maintenance in Africa use rubber washers made from tires, and will work to a much greater depth.

Obviously a bucket can be lowered down the well if the well is big enough, but this won't work with a modern drilled well. A better idea for a drilled well is to use a 2' length or so of galvanized pipe with end caps of a diameter that will fit in the well casing. The upper cap is drilled for a screw eye, and a small hole for ventilation. The lower end is drilled with a hole about half the diameter of the pipe, and on the inside a piece of rigid plastic or rubber is

used as a flapper valve. This will allow water to enter the pipe, but not exit it. The whole assembly is lowered in the well casing, the weight of the pipe will cause it to fill with water, and it can then be lifted to the surface. The top pipe cap is there mostly to prevent the pipe from catching as it is lifted.

Springs

Springs or artesian wells are ideal sources of water. *Like a conventional well, the water should be tested for pathogens, VOCs (Volatile Organic Compounds such as fuel oil or benzene), pesticides and any other contaminants found in your area.* If the source is a spring it is very important to seal it in a spring box to prevent the water from becoming contaminated as it reaches the surface. It is also important to divert surface runoff around the spring box. As with a well, you will want to periodically treat the spring box with chlorine, particularly if the spring is slow moving. The spring may also be used for keeping food cool if a spring-house is built. If this is the case, it is still recommended to build a spring box inside the house to obtain potable water.

Surface water

Most US residents served by municipal water systems supplied with surface water, and many residents of underdeveloped countries rely on surface water. *While surface water will almost always need to be treated, a lot of the risk can be reduced by properly collecting the water.* Ideal sources of water are fast flowing creeks and rivers which don't have large sources of pollution in their watershed. With the small amounts of water needed by a family or small group, the most practical way to collect the water is through an infiltration gallery or well. Either method reduces the turbidity of the collected water making it easy for later treatment.

Water Purification

Heavy Metals

Heavy metals are only a problem in certain areas of the country. The best way to identify their presence is by a lab test of the water or by speaking with your county health department. Unless you are down stream of mining trailings or a factory, the problem will probably affect the whole county or region. Heavy metals are unlikely to be present in sufficient levels to cause problems with short-term use.

Turbidity

Turbidity refers to suspended solids, i.e. muddy water, is

very turbid. Turbidity is undesirable for 3 reasons:

- 1) aesthetic considerations
- 2) solids may contain heavy metals, pathogens or other contaminants,
- 3) turbidity decreases the effectiveness of water treatment techniques by shielding pathogens from chemical or thermal damage, or in the case of UV treatment, absorbing the UV light itself.

Organic compounds

Water can be contaminated by a number of organic compound such as chloroform, gasoline, pesticides, and herbicides. These contaminants must be identified in a lab test. It is unlikely ground water will suddenly become contaminated unless a quantity of chemicals is allowed to enter a well or penetrating the aquifer. *One exception is when the aquifer is located in limestone.* Not only will water flow faster through limestone, but the rock is prone to forming vertical channels or sinkholes that will rapidly allow contamination from surface water. Surface water may show great swings in chemical levels due to differences in rainfall, seasonal crop cultivation, and industrial effluent levels

Pathogens

Protozoa

Protozoa cysts are the largest pathogens in drinking water, and are responsible for many of the waterborne disease cases in the US. Protozoa cysts range in size from 2 to 15 µm (**a micron is one millionth of a meter**), but can squeeze through smaller openings. In order to insure cyst filtration, filters with a absolute pore size of 1µm or less should be used. The two most common protozoa pathogens are *Giardia lamblia* (Giardia) and *Cryptosporidium* (Crypto). Both organisms have caused numerous deaths in recent years in the US, the deaths occurring in the young and elderly, and the sick and immune compromised. Many deaths were a result of more than one of these conditions. Neither disease is likely to be fatal to a healthy adult, even if untreated. For example in Milwaukee in April of 1993, of 400,000 who were diagnosed with Crypto, only 54 deaths were linked to the outbreak, 84% of whom were AIDS patients. Outside of the US and other developed countries,

protozoa are responsible for many cases of amoebic dysentery, but so far this has not been a problem in the US, due to better wastewater treatment. This could change during a survival situation. Tests have found Giardia and/or Crypto in up to 5% of vertical wells and 26% of springs in the US.

Bacteria

Bacteria are smaller than protozoa and are responsible for many diseases such as typhoid fever, cholera, diarrhea, and dysentery. Pathogenic bacteria range in size from 0.2 to 0.6 μm , and a 0.2 μm filter is necessary to prevent transmission. Contamination of water supplies by bacteria is blamed for the cholera epidemics which devastate undeveloped countries from time to time. Even in the US, *E. coli* is frequently found to contaminate water supplies. Fortunately *E. coli* is relatively harmless as pathogens go, and the problem isn't so much with *E. coli* found, but the fear that other bacteria may have contaminated the water as well. Never the less, dehydration from diarrhea caused by *E. coli* has resulted in fatalities.

Viruses

Viruses are the 2nd most problematic pathogen, behind protozoa. As with protozoa, most waterborne viral diseases don't present a lethal hazard to a healthy adult. Waterborne pathogenic viruses range in size from 0.020-0.030 μm , and are too small to be filtered out by a mechanical filter. All waterborne enteric viruses affecting humans occur solely in humans, thus animal waste doesn't present much of a viral threat. At the present viruses don't present a major hazard to people drinking surface water in the US, but this could change in a survival situation as the level of human sanitation is reduced. Viruses do tend to show up even in remote areas, so case can be made for eliminating them now.

Physical Treatment

Heat Treatment

Boiling is one guaranteed way to purify water of all pathogens. Most experts feel that if the water reaches a rolling boil it is safe. A few still hold out for maintaining the boiling for some length of time, commonly 5 or 10 minutes, plus an extra minute for every 1000 feet of elevation. If one wishes to do this, a pressure cooker would allow the water to be kept at boiling with out loosing the heat to evaporation. One

reason for the long period of boiling may be to inactivate bacterial spores (which can survive boiling), but these spore are unlikely to be waterborne pathogens.

African aid agencies figure *it takes 1 kg of wood to boil 1 liter of water*. Hardwoods and efficient stoves would improve on this.

Water can also be treated at below boiling temperatures, if contact time is increased. A commercial unit has been developed that treats 500 gals of water per day at an estimated cost of \$1/1000 gallons for the energy. The process is similar to milk pasteurization, and holds the water at 161° F for 15 seconds. Heat exchangers recover most of the energy used to warm the water. Solar pasteurizers have also been built that would heat three gallons of water to 65° C and hold the temperature for an hour. A higher temperature could be reached if the device was rotated east to west during the day to follow the sunlight.

Regardless of the method, heat treatment does not leave any form of residual to keep the water free of pathogens in storage.

Reverse Osmosis

Reverse osmosis forces water, under pressure, through a membrane that is impermeable to most contaminants. The most common use is aboard boats to produce fresh water from salt water. *The membrane is somewhat better at rejecting salts than it is at rejecting non-ionized weak acids and bases and smaller organic molecules (molecular weight below 200)*. In the latter category are undissociated weak organic acids, amines, phenols, chlorinated hydrocarbons, some pesticides and low molecular weight alcohols. *Larger organic molecules, and all pathogens are rejected*. Of course it is possible to have a imperfection in the membrane that could allow molecules or whole pathogens to pass through.

Using reverse osmosis to desalinate seawater requires considerable pressure (1000 psi) to operate, and for a long time only electric models were available. Competing for a contract to build a hand powered model for the Navy, Recovery Engineering designed a model that could operate by hand, using the waste water (90 percent of the water is waste water, only 10% passes through the filter) to pressurize the back side of the piston. The design was later acquired by PUR. While there is little question that the devices work well, the considerable effort required to operate one has been questioned by some

survival experts such as Michael Greenwald, himself a survivor of a shipwreck. On the other hand the people who have actually used them on a life raft credit the availability of water from their PUR watermaker for their survival.

PUR manual watermakers are available in two models: The Survivor 06 (\$500) produces 2 pints per hour, and the Survivor 35 (\$1350) produces 1.4 gal/hr. The latter model is also available as the Power Survivor 35 (\$1700), which produces the same water volume from 4 Amps of 12 VDC, and can be disconnected and used as a handheld unit. A number of manufactures, including PUR, make DC powered models for shipboard use. PUR recommends replacing the O rings every 600 hours on its handheld units, and a kit is available to do this. Estimates for membrane life vary, but units designed for production use may last a year or more. *Every precaution should be taken to prevent petroleum products from contacting the membrane as they will damage or destroy the membrane.* The prefilter must also be regularly changed, and the membrane may need to be treated with a biocide occasionally.

Reverse osmosis filter are also available that will use normal municipal or private water pressure to remove contaminants from water, as long as they aren't present in the levels found in sea water.

The water produced by reverse osmosis, like distilled water, will be close to pure H₂O. Therefore mineral intake may need to be increased to compensate for the normal mineral content of water in much of the world.

Distillation

Distillation is the evaporation and condensation of water to purify water. *Distillation has two disadvantages: 1) A large energy input is required and 2) If simple distillation is used, chemical contaminants with boiling points below water will be condensed along with the water.* Distillation is most commonly used to remove dissolved minerals and salts from water.

The simplest form of a distillation is a solar still. A solar still uses solar radiation to evaporate water below the boiling point, and the cooler ambient air to condense the vapor. The water can be extracted from the soil, vegetation pried in the still, or contaminated water (such as radiator fluid or salt water) can be added to the still. While per still output is low, they are an important technique if water is in short supply.

Other forms of distillation require a concentrated heat source to boil water which is then condensed. Simple stills use a coiling coil to return this heat to the environment. These can be improvised with a boiler and tight fitting lid and some copper tubing (Avoid using lead soldered tubing if possible). FEMA suggests that, in an emergency, a hand towel can be used to collect steam above a container of boiling water. More efficient distillations plants use a vapor compression cycle where the water is boiled off at atmospheric pressure, the steam is compressed, and the condenser condenses the steam above the boiling point of the water in the boiler, returning the heat of fusion to the boiling water. The hot condensed water is run through a second heat exchanger which heats up the water feeding into the boiler. These plants normally use an internal combustion engine to run the compressor. Waste heat from the engine, including the exhaust, is used to start the process and make up any heat loss. This is the method used in most commercial and military desalination plants

Inflatable solar stills are available from marine supply stores, but avoid the WW2 surplus models, as those who have used them have had a extremely high failure rate. Even new inflatable solar stills may only produce from 30-16 oz under actual conditions, compared to a rating of 48 oz/day under optimum conditions.

Jade Mountain also offers the following portable models in travel cases:

Traveler (WC106) 1 gpd, 23 lb., 24x26x10 folded \$ 695

Base Camp (WC107) 2 gpd, 51 lb., 48x48x4 folded \$ 895

Safari (WC108) 48x48x5 \$1095 A ruggedized version of the Base Camp above.

Microfilters

Microfilters are small-scale filters designed to remove cysts, suspended solids, protozoa, and in some cases bacteria from water. Most filters use a ceramic or fiber element that can be cleaned to restore performance as the units are used. Most units and almost all made for camping use a hand pump to force the water through the filter. Others use gravity, either by placing the water to be filtered above the filter (e.g. the Katadyn drip filter), or by placing the filter in the water, and running

a siphon hose to a collection vessel located below the filter (e.g. Katadyn siphon filter). Microfilters are the only method, other than boiling, to remove Cryptosporidia. Microfilters do not remove viruses, which many experts do not consider to be a problem in North America. Despite this the Katadyn microfilter has seen considerable use around the world by NATO-member militaries, WHO, UNHCR, and other aid organizations. Microfilters share a problem with charcoal filter in having bacteria grow on the filter medium. Some handle this by impregnating the filter element with silver such as the Katadyn, others advise against storage of a filter element after it has been used. The Sweetwater Guardian suggests using a freezer for short-term storage

Many microfilters may include silt prefilters, activated charcoal stages, or an iodine resin. Most filters come with a stainless steel prefilter, but other purchased or improvised filters can be added to reduce the loading on the main filter element. *Allowing time for solids to settle, and/or prefiltering with a coffee filter will also extend filter life.* Iodine matrix filters will kill viruses that will pass through the filter, and if a charcoal stage is used it will remove much of the iodine from the water. Charcoal filters will also remove other dissolved natural or manmade contaminants. Both the iodine and the charcoal stages do not indicate when they reach their useful life, which is much shorter than the filter element. If you are depending on the stage for filtering the water you will have to keep up with how much water passes through it.

New designs seem to be coming out every month. The best selling brands seem to be the PUR, and Sweetwater Guardian. The Katadyn doesn't sell as well to outdoor enthusiasts due to its high cost, but for years it was state of the art for water purification and still has a loyal following, especially among professionals in relief work. Below is the data on a few of the more common units, for a excellent field test of some common units, see the December 96 issue of Backpacker magazine.

Note that the first price is for the filter, the second for the replacement filter. The weight is from manufacturer's literature if it was not listed in the Backpacker article. Filter life is from manufacturer's literature and should be taken with a grain of salt.

[Alan's note: These prices are now several years out

of date. You'll need to investigate current pricing]

Basic Designs Ceramic Filter Pump (\$29/\$15, 8 oz.) Cheap flimsy filter, claimed to filter up to 500 gallons with a 0.9 µm ceramic filter. Not EPA rated, may not have passed independent lab tests, prone to damage, filter element must be submerged in water.

General Ecology- First Need Deluxe (\$70/\$30, 20 oz) This filter uses a structured matrix micro strainer, though General Ecology won't reveal what the structure is. It has survived independent lab tests, and filters particles to 4 µm, while actually removing viruses (the only filter capable of doing this) through electrostatic attraction. The filter cartridges can't be cleaned (other than by back flushing), but are good for 100 gallons. Pump design isn't the best. Other models are available from the manufacturer.

Katadyn PF (\$295/\$145, 22.7 oz). The original microfilter using a 0.2 µm silver impregnated ceramic candle. An extremely thick filter allows it to be cleaned many times for up to 14,000 gallons capacity. While the Katadyn seems well made, one reader of this list reported breaking the candle, and Backpacker Magazine broke the case during a field test. The pump, while probably indestructible, is somewhat slow and hard to use, requiring 20 lbs. of force on a small handle. The PF also lacks a output hose as the Katadyn engineers felt it would be a source of contamination.

Katadyn Combi (\$185/\$75 (ceramic)/\$19 (carbon), 29 oz) A cheaper version of the PF incorporating both ceramic and carbon stages. Much faster filter than the PF.

Katadyn Minifilter (\$139/\$59, 8.3 oz) A smaller and cheaper version of the PF, easier to pump, but generally not well received. Good for 200 gallons.

Katadyn Expedition (\$680/\$77, 13 lb.) Similar filter to the PF (exact same cartridge as the Drip Filter Below), but designed for much higher production, stainless steel case with spade type D handle, produces 0.75 gpm. Filter good for 26,000 gallons.

Katadyn Drip Style Filter (\$240, \$77, 12.5 lb.) Filter elements similar to those in the PF are mounted vertically in top 3 gallon plastic bucket, water drips through filters into second 3 gallon bucket with faucet. 1 qt, per hour with the 2 filters included, a third filter can be added to increase rate 50%. Each filter good for 13,000 gallons.

The mounting hardware for the filters is available for \$10 to allow you to make your own filter of what ever size is needed. Each mounting kit requires a 1/2" hole in the bottom of the raw water container.

Katadyn Siphon Filter (\$92, 2 lb.) Similar design to PF filter element, but a siphon hose replaces the pump, filters 1-2 quarts per hour (allow 1 hour for the filter to "prime" itself via capillary action), but multiple filters can be used in the same container. Collection vessel must be lower than raw water container. Good for 13,000 gallons.

MSR Miniworks (\$59/\$30, 14 oz) MSR's smaller filter, using a 0.3 µm ceramic element. Pump is well designed, and easy to use. Main drawback is that the clean water discharge is from the bottom of the filter, and no hose is provided. While the bottom is threaded for a Nalgene bottle, it is a pain in the butt to fill a canteen or 2 liter bottle. Claimed to filter 100 gallons, Backpacker Magazine feels this may be one of the few filters without a grossly inflated rating.

MSR Waterworks (\$140/\$30/\$30, 17 oz) MSR's first filter with a 0.2 µ ceramic and membrane stage and a carbon stage. Other wise similar to the Miniworks.

PUR Pioneer (\$30/\$4, 8 oz), newly introduced low-end microfilter. 0.5 µm, 1 lpm filter rate, 12 gallon capacity

PUR Hiker (\$50/\$20, 12 oz) PUR's microfilter only design, filters to .5 µm. Well liked, as are the other PUR filters. Very compact. 200 gallon capacity

PUR Scout (\$70/\$35/\$15, 12 oz) Combines a iodine resin stage, a 1.0 µm filter, and a activated charcoal filter. 200 gallon capacity

PUR Explorer (\$130/\$45, 22 oz) PUR's top of the line model. Bulky, but well made, with a high output (1.4 lpm, faster than any of the hand held models listed and one of the easiest to pump) Has a 1.0 µm filter plus a iodine resin stage, 300 gallon capacity

Sweetwater Walkabout (\$35/\$13, 8.5 oz.) Sweetwater's low end filter, 0.2 µm, .7 lpm, 100 gal capacity

Sweetwater Guardian (\$60/\$20, 11 oz) Uses a glass fiber and carbon filter, filters to .2 µm, claimed to last for 200 gallons. An iodine resin stage can be added that will kill viruses, and will last for 90 gallons. Pump is well designed, but it takes a few seconds to pull a captive pin to fold for storage. Available in white or OD.

Timberline Eagle (\$20/\$13, 8 oz) At 1 µm, this filter only does protozoa, but is much easier to pump, lighter, and cheaper. Filter is attached to pump, and must rest (but doesn't have to be submerged) in water to be purified. Looks flimsy, but seems to hold up. Claimed to last for 100 gallons.

It is also possible to build your own microfilter using *diatomaceous earth*, sold for swimming pool filters (DE). Usually pressure is required to achieve a reasonable flow rate. A DE filter will remove turbidity as well as pathogens larger than 1 µm.

[Alan's note: This type of diatomaceous earth is NOT the type you want for food storage. Don't get them confused.]

Slow Sand Filter

Slow sand filters pass water slowly through a bed of sand. Pathogens and turbidity are removed by natural die-off, biological action, and filtering. Typically the filter will consist of 24 inches of sand, then a gravel layer in which the drain pipe is embedded. The gravel doesn't touch the walls of the filter so that water can't run quickly down the wall of the filter and into the gravel. Building the walls with a rough surface also helps. A typical loading rate for the filter is 0.2 meters/hour day (the same as .2 m³/m² of surface area). The filter can be cleaned several times before the sand has to be replaced.

Slow sand filter construction information:

Slow sand filters should only be used for continuous water treatment. If a continuous supply of raw water can't be insured (say using a holding tank), then another method should be chosen. It is also important for the water to have as low turbidity (suspended solids) as possible. Turbidity can be reduced by changing the method of collection (for example, building an infiltration gallery, rather than taking water directly from a creek), allowing time for the material to settle out (using a raw water tank), prefiltering or flocculation (adding a chemical such as alum to cause the suspended material to floc together.)

The SSF filter itself is a large box, at least 1.5 meters high. The walls should be as rough as possible to reduce the tendency for water to run down the walls of the filter, bypassing the sand. The bottom layer of the filter is a gravel bed in which a slotted pipe is placed to drain off the filtered water. The slots or the gravel

should be no closer than 20 cm to the walls. again to prevent the water from bypassing the sand.

The sand for a SSF needs to be clean and uniform, and of the correct size. The sand can be cleaned in clean running water, even if it is in a creek. The ideal specs on sand are effective size (sieve size through which 10% of the sand passes) between 0.15 and 0.35 mm, uniformity coefficient (ratio of sieve sizes through which 60% pass and through which 10% pass) of less than 3, Maximum size of 3 mm, and minimum size of 0.1 mm.

The sand is added to a SSF to a minimum depth of 0.6 meters. Additional thickness will allow more cleanings before the sand must be replaced. 0.3 to 0.5 meters of extra sand will allow the filter to work for 3-4 years. An improved design uses a *geotextile* layer on top of the sand to reduce the frequency of cleaning. The outlet of a SSF must be above the sand level, and below the water level. The water must be maintained at a constant level to insure an even flow rate throughout the filter. The flow rate can be increased by lowering the outlet pipe, or increasing the water level. One common idea for maintaining the water level is to use a elevated raw water tank or pump, and a ball valve from a toilet.

While the SSF will begin to work at once, optimum treatment for pathogens will take a week or more. During this time the water should be chlorinated if at all possible (iodine can be substituted). After the filter has stabilized, the water should be safe to drink, but chlorinating of the output is still a good idea, particularly to prevent recontamination.

As the flow rate slows down the filter will have to be cleaned by draining and removing the top few inches of sand. If a geotextile filter is used, only the top 1/2" may have to be removed. As the filter is refilled, it will take a few days for the biological processes to reestablish themselves.

Activated Charcoal Filter

Activated charcoal filters water through adsorption, chemicals and some heavy metals are attracted to the surface of the charcoal, and are attached to it. Charcoal filters will filter some pathogens though they will quickly use up the filter adsorptive ability, and can even contribute to contamination as the charcoal provides an excellent breeding ground for bacteria and algae. Some charcoal filters are available impregnated

with silver to prevent this, though current research concludes that the bacteria growing on the filter are harmless, even if the water wasn't disinfected before contacting the filter. The only filter I know of that uses only activated charcoal, and doesn't require pressurized water is the Water Washer (\$59). Available from the Survival Center.

Activated charcoal can be used in conjunction with chemical treatment. The chemical (iodine or chlorine) will kill the pathogens, while the carbon filter will remove the treatment chemicals. In this case, as the filter reaches its capacity, a distinctive chlorine or iodine taste will be noted.

Activated charcoal can be made at home, though the product will be of varying quality compared to commercial products. Either purchased or homemade charcoal can be recycled by burning off the molecules adsorbed by the carbon (This won't work with heavy metals of course.)

The more activated charcoal in a filter, the longer it will last. The bed of carbon must be deep enough for adequate contact with the water. Production designs use granulated activated charcoal (effective size or 0.6 to 0.9 mm for maximum flow rate. Home or field models can also use a compressed carbon block or powered activated charcoal (effective size 0.01) to increase contact area. Powered charcoal can also be mixed with water and filtered out later. As far as life of the filter is concerned, carbon block filters will last the longest for a given size, simply due to their greater mass of carbon. A source of pressure is usually needed with carbon block filters to achieve a reasonable flow rate.

Sol-Air Water Treatment

If sufficient dissolved oxygen is available, sunlight will cause the temporary formation of reactive forms of oxygen such as hydrogen peroxide and oxygen free radicals. This form of water treatment is called *solar photooxidative disinfection* or sol-air water treatment. Sol-Air water treatment has been shown to dramatically reduce the level of fecal coliform bacteria. There is some evidence that other bacteria and viruses may be affected also. While not as reliable as other methods, it does offer a low-tech solution in emergencies. Sol-Air treatment requires bright sunlight, and has been shown to be effective when ever the sun causes a distinct shadow to be cast. Exposure to 4.5 hours of bright sunlight has been shown to cause a thousand fold reduction in fecal

coliforms in lab tests.

In order for Sol-Air to be effective, oxygen must be present. Experiments have shown that shaking a bottle filled 3/4 with air will restore oxygen levels to near saturation. As the treatment continues, some of the oxygen will come out of solution, while other oxygen will be consumed by the killed pathogens, so the shaking should be repeated every few hours. Data shows that maximum activity occurs when the water temperature is above 50° C (122° F), so this method may be unsuitable in colder climates unless special solar collectors are used.

Either glass or plastic bottles may be used. Plastic bottles will allow short wave ultraviolet radiation to pass, increasing the rate of microbial inactivation, but may yellow with age, reducing light transmission, and may leach plasticizers into the water at the elevated temperatures that will occur. The leaching of plasticizers can be reduced by using bottles of PET (polyethylene terephthalate) rather than PVC. Glass bottles on the other hand are more durable. Research has used bottles with 2 liters of capacity, but if the water is free of turbidity, larger containers can be used. Plastic bags, or some sort of flat glass container represent the ideal container as this maximizes the solar energy received per ounce of water.

Bottles should be filled 3/4 full in the early morning with water as free of turbidity as possible. After capping the bottles should be shaken vigorously for a few minutes then placed upright in the sun, where they will be not be shaded later in the day. The shaking should be repeated at least three times during the day. At the end of the day the water should be reasonably freed of bacteria, though it is most practical to let the water cool for consumption the following day. Each day a new batch should be treated due to the lack of a residual disinfected.

After consumption of the water the bottle should be air dried to prevent algae growth with continual use.

Improvised Mechanical Filter

If the materials aren't available to build a slow sand filter, or some other means of water treatment is preferred, it may still be advantageous to mechanically filter the water before treating it with chemicals or passing through a microfilter. Generally the idea is to allow the water to flow as slowly as possible through a bed of sand. In a municipal water treatment plant this is called a rapid sand filter. The particular design below is included, because the designer, a research engineer at Oak Ridge National

Laboratories, found it particularly effective at removing fallout from water. The filter will do little or nothing to remove pathogens, though removing suspended solids allow others water treatment methods to work more effectively.

Expedient water filter, from *Nuclear War Survival Skills*, Cresson Kearny, ORNL

1) Perforate the bottom of a 5 gallon bucket, or similar container with a dozen nail holes even spread over a 4" diameter circle in the center of the container.

2) Place a 1.5" layer of small stones or pebbles in the bottom of the can. If pebbles aren't available, marbles, clean bottle caps, twisted coat hangers or clean twigs can be used.

3) Cover the pebbles with one thickness of terrycloth towel, burlap sackcloth, or other porous cloth. Curl the cloth in a roughly circular shape about three inches larger then the diameter of the can.

4) Take soil containing some clay (pure clay isn't porous enough, pure sand is too porous) from at least 4" below the surface of the ground (nearly all fallout particles remain near the surface except after disposition on sand or gravel.)

5) Pulverize the soil, then gently press it in layers over the cloth that covers the pebbles, so that the cloth is held snugly against the walls of the can. The soil should be 6-7" thick.

6) Completely cover the surface of the soil layer with one thickness of fabric as porous as a bath towel. This is to keep the soil from being eroded as water is being poured into the filter. A dozen small stones placed on the cloth near it's edges will secure it adequately.

7) Support the filter on rocks or sticks placed across the top of a container that is larger then the filter can (such as a dishpan)

The contaminated water should be poured into the filter can, preferably after allowing it to settle as described below. The filtered water should be disinfected by some method.

If the 6 or 7 inches of filtering soil is a sandy clay loam, the filter will initially deliver about 6 quarts/hour. If the filter is any faster than this then the fabric layer needs to be removed and the soil compressed more. The filtering rate will drop over time as the filter begins to clog up. When this happens the top 1/2" of soil can be removed to increase the filtering rate. After 50 or so quarts, the filter will need to be rebuilt with fresh soil.

As with any filter, optimum performance will be achieved if sediment in the water will be allowed to settle out before passing the water through the filter

If the water is contaminated with fallout, clay can be added to help the fallout particles to settle out. The procedure is as follows:

Fill a bucket or other deep container 3/4 full with contaminated water.

Dig pulverized clay or clayey soil from a depth of four or more inches below ground surface and stir it into the water.

Use about 1 inch of dry clay or clayey soil for every 4" depth of water. Stir until practically all of the clay particles are suspended in the water.

Let the clay settle for at least 6 hours. This will carry the fallout particles to the bottom and cover them. Carefully dip out or siphon the clear water and disinfect it.

Chemical Treatment

Chlorine: Chlorine is familiar to most Americans as it is used to treat virtually all municipal water systems in the United States. For a long time chlorine, in the form of Halazone tablets, was used to purify small batches of water for campers and military troops. Later questions emerged about the effectiveness of Halazone, and in 1989, Abbot labs pulled it off the market. If Halazone tablets are encountered outside the US, the nominal shelf life is 6 months, and the dosage is 2 tabs per liter. Until recently, there was no chlorine product designed for wilderness/survival use available in the US.

Chlorine has a number of problems when used for field treatment of water. When chlorine reacts with organic

material, it attaches itself to nitrogen containing compounds (ammonium ions and amino acids), leaving less free chlorine to continue disinfection. Carcinogenic trihalomethanes are also produced, though this is only a problem with long-term exposure. Trihalomethanes can also be filtered out with a charcoal filter, though it is more efficient to use the same filter to remove organics before the water is chlorinated. *Unless free chlorine is measured, disinfection can not be guaranteed with moderate doses of chlorine.* One solution is superchlorination, the addition of far more chlorine than is needed. This must again be filtered through activated charcoal to remove the large amounts of chlorine, or hydrogen peroxide can be added to drive the chlorine off. Either way there is no residual chlorine left to prevent recontamination. This isn't a problem if the water is to be used at once.

Chlorine is sensitive to both the pH and temperature of the treated water. Temperature slows the reaction for any chemical treatment, but chlorine treatment is particularly susceptible to variations in the pH as at lower pHs, hypochlorous acid is formed, while at higher pHs, it will tend to dissociate into hydrogen and chloride ions, which are less effective as a disinfectant. As a result, chlorine effectiveness drops off when the pH is greater than 8.

Chlorine, like iodine, will not kill Cryptosporidia.

Methods of chlorine treatment:

Bleach: Ordinary household bleach (such as Clorox) in the US contains 5.25% sodium hypochlorite (NaOCl) and can be used to purify water if it contains no other active ingredients, scents, or colorings. Bleach is far from an ideal source due to its bulkiness (only 5% active ingredient), and the instability over time of the chlorine content in bleach. Chlorine loss is farther increased by agitation or exposure to air. One source claims chlorine loss from a 5% solution at 10% over 6 months if stored at 70° F. Nevertheless, this may be the only chemical means available to purify water, and it is far better than nothing. Normal dosage is 8 drops (0.4 ml) per gallon. Allow the treated water to sit for 30 min., and if there isn't a slight chlorine smell, retreat. *Note:* USP standard medicine droppers are designed to dispense 0.045-0.055 ml per drop. Use of other solvents or some chemicals can change this. The dropper can be calibrated against a graduated cylinder for greater accuracy.

Some small treatment plants in Africa produce their own

sodium hypochlorite on site from the electrolysis of brine. Power demands range from 1.7 to 4 kWh per lb. of NaOCl. 2 to 3.5 lbs. of salt are needed for each pound of NaOCl. These units are fairly simple and are made in both the US and the UK. Another system, designed for China, where the suitable raw materials were mined or manufactured locally, used a reaction between salt, manganese dioxide, and sulfuric acid to produce chlorine gas. The gas was then allowed to react with slaked lime to produce a bleaching powder that could then be used to treat water. A heat source is required to speed the reaction up.

AquaCure: Designed for the South African military, these tablets contain chlorine and alum. The alum causes the suspended solids to flocculate and the chlorine adds 8 PPM chlorine. This is a great way to treat turbid water, though it will leave a lot of chlorine in clear water (The one tablet/liter could be halved for clear water.)

The US distributor for Aqua Cure is:

Safesport Manufacturing, Box 11811, Denver, CO 80211
1 800 433 6506

Bleaching Powder (Chlorinated Lime): Can also be purchased and used as a purification means if nothing else is available. Bleaching powder is 33-37% chlorine when produced, but loses its chlorine rapidly, particularly when exposed to air, light or moisture.

Calcium Hypochlorite: Also known as High Test Hypochlorite (HTH). Supplied in crystal form, it is nearly 70% available chlorine. One product, the Sanitizer (formally the Sierra Water Purifier) uses these crystals to superchlorinate the water to insure pathogens were killed off, then hydrogen peroxide is added to drive off the residual chlorine. This is the most effective method of field chlorine treatment. The US military and most aid agencies also use HTH to treat their water, though a test kit, rather than superchlorination, is used to insure enough chlorine is added. This is preferable for large-scale systems as the residual chlorine will prevent recontamination.

Usually bulk water treatment plants first dilute to HTH to make a 1% working solution at the rate of 14g HTH per liter of water. *While testing to determine exact chlorine needs are preferable, the solution can be used at the dose rate of 8 drops/gallon, or for larger quantities, 1 part of 1% solution to 10,000 parts clear water.* Either

of these doses will result in 1 PPM chlorine and may need to be increased if the water wasn't already filtered by other means.

When test kits are available, the WHO standard is a residual chlorine level of 0.2 to 0.5 mg/l after a 30 min. contact time. The may require as much as 5 mg/l of chlorine to be added to the raw water.

Iodine: Iodine's use as a water purification method emerged after WW2, when the US military was looking for a replacement for Halazone tablets. *Iodine was found to be in many ways superior to chlorine for use in treating small batches of water.* Iodine is less sensitive to the pH and organic content of water, and is effective in lower doses. Some individuals are allergic to iodine, and there is some question about long term use of iodine. The safety of long-term exposure to low levels of iodine was proven when inmates of three Florida prisons were given water disinfected with 0.5 to 1.0 PPM iodine for 15 years. No effects on the health or thyroid function of previously healthy inmates was observed. Of 101 infants born to prisoners drinking the water for 122-270 days, none showed detectable thyroid enlargement. However 4 individuals with preexisting cases of hyperthyroidism became more symptomatic while consuming the water.

Nevertheless experts are reluctant to recommend iodine for long term use. Average American iodine intake is estimated at 0.24 to 0.74 mg/day, higher than the RDA of 0.4 mg/day. Due to a recent National Academy of Science recommendation that iodine consumption be reduced to the RDA, the EPA discourages the use of iodized salt in areas where iodine is used to treat drinking water.

Iodine is normally used in doses of 8 PPM to treat clear water for a 10 minute contact time. The effectiveness of this dose has been shown in numerous studies. *Cloudy water needs twice as much iodine or twice as much contact time.* In cold water (Below 41° F or 5° C) the dose or time must also be doubled. In any case doubling the treatment time will allow the use of half as much iodine

These doses are calculated to remove all pathogens (other than cryptosporidia) from the water. Of these, giardia cysts are the hardest to kill, and are what requires the high level of iodine. If the cysts are filtered

out with a microfilter (any model will do since the cysts are 6 μm), only 0.5 PPM is needed to treat the resulting water.

Water treated with iodine can have any objectionable taste removed by treating the water with vitamin C (ascorbic acid), *but it must be added after the water has stood for the correct treatment time*. Flavored beverages containing vitamin C will accomplish the same thing. Sodium thiosulfate can also be used to combine with free iodine, and either of these chemicals will also help remove the taste of chlorine as well. Usually elemental iodine can't be tasted below 1 PPM, and below 2 PPM the taste isn't objectionable. Iodine ions have an even higher taste threshold of 5 PPM. Note that removing the iodine taste does not reduce the dose of iodine ingested by the body.

Sources of Iodine:

Tincture of Iodine: USP tincture of iodine contains 2% iodine and 2.4% sodium iodide dissolved in 50% ethyl alcohol. For water purification use, the sodium iodide has no purification effect, but contributes to the total iodine dose. Thus it is not a preferred source of iodine, but can be used if other sources are not available. 0.4 cc's (or 8 drops) of USP tincture (2% iodine) added to a liter of water will give the 8 mg/l (same as 8 PPM). If the iodine tincture isn't compounded to USP specs, then you will have to calculate an equal dose based on the iodine concentration.

Lugol's solution: Contains 5% iodine and 10% potassium iodide. 0.15 cc (3 drops) can be added per liter of water, but 3 times more iodine is consumed compared to sources without iodide.

Betadine (povidone iodine): Some have recommended 8 drops of 10% povidone iodine per liter of water as a water treatment method, claiming that at low concentrations povidone iodine can be regarded as a solution of iodine. One study indicated that at 1:10,000 dilution (2 drops/liter), there was 2 PPM iodine, while another study resulted in conflicting results. However, at 8 drops/liter, there is little doubt that there is an antimicrobial effect. The manufacturer hasn't spent the money on testing this product against EPA standard tests, but in other countries it has been sold for use in field water treatment.

Kahn-Yasser solution: By adding a sufficient amount of iodine crystals to a small bottle, an almost unlimited supply of saturated iodine solution can be produced. As long as crystals remain in the bottle, the solution is saturated. Concentration of the iodine is dependent of temperature, either condition at ambient temperature can be assumed, or commercial models such as Polar Pure incorporate a liquid crystal thermometer to determine dose.

One criticism of this method is the chance of decanting iodine crystals into the water being treated. This isn't that much of a problem as iodine is very weakly toxic, but the Polar Pure incorporates a collar into the neck of the bottle to help prevent this. Another disadvantage to this method is that the saturated iodine solution must be kept in glass bottles, and is subject to freezing, but this is hardly an insurmountable problem. Freezing, of course, doesn't affect the crystals.

This is the method I use, but I do use the commercial Polar Pure bottle, and refill it as necessary with USP crystals. During a crisis, or extended camping trips I would microfilter the water first, so a much lower dose of iodine is needed.

With the Polar Pure bottle, dosage information is provided. Otherwise a 1 oz bottle can be used to carry the solution. The bottle is filled with water after use. At the next use, 1/2 of the supernate (15 cc) is poured off into a liter of water. At 68° F, this will yield a dose of 9 mg/l. To use this method with a microfilter to get a 0.5 PPM concentration, either large batches of water need to be treated (1/2 oz to 4.5 gallons would be 0.5 PPM), or a TB syringe or medicine dropper can be used to measure doses. A USP medicine dropper should give 20 drops per ml.

Iodine can also be dissolved in alcohol to make a solution of known concentration. I am not aware of any commercial products, but a pharmacy could compound one for you, or you could do it your self. One suggested formula is 8g iodine/100 cc ethyl alcohol which yields enough solution to disinfect 250 gallons of water. At the rate of 0.1 cc (2 drops)/liter to give a concentration of 8 mg/l.

Tetraglycine hydroperiodide (e.g. **Potable Aqua**): This is the form of iodine used by the US military for field treatment of water in canteen sized batches. Usual dose in one tablet per quart of water to give a concentration of

8 mg/l. Two tablets are used in cloudy or cold water or contact time is doubled. *The major downside of this product is that the product will loose its iodine rapidly when exposed to the air.* According to the manufacturer, they have a near indefinite life when sealed in the original bottle, but probably should be discarded within a few months of opening. The tablets will change color from gun metal gray to brown as they lose the iodine, and you should see a brown tint to the water after treating.

Iodine Resin Filter: Some commercial microfilters incorporate an iodine resin stage to kill viruses and bacteria, with out putting as much iodine in the water as if it had been added to the raw water. A few products rely exclusively on an iodine resin stage. Downside of these filters are their fragile nature, dependency of effectiveness on flow rate and the inability to identify when they need to be discarded. If you are going to use one where the water is known to be contaminated with viruses, then one of the better known brands such as the PUR or Sweetwater Viraguard is recommended. More than one pass through the filter may be necessary in cold weather.

Resins do have the advantage of producing less iodine in the water for the same antimicrobial effect as for the most part, they only release iodine when contacted by a microbe. The downside is that physical contact between the microbe and the resin is needed.

Silver: Silver has been suggested by some for water treatment and may still be available outside the US. Its use is currently out of favor due to the EPA's establishment of a 50 ppb MCL (Maximum Contaminate Level) limit on silver in drinking water. This limit is set to avoid *argyrosis*, a cosmetic blue/gray staining of the skin, eyes, and mucous membranes. As the disease requires a net accumulation of 1 g of silver in the body, one expert calculated that you could drink water treated at 50 ppb for 27 years before accumulating 1 g. Silver has only be proven to be effective against bacteria and protozoan cysts, though it is quite likely also effective against viruses.

Silver can be used in the form of a silver salt, commonly silver nitrate, a colloidal suspension, or a bed of metallic silver. Electrolysis can also be used to add metallic silver to a solution.

Some evidence has suggested that silver deposited on carbon block filters can kill pathogens without adding as much silver to the water.

Katadyn markets a silver based water treatment product called Micropur. The manufacturer recommends a 2 hr contact time at a dose of 1 tab per liter and states the product is "For the disinfection and storage of clear water. Reliably kills bacterial agents of enteric diseases, but not worm eggs, ameba, or viruses. Neutral to taste... insure protection against reinfecion for 1-6 months."; The following forms are available:

Micropur Tablets

MT1 1 tablets/qt 25 gal MT2 1
tablet/5qts 62.5 gal

Micropur Fluid

MF 75 10 drops/gal 75 gals
MF250 10 drops/gal 250 gals

Micropur Crystal

MC250 1 packet/gal 250 gal
MC 2500 1 spoon/25 gal 2500
gal MC12500 1 spoon/250 gal
12500 gal

Potassium Permanganate: Potassium Permanganate is no longer commonly used in the developed world to kill pathogens. It is much weaker than the alternatives, more expensive, and leaves a objectionable pink or brown color. If it must be used, 1 gram per liter would probably be sufficient against bacteria and viruses (no data is available on it effectiveness against protozoan cysts.

Hydrogen Peroxide: Hydrogen Peroxide can be used to purify water if nothing else is available. Studies have shown of 99 percent inactivation of poliovirus in 6 hr with 0.3 percent hydrogen peroxide and a 99% inactivation of rhinovirus with a 1.5% solution in 24 minutes. Hydrogen Peroxide is more effective against bacteria, though Fe+2 or Cu+2 needs to be present as a catalyst to get a reasonable concentration-time product.

Coagulation/Flocculation agents: While flocculation doesn't kill pathogens, it will reduce their levels along with removing particles that could shield the pathogens from chemical or thermal destruction, and organic matter that could tie up chlorine added for purification.

60-98% of coliform bacteria, 65-99% of viruses, and 60-90% of giardia will be removed from the water, along with organic matter and heavy metals.

Some of the advantages of coagulation/flocculation can be obtained by allowing the particles to settle out of the water with time (sedimentation), but it will take a while for them to do so. Adding coagulation chemicals such as alum will increase the rate at which the suspended particles settle out by combining many smaller particles into larger floc which will settle out faster. The usual dose for alum is 10-30 mg/liter of water. This dose must be rapidly mixed with the water, then the water must be agitated for 5 minutes to encourage the particles to form flocs. After this at least 30 minutes of settling time is need for the flocs to fall to the bottom, and then the clear water above the flocs may be poured off. Most of the flocculation agent is removed with the floc, nevertheless some question the safety of using alum due to the toxicity of the aluminum in it. There is little to no scientific evidence to back this up. Virtually all municipal plants in the US dose the water with alum.

In bulk water treatment, the alum dose can be varied until the idea dose is found. The needed dose varies with the pH of the water and the size of the particles. Increase turbidity makes the flocs easier to produce not harder, due to the increased number of collisions between particles.

Treatments requiring electricity:

Ozone: Ozone is used extensively in Europe to purify water. Ozone, a molecule composed of 3 atoms of oxygen rather than two, is formed by exposing air or oxygen to a high voltage electric arc. Ozone is much more effective as a disinfectant than chlorine, but no residual levels of disinfectant exist after ozone turns back into O₂. (one source quotes a half life of only 120 minutes in distilled water at 20° C). Ozone is expected to see increased use in the US as a way to avoid the production of trihalomethanes. While ozone does break down organic molecules, sometimes this can be a disadvantage as ozone treatment can produce higher levels of smaller molecules that provide an energy source for microorganisms. If no residual disinfectant is present (as would happen if ozone were used as the only treatment method), these microorganisms will cause the water quality to

deteriorate in storage.

Ozone also changes the surface charges of dissolved organics and colloidially suspended particles. This causes microflocculation of the dissolved organics and coagulation of the colloidal particles.

UV light: Ultraviolet light has been known to kill pathogens for a long time. A low pressure mercury bulb emits between 30 to 90 % of its energy at a wave length of 253.7 nm, right in the middle of the UV band. If water is exposed to enough light, pathogens will be killed. The problem is that some pathogens are hundreds of times less sensitive to UV light than others. The least sensitive pathogens to UV are protozoan cysts. Several studies show that Giardia will not be destroyed by many commercial UV treatment units. Fortunately these are the easiest pathogens to filter out with a mechanical filter.

The efficacy of UV treatment is very dependent on the turbidity of the water. The more opaque the water is, the less light that will be transmitted through it. The treatment units must be run at the designed flow rate to insure sufficient exposure, as well as insure turbulent flow rather than plug flow.

Another problem with UV treatment is that the damage done to the pathogens with UV light can be reversed if the water is exposed to visible light (specifically 330-500 nm) through a process known as photoreactivation.

UV treatment, like ozone or mechanical filtering leaves no residual component in the water to insure its continued disinfection. Any purchased UV filter should be checked to insure it at least complies with the 1966 HEW standard of 16 mW/s/cm² with a maximum water depth of 7.5 cm. ANSI/NSF require 38 mW/s/cm² for primary water treatment systems. This level was chosen to give better than 3 log (99.9%) inactivation of *Bacillus subtilis*. This level is of little use against Giardia, and of no use against *Crypto*.

The US EPA explored UV light for small scale water treatment plants and found it compared unfavorably with chlorine due to 1) higher costs, 2) lower reliability, and 3) lack of a residual disinfectant.

Questionable or Dangerous methods of water treatment

Aerobic O7: Also sold as Aerobic Oxygen. The company refuses to release the disinfectant. It maybe chlorine dioxide, a well known, if somewhat unstable, disinfectant. The company has shown company sponsored tests showing effectiveness against viruses and bacteria (but not against Giardia). No independent testing has been performed, nor has anybody provided concentration-time data for the product.

Survival Straw: This product claims to destroy and eliminate impurities including bacteria, protozoa, fungi, chemicals and heavy metals using a matrix of metal alloy. The manufacturer claims the product's media meets EPA and FDA specs, which is no indication of the filter's effectiveness. The filter violates a number of laws of physics since it claims that it destroys heavy metals and pathogens without filtering them.

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Long Term Storage MASTER FOOD LIST

6 GRAIN PANCAKE MIX
 6 WAY ROLLED GRAIN, 6 TYPES OF GRAIN
 9 GRAIN CRACKED CEREAL
 ALFALFA FOR SPROUTING
 ALFALFA, POWDER
 ALFALFA, CUT
 Almonds, Raw
 ALLSPICE (JAMAICAN) POWDER
 ALLSPICE (JAMAICAN) WHOLE
 Amaranth, Organic
 ANISE (STAR), WHOLE
 ANISE SEED, WHOLE
 APPLE FLAKES, PEACH FLAVOR, DEHYDRATED
 APPLE FLAKES, STRAWBERRY FLAVOR
 APPLE SLICES,
 APPLESAUCE, DEHYDRATED
 ARROWROOT POWDER
 BAKING POWDER,
 BAKING SODA,
 BANANA SLICES, DEHYDRATED,
 BARBECUE SPICE BLEND - GROUND
 BARLEY FLAKES
 BARLEY FOR SPROUTING
 BARLEY, HULLED,
 Barley, Hullless Waxy
 BARLEY, PEARL
 BASIL (EGYPTIAN) - CUT
 BASIL (SWEET CALIFORNIA), CUT
 BAY LEAVES, CUT
 BAY LEAVES, WHOLE
 BEANS, BLACK, BULK, FREEZE DRIED
 BEANS, 10-BEAN MIX,
 Anasazi Beans
 BEANS, AUZZUKIE
 BEANS, BABY LIMAS,
 BEANS, BLACK EYED,
 BEANS, BLACK TURTLE,
 BEANS, GARBANZO,
 BEANS, GREAT NORTHERN WHITE,
 BEANS, GREEN, DEHYDRATED,
 BEANS, KIDNEY,
 BEANS, LARGE LIMA,
 BEANS, MUNG,
 BEANS, NAVY, BULK, DEHYDRATED,
 BEANS, PINK,
 BEANS, PINTO,
 Refried Beans
 Refried Beans w/corn oil
 BEANS, SMALL RED
 BEANS, SMALL WHITE, NAVY
 BEANS, SOY,
 BEANS, SPROUTING, AUZZUKIE,
 BEANS, SPROUTING, GARBANZO,
 BEANS, SPROUTING, MUNG,

BEANS, SPROUTING, SOY,
 BEE POLLEN
 Bouillon, Beef
 Bouillon, Chicken
 BROCCOLI, DEHYDRATED
 BUCK WHEAT, HULLED,
 BURDOCK ROOT CUT
 BUTTER POWDER,
 BUTTERMILK POWDER
 CABBAGE
 CABBAGE SEED,
 CAJUN SPICE BLEND, GROUND
 CAKE MIX, GINGERBREAD (ADD WATER)
 CAKE MIX, BROWNIE (ADD WATER)
 CAKE MIX, CARROT (ADD WATER)
 CAKE MIX, DEVIL'S FOOD
 CAKE MIX, LEMON
 CAKE MIX, POUND CAKE (ADD WATER)
 CAKE MIX, SPICE
 CAKE MIX, SWISS CHOC (ADD WATER)
 CAKE MIX, WHITE
 CAKE MIX, YELLOW
 CAKE, FUNNEL (ADD WATER)
 CARAWAY SEED
 CARDAMOM (DECORTICATED) WHOLE
 CARDAMOM (WHOLE GREEN PODS)
 CARDAMOM (GROUND)
 CAROB (ROASTED), POWDERED
 CARROT DICES, DEHYDRATED,
 CAYENNE (40 HEAT UNIT) DOMESTIC
 CAYENNE (60 HEAT UNIT) IMPORTED
 CAYENNE (90 HEAT UNIT)
 CELERY
 CELERY SEED - GROUND
 CELERY SEED - WHOLE
 CHAMOMILE TEA BAGS
 CHEESE SAUCE, DEHYDRATED, BULK
 CHEESE, CHEDDAR, DEHYDRATED, BAG
 CHIA SEEDS (FOR SPROUTING)
 CHICKWEED
 CHILI BLEND, GROUND
 CHILI PEPPERS, GROUND
 CHILI, CRUSHED
 CHINESE FIVE SPICE,
 CHIVES, CUT
 CHOCOLATE CHIPS, MILK CHOCOLATE
 CHOCOLATE CHIPS, SEMI SWEET
 CILANTRO CUT
 CINNAMON CHIPS, SMALL CUT
 CINNAMON POWDER
 CINNAMON STICKS, 1 INCH,
 CLOVES (SMALL VERY FRAGRANT)
 CLOVES POWDER
 Cocoa Mix
 Cocoa Mix Chocolate Mint Truffle
 Cocoa Mix Mint
 Cocoa Mix, Orange Creme
 COCOA FOR COOKING,
 COCONUT (UNSWEETENED) - MEDIUM
 CORIANDER SEED, GROUND

—	CORANDER SEED, WHOLE	—	GARLIC GRANULES (CALIFORNIA)
—	CORN MEAL, BAG	—	GARLIC POWDER (DOMESTIC)
—	CORN, SWEET, DEHYDRATED	—	GARLIC MINCED
—	CORN, WHOLE YELLOW, PAPER BAG	—	G EL CAPS -00-
—	Corn, Yellow Grit-hornimy polenta	—	GELATIN, CHERRY,
—	CORNSTARCH	—	GELATIN, LEMON,
—	Corn Syrup Solids	—	GELATIN, LIME,
—	CREAM OF TARTAR	—	GELATIN, ORANGE,
—	CUMIN SEED, GROUND	—	GELATIN, PEACH,
—	CUMIN SEED, WHOLE	—	GELATIN, RASPBERRY,
—	CURRY POWDER, HOT BLEND	—	GELATIN, STRAWBERRY,
—	CURRY POWDER, REGULAR BLEND	—	GERMADE,
—	DILL SEED, WHOLE	—	GINGER ROOT PIECES, 1/4 IN PIECES
—	DILL WEED, (DOMESTIC) CUT	—	GINGER ROOT POWDER
—	DOUGH ENHANCER, NATURAL	—	GINSENG POWDER
—	DRESSING, 1000 ISLAND	—	GOTU KOLA POWDER
—	DRESSING, BLEU CHEESE,	—	GRANOLA, 25 LB BAG
—	DRESSING, OUR HOUSE DRESSING	—	GRAVY MIX, BROWN,
—	DRINK BASE, APPLE CIDER, INSTANT,	—	GRAVY MIX, CHICKEN,
—	DRINK MIX, APPLE, DEHYDRATED,	—	GRAVY MIX, TURKEY,
—	DRINK MIX, CHERRY,	—	GRAVY, COUNTRY STYLE,
—	DRINK MIX, Fruit Punch	—	GREEK SEASONING, GROUND
—	DRINK MIX, GRAPE,	—	HERB MIX (SALT SUBSTITUTE)
—	DRINK MIX, HOT CIDER,	—	HONEY, Clover
—	DRINK MIX, LEMONADE,	—	HONEY, Creamy Whipped
—	DRINK MIX, ORANGE,	—	HONEY, COX'S (CREAMED)
—	DRINK MIX, Peach	—	ITALIAN SEASONING, CUT
—	DRINK MIX, PINK LEMONADE,	—	ITALIAN SEASONING, GROUND
—	DRINK MIX, STRAWBERRY,	—	KELP POWDER
—	DRINK MIX, Tofu	—	Kamut
—	DRINK, APPLE, w/FRUIT JUICE	—	LECITHIN GRANULES
—	DRINK, PEACH, DEHYDRATED, BG	—	LEMON GRANULES
—	EGG MIX, DEHYDRATED,	—	LEMON JUICE POWDER (INSTANT)
—	EGG WHITES, DEHYDRATED,	—	LEMON PEEL CUT
—	EGGS, Whole	—	LEMON PEPPER BLEND, GROUND
—	FAJITA SEASONING,	—	LENTILS, 100 LB BAG
—	FENNEL SEED, POWDER	—	LICORICE MINT BLEND (TEA) NO CAFFEINE
—	FENNEL SEED, WHOLE	—	LICORICE ROOT POWDER
—	FENUGREEK SEED, WHOLE	—	LICORICE SPICE BLEND (TEA) CAFFEINE FREE
—	FLAVOR CRYSTALS, MAPLE, NATURAL & ART	—	LICORICE STICKS
—	FLAVOR CRYSTALS, VANILLA, NATURAL & AR	—	MACE, GROUND
—	FLAVOR CRYSTALS, WALNUT, NATURAL & AR	—	Macaroni & Cheese
—	FLAX SEED,	—	MAPLE LEAF
—	FLOUR, ALL PURPOSE,	—	MARGARINE POWDER,
—	FLOUR, BAKERS BLEND high protein	—	MARJORAM, CUT
—	FLOUR, Whole Wheat	—	MEAT TENDERIZER, SEASONED,
—	FLOUR, Whole Wheat Red	—	MEAT TENDERIZER, UNSEASONED,
—	FLOUR, UNBLEACHED,	—	MICROWAVE POPCORN CINCH BUTTER
—	FLOUR, UNBLEACHED, Hard White	—	MILK, INSTANT, NON FAT DRY,
—	FLOUR, UNBLEACHED-Red	—	MILK, REGULAR, NON FAT DRY,
—	FLOUR, UNBLEACHED-White	—	MILLET,
—	FRANKINCENSE	—	MILLET, HULLED,
—	FROSTING MIX, CHOCOLATE	—	MIX, BELGIAN WAFFLE
—	FROSTING MIX, FUDGE	—	MIX, BLUEBERRY MUFFIN
—	FRUCTOSE,	—	MIX, BROWNIE
—	FRUIT BLEND (TASTY TEA) NO CAFFEINE	—	MIX, BUTTERMILK BISCUIT
—	FRUIT BLEND TEA BAG	—	MIX, Cheesecake
—	FRUIT GALAXY, DEHYDRATED BAG	—	MIX, CHOCOLATE CHIP COOKIE
—	FRUIT WHIRLS	—	MIX, COOKIE, CHOCOLATE CHIP
—	GARLIC (DOMESTIC),	—	MIX, Fudge Brownie

_____MIX, Honeywheat Bread & Roll
 _____MIX, Scones
 _____MIX, WHITE FROSTING,
 _____MOLASSES, HOME MADE,
 _____MRE, COMPLETE MEAL,
 _____MRE, Applesauce
 _____MRE, Beef Frankfurters
 _____MRE, Beef Ravioli
 _____MRE, Beef Steak (chunked & formed)
 _____MRE, Beef Teriyaki
 _____MRE, Cheese Spread
 _____MRE, Cheese Tortellini
 _____MRE, Cherry Beverage Powder
 _____MRE, Solid Chicken Breast Patties
 _____MRE, Chicken Noodle
 _____MRE, Chicken Salsa
 _____MRE, Chili Macaroni
 _____MRE, Chocolate covered cookies
 _____MRE, Cocoa
 _____MRE, Crackers
 _____MRE, Ham Slices
 _____MRE, Lemon Pound Cake
 _____MRE, Meat Loaf w/Brown Onion Gravy
 _____MRE, Mexican Rice
 _____MRE, Oatmeal Cookie Bar
 _____MRE, Pasta Vegetable
 _____MRE, Pasta & Vegetable Alfredo Sauce
 _____MRE, Peanut Butter
 _____MRE, Pork w/Rice
 _____MRE, Pork Chow Mein
 _____MRE, Escalloped Potato w/Ham
 _____MRE, Potato Sticks
 _____MRE, Spaghetti
 _____MRE, Grilled Turkey Breast & Potatoes
 _____MRE, Turkey Breast & Potatoes
 _____MRE, Western Beans
 _____MRE, White Rice
 _____MUFFIN, BLUEBERRY
 _____MUFFIN, CORN,
 _____MUNG BEANS (FOR SPROUTING)
 _____MUSHROOM SLICES, DEHYDRATED,
 _____MUSTARD SEED (BROWN) WHOLE
 _____MUSTARD SEED (YELLOW) POWDER
 _____MUSTARD SEED (YELLOW) WHOLE
 _____MYRRH GUM PCS
 _____Noodles, Egg
 _____NUTMEG, GROUND
 _____NUTMEG, WHOLE
 _____OAT BRAN,
 _____OAT GROATS,
 _____OATS
 _____OIL, 100% CANOLA FRYING OIL,
 _____ONION, CHOPPED
 _____ONION, GRANULES
 _____ONION, POWDER, DOMESTIC
 _____ORANGE PEEL GRANULES
 _____ORANGE SPICE
 _____OREGANO (GREEK), CUT
 _____OREGANO (MEXICAN), CUT
 _____OREGANO (MEXICAN), GROUND

_____OREGANO (MEXICAN), WHOLE,
 _____PAN D'ARCO (CUT)
 _____PANCAKE MIX, 6 Grain
 _____PANCAKE MIX, Blueberry
 _____PANCAKE MIX, BUTTERMILK,
 _____PANCAKE OLD FASHIONED,
 _____PAPRIKA GROUND
 _____PARSLEY FLAKES (CALIFORNIA)
 _____PARSLEY HERB POWDER
 _____PASTA, EGG NOODLES,
 _____PASTA, LASAGNA, WIDE CUT,
 _____PASTA, MACARONI, JUMBO SHELL,
 _____PASTA, MACARONI, LARGE SHELL,
 _____PASTA, MACARONI, ELBOW,
 _____PASTA, MACARONI, SALAD,
 _____PASTA, MACARONI, SMALL ELBOW
 _____PASTA, MACARONI, SMALL SHELL,
 _____PASTA, MACARONI, Whole Wheat
 _____Pasta-Pizza Sauce Mix
 _____PASTA, SPAGHETTI,
 _____Peach Slices
 _____Peach Flavor Apple Slices
 _____PEANUT BUTTER POWDER, DEHYDRATED
 _____PEAS, Alaskan
 _____PEAS, BLACK EYED,
 _____PEAS, SPLIT GREEN,
 _____PEAS, SPLIT YELLOW,
 _____PEAS, SWEET GARDEN, DEHYDRATED
 _____PEAS, WHOLE GREEN,
 _____PEPPER (BLACK) 1/4 CRACKED
 _____PEPPER (BLACK) TABLE GRIND
 _____PEPPER (WHITE), FINE GROUND
 _____PEPPERCORNS (BLACK), WHOLE
 _____PEPPERMINT, DOMESTIC
 _____PEPPERMINT TEA BAGS
 _____PEPPERS (GREEN BELL)
 _____PICKLING SPICE BLEND, WHOLE
 _____POPCORN, RABBIT EARS,
 _____POPPY SEED
 _____POPPY SEED, (BLUE), WHOLE
 _____POTATO DICES, DEHYDRATED
 _____POTATO FLAKES, DEHYDRATED,
 _____POTATO GRANULES,
 _____POTATO SLICES, DEHYDRATED,
 _____POTATO, HASHBROWNS, DEHYDRATED,
 _____POULTRY SEASONING, GROUND
 _____PSYLLIUM HUSKS
 _____PUDDING, BANANA, ADD MILK/INST
 _____PUDDING, BUTTERSCOTCH, MILK/INST *
 _____PUDDING, Custard
 _____PUDDING, CHOCOLATE, MILK/COOK *
 _____PUDDING, CHOCOLATE, MILK/INST *
 _____PUDDING, COCONUT, MILK/INST *
 _____PUDDING, LEMON, MILK/INST *
 _____PUDDING, Tapioca
 _____PUDDING, VANILLA, ADD MILK/INST *
 _____PUDDING, VANILLA, MILK/COOK
 _____PUMPKIN PIE SPICE,
 _____PUMPKIN SEEDS, SHELLED
 _____Quinoa,

_____ RADISH SEED,
 _____ RADISH SEED, (FOR SPROUTING)
 _____ RAISINS, Select
 _____ RAISINS, Golden
 _____ RASPBERRY LEAF
 _____ RED CLOVER SEEDS (FOR SPROUTING)
 _____ RICE, Basmati Brown-Organic
 _____ RICE, BROWN, LONG GRAIN
 _____ RICE, Par Boiled
 _____ RICE, WHITE, LONG GRAIN
 _____ ROSE HIP POWDER
 _____ ROSEMARY, CUT
 _____ ROSEMARY, GROUND
 _____ ROSEMARY, WHOLE
 _____ RYE FLAKES, PAPER BAG
 _____ RYE, PAPER BAG
 _____ SAGE, FINE POWDER
 _____ SAGE, RUBBED
 _____ SAGE, WHOLE
 _____ SALAD SUPREME SEASONING
 _____ SALT
 _____ SAUCE, AU JUS INSTANT
 _____ SAUSAGE SEASONING,
 _____ SESAME SEED (NATURAL) WHOLE
 _____ SHEPHERDS PURSE
 _____ SHORTENING POWDER, DEHYDRATED
 _____ SLIPPERY ELM POWDER
 _____ SOUP BASE, BEEF FLAVOR
 _____ SOUP BASE, CHICKEN FLAVOR,
 _____ SOUP BASE, CREAM, NON DAIRY
 _____ SOUP MIX, ABC,
 _____ SOUP MIX, BEEF BARLEY
 _____ SOUP MIX, OLD FASHIONED,
 _____ SOUP, AU-JUS SAUCE
 _____ SOUP, BEEF, BARLEY, VEGETABLE
 _____ SOUP, BEEF Noodle
 _____ SOUP, BEEF Flavored Stew
 _____ SOUP, CHICKEN NOODLE, (GREAT FLAVOR)
 _____ SOUP, CORN CHOWDER BASE, MAKES
 _____ SOUP, CREAM OF CHICKEN, MAKES
 _____ SOUP, CREAM OF MUSHROOM, MAKES
 _____ SOUP, CREAM PEA CHOWDER, MAKES
 _____ SOUP, CREAMY CHEDDAR CHWD,
 _____ SOUP, Creamy Potato
 _____ SOUP, FRENCH ONION SOUP,
 _____ SOUP, ITALIAN TOMATOVEG,
 _____ SOUP, MINESTRONE,
 _____ SOUP, Mountain Stew Blend
 _____ SOUP, NE CHOWDER BASE,
 _____ SOUP, OLD FASHIONED SOUP MIX
 _____ SOUP, ORIGINAL CREAM SOUP BASE
 _____ SOUP, VEGETABLE BEEF #
 _____ Sour Cream Powder
 _____ SOUTHERN BUTTERMILK BISCUIT MIX
 _____ SOUTHERN CORNBREAD II (YELLOW)

_____ SOY SAUCE,
 _____ SPEARMINT SPICE BLEND (TEA) NO CAFFEIN
 _____ SPELT, (ORGANIC)
 _____ SPINACH FLAKES
 _____ SUGAR, BROWN,
 _____ SUGAR, POWDERED,
 _____ SUGAR, WHITE
 _____ SUNFLOWER SEED, RAW,
 _____ Sweet Potato
 _____ SYRUP, APRICOT,
 _____ SYRUP, BLUEBERRY,
 _____ SYRUP, BOYSENBERRY,
 _____ SYRUP, NATURAL BUTTER FLAVOR,
 _____ SYRUP, STRAWBERRY,
 _____ SYRUP, LIGHT CORN,
 _____ T.V.P. BACON FLAVORED,
 _____ T.V.P. BEEF FLAVORED, DEHYDRATED
 _____ T.V.P. CHICKEN FLAVORED,
 _____ T.V.P. IMAGIC BARBECUE MIX
 _____ T.V.P. IMAGIC BBQ FLAVOR,
 _____ T.V.P. IMAGIC SLOPPY JOE MIX
 _____ T.V.P. IMITATION HAM FLAVOR CHIPLETS
 _____ T.V.P. PEPPERONI, IMITATION FLAVOR
 _____ T.V.P. SAUSAGE FLAVOR
 _____ T.V.P. TACO BEEF FLAVOR
 _____ T.V.P. ULTRA-SOY, MINCED, NATURAL FLAVOR
 _____ TACO SEASONING, GROUND
 _____ TAPIOCA PEARLS (MEDIUM) WHOLE
 _____ TARRAGON (CALIFORNIA), CUT
 _____ TEA STRAINER(S)
 _____ THYME, GROUND
 _____ THYME LEAVES
 _____ TOMATO POWDER, DEHYDRATED,
 _____ TUMERIC POWDER
 _____ VALERIAN ROOT CUT
 _____ VALERIAN ROOT POWDER
 _____ VANILLA EXTRACT
 _____ VEGETABLE FLAKES, MIXED
 _____ VEGETABLE SOUP BLEND
 _____ VEGETABLE STEW BLEND
 _____ WHEAT BRAN, PAPER BAG
 _____ WHEAT FLAKES, WHITE,
 _____ WHEAT GERM
 _____ WHEAT, CRACKED,
 _____ WHEAT, GOLDEN 86,
 _____ WHEAT, HARD RED STORAGE,
 _____ WHEAT, HARD WHITE,
 _____ WHEAT, SOFT WHEAT,
 _____ WHEAT, VITAL GLUTEN,
 _____ WHEAT, WHITE, GOLDEN 86,
 _____ WHEY,
 _____ WHITE CREAM SAUCE
 _____ WHITE PEPPER, WHOLE
 _____ YEAST, INSTANT

SEED LIST

Eventually you will need to start raising your own food. To do this, you will need seeds, but not the kind of seeds you buy at the store. Why? Because those are hybrid seeds, and most hybrid seeds have no capacity to reproduce.

Hybrid seeds are a cruel trick played out on humanity. Seeds are God's gift to mankind, and for corporations and marketing people to purposely create seeds that can't produce offspring seems criminal. Yet this is exactly what goes on every day, all over the world. It's all about protecting patents and "profits." Well, those profits might get you killed if you're dumb enough to go along with the mainstream and buy hybrid seeds.

You need non-hybrid seeds. These are genetically-pure seeds, grown for hundreds or thousands of years, that consistently produce viable offspring. There's only one place I know of to get a complete garden-package of non-hybrid seeds at an affordable price: the **Ark Institute**. Buy their non-hybrid seed package and store it away as if it were gold. If civilization breaks down, these seeds may be the key to your survival and prosperity. While everyone else is scratching their heads wondering why their green beans won't sprout, you'll be reaping a huge harvest of self-proliferating, non-hybrid fruits and vegetables.

When you buy the non-hybrid seed package from the **Ark Institute**, you'll receive these seeds:

- | | |
|-------------------------------|--------------------------------|
| • Asparagus | • Spanish Onions |
| • Green Bush Beans | • Red Onions |
| • Yellow Bush Beans | • Yellow Onions |
| • Red Kidney Beans | • Scallions |
| • White Navy Beans | • Green/Red Sweet Pepper |
| • Pinto Beans | • Long Yellow Sweet Peppers |
| • Sweet Green Peas | • Cayenne Hot Pepper |
| • Snow Peas | • Pie Pumpkins |
| • Red Beets | • Giant Radish |
| • White Sweet Corn | • Spinach |
| • Yellow Sweet Corn | • Canning/Catsup Tomato |
| • Spring Broccoli | • Yellow Summer Squash |
| • Fall Broccoli | • Zucchini Summer Squash |
| • Red Cabbage for Salads | • Butternut Squash |
| • Cabbage for coleslaw/kraut | • Acorn Winter Squash |
| • Early Carrots | • Solid Salad/Canning Tomato |
| • Mid-Season/Late Carrots | • Italian Plum Tomato |
| • Salad Cucumbers | • Large Salad Tomato |
| • Pickling Cucumbers | • Heirloom Slicing Tomato |
| • Eggplants | • Flour/M Meal Corn |
| • Butterhead Lettuce | • Wheat |
| • Red Lettuce | • Drought-resistant Cantaloupe |
| • Mildew-resistant Cantaloupe | • Romaine Lettuce |
| • Summer Oak Leaf Lettuce | • Parsley |
| • Basil | |

OK, But What Do I Prepare For?

Before you can prepare, you must determine what you are preparing to survive and how each disaster threatens you, your safety and survival. That will give you the parameters necessary for the following steps.

This initial exercise isn't tough, it only takes a few minutes of thought. We suggest you jot notes or switch into your word processor while you work.

But first, it's important to realize that you cannot prepare for everything — only the army tries to do that, and we've yet to meet anyone with their resources. Captain Dave suggests you prepare only for those potential disasters that are likely to occur within the next five years. Sure, you may wait seven years for the next earthquake, but remember the survivalists creed: *better safe than sorry*.

What's going to happen in the next five years? If we knew, our web page would look different. You'll have to extrapolate, evaluate trends, read the newspaper, conduct your own research. At the very least, take a few minutes and consider your location. Pull out a map and look what's within a two-mile, five-mile 10-mile and 25-mile radius of your home and place of work. Put on your pessimist hat and consider what might go wrong that could directly impact you. Decide if that's something you want to prepare for (see questions one and two, below).

For example, if you live a "safe" distance outside of a flood plain, your house might still gets flooded in the 100-year flood, should you prepare for it? We would, but it's your call. It's your ass on the line, so you have to decide.

That nuclear plant 20 miles away has an excellent safety record. Should a nuclear disaster be on your list? Again, you make the call.

Are you worried about a meteorite crashing into your house? Well, it has happened, but it's probably not worth preparing for.

Finally, if you've been afraid of something since you were a child — whether it's a raging fire or nuclear war — prepare for it. At the very least, you'll sleep better at nights knowing you have done all you can.

Here are some questions to ask yourself:

What natural disasters or extreme conditions am I (we) likely to face in the next five years?

Make a list and rank them in order of most to least likely to impact you. Your list might look like this:

Natural Disasters	
Weather-related	
Hurricanes	Tornadoes
Flash flooding	Flooding
High winds	Hail
Avalanche	Extreme high heat
Wildfire	Drought
	Heavy thunder storms
	Mud/rock slides
	Severe winter weather

Non Weather-related

Earthquake Volcano eruption Tidal wave/Tsunami

Man-made Disasters

War (*conventional, biological, chemical or nuclear*)

Toxic material emission or spill (*from a train, semi-truck or nearby plant*)

Riot or other civil disorder Nuclear plant melt down or other nuclear disaster

Terrorism Fire Government action against you

Stock market crash Sever depression

Other

Plague or disease outbreak Comet strike or giant meteor

Personal Emergencies

Kidnapping

Unemployment

Death in family

Random acts of violence

Mugging, robbery or other criminal attack
financial disaster
Home destroyed by fire

What are the ramifications of each item on my list??

Now, take your list and create a second column. Put the ramifications of each disaster in the second column. What do we mean by ramification? How the disaster or emergency situation could affect you. Think this one through very carefully, as everyone's situation is different. For example, families with children have different concerns than those without or singles.

Potential Disaster Ramifications

Thunder storm with electrical outage for 2 (average) to 48 hours (severe)

Food spoilage possible

Lack of air conditioning/furnace

Damage to house or car from nearby trees

Possible local flooding (see below)

Local transportation impaired by fallen trees, wires

Lightning damage/fire potential

Severe winter weather, Electrical power outage for 4hrs (average) to 72 hours (severe)

Would affect furnace operation

Exposure problems

Frozen pipes

Disruption of travel, transportation

Self or family members possibly stranded away from home

Possible food shortages and empty shelves at local markets

Nearby flash flooding Local transportation disrupted

Danger while traveling in car or by foot

Possible loss of some utilities

Nearby train derailment Possible leak or spill of chemicals

Short-term exposure problem

Long-term cancer concerns

Evacuation may be necessary

Riot or other civil disorder Disruption of commute (ala Los Angeles)

Stranded in car or office while family is at home and/or school

Danger of riot spreading to my neighborhood

Danger of local kids/low lives taking advantage of situation

Attack or threat to personal safety

Looting and rampaging by otherwise lawful citizens

Fire with potentially no response by authorities

Police are overwhelmed, cannot protect law-abiding citizens

Nuclear plant problems

Reactor vessel damage could result in release of radioactive chemicals to atmosphere

Evacuation necessary

Terrorism Threat to safety at work and during business travel

Disruption of commerce, travel

Less personal freedom, privacy as a result of government reaction to terrorism

Once you've created a chart like the one above, you know what situations you are most likely to face and can prepare your survival plan

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Surviving in the City

Introduction

While we all want to do our best to prepare for a coming crisis, and many Saints realize the city is perhaps the worst place to live, very few of us are really prepared to pack up the old Winnebago and head for the hills. Most American Saints, whether they're aware or not, are going to stay in the cities.

This is not a hasty decision for most Saints. Most of us depend on the city for our livelihood, and we can be better prepared by continuing to live in the city, earn a good income, and make preparations for exiting the city at the appropriate time – or by staying in the city and living off existing supplies.

This special report explains some of the most critical dangers of living in a city and presents some solutions to surviving them. If you are one of the Saints who has decided to stay in the city, you'll benefit greatly from this information.

Cities are artificial

Every city is an artificial construct. Cities formed as people came together to conduct business, participate in social interaction, and benefit from efficiencies in public services (such as schools, sewers, water, etc.) and a common defense. Yet cities cannot survive alone. They need resources from the country; most notably, food, water and electricity. While electricity and water can sometimes be created or found within city limits, the acreage requirements of food dictate that no city could possibly feed its own people.

Read that last phrase carefully: "No city can feed its own people." Not one. Cities are, by their very nature, dependent on the importation of food. The advent of just-in-time delivery systems to our grocery stores means that most cities would run out of food within a week if supplies were for some reason disrupted.

Remember, cities are not self-sufficient. Although they may seem to be in 2005, they have for a long time been entirely dependent on the Ameri-

can farmer for their support – something almost all Americans take for granted (except the farmer, of course....)

Risks in the City

The city presents some serious risks during a crisis. The four most serious ones are 1. the collapse of social order (riots), 2. the failure of the water treatment and delivery systems, 3. the depletion of food supplies 4. the failure of the power grid and 5. you may be quarantined. While not every situation will appear in every city, every situation will most certainly appear in some cities. Will that include yours? We'll tackle these one at a time:

1. *The Collapse of Social Order*

"Social order" is a delicate thing, and it exists as a psychological barrier that could easily collapse under the right conditions. We all saw this during the L.A. Riots following the Rodney King trial verdict as citizens of L.A. set fire to their own town, yanked people from vehicles and beat them literally to death, and even fired guns at firemen attempting to save their buildings! More recently we were all witness to the looting, violence and total breakdown of society following Hurricane Katrina in New Orleans.

What allowed this to happen? Simple: the simultaneous melting away of the psychological barrier of "order." Once people realized 911 couldn't handle the load, or was offline, that the local police were helpless or had simply abandoned their posts, "Law and Order" ceased to exist in their minds. They then conducted their lives in the way they always wanted to, but couldn't because of the police. That is, they ran out to the local stores and just took whatever they wanted (looting). They took out their racial frustration on innocent victims who happened to be driving through the area, and they let loose on a path of destruction that only stopped when men with rifles (the National Guard) were called in to settle things down. In other words, *only the threat of immediate death stopped the looting and violence*. Rifles work wonders.

Imagine store owners lying prone on the roofs of their stores with AK-47's, firing at anyone who approached. This is exactly what happened in Los Angeles. But worse, imagine the lawless horde fir-

ing at the rescue copters trying to bring in supplies to the desperate masses in New Orleans.

The National Guard eventually got things under control. This event was isolated, however, to one city. Imagine a hundred cities experiencing the same thing. Will the National Guard be able to handle the load? Not likely. What about local police? They aren't fools; if things look bad enough, they'll grab their families and head for the hills, just like they did in New Orleans. *No pension is worth getting killed for.* A few U.S. cities could be transformed into literal warzones overnight. It would require all-out martial law and military force to have any chance whatsoever of bringing order to these streets. And the reality is that there are not enough military in the USA to secure all of the cities if this happens.

This collapse of social order is perhaps the greatest risk of staying in the city during a crisis. What, exactly, would cause this collapse of social order? *Lack of three things: food, water, and money.* When people run out of food, some will begin ransacking their neighborhood, searching for something to eat. (Remember that in a city, a "neighbor" does not mean the same thing as a "neighbor" in the country. They are not necessarily your friends.) It won't take long, then, for violence to take over in some cities. While certain regions will certainly manage to keep things under control and people will form lines at the local (depleted) Red Cross shelter, other cities will see an explosion of violence. Imagine the gang-infested regions of L.A., Chicago, New York, St. Louis & New Orleans. Do you think those people are going to stand in line and wait? They already have guns; now they finally get to use them. Pent-up racial tensions & hostilities will simply serve as justification for shooting people of the same or other color in order to get their food.

Even if the food somehow gets into the cities, lack of money (due to the government not sending out checks) could cause the same thing. Eventually, lack of money results in looting and mass theft. As the stealing balloons, it also results in a collapse of social order. Water; the same thing (but faster).

The collapse of social order is also very dangerous because it doesn't require any "actual" collapse of the power grid, telecommunications, transportation or banking. Social order is a psychological artifact.

It is a frame of mind, and any global panic can quickly remove the mental barrier that right now keeps people basically "lawful."

2. The Failure of Water Treatment and Delivery Systems

Will the water treatment facilities fail during a crisis? Many will. Some won't. The problem lies in figuring out whether *yours* will. Certainly, they depend on electricity, and if the power goes down, so will the water.

The most important question here, though, is about what will happen when the water stops flowing (or if it is flowing, but it's not drinkable). As you are probably aware, while people can live without food for long periods of time (2-3 weeks), water is needed on a daily basis. You can go 2-3 days without it, at most, but beyond that, you'll quickly turn to dust.

That means people will do anything to get water, because to not have it means death. And guess where it's going to be the most difficult to actually get water? You guessed it: in the cities. During the first day of the water crisis, many people still won't figure out what's going on. They'll figure it's a temporary breakage of a water main and the government will get it fixed within hours. As those hours stretch into the next day, these people will get very worried.

By the second day, more and more people will realize the water isn't coming. At that point, you could easily see a breakdown of social order, as described in the previous section (as you can see, these things all tend to cause each other...). People will begin their "search for water," and the first place they're likely to go is where they always go for liquids: the grocery store, the local Walmart, the 7-11. The shelves will be cleaned out rather quickly.

Beyond that (because those liquids aren't going to last long), you're going to see people engaged in a mass-exodus from the cities. They'll take the gas they have left in their tanks and they'll leave the city in search of water. Some will go to "Grandma's house" out in the country where they might at least find a pond or stream to drink from.

Others will simply go on an expanded looting mission, stopping at any house they see and asking the residents (with a gun in their face, likely) if they have any water to "donate."

As a result of all this, if water stops flowing, here are the events you can expect to see in some of the worse-off cities:

- Looting of all the grocery stores by the second or third day (remember New Orleans?)
- Minor outbreaks of violence during the looting. Shop owners, for example, may attempt to defend their shops with firearms (ala L.A. Riots)
- Mass exodus of residents from the city in search of water
- Ransacking of any houses or farms within a gas-tank radius of the city, presumably by desperate people with guns
- Mass traffic jams on the outbound highways as people run out of gas and abandon their vehicles (if bad enough, this could actually block the highways and trap people in the cities) (Remember Hurricane Rita?)
- Mass outbreak of water-borne diseases as people use streams and rivers as both a water fountain and a bathroom. People crapping upstream are going to infect the people drinking downstream. Very few have any kind of water filtration device

That last point is really critical. Once the water flow stops, disease is going to strike.

3. The Depletion of Food Supplies

The food supplies will likely dwindle quickly as we approach a possible crisis due to people stocking up just in case. Once the crisis actually hits, expect to see breakdowns in the transportation sector that will result in major delays in food delivery. This means food may arrive in sporadic fashion in some cities (if at all).

Once this happens, food suddenly becomes really valuable to people (even though they take it for granted today). And that means any small

shipment of food that arrives will be quickly grabbed and eaten or stored. It only takes one week without food to remind people how much they actually need it, so expect the atmosphere to be that of a "near panic" if food is delayed by as little as three days. The level of panic will vary from city to city. Some cities or towns may experience very little difficulty receiving food. Others may face near-starvation circumstances.

Remember, the cities depend entirely on food shipped in from the farms and food processing companies. Also, note that if there's a water problem as mentioned in the previous section, and the mass exodus begins, the highways may be jammed up at critical locations, causing gridlock for the trucking industry. If we're lucky, some trucks will continue to roll. If we're not, assume that nothing gets through.

A shortage of food ultimately results in the same behavior as a shortage of water. First, people eat what's in the pantry, then they loot the grocery stores. After that, with all local supplies depleted and no hope on the horizon, they leave the city and start ransacking nearby homes. Some will hunt in nearby forests, but most city-dwellers don't know how to hunt. In any case, anyone with the means to leave the city will likely do so soon after their food shortage begins.

4. The Failure of the Power Grid

Nothing is as suddenly obvious – nor has such a gigantic psychological impact – as the failure of the power grid. When the electricity stops, almost everybody knows it at the same instant (unless it happens at night).

Naturally, during the first few hours of the power failure, if it occurs, people will assume it's a temporary situation. Maybe a tree fell on some power lines, or perhaps a transformer blew up somewhere nearby. They'll sit tight and wait for the power to come back on.

What if it doesn't? Then the city faces a severe problem. Without power, obviously, everything shuts down. Within hours, the looting begins in the more crime-ridden cities (we saw this in New York a few decades ago...). The longer the power stays off, the worse the social disorder.

The loss of power will bring the entire city to a halt. While vehicles may get around for a few more days (using whatever fuel they have left), businesses obviously won't be operating. Houses that depend on electricity for heat will quickly reach winter temperatures, freezing many occupants to death. While those that depend on electricity for Air Conditioning will just as quickly reach Summer temperatures, resulting in death from heat stroke. Hospitals and police stations may have generators on hand, with a few days' worth of fuel, but in short order, that will be depleted, too.

But the water treatment plant will almost certainly be off-line without power, causing all the events mentioned in the water section, above. Let's face it, the power is the worst thing to be without in the city. If you have power, you can survive a food shortage, perhaps even a short water shortage. But without power, all bets are off. If you have a "bug-out" vehicle stocked and ready to go (see below), this might be the time to bail.

5. Quarantine, Marshal Law or city has been sealed off.

A new threat that manifest itself in the aftermath of Hurican Katrina is the possibility that the government will Quarantine or Seal off the exits of a city to keep all of the residents contained within its boundaries so as not to allow them to flee or leave. This could be done for purely noble reasons like controlling an outbreak of disease/plauge from spreading to nearby communities or for more diabolical reasons like exerting control over population centers by stopping the free movement of people. If you lived in New Orleans, the only time you could leave was before and during the Hurricane. Afterwards you were trapped and could only leave when and where you were permitted. Countless people tried to walk out of the city and were turned back at gunpoint by the National Guard only to be sent back into the hell hole until they could be "outprocessed" and evacuated. Regardless of why, the issue is that should you choose to remain in the city, *you may not have the option of leaving once the disaster response begins..*

Solutions in the City

Okay, so you're stuck in the city. You've made the decision to stay. You've read the problems above, you believe they make sense, and you're intelligently frightened. What now?

You really have two strategies. You can:

- Stay and defend your house
- Bug out (leave the city and head for the hills)

Important! This is not an either/or situation. You can begin by staying in your house and assessing the situation. You'll want to have a "bug-out" vehicle stocked and ready, just in case, if you can afford one, but you may never actually choose to bug out. You'll have to be the ultimate judge of this. Just remember that when you bug out, you face major risks and disadvantages. Among these:

- 1. You're severely limited in how much you can carry
- 2. You have limited range due to fuel
- 3. You expose yourself to social chaos, roadblocks, random violence, etc.
- 4. Your house will certainly be looted while you're gone
- 5. You run the risk of mechanical breakdowns of your vehicle
- 6. You must have a place to go that you know is in better shape than where you currently are.

In general, unless you have a specific, known safe place as your final destination, I don't advise people to bug out. Just "heading for the hills" is a very poor plan. You might not make it. But heading for Grandma's house or some known, safe place could be a very good plan indeed, depending on whether Grandma is ready, willing and able to accept you!

For these reasons (and more), staying and defending your house is sometimes the only reasonable course of action, even if it seems dangerous. For the most part, looters and people looking for food are going to have plenty of easy victims, so if you show a little willingness to use force to defend your property, you'll likely send people on to the next house.

That is, until the next house is already empty and

you appear to be the last house on the block with any food and water left. If you're in a bad enough area, your neighbors may "gang up" on you and demand your supplies or your life. This is truly a worst-case scenario, and unless you literally have a house full of battle rifles and people trained to use them (and the willingness to shoot your neighbors), you're sunk. *This is why the best situation by far is to keep your neighbors informed and help them get prepared.* Then you (both your member and non-member neighbors) can act as a group, defending your neighborhood and sharing the supplies you have with anyone willing to help defend you. (And don't think for a second that your non-member neighbors won't remember all that food storage in your garage!)

When you have this kind of situation going, your neighbors realize you are their lifeline. You supply them with food and water, and they will help support you because they are, in effect, supporting their own lives. The best situation is when your neighbors and other ward members have their own food and water supplies. That way, they aren't depleting yours, and they have a strong motivation for getting together with you defend your neighborhood. (More on this below...)

Storing (and Hiding) Your Food

Storing food is just as important in the city as in the country, but hiding it is far more important. That's because in the worst areas, marauders will be going from house to house, demanding your food or your life. If you're dumb enough to put everything you own in the obvious places, you might as well not buy it in the first place. They will find it. To count on having any amount of food left over after the marauders break in, you'll need to hide your food.

One alternative is to plan on defending your home with force. If you have enough gun-wise people in the house, and enough firearms and ammo, you can probably pull this off. But most Saints aren't nearly as experienced with firearms as the gang members. A better alternative might be to plan on bringing your supplies to your ward/stake building where all of the Saints can both pool and defend their resources. This of course will depend greatly on your local Bishop and Stake

President.

Back to hiding: the best way to hide your food is to bury it. You'll need airtight containers, long-term food that won't rot and you'll need to plan ahead. Bury your food at night so nobody will notice, and make sure you don't leave the map on the refrigerator door! (Better to memorize it!) Try to get the ground to look normal after you're all finished. You'll want to bury your food as early as possible because it gives the grass time to regrow over the spot. If you're in an area that snows, you'll have a great concealment blanket! Most food marauders won't go to the trouble to dig up food, especially if you insist you don't have any.

Best plan: Have some smaller amount of food stashed around the house, letting them find something. Better to give them something and send them on their way. The art of hiding your food is an ancient one. You've got to get creative. Use the walls, the floors, and the structure of the house.

If hiding your food is simply not an available alternative, then try not to advertise it. Keep it put away in your house or garage in as discreet a manner as possible. Don't make a point of telling people that you have a years supply (or more). Word gets around fast that Bro. Jones has a ton of food in his garage. Boxes of food fit nicely under beds, behind furniture, in the attic, etc.. Be Creative!

To sum up the food storage, you really have three strategies here:

- Store it all in your house and plan on defending it by force.
- Bury it in your yard in case you get overrun by looters.
- Store part of it in your house, and hide the bulk of it.
- Relocate all of it as soon as you recognize a major disaster is in progress

An alternative to burying that would be faster and easier would be to simply build a false wall in your garage and seal up your food behind the false wall. Sure, you might lose 2-3 feet of useable space in your garage, but the tradeoff is knowing everything is safe and sound.

Storing Extra Water

Water can be stored in exactly the same way, although you might want to bury the barrel before you actually fill it with water. Make sure you treat your storage water, rotate it or have filters on hand when you get ready to use it.

If you don't have a yard, or it's not practical to bury your water, you'll have to store water inside your house. This can get very tricky because water takes up a lot of space and it's very difficult to conceal. It's best to get containers made for long-term storage, but in a pinch, use what you can find, just make sure its clean and food grade material. But a lot of these containers will deteriorate quickly, and they may break easily. Also, consider what happens if your water may be subjected to freezing. Will your containers survive? Be sure to leave enough air space to handle the expansion.

In order to prepare yourself for the water shortage, assuming you're going to stay in the city, stock at least six months of water at a minimum two gallons a day per person. That's nearly 400 gallons of water if you have two people.

Of course, even with the best in-house preparations, you may find yourself depleted of water supplies. In this situation, one of your best defenses is to have a really good water filter (like the Katadyn filter) that can remove parasites and bacteria from the water. You can also treat your water in other ways (iodine, distillation, silver solution, bleach, etc.). Armed with these items, you can safely use stream or river water (or even pond water) for drinking.

WATER WELLS

By far, the best solution for obtaining long-term water supplies is to drill a well. Buy the best-quality hand-pump available (cast-iron pumps available from Lehman's) and a good cylinder. They will last a lifetime if installed properly. With this setup, you'll have a near-unlimited supply of water.

The total cost of doing this, depending on where you live, ranges from about \$4000 - \$6000. Is it worth it? If you've got the money, I think so. However, many cities simply don't allow the drilling of wells, so you may not be able to get one drilled even if you want

to.

The deeper your well, the more expensive it gets. Most well drilling companies charge by the foot. When water is deeper, you also need a bigger pump and a more powerful cylinder, so the costs tend to really grow the deeper you go. If you can find water at 20', you're very lucky and it might not cost you even \$2000. If you have to go down to 200', it might cost you \$7500, and you're at the depth limit of hand-powered pumps anyway.

Defending Your Life and Property

Let's talk about force. No doubt, there are plenty of nice people in this country, and I think that in small towns and rural areas, people are going to find ways to cooperate and get along. I also think, however, that some cities will suffer complete social breakdown and violence will rule. If you happen to be stuck in one of these cities, you're going to need to use force to defend your house. The section that follows discusses what I consider to be extreme responses to violence in the most dire situations. Hopefully, you won't find yourself in these circumstances, but if you do, the information below may be valuable.

Important: Do not use your lights at night. If you are stocking propane-powered lanterns, solar-powered flashlights, or other unusual supplies, using them at night will announce to everyone within line of sight that you have more than the "usual" supplies. Expect them to come knocking in your door. At most, let a fire burn in the fireplace, but in general, avoid drawing attention to your house.

Defending your house is a crucial element on your stay-in-the-city plan. Make your house your fortress, and hold drills to help other family members practice some of the more common activities such as hiding, defending, evacuating, etc. Some useful items for home defense include:

- A guard dog
- Pepper spray
- Firearms
- Smoke bombs (military-grade)
- Trip wires

Let's go over these:

The guard dog is certainly a welcome addition to any family trying to defend their house. Although he probably eats a lot of food, the investment is worth it. Dogs also tend to sleep light, so let them sleep right next to the food storage areas, and make sure you sleep within earshot. If the dog barks, don't consider it an annoyance, consider it an INTRUSION.

Pepper spray is a great alternative to the firearm. It will incapacitate people and certainly give them a painful experience to remember. On the downside (potentially), it might just remind them that next time they come back for food, they better kill you first. So understand the limitations of pepper spray.

Firearms are useful for obvious reasons. In the worst-case scenario, when looting is rampant, you may have to actually shoot someone to protect yourself or your family. If you're squeamish about pulling the trigger under these circumstances, don't plan to stay in the city. Use the "bug out" plan instead.

Smoke bombs can be useful for covering a planned escape from your house. You can purchase high-volume smoke bombs that will quickly fill up any house with an unbreathable cloud of military-grade white smoke.

Trip wires are great perimeter defenses. You can buy them from Cheaper Than Dirt (they run a few hundred dollars). They will give you early warning if someone is approaching. You can connect the tripwires to flares, shotgun shells, lightsticks or other warning devices. This way, you can have an audible or visible alert, your choice.

In addition to these devices, you can make significant fortification-style improvements to your home. While none of these are very affordable, they certainly help defend your home:

- Replace glass windows with non-breakable plexiglass
- Add steel bars to the windows
- Replace all outside door locks with heavy-duty deadbolts
- Replace all outside doors with steel doors, preferably without windows

- Remove bushes and other shrubs where people might hide
- Black out the windows entirely to avoid light escaping at night (similar to what residents of London did during the WWII bombing raids)
- Build secret hiding places for food, coins, or even people
- Create escape hatches or passageways
- Rig pepper-spray booby traps

These aren't as absurd as they might at first sound. Many Saints living in rough cities already have steel bars covering their windows, and removing extra bushes and shrubs is a well-known tactic for making your home a safer place.

LIGHT

To light your home when there's no electricity, try the following:

- Use LED flashlights and rechargeable solar-charged batteries. You can buy all these items from the Real Goods catalog.
- Use propane-powered lanterns. You can find these in the camping section of your local Walmart. Be sure to purchase extra mantles and store lots of propane.
- Purchase quality oil lamps from Lehman's and stock up on oil. You can also purchase cheap kerosene lamps from the Sportman's Guide or Walmart, then simply purchase and store extra kerosene.
- Buy extra candles.

- Purchase lots of olive oil. Not only can you cook with it (and besides, it's a lot healthier than corn or vegetable oil), olive oil also burns as a clean candle fuel. You can float a wick in a jar half-full of olive oil and light the wick. Viola, a home-made candle. Olive oil is a fantastic item for your storage anyway because even if you purchase all the grains in the world, you'll still need cooking oil, and you obviously can't buy powdered cooking oil. Well-stored olive oil can last for thousands of years.

STAYING WARM

Did you know that people won't steal giant logs? Although they may easily steal wood you've already

chopped, most people won't have any way of stealing logs. They're too heavy, and the vehicles won't have any gas left. For this reason, your best bet in regards to stocking fuel for your house is to stock up on UNCLUT wood logs.

It takes a lot of extra research to find out how to get them (took me a few weeks of asking around), but you can find a source if you look hard enough. Or you can usually get a permit to go out and cut your own. The effort is worth it, because this will give you a ready-to-go source of heat and fuel that cannot be easily stolen.

The catch, of course, is that you'll need equipment to cut and chop the wood. A chainsaw is REALLY nice in this way, but it requires fuel. Fortunately, chain saws don't use much fuel, so if you have a way to store as little as 50 gallons or so, you've got enough to power your chainsaw for a few years (at least!). You'll need fuel stabilizers, too, which you can buy at your local Walmart. (Be sure to buy extra chains for your chainsaw, too.)

You'll also need splitting hardware. You can buy log splitters or just buy an axe, a wedge, and a sledge-hammer. Better yet, buy all four so you have a choice of what to use. And remember, wood splits much better when it's frozen, too, so you might just wait until the cold hits in Winter to start splitting your wood. Only split a little at a time, because you don't want to end up with a big pile of nicely-split wood sitting out in your yard. It will invite theft from people who don't have any. If you already have trees on your property, you're all set. Cut down about 4-5 cords right now, so they can start drying out, then chop them as you need 'em.

A "cord" of wood, by the way, is a volume measurement. It's 8' x 4' x 4', or 128 cubic feet of wood (stacked). Some people that sell wood will try to rip you off, so make sure you know what you're buying. If you purchase logs, it's better to get a price per linear foot, based on the diameter of the log. For example, you might ask for logs that are an average of 10" in diameter, and you'll ask how much the charge per linear foot would be. Something in the range of \$1 - \$2 would be great.

Relations With Neighbors

I've already mentioned the importance of getting along with your neighbors. It really is crucial to your city-based survival plan. The best situation to be in, as mentioned before, is to have neighbors & other church members who are aware of the issue and who are getting ready for it by stocking their own food, water, and other supplies. Every neighbor & member that becomes self-reliant is one less neighbor or member you'll have to support.

The range of neighbor situations, from best to worst, is as follows:

- Best case: your neighbor is current Recommend holder, is aware of and both temporally & Spiritually prepared for an emergency with their own supplies and training.
- Good case: your neighbor is aware of a potential crisis, and even though they don't have their own supplies, they're willing to help defend yours as long as you share
- Bad case: your neighbor is a non-member that didn't prepare for it, figuring they would just steal from you if things got bad. They are aware of YOUR supplies but don't have their own.
- Worst case: your neighbor isn't aware of anything, he is anti-mormon and he's a violent, angry neighbor just released from prison. He is going to be caught off guard by the ensuing events and will likely attempt to use violence to get what he needs or wants.

Your decision on whether to stay in the city may depend greatly on the quality and quantity of your neighbors. If you do live in a bad neighborhood, do what you can to relocate. If you live in a good neighborhood, do the best you can to educate and inform your neighbors. *This might well be the most important missionary work you ever do for your own temporal salvation!*

Gun Control in the Cities

No matter how you felt or thought about gun control in the past, it's time to face disaster-induced reality. The gun-control politicians (and the people

who supported them) have placed Americans in a situation where not only can the police not protect us in a timely manner, but we cannot lawfully defend ourselves. Criminals unlawfully have firearms; citizens lawfully don't. Intentionally or otherwise, gun-control supporters have created a situation where an unfortunate number of innocent men, women and children are going to be in danger during a crisis simply because they could not obtain the tools of self-defense.

It also happens that the cities where the rioting will likely be the worst are precisely the cities where firearms are most likely to be banned from lawful ownership (and where criminals may wield near-absolute power for a while...). Perhaps when society recovers from it, we can review the fallacy in the cause / effect logic that keeps people voting for gun-control laws, but in the mean time, millions of people are going to have to resort to breaking the law in order to protect their families. And yes, you too will have to resort to breaking the law if you are to acquire a firearm in an area where guns are entirely banned from private citizens (like New York, Los Angeles, etc.).

After the disaster hits, if the rioting gets really bad, we're going to see local police begging law-abiding citizens for help. Your firearm will be a welcome addition to the force of law and order, believe me. No local cop is going to mind you having a handgun if you're manning a roadblock protecting a neighborhood of families with children. Act responsibly, tell them what you're doing, and they'll probably give you a big thanks. But if you're carrying a gun while you smash a window of the Walmart and walk off with a stereo; well that's a different story. Be prepared to get shot.

See, cops don't mind private ownership nearly as much as we've all been led to believe. I know, I work with law enforcement officers in a small town, and I ask them about topics like this. When the crisis hits, they'll be more than happy to have your cooperation. We're all going to need as many law-abiding gun-toting citizens as possible in order to fend off the criminals and establish some degree of order.

One More Reason To Move Out

If you really feel you need a firearm to protect yourself and your family, your best bet may be to move to a city or state where people are a lot more accepting of firearms. You'd be surprised what a difference the locale makes. Check the gun laws in any state you're considering moving to. Obviously, "cowboy" states like Arizona, Texas and Wyoming will have fewer restrictions on firearms (and, interestingly, they have less of a problem with gun violence). States where the population is more dense (like Florida, California, New York) tend to have much greater restrictions on private ownership of firearms.

Bugging Out

Suppose it's July 14, 2006, and you've changed your mind about this city thing. You happened to be right smack in the middle of one of the worst-hit cities in the country. The looting is getting worse, the power has been out for two weeks, and your water supplies are running low. You still have enough gas in your truck to make it out of town... if you can get past the gangs, that is. You've decided to BUG OUT!

Some basic pointers:

- Don't try to bug out in a Chevy Geo. You will likely need a big heavy 4x4 truck in order to go off-road and around stalled vehicles
- Get something that can carry at least 1000 pounds of supplies. A big 4x4 pickup will do nicely! Yes, it requires more fuel, but you can carry the fuel as cargo.
- Don't bug out unless you can have some-one ride shotgun, literally. You will need an armed passenger in case you run into not-so-nice people

WHAT TO TAKE

Ahh, the bug-out supply list. All this will fit in your truck. Here's what you should take if you're preparing to bug out with two people:

- Your 96 hour kits for each person in the vehicle
- 20 gallons of water
- 40 gallons of extra fuel or more (and a full gas tank)

WHERE TO GO

As mentioned earlier, if you have a designated place of refuge (Grandma's house, a cabin in the woods, etc.), head straight for it. If not, you're basically driving anywhere you can go, so try to head for an area that forested and near a creek or river where you can get some water.

Conclusion

Choosing to remain in the city is a rational choice for many Saints in many situations. However, as you have seen from the dangers described here, the further away you can get from the population centers in general, the better your chances of surviving.

Most Saints, perhaps yourself included, have a difficult time actually accepting that a major disaster is going to be as bad as described in this report. And after all, if you leave the city, sell out, quit your job, and move to the country – and then nothing bad happens – you will have disrupted your life, and you may find yourself broke, jobless, and homeless. You COULD assume it will be a mild event, which I suppose is also a credible possibility. In that case, surviving in the city will be quite feasible, especially if you have neighbors that can support your efforts and you don't live in a dangerous city with high racial tensions. However, the very nature of a major disaster means that if only one or two major infrastructure components goes down, the ripple effect will quickly create a much worse scenario. It seems there is very little room for "mild" effects unless they are miniscule. The most likely scenario at this point clearly points to massive disruptions, severe shortages in food and water, loss of power in some areas, and a breakdown of social order in certain areas where the population density is high.

But you can survive anything with good planning, an open mind, and plenty of practice. Why not start now?

Money

The first thing to understand is that nearly all of the current money supply is in the form of electronic data entries on computers rather than in cash. Most of the wealth of the world is in promises to pay (credit) rather than in cash. Of the approximately \$460 billion U.S. money supply, only about 4%, \$17.9 billion, in cash is currently circulating in the U.S. (according to the St. Louis Fed figures for June, 1998). The rest is held by individuals, companies, banks and governments in foreign countries. When a disaster hits and the computers in the banks or ATMs go down, or if there are bank runs, all that electronic wealth could evaporate overnight. In the event of a national disaster, the total money supply could shrink by 96%.

Most people (Saints and non-members alike) currently thought of as wealthy have their wealth tied up in credit-related investments of one kind or another—the stock market, bonds, CD's, real estate, etc. Almost nobody keeps a big stash of cash around because there's been no need for large amounts of cash for a long, long time. All these currently wealthy people could suddenly become poor if a financial crash were to hit us. I don't mean metaphorically poor, I mean really freezing, starving poor, broke, destitute. All their resources will be in the wrong form for the new conditions. Only those who have cash will be wealthy after a national disaster; survival requires cash.

Can't the government simply print enough paper money to replace all the electronic money? The answer is no, it's impossible. The presses at the Bureau of Engraving and Printing are already running at capacity 24 hours a day just to replace the paper money that wears out each year. To replace just the \$17.9 billion of paper currency currently circulating would take 2 years at the current BEP printing capacity. It would take several decades to replace the entire \$460 billion.

It has been reported that the Fed has been

printing and stockpiling cash in case of a bank run, and they will have an extra \$50 billion on hand along with \$150 billion they have apparently been secretly stockpiling for years. This makes a possible total of \$218 billion just in case. Even if this is true, \$218 billion is a long, long way from \$460 billion and light years away from \$7 trillion, which is the total value of the entire U.S. economy. Note that if the total U.S. economy is worth \$7 trillion but that only \$460 billion of that total exists as physical cash (and only \$17.9 billion is circulating within our borders), then the vast majority of the wealth of America is obviously only electronic, credit money. After a major disaster or financial crash, no banks or no electricity or no oil or coal or no trains means no electronic wealth. We're back to an all-cash economy.

Cash For Survival

The answer to the money question is a simple one: *Have Cash*—coins and green pieces of paper with pictures of dead presidents on them. Start converting some of your credit investments and electronic forms of money into cash. If you have cash after the disaster, you will be one of the few wealthy people in the world. Not only will you be able to survive the disastrous times, you will be able to use your cash to build a prosperous future for you and your family.

A word of warning: you must be very careful to keep a low profile both now and in the future. You want to attract as little attention as possible now while you convert to cash and later when you use your cash, for two different but equally vital reasons.

First, although you have every right to convert all your investments and savings into cash, doing so may invite the attention of the government DEA agents who may think you're some kind of drug dealer. The drug laws are so powerful regarding the confiscation of suspected drug dealers' wealth that you could find yourself in a protracted legal battle to get back the money that belongs to you. You want to avoid attracting the attention of bank tellers or branch managers who might report to the DEA that you are

withdrawing large sums of cash.

Secondly, when everyone around you is impoverished and hungry, it's very prudent to keep your own wealth out of sight. A desperate man will go to extremes to feed his family and keep them sheltered and warm; a hungry man will do what is necessary to procure food. Someone who flashes a lot of cash is courting danger.

Get your cash in tens and twenties and a few fifties. If you receive any crisp new bills, stop off at a convenience store and buy a candy bar or something, hand the clerk a new bill and you will receive older, worn bills in change. Afterwards, anyone with brand new money may invite envy as a hoarder or may become a target for robbers. You want to avoid attracting attention to yourself both now and then.

You will need ones and fives after a disaster, but it's too noticeable to cash a large check and ask for a lot of very small bills.

Coins

You will also need coins. Gold and silver might be useful during the rebuilding stage several years after the crisis, but for the first couple of years, ordinary dimes and quarters, nickels and pennies will be the most easily traded form of money. In a massive deflation, which is what a financial crash would create, real hard money becomes far more valuable. A loaf of bread that costs \$1.25 today may cost 5 cents afterwards assuming there's any bread to be had. People are completely used to ordinary pocket change coins, so that's what they will most readily accept for local transactions—and I believe nearly all transactions will be local after a major national disaster.

You need to start saving up a coin stash. Once a month or so, take a few \$20 bills to a bank in which you do not have an account and trade them for rolls of quarters or dollar coins. Any bank will exchange paper for coins without question.

Gold And Silver

Gold and silver coins are real money, based on their standard precious metal content; they have always been a historical refuge in times of crisis and because of increased public awareness about a possible disasters, gold and silver coins are becoming more desirable to have. You are not interested in numismatic collectible coins; you're only interested in gold and silver coins for their precious metal content.

The cheapest way to hold silver coins is to buy pre-1965 junk silver dimes and quarters. No one knows the future value ratio of silver coins to copper-clad coins (our currently circulating ones) after a disaster, but there's no doubt that silver coins will be worth considerably more than clads once people get used to having them.

You pay a higher premium for silver dollars than you do for silver dimes and quarters but it would be wise to have some silver dollars on hand as part of your survival plan. They are bigger and more impressive looking than dimes and quarters; even though a silver dollar may have the same metal content as ten silver dimes or four silver quarters, it just looks more valuable. The alternative is to buy brand new American Silver Eagles. These are current manufacture pure Silver coins from the US Mint. Though not commonly seen in circulation, they are legal tender and worth far more than their face value.

Gold

Gold coins are the most desirable, most valuable, form of real, hard money. Gold is scarce, it does not rust or corrode, it's very beautiful to look at, it's highly desirable as jewelry, it has industrial uses, and a long, long monetary history in many cultures worldwide. It's the real deal.

Right now the price of gold is higher than it's been for 25 years, which should warn us that inflation is on the way (inflation or the threat of inflation causes an immediate rise in the

price of gold).

The best gold coins are American coins in one oz., 1/2 oz., 1/4 oz. and 1/10 oz. denominations. People have no experience with real gold money and they will probably more readily accept U.S. gold coins than foreign coins. Although the U.S. 1 oz. Liberty coin is slightly more expensive to buy than the South African Kruger Rand, for example, when you go to spend gold, you'll find it easier to move the American coins.

it from fire, so go to a Walmart or a similar discount store and buy a fireproof storage box. You should be able to get one for under \$40. It will protect your cash from burning for a half hour of direct flame. Put your paper money and your gold and silver in the box. If you fill it up, buy another one and fill that one up too. As you begin changing some of your electronic credit wealth into cash, gold and silver, your money is fully under your control. As long as you keep it safe, it will always be there for you.

Get more smaller denomination gold coins than larger ones. In other words, buy more 1/10 oz. coins than 1/4 oz. coins, and more 1/4 oz. coins than 1/2 oz. coins, etc. The reason for this is that gold is an immense store of value for its size and weight. You will not be able to go into a local flea market or general store with a one oz. gold coin and be able to buy a few loaves of bread and some local cheese. How will the store owner make change for such a high value coin? You will use the fraying paper money, followed by clad coins and then silver coins before you'll place any gold on the counter. Gold is for large purchases so a small gold coin will be of far greater use on most occasions than a larger one. Save your 1 oz. gold coins to purchase major items.

Storing Cash

Now you need to find a safe place to hide your cash. First, tell no one that you have a load of cash, except possibly your spouse, and don't tell your spouse unless you're absolutely certain of the strength of your marriage. I'm not kidding. Hard times drive people to do things they would not do ordinarily, and if the hammer hits hard as it may well do, these will be the hardest times in our country's history. If your spouse is a full and completely trustworthy celestial partner in your life, consider yourself fortunate and keep no secrets; otherwise, be careful.

If you plan to hide your cash somewhere in your house, you want to make sure to protect

Defense

"People who live in delightful, well-mannered suburbs, who never have to contest for their lives and property, often fail to grasp the subtle logic of violence. It is a mistake seldom made by hardened criminals."
James Dale Davidson and Lord William Rees-Mogg in THE GREAT RECKONING

In a massive social collapse, most people will be able to keep only that which they can defend. This includes their lives, their homes, their food, their money, and if they're male, even their wives and perhaps their children. This is a thought that may disturb many people who are doing serious emergency planning; many members of our church do not have a "survivalist" background or mindset and they've never had any reason to think about physically defending that which is precious to them. A major disaster may change all that, just as it may change nearly everything else in the world for those living through it.

In an orderly, productive society with a stable division of labor, the harsh realities of life are not so obvious. You have laws that most people obey and you have professional police who enforce those laws. It's their job to defend the lives and property of the average citizen; if there's any violence to be done in that defense, the police handle that. The average person never has to consider defending what is his unless he is personally threatened by a criminal. The threat of force by the police keeps order in the society and tends to discourage aggressive criminal behavior (not always very well in today's world I'll admit). It also tends to hide a basic truth about the nature of human relations.

In a massive social collapse, law and public order break down and the truth about human rights is revealed: An individual has rights only as long as he can defend them. This is the subtle logic of violence. It has always been true but it's something to which most of us have never given a moment's thought. It's also a concept that makes some Saints uncomfortable because it contradicts much of the illusions by which we have lived all of our lives. However, unless you understand and accept this basic fact of life, you may not survive the coming challenges.

If a disaster crashes down hard upon us, it will destroy all the illusions and most of the rules we have lived by for the past hundred years or more. It will create harsh new rules. When the fundamental order of a society changes and new rules arise, those who fail to understand the new rules suffer the most.

There's a reason for the information in the above paragraphs: It may save your life. Why? Because it's not just having a weapon that's important, or even knowing how to use one; it's knowing full well why you need to use it and therefore not hesitating to use it when needed. ***A gun in your hand is totally worthless against an assailant unless you're fully willing to use it to defend yourself. You must understand that the new rules brought on by a major disaster may require you to defend your life personally.***

The information here meant for the average Saint; it's essentially one average Saint speaking to another. Most of us are not survivalists and we have not had much experience with guns. We have no particular interest in, and precious little time to learn about, exotic weapons with foreign sounding names. We need basic information about basic weapons that work dependably and don't cost a fortune.

In a bad scenario, it is not likely that things will deteriorate into some kind of violent chaos. The more likely worst case scenario is one in which there may be unrest and martial law in the urban areas and far less order than we're accustomed to everywhere (more akin to New Orleans) but nothing that resembles the Future War in *The Terminator*. Desperate people take desperate chances, the more base emotions become prominent in many people's behavior, and hunger, cold, lust, greed and fear take charge of people's actions. You probably won't have to worry about roving gangs; but your concern will be with one or two people breaking into your house for food or whatever may be available, stealing vegetables from your garden or firewood from your woodpile, etc. This is what you'll need to defend against and this is something you can handle.

The best weapon for home defense is a shotgun with a short barrel. There are three reasons why this is true. First, there is nothing scarier than looking at that big black hole at the end of the barrel of a shotgun when it's pointed at you. Second, when you fire a shotgun at close range it's impossible to miss; you're going to hit what you're aiming at. Third, when you hit someone with a shotgun, he doesn't get up and come at you. A short barrel gun is easier to handle than one with a long barrel.

There are several good basic shotguns on the market. One of the best is a 12 gauge Remington pump 870 Express Magnum with an 18" barrel. It's not fancy and it's not pretty but it will do the job. As someone told me not long ago, just hearing the unmistakable click of a pump shotgun being cocked will scare off most intruders. The Remington costs about \$250 new. Mossberg also makes a good pump 12 gauge, along with several other manufacturers. If there is a good gun shop in your area, stop by and look at what's available. Ask questions; most gun shop employees are very knowledgeable and willing to share that knowledge with you.

The other useful weapon for home or personal defense is a handgun. Although an automatic shoots faster and loads quicker than a revolver, it is a more complex mechanism and may jam occasionally, whereas a revolver almost never jams. Also for a novice, a revolver is less intimidating to hold and shoot. Maybe it's all those Roy Rogers and Gene Autry movies, but somehow a revolver just seems more familiar to someone who is not used to guns.

The best revolver to have is a .357 magnum with a 4 inch barrel. It can fire both .38 and .357 shells (use the .38 ammo for practice because it's cheaper than the .357). A .357 is powerful enough to kill or seriously injure an assailant and it's common enough to be affordable. I'd stick to a well-known brand such as a Smith & Wesson. Taurus makes a good handgun that is less expensive than the very top names. Again, ask at the gun shop.

If the gun is for a small female, the .357 may be too heavy and awkward to use effectively. In that case a .38 or even a .32 may be a better choice. Remember that a smaller caliber weapon does not have the stopping power of a larger one, so if you have to shoot someone to defend yourself, keep shooting until you empty the gun. Once you've wounded someone, he's going to try to kill you if he possibly can, so you don't want to inflict a minor wound; you must stop him!

No matter which guns you get, be sure to get lots of ammunition. Any ammo you don't use or need could be a great trade item after a disaster. Walmart generally has good prices on ammunition. Gun shows are always a good place to shop for ammo deals.

If you know someone who has a good bit of knowledge and experience with guns, get him to teach you how to shoot safely. It is a terrible mistake to have a gun and not know anything about proper shooting and gun safety. If there is a gun course offered in your area, take it; ask about this at your local gun shop.

Be sure to keep your guns away from your children! Put them where you can get to them quickly if needed but in a place to which they don't have access. There are lockable gun boxes on the market that are quick to get into if you know how, but impossible for a child to open; again, ask at the gun shop.

Finally, there is a cardinal rule about guns that should always be kept in mind:

Never point a gun at someone unless you are completely willing to shoot.

If your assailant senses hesitancy, he'll move quickly and take the gun away from you. Your life may depend upon this so it's essential to accept it completely. Go back and read the opening paragraphs above.

In a disaster the rules have changed; understand that and you will survive, fail to understand that and you will perish.

Clothing

Clothing is something that is not considered often enough by Latter Day Saints in planning for a disaster. You'll find many chat room and discussion board references to food, water, housing, etc., but very few references to clothes. Yet finding suitable clothing will be a very real concern in a long term disaster..

Clothes wear out or your kids grow out of them. In these normal times, you just drive to the mall or Walmart or wherever and buy what you need. There's always plenty available. This might not be true after a major disaster. It takes factories to make clothes; it takes international trade, a reliable banking system, dependable distribution systems, accurate billing systems, sophisticated telecommunications, the power grid, computers, computers, computers! Even in a less than worst case scenario, there will definitely be problems in some or all of these areas. If you want to have clothes for your family in 2006 or later, you will need to get them now.

If you have children, this will take some thought. Will the clothes your oldest child wears become too small before they can be worn out, which means they can be handed down to younger siblings, or has your oldest essentially finished growing? Do you have boys or girls or both? Boys tend to wear out their clothes sooner than girls. Do you live in a cool northern area or a warmer southern one? The best way to figure out your family's clothing needs is to pretend they have nothing whatsoever to wear and you have been given the job of outfitting the entire family from underwear to topcoat. Actually you have been given this job, just not all at once. A disaster changes all that as it changes so many things. The bright side is that you can forget about getting them what's fashionable this year. No one will have the slightest interest in fashion after a disaster ; we'll all be too concerned with getting enough food and keeping warm.

We don't know how long the really nasty times will be. I'm planning on at least 1 year of chaos followed by a couple years of rebuilding. This seems reasonable to me based on what I've learned about a large scale disaster. If you agree with this estimate, you'll need to have at least two full years of clothes for your family. I'm thinking in terms of three years of clothes just to be sure. Since you already have clothes for everyone, you have part of this job done. You may have three years worth of clothes for your family in your house right now. The only really tricky part is allowing for growth if you have children.

Make a list with each family member on it and write down what each one needs, beginning with the oldest child. If the oldest still has some growing to do, figure that there will be hand-me-downs available to younger siblings. Allow at least five long sleeve and five short sleeve shirts per child and five pairs of pants also. The oldest male can always hand down his outgrown shirts and pants to both younger brothers and sisters. Five pairs of underpants and undershirts, five pairs of socks, two sweaters, a jacket and a heavy coat per child should be the minimum. A few dresses and skirts for the girls would be nice. As I said, you already have most of this. The only difference from your normal clothing concerns is the fact that you will need to buy clothes for growing children now instead of next year and the year after.

There may not be much joy in your children's lives for a few years—things will be so terribly different from what they're used to—so have a few nice things tucked away for them, particularly for daughters. Kids are still kids and they love an attractive surprise. There may be some local social events in your area they'd like to look nice for so plan ahead for this, which means don't take them clothes shopping with you.

Shoes may be the worst clothing problem we have. Unless there is a cobbler in your area, which is very rare these days, there will be no way to repair shoes or resole them when they're worn out. The shoe purchase procedure is the same as with your other clothing concerns: figure out what each child will need for two or three years, allowing for growth, buy it now and put it away. Each child will need several pairs of everyday shoes to play in (or work in if things get really bad), plus a pair of nicer shoes for church or whatever social occasions may occur and some sturdy boots for winter snows.

Buy in a similar manner for you and your spouse or any other adults in the family. You don't have to buy everything new for adults or children; go to thrift shops or yard sales and stock up. If you find a good source of inexpensive clothes, buy lots of things in all the average sizes. Remember that most people will not be at all prepared for a crash so any clothes you don't need will be excellent barter items.

Emergency Heating & Cooking

HEATING

Coal stores well if kept in a dark place and away from moving air. Air speeds deterioration and breakdown, causing it to burn more rapidly. Coal may be stored in a plastic-lined pit or in sheds, bags, boxes, or barrels and should be kept away from circulating air, light, and moisture. Cover it to lend protection from weather and sun.

Wood. Hardwoods such as apple, cherry, and other fruit woods are slow burning and sustain coals. Hardwoods are more difficult to burn than softer woods, thus requiring a supply of kindling. Soft woods such as pine and cedar are light in weight and burn very rapidly, leaving ash and few coals for cooking. If you have a fireplace or a wood/coal burning stove, you will want to store several cords of firewood. Firewood is usually sold by the cord which is a neat pile that totals 128 cubic feet. This pile is four feet wide, four feet high, and eight feet long. Some dealers sell wood by the ton. As a general rule of thumb, a standard cord of air dried dense hardwood weighs about two tons and provides as much heat as one ton of coal. Be suspicious of any alleged cord delivered in a 1/2 or 3/4 ton pickup truck.

For best results, wood should be seasoned (dried) properly, usually at least a year. A plastic tarp, wood planks, or other plastic or metal sheeting over the woodpile is useful in keeping the wood dry. Other types of fuels are more practical to store and use than wood or coal.

Newspaper logs make a good and inexpensive source of fuel. You may prepare the logs in the following manner:

Use about eight pages of newspaper and open flat. Spread the stack, alternating the cut sides and folded sides.

Place a 1" wood dowel or metal rod across one end and roll the paper around the rod very tightly. Roll it until there are 6-8 inches left to roll, then slip another 8 pages underneath the roll. Continue this

procedure until you have a roll 4-6 inches in diameter. With a fine wire, tie the roll on both ends. Withdraw the rod. Your newspaper log is ready to use. Four of these logs will burn about 1 hour.

Propane is another excellent fuel for indoor use. Like kerosene, it produces carbon dioxide as it burns and is therefore not poisonous. It does consume oxygen so be sure to crack a window when burning propane.

Propane stores indefinitely, having no known shelf life. Propane stoves and small portable heaters are very economical, simple to use, and come the closest to approximating the type of convenience most of us are accustomed to using on a daily basis.

The storage of propane is governed by strict local laws. In this area you may store up to 1 gallon inside a building and up to 60 gallons stored outside. If you store more than these amounts, you will need a special permit from the fire marshal.

The primary hazard in using propane is that it is heavier than air and if a leak occurs it may "pool" which can create an explosive atmosphere. Furthermore, basement natural gas heating units CANNOT be legally converted for propane use. Again, the vapors are heavier than air and form "pockets." Ignition sources such as water heaters and electrical sources can cause an explosion.

White gas (Coleman fuel). Many families have camp stoves which burn Coleman Fuel or white gasoline. These stoves are fairly easy to use and produce a great amount of heat. However, they, like charcoal, produce vast amounts of carbon monoxide. **NEVER** use a Coleman Fuel stove indoors. It could be a fatal mistake to your entire family.

Never store fuels in the house or near a heater. Use a metal store cabinet which is vented on top and bottom and can be locked.

Kerosene (also known as Range Oil No. 1) is the cheapest of all the storage fuels and is also very

forgiving if you make a mistake. Kerosene is not as explosive as gasoline and Coleman fuel. Kerosene stores well for long periods of time and by introducing some fuel additives it can be made to store even longer. However, do not store it in metal containers for extended time periods unless they are porcelain lined because the moisture in the kerosene will rust through the container causing the kerosene to leak out.

Most hardware stores and home improvement centers sell kerosene in five gallon plastic containers which store for many years. A 55 gallon drum stores in the back yard, or ten 5 gallon plastic containers will provide fuel enough to last an entire winter if used sparingly.

Caution: To burn kerosene you will need a kerosene heater. There are many models and sizes to choose from but remember that you are not trying to heat your entire home. The larger the heater the more fuel you will have to store. Most families should be able to get by on a heater that produces about 9,600 BTUs of heat, though kerosene heaters are made that will produce up to 25,000 to 30,000 BTUs. If you have the storage space to store the fuel required by these larger heaters they are excellent investments, but for most families the smaller heaters are more than adequate. When selecting a kerosene heater be sure to get one that can double as a cooking surface and source of light. Then when you are forced to use it be sure to plan your meals so that they can be cooked when you are using the heater for heat rather than wasting fuel used for cooking only.

When kerosene burns it requires very little oxygen, compared to charcoal. You must crack a window about 1/4 inch to allow enough oxygen to enter the room to prevent asphyxiation. During combustion, kerosene is not poisonous and is safe to use indoors. To prevent possible fires you should always fill it outside. The momentary incomplete combustion during lighting and extinguishing of kerosene heaters can cause some unpleasant odors. To prevent these odors from lingering in your home always light and extinguish the heater out of doors. During normal operation a kerosene heater is practically odorless.

Charcoal. *Never* use a charcoal burning device

indoors. When charcoal burns it is a voracious consumer of oxygen and will quickly deplete the oxygen supply in your little "home within a home." Furthermore, as it burns it produces vast amounts of carbon monoxide which is a deadly poison. If you make the mistake of trying to heat your home by burning charcoal it could prove fatal to your entire family. Never burn charcoal indoors.

Cooking

To conserve your cooking fuel storage needs always do your emergency cooking in the most efficient manner possible. Don't boil more water than you need, extinguish the fire as soon as you finished, plan your meals ahead of time to consolidate as much cooking as possible, during the winter cook on top of your heating unit while heating your home, and cook in a pressure cooker or other fuel efficient container as much as possible. Keep enough fuel to provide outdoor cooking for at least 7-10 days.

It is even possible to cook without using fuel at all. For example, to cook dry beans you can place them inside a pressure cooker with the proper amount of water and other ingredients needed and place it on your heat source until it comes up to pressure. Then turn off the heat, remove the pressure cooker and place inside a large box filled with newspapers, blankets, or other insulating materials. Leave it for two and a half hours and then open it, your meal will be done, having cooked for two and a half hours with no heat. If you don't have a large box in which to place the pressure cooker, simply wrap it in several blankets and place it in the corner.

Store matches in waterproof airtight tin with each piece of equipment that must be lit with a flame.

Sterno fuel, a jellied petroleum product, is an excellent source of fuel for inclusion in your back pack as part of your 72 hour kit. Sterno is very light weight and easily ignited with a match or a spark from flint and steel but is not explosive. It is also safe for use indoors. A Sterno stove can be purchased at any sporting goods store and will retail between \$3 and \$8, depending upon the model you choose. They fold up into a very small,

compact unit ideal for carrying in a pack. The fuel is readily available at all sporting goods stores and many drug stores. One can of Sterno fuel, about the diameter of a can of tuna fish and twice as high, will allow you to cook six meals if used frugally. Chafing dishes and fondue pots can also be used with Sterno.

Sterno is not without some problems. It will evaporate very easily, even when the lid is securely fastened. If you use Sterno in your 72 hour kit you should check it every six to eight months to insure that it has not evaporated beyond the point of usage. Because of this problem it is not a good fuel for long-term storage. It is a very expensive fuel to use compared to others fuel available, but is extremely convenient and portable.

Coleman fuel (white gas), when used with a Coleman stove is another excellent and convenient fuel for cooking. It is not as portable nor as lightweight as Sterno, but produces a much greater BTU value. Like Sterno, Coleman fuel has a tendency to evaporate even when the container is tightly sealed so it is not a good fuel for long-term storage. Unlike Sterno, however, it is highly volatile; it will explode under the right conditions and should therefore never be stored in the home. Because of its highly flammable nature great care should always be exercised when lighting stoves and lanterns that use Coleman fuel. Many serious burns have been caused by carelessness with this product. Always store Coleman fuel in the garage or shed, out of doors.

Charcoal is the least expensive fuel per BTU that the average family can store. Remember that it must always be used out of doors because of the vast amounts of poisonous carbon monoxide it produces. Charcoal will store for extended period of time if it is stored in air tight containers. It readily absorbs moisture from the surrounding air so do not store it in the paper bags it comes in for more than a few months or it may be difficult to light. Transfer it to airtight metal or plastic containers and it will keep almost forever.

Fifty or sixty dollars worth of charcoal will provide all the cooking fuel a family will need for an entire

year if used sparingly. The best time to buy briquettes inexpensively is at the end of the summer. Broken or torn bags of briquettes are usually sold at a big discount. You will also want to store a small amount of charcoal lighter fluid (or kerosene). Newspapers will also provide an excellent ignition source for charcoal when used in a funnel type of lighting device.

To light charcoal using newspapers use two or three sheets, crumpled up, and a #10 tin can. Cut both ends out of the can. Punch holes every two inches around the lower edge of the can with a punch-type can opener (for opening juice cans). Set the can down so the punches holes are on the bottom. Place the crumpled newspaper in the bottom of the can and place the charcoal briquettes on top of the newspaper.

Lift the can slightly and light the newspaper. Prop a small rock under the bottom edge of the can to create a good draft. The briquettes will be ready to use in about 20-30 minutes. When the coals are ready remove the chimney and place them in your cooker. Never place burning charcoal directly on concrete or cement because the heat will crack it. A wheelbarrow or old metal garbage can lid makes an excellent container for this type of fire.

One of the nice things about charcoal is that you can regulate the heat you will receive from them. Each briquette will produce about 40 degrees of heat. If you are baking bread, for example, and need 400 degrees of heat for your oven, simply use ten briquettes.

To conserve heat and thereby get the maximum heat value from your charcoal you must learn to funnel the heat where you want it rather than letting it dissipate into the air around you. One excellent way to do this is to cook inside a cardboard oven. Take a cardboard box, about the size of an orange crate, and cover it with aluminum foil inside and out. Be sure that the shiny side is visible so that maximum reflectivity is achieved. Turn the box on its side so that the opening is no longer on the top but is on the side. Place some small bricks or other noncombustible material inside upon which you can rest a cookie sheet about two or three inches above the bottom of the box. Place ten burning charcoal

briquettes between the bricks (if you need 400 degrees), place the support for your cooking vessels, and then place your bread pans or whatever else you are using on top of the cookie sheet. Prop a foil-covered cardboard lid over the open side, leaving a large crack for air to get in (charcoal needs a lot of air to burn) and bake your bread, cake, cookies, etc. just like you would in your regular oven. Your results will amaze you.

To make your own charcoal, select twigs, limbs, and branches of fruit, nut and other hardwood trees; black walnuts and peach or apricot pits may also be used. Cut wood into desired size, place in a large can which has a few holes punched in it, put a lid on the can and place the can in a hot fire. When the flames from the holes in the can turn yellow-red, remove the can from the fire and allow it to cool. Store the briquettes in a moisture-proof container. Burn charcoal only in a well-ventilated area.

Wood and Coal. Many wood and coal burning stoves are made with cooking surface. These are excellent to use indoors during the winter because you may already be using it to heat the home. In the summer, however, they are unbearably hot and are simply not practical cooking appliances for indoor use. If you choose to build a campfire on the ground outside be sure to use caution and follow all the rules for safety. Little children, and even many adults, are not aware of the tremendous dangers that open fires may pose.

Kerosene. Many kerosene heaters will also double as a cooking unit. In fact, it is probably a good idea to not purchase a kerosene heater that cannot be used to cook on as well. Follow the same precautions for cooking over kerosene as was discussed under the section on heating your home with kerosene.

Propane. Many families have propane camp stoves. These are the most convenient and easy to use of all emergency cooking appliances available. They may be used indoors or out. As with other emergency fuel sources, cook with a pressure cooker whenever possible to conserve fuel.

By Greg Pope.

EMERGENCY LIGHTING

Should there be a temporary lapse in electrical power, alternative sources of lighting must be stored in advance. Before the event, this is relatively inexpensive and easy. After the event, it becomes very difficult, perhaps impossible.

In most emergencies with a several day time span (hurricanes, ice storms, etc.) battery operated lighting will often see us through. However, with a major emergency the duration can be much greater. There are many products on the market that will serve well for these longer emergencies.

There are now several solar products that can provide lighting, even after cloudy days. There are solar lanterns, solar flashlights, even solar battery chargers. The solar walkway lamps that line outdoor paths are available in home centers. These can be brought in at night to provide ambient lighting. Solar photovoltaic panels or wind generators, hooked to batteries, can provide lighting and cost as little as \$100 per light. With solar or wind, once the power is restored, you still have free, non-polluting lighting.

Kerosene lanterns and gas lanterns are common choices. With these be sure you have enough fuel stored safely away from the house. Gas lantern are very noisy but give off lots of heat. Kerosene lanterns can smell but scented fuel is available.

Candles should not be ruled out. However, common decorative candles have a short life. Emergency candles can have up to 100 hours of burn time and an indefinite shelf life. Be sure to have a good quality fire extinguisher in each room where candles, kerosene and gas are being used. Most of the alternatives require a fire or flame, so use caution. More home fires are caused by improper usage of fires used for light than for any other purpose. Especially use extra caution with children and flame. Teach them the proper safety procedures to follow under emergency conditions. Allow them to practice these skills under proper adult supervision now, rather than waiting until an emergency strikes.

Cyalume sticks are the safest form of indoor lighting available but very few people even know what they are. Cyalume sticks can be purchased at most

sporting goods stores for about \$2 per stick. They are a plastic stick about four inches in length and a half inch in diameter. To activate them, simply bend them until the glass tube inside them breaks, then shake to mix the chemicals inside and it will glow a bright green light for up to eight hours. Cyalume is the only form of light that is safe to turn on inside a home after an earthquake. One of the great dangers after a serious earthquake is caused by ruptured natural gas lines. If you flip on a light switch or even turn on a flashlight you run the risk of causing an explosion. Cyalume will not ignite natural gas. Cyalume sticks are so safe that a baby can even use them for a teether.

Two-Mantle Gas Lantern

A gallon of Coleman-type fuel utilized with a two-mantle gas lantern has a burning time of approximately 40 hours. Light output is approximately the same as a 200W light bulb. Assuming an operating or burning time of 5 hours per day, the following approximate amounts of fuel would be consumed: White gas may be substituted in some camping equipment, but read and follow the specific instructions of the equipment manufacturer. A gas lantern gives a high intensity light and lots of heat, too—though the pressurized gas delivery system is quite noisy when operating. Two-Mantle Gas Lantern Fuel Consumption

Period	Fuel Consumed per 5 Hours of use.
Day,	1 pint.
Week,	1 gallon.
Month,	4 gallons.
Year,	50 gallons.

Kerosene Lanterns

Given today's technology, a kerosene lantern seems a bit old-fashioned and out of place! However, a kerosene lantern with a 1" wick will burn approximately 45 hours per quart of kerosene, saving lots of natural resources and utilizing approximately one-fourth as much fuel as a gas lantern. Kerosene lanterns are an effective and fairly safe lighting source. There are now scented lamp oils which replace kerosene. This lamp oil is generally available in retail stores. Make sure the oil is approved for use in your lamp.

There is a difference in lighting quantity and quality, as the kerosene lantern is quite dim when compared to the two-mantle gas lantern. The light output of a kerosene lantern is comparable to a 40W-60W light bulb. As a rule of thumb, the typical kerosene lantern burns approximately 1 ounce of fuel per hour. Burning at the rate of 5 hours each day, the following approximate amounts of

kerosene would be used:

Kerosene Lantern Fuel Consumption	
Period	Fuel Consumed per 5 Hr.
Day,	1/4 pint.
Week,	1 quart.
Month,	1 gallon.
Year,	12 gallons.

Kerosene lamps are excellent sources of light and will burn for approximately 45 hours on a quart of fuel. They burn bright and are inexpensive to operate. The main problem with using them is failure to properly trim the wicks and using the wrong size chimney. Wicks should be trimmed in an arch, a "V," an "A" or straight across the top. Failure to properly trim and maintain wicks will result in smoke and poor light.

Aladdin type lamps that use a circular wick and mantle do not need trimming and produce much more light (and heat) than conventional kerosene lamps. These lamps, however, produce a great amount of heat, getting up to 750 degrees F. If placed within 36 inches of any combustible object such as wooden cabinets, walls, etc. charring can occur. Great caution should therefore be exercised to prevent accidental fires.

The higher the elevation the taller the chimney should be. Most chimneys that come with kerosene lamps are made for use at sea level. At about 4500 feet above sea level the chimney should be about 18-20 inches high. If your chimney is not as tall as it should be you can improvise by wrapping aluminum foil around the top of it and extending it above the top. This will enable the light to still come out of the bottom portion and yet provide proper drawing of air for complete combustion. If the chimney is too short it will result in smoke and poor light. Be sure to store extra wicks, chimneys and mantles.

Tallow Candles

Tallow candles burn brighter, longer, and are fairly smoke-free when compared to wax candles. Tallow candles are generally available in specialty stores only, unless you make your own. Wax candles are available almost anywhere housewares are sold. Store tallow candles in a cool, dry location. Candles stored in the freezer will burn slower and without dripping.

Emergency Candles

There are two types of emergency candles available for camping, storage, and emergency purposes.

Candles. Every family should have a large supply of candles. Three hundred sixty-five candles, or one per day is not too many. The larger the better. Fifty-hour candles are available in both solid and liquid form. White

or light colored candles burn brighter than dark candles. Tallow candles burn brighter, longer, and are fairly smoke free when compared to wax candles. Their lighting ability can be increased by placing an aluminum foil reflector behind them or by placing them in front of a mirror. However, candles are extremely dangerous indoors because of the high fire danger—especially around children. For this reason be sure to store several candle lanterns or broad-based candle holders. Be sure to store a goodly supply of wooden matches

Save your candle ends for emergency use. Votive candles set in empty jars will burn for up to 15 hours. Non-candles (plastic dish and paper wicks) and a bottle of salad oil will provide hundreds of hours of candle light.

The type made of hardened wax in a can has the capability of utilizing several wicks simultaneously. The other type is a liquid paraffin-filled bottle with a wick for easy lighting. The liquid paraffin burns without odor or smoke. This candle has a minimum 100-hour burning time and indefinite shelf life.

Tallow Candle Burning Rate

Height Hours	Diameter	Approximate Burning Time in Hours
6"	1/2"	3
6"	1 1/2"	8
9"	2"	48

Trench candles can be used as fireplace fuel or as a candle for light. To make trench candles:

1. Place a narrow strip of cloth or twisted string (for a wick) on the edge of a stack of 6-10 newspapers.
 2. Roll the papers very tightly, leaving about 3/4" of wick extending at each end.
 3. Tie the roll firmly with string or wire at 2-4" intervals.
 4. With a small saw, cut about 1" above each tie and pull the cut sections into cone shapes. Pull the center string in each piece toward the top of the cone to serve as a wick.
 5. Melt paraffin in a large saucepan set inside a larger pan of hot water. Soak the pieces of candle in the paraffin for about 2 minutes.
 6. Remove the candles and place on a newspaper to dry.
- © Robert Roskind 1998, & Greg Pope 2005

Emergency Electric Lighting

Electric lighting has several advantages over other types, and some drawbacks. It's more portable and safer than fire based light. It can be extremely light weight and reliable. It's major drawback is the requirement of a power source. The most portable and available power source we currently have on the market is the traditional battery. Having an off grid electrical system is beyond the scope of this article, though it could be extremely useful. We'll stick to batteries and what batteries can power.

Emergency Lights

<i>Light role</i>	<i>Minimum Recommended</i>	<i>Recommended</i>
EDC	1 per kit	1 per person and kit with spares
Low Level	2 per family	2 per family with spares
Thrower	1 per family	1 per adult
Headlamps	1 per family	1 per adult
Small Lantern	1 per family	2-3 per family
Large Lantern	1 per family	2-3 per family

Note, some lights can serve in more than one role. Especially multi level adjustable lights.

EDC

Short for Every Day Carry. These lights should be small enough that you won't mind carrying it around everywhere with you. You never know when you might need a light in an emergency. There will likely be no power and having a flashlight on you will give you additional flexibility in where you can go and when. You don't need to always always have it with you, but it's nice to have that option. Ideally it will run off a single cell, or two small cells. Having a bright mode is nice, but not essential, it can be just a low mode light, or just a high mode light. This light can also be multi role, act as a low level light and a thrower, maybe even a lantern when standing on it's tail indoors. There are some nice lights out there but they can get expensive quick. If you use flashlights be sure to use krypton or halogen light bulbs in them because they last much longer and give off several times more light than regular flashlight bulbs on the same energy consumption. Store at least two or three extra bulbs in a place where they will not be crushed or broken.

Low Level

This light is what you can get away with when traveling through known territory, around camp, through your house, a night trip to the out house/latrine, reading at home base. Conserves batteries, last a long time. Size is probably not important. This is probably the role that will see the most use, this is the easiest to find and is also the most important.

Thrower

This is your big light. You may need it for search and rescue, a security patrol around a camp site, illuminating an area a long distance away (hence the name, it "throws" light far). It probably won't be in use every day, and it will eat batteries fast so you wouldn't want to run it all the time anyway. It's likely to be a larger light and only carried when a need is anticipated. Probably the least important, but when you need it you need it.

Headlamp

This light will be used for night work or work in the dark where you need both hands free. If you've ever tried to do the dishes by hand, without power, or any other such similar task you will quickly

appreciate what a headlamp can do for you. You may not have the ability to ask someone to hold a flashlight for you as you accomplish a task. It should be reasonably small and use small batteries. It is possible to rig up a flashlight to perform this role, for example, an EDC and a holder for it in a hat. A lantern can also perform this role to a degree, however, an actual headlamp still is a good idea.

Small Lantern

Sometimes you need to light up a room to socialize or you need a small light to read by. It mostly gives light to a small group of people. Other possibilities are using a flashlight in "candle mode", which is either with the bezel off the light exposing the lamp or just standing the flashlight on it's tail and letting the light reflect off the ceiling.

Large Lantern

When more light is required than a small lantern provides, allows a group of people to have light in a small, usually stationary, place. Eating a meal at night, or socializing would be good examples.

Types of lamps for lights

Incandescent/Halogen/Krypton

These are not recommended for general flashlight use. They are not very durable, prone to break easily – especially when dropped. They are inefficient, consume batteries rapidly and generally get dim quite quickly with use. Really they are only suitable for use in a thrower type of light, and even then should probably be avoided due to their fragility.

LED

These are excellent for most all uses, more efficient than incandescent/halogen bulbs. Highly durable and only get more efficient as batteries deplete. You get what you pay for with these lights, really nice flashlights can be had. Do some research and get what fits inside your budget and meets your needs. They are getting better every year. Regulated lights, if you can find them (hard at department stores), are more efficient than the cheap lights with resistors.

Fluorescent

Probably the best choice for large lanterns. Currently slightly more efficient than LEDs. Last a reasonably long time, they are not very expensive so you should own a few. The major drawback is they cannot be dimmed to save power, and don't work so well in cold weather.

Self Powered Lights

These are generally not recommended for several reasons. They are usually bulky and prone to mechanical failure. This is especially true since they are generally cheaply made, making them more of a novelty item than actually useful. If you're really interested in these, I would recommend a shake light. They appear quite durable, the mechanical part is only a lose magnet that goes back and forth inside a sealed container. Not prone to breakage, though the light level is low.

Solar lights are nice, but I would first buy a solar battery charger and not have to carry the bulk of a solar cell around with me when using the light. Internally a solar light is going to have a battery anyway.

Self powered lights can probably only fill the role of a low level light.

A short course in Battery Chemistries

Primary Cells (single use, disposable cell)

The most common primary cells are Heavy-Duty and Alkaline, Lithium primary cells are also available but they can't always be used in devices that normally take Alkaline and Heavy-Duty batteries. Pure Lithium battery cells put out 3.0 volts rather than the normal 1.5. This requires either a different bulb or a "dummy" empty cell to be used to keep the overall voltage correct. But there are also new low voltage 1.5v Lithium batteries as well.

Rechargeable Cells (multi use cells)

The most common today are probably NiMH cells. NiCd is an older technology. Lithium-ion is a newer technology, though it differs significantly from the more common cells.

Cell Type	Shelf Life	Capacity	Sizes Available	Cycles	Cold Weather
Heavy-Duty	8+ Years	Low	AAA, AA, C, D, 9V	1	Poor
Alkaline	8+ Years	Medium	AAA, AA, C, D, 9V	1	Poor
Lithium (Primary)	15+ Years	High	AAA, AA, C, D	1	Excellent
NiCd	5 Months	Med-Low	AAA, AA, C, D, 9V	500-1000	Good
NiMH	3 Months	Medium	AAA, AA, C, D, 9V	500-800	Poor
Lithium-ion	10+ Years	High	R123A, other related sizes	500-800	Good

This table is a quick reference to some general comparisons of various cell types.

Other general notes on various cell types. Shelf Life improves if you store the batteries in a cooler environment. After a rechargeable battery loses it's charge due to shelf life, a simple recharge will put you back in business. Cold weather is defined as sub-freezing temperatures, and all cell types that got a "poor" rating can be warmed up in a pocket, put in an appliance and be expected to work again until they get too cold.

Battery cells should be treated like fuel. Take care of them, do not get them wet, do not throw them in fires, try not to drop them or get them banged up and they should be quite safe. Get water proof carry cases for your kits for them. You probably shouldn't store cells in devices if they are going to be packed away. If you store quantities of Lithium batteries in a house they should be stored in a fire proof box with vent holes drilled into a side of the box as a safety precaution (do not place vent holes near flammable objects). Do not store them in a tent. Don't get paranoid about Lithiums, you probably use them every day in devices like a cell phone, but you've probably hear a story or two of "exploding" batteries. What they really do is "vent rapidly with flame" (quite rare), use caution and don't buy knock offs.

Primary cells should be in your emergency kits as well as a small reserve for extended on the go emergencies, rechargeable cells will be more useful in a longer term emergency when you can settle down a bit but power still doesn't exist. AA cells are the most available with the best prices, adapters can also be found to make them fit into devices that use C and D batteries. AA rechargeable also don't require nearly as long as D cells to recharge.

Heavy Duty (Single use, Disposable)

Poor, not recommended. Cheap lights come with these batteries, it should also be taken as a sign that the light manufacture has cut every conceivable cost in the production and shipping of his light. Avoid them.

Alkaline (Single use, Disposable)

Good value. Costs are very reasonable, just stay away from poor brands as they are likely to leak and damage your devices and the residue is usually toxic. Duracell, Energizer, Rayovac, and most store-brand names are fine (Costco, Rite-aid). Stay away from Western Family and unknown brands.

Lithium (Single use, Disposable)

Expensive, but great cold weather performance for a primary cell, highest energy density. It would be good to have a few of these around for AA devices. Also in cases where weight, size, and capacity is more of an issue than cost.

NiCd (Rechargeable)

Not a bad value, good cold weather performance without a high cost. I would have some of these if you plan on using a standard rechargeable.

NiMH (Rechargeable)

Best value, costs are really good for what you receive with these batteries. They don't hold a charge long on the shelf but for regular battery use, they can't be beat.

Lithium-Ion (Rechargeable)

Rather exotic and requires special care and attention. Special chargers are required, only really an option when you have a larger power source available to charge off of, like a car or off grid electrical system, or if you know how to build your own solar system to run the charger. Though this is a good option if you have such a system and flashlights that can take advantage of these cells, they are rechargeable and they have a high shelf life with good cold weather performance.

Once you have a good idea what you want and have acquired a few items. Run a family home evening off your battery devices only. Spend 1, 2, or even 3 days without the grid electric lights, learn what your needs are and use this information to fill them.

2005 Brandon Mansfield

EMERGENCY SHELTER

In survival as in all aspects of life, it is easier to be organized if we prioritize. The priorities, in order, are shelter, water, heat, food, signal, and utility. You can live 4-6 weeks without food; 3-5 days without water; but hypothermia will kill you in 30 minutes. Therefore shelter is the first priority! Shelter may be defined as anything that protects the human element from nature's elements. I will not discuss clothing here, other than to say that a good coat can't be beat, and it is easier to survive in the summer with winter clothes than in the winter with summer clothes.

What You Need

A free-standing dome or A-frame tent is the only realistic option for a mobile shelter in a short-term emergency preparedness kit. There are several things to be aware of in selecting a tent. Construction should be of good quality, breathable materials. The rain fly should extend from the apex of the tent almost to the ground. A small rain fly like those found on many discount shelf specials is unsuitable, because it means the tent walls are made mostly of waterproof material. The human body passes 1-2 quarts of water vapor daily and if you are in a waterproof tent for an extended period of time that water vapor will condense on the walls. It is for this very reason that tube tents should be avoided like the plague.

A heavy-duty space blanket is recommended to put under the tent in order to protect the tent floor. It is much easier and cheaper to replace a \$12 space blanket than a \$100 tent. Avoid the pocket space blanket—another plague! Their usefulness is limited and they breed a false sense of security. A sleeping bag is the most critical piece of survival equipment you can possess, especially in winter. Fires are only 50% effective. You cook your front side while your buns freeze, or you toast your buns and your nose freezes—you just can't win! In a sleeping bag, however, you can efficiently maintain body heat.

A good sleeping bag will have the capability to form a hood. It will have a sizable draft tube along the length of the zipper to prevent snags. Another important feature is the ability to zip two bags together to share body heat or to put a child between parents. Select a synthetic insulation rather than down. Qualofill, Polarguard and some of the new materials recently released are excellent. The advantage of synthetic insulation is that when the bag gets wet, it can be wrung out and will still keep you warm. When down gets wet, the insulation value drops to nearly nothing. Emergency survival situations rarely occur on warm sunny days, and you

can just about bet it will be on a dark, rainy or snowy night when the world comes apart.

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An absolute must in a temperate climate is a sleeping pad. Ground cold can suck the heat right out of your body, through your sleeping bag. A closed-cell foam pad will provide the insulation required, but will give little if any comfort. An air mattress of the type you take to the beach or swimming pool will freeze your whole persona during the winter. For true comfort an air mattress such as Thermarest is expensive but worth every cent. For economy, a simple 3/4-length closed cell foam pad is all that you need. Avoid open-cell pads because they soak up water just like a sponge.

In putting together a good short-term preparedness kit, you may think it necessary to initially purchase items that are of inferior quality. Perhaps so, but at the first opportunity the higher quality equipment should be purchased. There is no economy in going second class. Tents and sleeping bags are expensive and should be considered a serious investment. After all, your life and the lives of your family are in the balance!

By Larry Bethers,
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THE SUPPLY TABLE (Master Preparedness List)

This list is based on a family of *two/three adults* and *two/three children* that want to take their preparedness beyond the simple 96 hour kits and become more fully prepared for whatever may come. The items within each category are listed by "Purchase Priority". The quantities listed are for a 30 day to one-year crisis. Because some items are impossible to store indefinitely or it would not be cost-effective to store the quantities necessary to maintain our current lifestyle, it is assumed that alternate sources or substitutes will be found or changes in lifestyle will occur if the crisis lasts over one year. Quantities could be adjusted for other estimated lengths of crisis.

There are 3 major groupings that are based on the duration of the "Crisis", 30 Days, 90 Days and 1 Year. (*I know the list looks daunting at first glance, but just focus in on one group at a time*). Within each of these three durations, items are prioritized. It should be your goal to Obtain all of the "30 Day" items in sequence from Priority 1 to 3, by April 1st. Then move onto your "90 Day" items in the same manner obtaining them by July 1st, and finally onto your "1 Year" items by October 1st. This will allow you to build up your preparedness in stages, 30 Days first (as these items would be needed in EVERY scenario) 90 Days second (as they build on the 30 day list), and finally your 1 Year equipment that rounds out your preparations.

The purchase priority is **not** how important the item is. I believe everything on this list is important. The purchase priority is how soon the item should be purchased to avoid shortages *should other people decide to start "stocking up" on the same items*. I firmly believe that there will be a wake up call for a lot of people. A priority "1" item should be purchased ASAP. A priority "2" item should be purchased before most people figure out what is going on. Priority "3" items should be available until later. These are common household items which should be manufactured and shipped right up until the last minute. The purchase date is my guideline of when to make purchases. Items with a "Last minute" listing are perishable and you want as long a shelf life as possible. Signs of shortages or panic should be watched closely to avoid missing out on these items. The final three columns indicate whether I think the item would be necessary for a 1 month, three month, one year to indefinite crisis.

Clothing

Keep in mind that a crises will likely be during the winter and adjust this list for your climate. Warm, Waterproof, Windproof clothing. Think *Wool, Gore-Tex, Polarfleece, Polypor, Thinsulate, Avoid Cotton!*

Item	Quantity Required	Purchase Priority	Purchase by Date	Planned Duration
Bandanas	24 each	3		
(Inexpensive shield face, head cover, wash cloth, bandage, sanitary pad)				
Blaclava	1/person	3	4-1-06	30 Day
Boots	2/person	2	4-1-06	30 Day
Boots, (insulated)	1/person	2	4-1-06	30 Day
Bra athletic	2/female	3	4-1-06	30 Day
Clothes line	100 ft	3	4-1-06	30 Day
Clothes pins	250	3	4-1-06	30 Day
Clothes Wringer (hand crank)	1	2	7-1-06	90 Day
Coats	1/person	2	4-1-06	30 Day
Hats	1/person	3	7-1-06	90 Day
Iron-on patches.	2 packages	3	4-1-06	30 Day
Laundry detergent	5 (5gal)	3	4-1-06	30 Day
Long sleeve shirt/high collar	5/person	3	4-1-06	30 Day
Long underwear	3/person	2	4-1-06	30 Day
Needles	Assortment	3	7-1-06	90 Day
Non-electric washing machine	1	1	4-1-06	30 Day
Jean Pants	6/person	3	4-1-06	30 Day
Rain Parka/Rain Pants	2/person	2	4-1-06	30 Day
Safety pins	Assortment	3	7-1-06	90 Day

Sewing patterns	Assortment	3	10-1-06	1 Year
Sewing supplies	Assortment	2	4-1-06	30 Day
Shirts	6/person	3	4-1-06	30 Day
Shoelaces	20	3	7-1-06	90 Day
Snow Jacket	1/person	3	4-1-06	30 Day
Socks heavy	12/person	3	4-1-06	30 Day
Slove iron	1	1	7-1-06	90 Day
Sweats/nightclothes	2/person	3	4-1-06	30 Day
Tennis Shoes	2pair/person	3	4-1-06	30 Day
Thread	Assortment	3	7-1-06	90 Day
Underwear	12/person	3	4-1-06	30 Day
Wash board	2	1	7-1-06	90 Day
Wash tub	2	1	7-1-06	90 Day
Winter gloves	1/person	2	4-1-06	30 Day
Work Gloves	3	2	7-1-06	90 Day
Zippers and buttons	Assortment	3	4-1-06	30 Day

Communications

The phone/address books are of friends and family so that you can look them up after the worst has passed. If phones are not working you may have to travel to their home to check on them.

*Keep these items in waterproof containers. Many survival and camping stores sell flat, water tight pouches. If you have a food vacuum sealer, this is another great use for it!

Item	Quantity Required	Purchase Priority	Purchase by Date	Planned Duration
Addresses of friends/family	1 set	2	4-1-06	30 Day
CB Radio	1	2	4-1-06	30 Day
Cell phone				
Frequency lists/books	1	2	7-1-06	90 Day
Map of your local area	2	2	4-1-06	30 Day
Phone numbersof friends/family	1 set			
Pre-addressed, stamped postcards	1 set			
Radio (hand cranked)	1	1	4-1-06	30 Day
Road Flares	8	3	7-1-06	90 Day
Short-wave Radio	1	1	7-1-06	90 Day
Signal Flares	12	2	7-1-06	90 Day
Signal Mirror	1/person	3	7-1-06	90 Day
Signal Whistle	2/person	3	7-1-06	90 Day

Documents

bank account numbers, birth, death, marriage certificates and divorce decrees, charge card account numbers, "lost or stolen" notification numbers deeds and contracts, house and life insurance policies, inventory of valuable household items, medical records including immunizations passports, where pertinent for each family member social security numbers stocks and bonds Vaccination records wills	Now Now Now Now Now Now Now Now Now Now Now Now Now Now	30 & 90 & Year 30 & 90 & Year 30 & 90 & Year 30 & 90 & Year 30 & 90 & Year 30 & 90 & Year 30 & 90 & Year 30 & 90 & Year 30 & 90 & Year 30 & 90 & Year 30 & 90 & Year 30 & 90 & Year 30 & 90 & Year 30 & 90 & Year
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Entertainment & Education

Disasters may provide excellent opportunities to share Christ with others so extra scriptures would be a good thing to have.

Item	Quantity Required	Purchase Priority	Purchase by Date	Planned Duration	
Bible & scriptures	1/person	3	4-1-06	30 Day	
Bibles & BOM	6	1	4-1-06	30 Day	
Board Games	1 set	3	4-1-06	30 Day	
Books for pleasure reading	Many	3	4-1-06	30 Day	
Book on Edible plants	1	3	10-1-06		1 Year
Card game book	1	3	4-1-06	30 Day	
Cards	4 sets	3	4-1-06	30 Day	
Crayons	2	3	4-1-06	30 Day	
Domino game book	1	3	4-1-06	30 Day	
Dominoes	1	3	4-1-06	30 Day	
Erasers	10	3	4-1-06	30 Day	
Home School Curriculum	1/child	2	10-1-06		1 Year
How to books	Many	1	7-1-06	90 Day	
Hoyle game rule book	1	3	4-1-06	30 Day	
Magnifying Glass	1 each	3	4-1-06	30 Day	
Non-electric pencil sharpener	2	3	4-1-06	30 Day	
Paper	100 pads	3	4-1-06	30 Day	
Paper Clips, assorted sizes	1 box	3	4-1-06	30 Day	
Pencils	100	3	4-1-06	30 Day	
Pencil Sharpener	2	3	7-1-06	90 Day	
Pens	50	3	4-1-06	30 Day	
Reference books		1	7-1-06	90 Day	
Rubber Bands, assorted sizes	1 box	3	4-1-06	30 Day	
Safety Pins, assorted sizes	1 box	3	4-1-06	30 Day	
Toys		3	4-1-06	30 Day	

First Aid Supplies

Item	Quantity Required	Purchase Priority	Purchase by Date	Planned Duration	
Ace bandage	5	3	4-1-06	30 Day	
Band aids	6 large assort	3	4-1-06	30 Day	
Band aids Finger tip	1 large box	3	4-1-06	30 Day	
Band aids Knuckle	1 large box	3	4-1-06	30 Day	
Bandages (Ace) elastic, 4"	2	3	4-1-06	30 Day	
Bandages, gauze, 2", 3", 4"	4 boxes	3	4-1-06	30 Day	
Bandages, gauze, 18" x 36"	1	3	4-1-06	30 Day	
Bandages, burns (Second Skin)	1 box	2	4-1-06	30 Day	
Bandages Triangular	3	3	4-1-06	30 Day	
Birth supply kit	1	3	7-1-06	90 Day	
Burn Dressings	Assorted	2	4-1-06	30 Day	
(Burn Free)					
Butterfly closures/Leukostrips	1 large box	3	4-1-06	30 Day	
Cold/heat Pack, Instant	5 each	3	4-1-06	30 Day	
Cold/heat Pack, reusable	1	3	4-1-06	30 Day	
Cotton Balls	1 box	3	4-1-06	30 Day	
Cotton Swabs	1 large box	3	4-1-06	30 Day	
Eyedropper	1	3	4-1-06	30 Day	
Eye pads	1 large box	3	4-1-06	30 Day	

First aid manual	1	3	10-1-06		1 Year
Gauze 2"	5 rolls	3	4-1-06	30 Day	
Gauze 3"	5 rolls	3	4-1-06	30 Day	
Latex gloves	1 box	3	4-1-06	30 Day	
SAM splint	1	3	10-1-06		1 Year
Scapel	1 box	3	4-1-06	30 Day	
Scissors, Surgical pointed	1	3	10-1-06		1 Year
Shears	2	3	10-1-06		1 Year
Snake bite kit	1	3	7-1-06	90 Day	
Space Blankets	4	3	4-1-06	30 Day	
Sterile pads 4" x 4"	1 large box	3	4-1-06	30 Day	
Sterile pads 5" x 9"	1 large box	3	4-1-06	30 Day	
Surgical tape	10 rolls	3	4-1-06	30 Day	
Thermometer	4	3	4-1-06	30 Day	
Tongue Depressors	6	3	4-1-06	30 Day	
Tweezers	4	3	4-1-06	30 Day	

First Aid, Perishables

Item	Quantity Required	Purchase Priority	Purchase by Date	Planned Duration	
Alcohol	6	3	7-1-06	90 Day	
Alcohol Moist Towelettes	100	3	Last minute	30 Day	
Analgesic Cream	1 tube	2	Last minute	30 Day	
(<i>Camphophenique</i>)					
Antacid	1 box	2	Last minute	30 Day	
(<i>Mylanta, Tums, Pepto-Bismal</i>)					
Antibiotic	1 set	2	Last minute	30 Day	
(<i>Amoxicillin /Erythromycin/Tetracycline for general infections</i>)					
Anti-Diarrheal	1 box	2	Last minute	30 Day	
(<i>Imodium, Diasorb, Lomotil</i>)					
Anti-fungal	1 box	2	Last minute	30 Day	
(<i>Desenex, Micatin, Tinactin, Lotrimin</i>)					
Antihistamine	1 box	2	Last minute	30 Day	
(<i>Benadryl, Claratyne</i>)					
Antiseptic Ointment	3 tube	2	Last minute	30 Day	
(<i>Neosporin</i>)					
Aspirin	6 (100)	3	Last minute	90 Day	
Bee sting ointment	6 tubes	3	Last minute	30 Day	
Bicarbonate of Soda	1 box	2	7-1-06	90 Day	
Bronco Dialator	1	2	Last Minute	30 Day	
(<i>Primatine Mist</i>)					
Burn Ointment	1 tube	2	Last minute	30 Day	
(<i>Hydrocortisone, Derm-Aid</i>)					
Cold/Flu Tablets (<i>Nyquil</i>)	1 box	2	Last minute	30 Day	
Constipation	1 box	2	Last minute	30 Day	
(<i>Ex-Lax, Dulcolax, Duralax</i>)					
Cough Syrup	1 bottle	2	Last minute	30 Day	
(<i>Robitussen, Dimetap</i>)					
Epsom Salts	1 box	2	7-1-06	90 Day	
Eye Drops (<i>Visine</i>)	1 bottle	2	Last minute	30 Day	
Eye Wash	1 bottle	2	Last minute	30 Day	
Hemorrhoid Relief	1 tube	2	Last minute	30 Day	
(<i>Preparation H, Anusol</i>)					
Hydrogen peroxide	6 bottles	3	7-1-06	90 Day	

Ibuprofen (<i>Advil, Motrin</i>)	1 box	2	Last minute	30 Day
Itching, Insect/Rash (<i>Caladri, Calamine</i>)	1 bottle	2	Last minute	30 Day
Itching (<i>Dibucaine, Lanacane</i>)	1 tube	2	Last minute	30 Day
Lice	1 tube	2	Last minute	30 Day
(<i>Nix or RID Lice Shampoo</i>)				
Lip Balm (<i>ChapStick, Blistex</i>)	1 tube	2	Last minute	30 Day
Lubricant, Water Soluble (<i>K-Y Jelly</i>)	1 tube	2	Last minute	90 Day
Meat Tenderizer bites & stings	1 bottle	2	7-1-06	90 Day
Nasal Decongestant (<i>Acifed, Sudafed Sinex</i>)	1 bottle	2	Last minute	30 Day
Nausea, Motion Sickness (<i>Kwells, Dramamine, Meclizine</i>)	1 box	2	Last minute	30 Day
Non-Aspirin Pain Reliever (<i>Tylenol</i>)	1 box	2	Last minute	30 Day
Pain, Fever Reducer (<i>Panadeine, Mobigesic</i>)	1 box	2	Last minute	30 Day
Pain Reliever with Codeine (<i>Tylenol 3</i>)	1 box	2	Last minute	30 Day
Prescriptions	(as needed)	1	Last minute	30 Day
Petroleum Jelly (<i>Vaseline</i>)	1 jar	2	Last minute	30 Day
Poison Ivy/Oak (<i>Neoxyn</i>)	6 bottle	2	Last minute	30 Day
Poison Absorber (<i>Activated Charcoal</i>)	1 bottle	2	Last minute	90 Day
Soap, liquid, antibacterial	1 bottle	3	Last minute	30 Day
Sunburn Relief (<i>Solarcaine</i>)	1 can	2	Last minute	30 Day
Sunscreen (SPF 15 at least)	1 bottle	2	Last minute	30 Day
Vomit Inducer (<i>Ipecac</i>)	1 bottle	2	Last minute	30 Day
Yeast Infection Treatment (<i>Gyne-Lotrimin, Monistat</i>)	1 tube	2	Last minute	30 Day

Food Preparation

The fire place insert would ideally be designed to cook on. The fire grate is for cooking outside over an open fire. Crisco shortening is listed because it can be stored for a long time.

Item	Quantity Required	Purchase Priority	Purchase by Date	Planned Duration
1 roll Plastic Wrap	6 large rolls	3	4-1-06	30 Day
Aluminum foil, Heavy				
BBQ grill (charcoal/propane)	1	3	7-1-06	90 Day
Boning Knife	2	3	4-1-06	30 Day
Bread Loaf Pan	4	3	4-1-06	30 Day
Butcher Knife	1	3	4-1-06	30 Day
Butter churn	1	2	10-1-06	1 year
Camp Stove	1	2	4-1-06	30 Day
Can opener (hand cranked)	2	3	4-1-06	30 Day
Can Opener, heavy duty	1	3	4-1-06	30 Day
Canning books	1 set	2	7-1-06	90 Day
Cast iron cook set - (<i>Complete!</i>)	1 set	2	4-1-06	30 Day
Cheesecloth	1 roll	3	4-1-06	30 Day
Cheese press	1	2	10-1-06	1 Year
Coffee filters	100	3	4-1-06	30 Day
Coffee maker, metal	1	3	4-1-06	30 Day
Coleman metal dinner plates	1 set	2	4-1-06	30 Day

Coleman Cooler	2	3	4-1-06	30 Day	
Corkscrew	1	3	4-1-06	30 Day	
Crock pot, Large	1	1	10-1-06		1 Year
Cultures	1 set	3	Last Minute	90 Day	
Dish Cloths	6	3	4-1-06	30 Day	
Dishwashing liquid	5 gal	3	4-1-06	30 Day	
Dutch Oven, small with lid	1	2	4-1-06	30 Day	
Dutch Oven, large with lid,	1	2	7-1-06	90 Day	
Fire grate	1	1	7-1-06	90 Day	
Fireplace insert	1	1	4-1-06	30 Day	
Grain mill (hand cranked)	1	1	4-1-06	30 Day	
Grater	1	3	4-1-06	30 Day	
Hot Pad	1 set	3	4-1-06	30 Day	
Kettle, huge, for boiling water	1	2	7-1-06	90 Day	
Latex disposable gloves	1 box	2	7-1-06	90 Day	
Mixing Bowl, Large	1 each	3	4-1-06	30 Day	
Mixing Bowl, Small	1 each	3	4-1-06	30 Day	
Molds	1 set	3	4-1-06	30 Day	
Napkins	10	3	4-1-06	30 Day	
Pancake Turners, metal	2	3	4-1-06	30 Day	
Paper cups	100	3	4-1-06	30 Day	
Paring Knife	1	3	4-1-06	30 Day	
Plastic knives, forks, spoons	200	3	4-1-06	30 Day	
Pressure cooker	1	2	7-1-06	90 Day	
Rennet	1	3	10-1-06	1 Year	
Rubber dish gloves	4 Sets	3	4-1-06	30 Day	
Sauce Pan, large with lid,	1	3	4-1-06	30 Day	
Sauce Pan, small with lid,	1	3	4-1-06	30 Day	
Scrub pads	50	3	4-1-06	30 Day	
Skillet, large with lid,	1	3	4-1-06	30 Day	
Spoons, large metal	2	3	4-1-06	30 Day	
Spoons, Wooden	2	3	4-1-06	30 Day	
Strainer	1	3	4-1-06	30 Day	
Thermos	1/person	2	4-1-06	30 Day	
Yeast	1 box	3	Last minute	30 Day	
Yogurt culture,	1 box	3	Last Minute	90 Day	
Ziploc Bags - Sandwich	100	3	4-1-06	30 Day	
Ziploc Bags - Storage	50	3	7-1-06	90 Day	
Ziploc Freezer Bags, gallon	2 boxes	3	7-1-06	90 Day	
Ziploc Freezer Bags, quart	2 boxes	3	4-1-06	30 Day	

Food Storage

Item	Quantity Required	Purchase Priority	Purchase by Date	Planned Duration	
1 gal. plastic bags	300	3	7-1-06	90 Day	
Baskets/crates	24	1	10-1-06	1 year	
Boiling canner	1	1	10-1-06	1 year	
Bucket opener	2	1	10-1-06	1 year	
Canning book	1	1	10-1-06	1 year	
Canning jars	100	1	10-1-06	1 year	
Canning lids	500	1	10-1-06	1 year	
Canning salt	20lb	1	10-1-06	1 year	
Canning supplies (Misc)	Assortment	1	10-1-06	1 year	
Canning Utensils	Assortment	1	10-1-06	1 year	

Colander	1	1	10-1-06	1 year
Desiccants	60 (66gm)	1	4-1-06	30 Day
Food storage buckets	30 (5 gal)	1	7-1-06	90 Day
Jar lifter	1	1	10-1-06	1 year
Jars	Assortment	1	10-1-06	1 year
Lids	Assortment	1	10-1-06	1 year
Mesh bags	24	1	10-1-06	1 year
Oxygen absorbers	50 (500ml)	1	7-1-06	90 Day
Paraffin Wax	5lb	1	10-1-06	1 Year
Pressure canner	1	1	10-1-06	1 year
Saucepan	2	1	10-1-06	1 year
Saucepot	3	1	10-1-06	1 year
Scale	1	1	10-1-06	1 year
Storage/garden books	Assortment	2	10-1-06	1 year
Timer	1	1	10-1-06	1 year
Tongs to remove jars	2	2	4-1-06	30 Day
Water storage	10 (5 gal)	1	4-1-06	30 Day
Water storage	2 (55 gal)	1	4-1-06	30 Day
Wax for canning				

Fuel & Power

The amount of firewood will depend on your climate and the efficiency of your stove or fireplace. The kerosene is for the lamps under "General Household". Sta-bil is an additive which allows gasoline to be stored longer than normal. The barrel is to transport gasoline in if it can be purchased.

Item	Quantity Required	Purchase Priority	Purchase by Date	Planned Duration
Barrel (55 gal)	1	1	7-1-06	90 Day
Charcoal	500 lb.	1	4-1-06	30 Day
Fire starters	2	1	7-1-06	90 Day
<i>(jelly, ribbon, tablets, impregnated peat bricks, wax-coated pine cones, magnesium block, flint)</i>				
Fire wood	10 cords	2	4-1-06	90 Day
Fuel filter for generator	1	2	4-1-06	30 Day
Fuel pump	1	1	4-1-06	30 Day
Gasoline	500 gal	2	10-1-06	1 Year
Gas cans (5 gal)	6	2	4-1-06	30 Day
Kerosene	50 gal	2	7-1-06	90 Day
Kerosene storage barrel	1 (55gal)	2	7-1-06	90 Day
Lighter Fluid	5 cans	2	4-1-06	30 Day
Matches	20 (250)	1	4-1-06	30 Day
Propane	500 gal	2	7-1-06	90 Day
Spark plug for generator	1	2	4-1-06	30 Day
Sta-bil	8 qt	1	4-1-06	30 Day
Starter fluid	5 gal	1	4-1-06	30 Day
White Gas Coleman (for campstove)	10 (1 gal)	2	4-1-06	30 Day

Gardening

Non-hybrid seeds will reproduce true to the parent plant. Hybrid seeds may reproduce with a recessive gene. The polyethylene is for covering young plants to maintain warmth and moisture. The styrofoam cups are for coverings seedlings during late winter frosts.

Item	Quantity Required	Purchase Priority	Purchase by Date	Planned Duration
Black polyethylene	1	2	10-1-06	1 year
Bleach	5 gal	2	10-1-06	1 year
Clear polyethylene	1	2	10-1-06	1 year

Garden hoses	2	3	4-1-06	30 Day	
Herb Seeds	Assortment	2	10-1-06		1 year
Hoe	2	3	7-1-06	90 Day	
Misters for seedlings	2	2	10-1-06		1 year
Miracle Gro	Assortment	1	10-1-06		1 year
Non-hybrid seeds	Assortment	2	10-1-06		1 year
Organic fertilizers	Assortment	3	10-1-99		1 year
Perennial flowerseeds	1	3	7-1-06	90 Day	
Pull wagon	1	2	10-1-06		1 year
Rototiller	Assortment	2	10-1-06		1 year
Seed starting containers	Assortment	2	10-1-06		1 year
Seed starting medium	2	2	10-1-06		1 year
Thermometers	1	1	10-1-06		1 year
Soil testing equipment.	1	3	7-1-06	90 Day	
Sprayer/Pumper - 2 gallon size	1000	2	10-1-06		1 year
Styrofoam cups	1	2	10-1-06		1 year
Watering can	2	2	10-1-06		1 year
Wheel barrel	2	2	10-1-06		1 year

Bug spray. Malathion, Sevin, Dursban and Diazanon. Dursban and Diazanon can have severe side effects in humans, for use outside of house, not necessarily on the garden. Fine for flower gardens. Sevin is safer to use on the vegetables.

Hardware & Building supplies

Item	Quantity Required	Purchase Priority	Purchase by Date	Planned Duration
A few cases of silicone caulk. (If you are like me and your carpentry isn't perfect.)				
Bolts	Assortment	3	7-1-06	90 Day
Bricks, rocks	Assortment	3	10-1-06	1 Year
Cable	100 ft	3	7-1-06	90 Day
Cable clamps	8	3	7-1-06	90 Day
Cement	10 bags	3	10-1-06	1 year
Chains and padlocks.	several	3	7-1-06	90 Day
Chicken wire, barbed wire, etc.	2 rolls	3	10-1-06	1 Year
Duct tape	10 rolls	3	4-1-06	30 Day
Extra axe handles	2	3	10-1-06	1 year
Long polls	10	3	10-1-06	1 Year
Fencing material.	Assortment	3	10-1-06	1 year
Lumber	Assorted	3	10-1-06	1 Year
Mouse traps	5	3	4-1-06	30 Day
Nails	100 lbs.	3	7-1-06	90 Day
Nuts and bolts	Assorted	3	4-1-06	30 Day
Pipe	Assorted	3	4-1-06	30 Day
Plumbing repair supplies	Assorted	3	4-1-06	30 Day
Polyethylene Black	2	3	7-1-06	90 Day
Polyethylene Clear	2	3	7-1-06	90 Day
Pulleys	4	3	7-1-06	90 Day
Rigging book	1	3	7-1-06	30 Day
Rope	Assorted	3	7-1-06	90 Day
Screws	Assorted	3	7-1-06	90 Day
Spare keys to all of your locks.	1 set	2	4-1-06	30 Day
(Better yet, have them all set up to take the same key).				
Spare parts for your wheelbarrow	1 set	3	7-1-06	90 Day
Spare toilet parts	1 set	3	7-1-06	90 Day
Tarps	4	3	4-1-06	30 Day

WD-40	1 gal	3	7-1-06	90 Day
Wire	Assorted	3	4-1-06	30 Day

Household Items

The water filter is assuming you have a stream or other reliable source of water. The ni-cad batteries are rechargeable for the radio. Other batteries should be sized according to your needs.

Item	Quantity Required	Purchase Priority	Purchase by Date	Planned Duration
Backpack with Frame (for Hauling)	1/person	2	4-1-06	30 Day
Batteries AA	100	1	Last minute	30 Day
Batteries AA, Ni-Cad	8	1	4-1-06	30 Day
Batteries C	20	1	Last minute	30 Day
Batteries C, Ni-Cad	8	1	4-1-06	30 Day
Batteries D	100	1	Last minute	30 Day
Batteries D, Ni-Cad	8	1	4-1-06	30 Day
Battery Charger, SOLAR	2	1	4-1-06	30 Day
Blankets	10	1	4-1-06	30 Day
Camera	1	3	7-1-06	90 Day
Camera batteries	1 set	3	Last minute	90 Day
Camera film	3 rolls	3	Last minute	90 Day
Candles 10 hour	50	1	4-1-06	30 Day
Candles 36 hour	25	1	4-1-06	30 Day
Candles 100 hour (liquid paraffin)	25	1	4-1-06	30 Day
Candle holders	1 set	2	4-1-06	30 Day
Candle wax/wick	10lbs	2	7-1-06	90 Day
carpet sweeper hand operated	1	3	4-1-06	30 Day
Clocks wind up	3	3	4-1-06	30 Day
Fanny pack for short excursions	1/person	2	4-1-06	30 Day
Fire extinguishers	4	3	4-1-06	30 Day
Flashlights	5	2	4-1-06	30 Day
Flashlight bulbs	2/light	3	4-1-06	30 Day
Handwarmer, lighter fueled	1	3	4-1-06	30 Day
Kerosene Heater	2	1	4-1-06	30 Day
Kerosene lamps	4	1	4-1-06	30 Day
Kerosene lamp wicks	10	1	4-1-06	30 Day
Lighters (disposable)	50	2	4-1-06	30 Day
Light sticks (12 hour)	18	3	4-1-06	30 Day
Matches stick	20 boxes of 250	2	4-1-06	30 Day
Matches, water/windproof	5 boxes of 20	2	7-1-06	90 Day
Mosquito Netting	1 roll	3	7-1-06	90 Day
Paper towels	100	3	4-1-06	30 Day
Pet Food	as needed	3	4-1-06	30 Day
Permanent Ink Makrer	2	3	4-1-06	30 Day
Propane Heater	2	2	4-1-06	30 Day
Sleeping bags	1/person	1	4-1-06	30 Day
Sleeping Bag Mattress Pads	1/person	1	4-1-06	30 Day
Tents (2 person)	2	2	4-1-06	30 Day
Trash bags	10 boxes	3	4-1-06	30 Day
Treadle Sowing Machine	1	2	7-1-06	90 Day
Walkie talkies	1 pair	1	4-1-06	30 Day
Matches	5	3	4-1-06	30 Day
Wool Blankets, heavy	2/person	2	4-1-06	30 Day

Infant Supplies

Baby Food	???	2		Last Minute	30 Day
Baby Clothes	3 sets	1		4-1-06	30 Day
Baby Powder	2 bottles	1		4-1-06	30 Day
Baby Wash	2 bottles	1		4-1-06	30 Day
Blankets	2 each	1		4-1-06	30 Day
Bottles	3 each	1		4-1-06	30 Day
Diaper Cover		1		4-1-06	30 Day
Diapers, disposable (24 count)	26 boxes	1		4-1-06	30 Day
Diaper Rash Ointment	1 bottle	1		4-1-06	30 Day
Formula	? cans	1		Last Minute	30 Day
Lotion	2 bottles	1		4-1-06	30 Day
nursing bras	1 each	1		4-1-06	30 Day
Nursing pads	4 each	1		4-1-06	30 Day
Teething Ring	1 each	1		4-1-06	30 Day
Towellettes, Pre-moistened	2 boxes	1		4-1-06	30 Day
Toys	As needed	1		4-1-06	30 Day

Miscellaneous

Guns are like tools, it's difficult to have to many. The quantity and types of guns required will vary tremendously from one person to another. No amount of supplies will do you any good if someone else takes them from you by force. Self defense is an important consideration and, if wild game is in the area, hunting can provide fresh meat. The maps should be very detailing showing back roads in case major highways are closed or clogged. I always wanted a night vision scope, so I threw it in for good measure. The safe is for storing records, documents, cash, and gold or silver. A burn barrel is for disposing of household garbage and a spark arrestor is a

grated top to prevent accidental fires.

Item	Quantity Required	Purchase Priority	Purchase by Date	Planned Duration	
5 gallon emergency toilet	1	2	4-1-06	30 Day	
Ant spray concentrate	1	3	4-1-06	30 Day	
Binoculars	2	3	4-1-06	30 Day	
Book on using compass	1	1	4-1-06	30 Day	
Burn barrel	2	3	7-1-06	90 Day	
Compass	2	1	4-1-06	30 Day	
Fishing tackle	Assortment	3	10-1-06		1 year
Knives	Assortment	1	4-1-06	30 Day	
Metal bucket - for charcoals/ashes	1	3	4-1-06	30 Day	
Night vision scope	1	1	4-1-06	30 Day	
O.D. parachute cord	200ft	3	7-1-06	90 Day	
Safe	1	1	4-1-06	30 Day	
Spark arrestor	2	3	4-1-06	30 Day	
Sponges	10	3	4-1-06	30 Day	
Toilet seat	1	3	7-1-06	90 Day	
Trash bags - 13 gallon size	1 box	3	4-1-06	30 Day	
Trash bags - 33 gallon size	1 box	3	4-1-06	30 Day	
Water buckets 5 gal	2	3	4-1-06	30 Day	
Glue of various types	several	3	7-1-06	90 Day	
(wood glue, super glue, weather stripping adhesive, etc.)					
Paint	10 gal	3	10-1-06		1 year
Rolls of 10 mil "Visqueen"	3	3	4-1-06	30 Day	
Tape	assortment	3	4-1-06	30 Day	
(especially duct tape, masking tape, packing tape, etc.)					
Window screen.	2 Rolls	3	10-1-06	90 Day	

Money

*\$1000. in cash and change (during times of disaster charge cards and checks will not be honored**

**Money is always hard to tuck away and pretend it isn't there, but in this instance, it is a necessity. One can't assume to put expenditures on credit cards during a crisis. Think about it. Whenever you make a purchase, it is always verified by a telephoned authorization number. If phone lines are down and these numbers are not obtainable, chances are your purchase won't be allowed.*

Item	Quantity Required	Purchase Priority	Purchase by Date	Planned Duration
Cash	\$1000/person	1	4-1-06	30 Day
Gold	100oz/person	1	10-1-06	1 Year
Silver	100oz/person	1	7-1-06	90 Day

Personal Toiletries

Solar showers use the sun to heat water for bathing. Lime is used to keep down odors from human waste. Quantities are not given for feminine or baby needs because I am not familiar with them.

Item	Quantity Required	Purchase Priority	Purchase by Date	Planned Duration
Baby wipes	1 box	3	4-1-06	30 Day
Bar soap	100	3	4-1-06	30 Day
Barber scissors	2 pair	3	4-1-06	30 Day
Birth Control	3 boxes	3	7-1-06	90 Day
Brushes	3/person	3	4-1-06	30 Day
Camping Potty	1	2	4-1-06	30 Day
Chapstick	24	3	4-1-06	30 Day
Combs	3/person	3	4-1-06	30 Day
Contact cleaning supplies	1 set	3	last minute	30 Day
Cotton swabs	4 (500)	3	4-1-06	30 Day
Dental floss	12	3	4-1-06	30 Day
Deodorant (men's)	12	3	4-1-06	30 Day
Deodorant (women's)	12	3	4-1-06	30 Day
Fingernail clippers	1/person	3	4-1-06	30 Day
Fingernail file metal	1/person	3	4-1-06	30 Day
Fluoride Rinse	2 bottles	3	7-1-06	90 Day
Glasses	2 pair	2	7-1-06	90 Day
Insect Repellent	4 cans	3	7-1-06	90 Day
Kleenex	50 boxes	3	4-1-06	30 Day
Lime	100 lbs.	3	7-1-06	90 Day
Liquid Hair Shampoo (Adult)	2 bottles	3	4-1-06	30 Day
Liquid Hair Shampoo (Child)	2 bottles	3	4-1-06	30 Day
Liquid Hand Soap (antibacterial)	5 bottles	3	4-1-06	30 Day
Lotion	12	3	4-1-06	30 Day
Mouthwash	2 bottles	3	7-1-06	90 Day
Panty Liners	1 box	3	4-1-06	30 Day
Razor blades (men's)	30	3	4-1-06	30 Day
Razor blades (women's)	30	3	4-1-06	30 Day
Sanitary Pads	1 box	3	4-1-06	30 Day
Shampoo	24	3	4-1-06	30 Day
Shaving Cream	2 cans	3	4-1-06	30 Day
Solar Shower	2	1	7-1-06	90 Day
Sunglasses	2/person	3	4-1-06	30 Day
Tampons	1 box	3	4-1-06	30 Day
Toenail clippers	3	3	4-1-06	30 Day
Toilet paper	100 rolls	3	4-1-06	30 Day
Toothbrushes	2	3	4-1-06	30 Day

Toothpaste	5 tubes	3	4-1-06	30 Day
Towellettes, Pre-moistened	2 boxes	3	4-1-06	30 Day
Towels	15	3	4-1-06	30 Day
Tweezers, pointed	2	3	4-1-06	30 Day
Wash Cloths & Towel	4/person	3	4-1-06	30 Day

Security Supplies

Common Caliber Ammunition. I've always felt that common caliber ammunition is the best all-around barter item. Top choices are: .22 long rifle, .223 Remington (5.56 mm NATO), .308 Winchester (7.62 mm NATO), .30-06, 12 gauge (2-3/4 inch #4 Buckshot), .45 ACP, and 9mm Parabellum

Item	Quantity Required	Purchase Priority	Purchase by Date	Planned Duration
.22 shells	1000	2	7-1-06	90 Day
Gun safe	1	1	4-1-06	30 Day
Guns/Ammo	Assortment	1	4-1-06	30 Day
military rifle bore cleaner	10 1 oz. bottles	2	7-1-06	90 Day
Ammo reloader	1	2	10-1-06	1 Year
Ammo Cans	5	2	4-1-06	30 Day
Gun accessories	1 set/weapon	2	4-1-06	30 Day
Gun cleaning equipment	1 set/weapon	2	4-1-06	30 day
Military web gear	2/person	2	4-1-06	30 Day
<i>(lots of folks may *suddenly* need pistol belts, magazine pouches, et cetera.)</i>				
Perimeter alarm of some sort	1 set	2	4-1-06	30 Day
Solar powered perimeter Lights	5	3	4-1-06	30 day
Waterproof duffbags ("dry bags")	1/person	2	4-1-06	30 Day

Tools

The generator is for emergencies and occasional use like pumping water from a well. I do not think it is feasible to store enough fuel to run a generator full time to maintain our current lifestyle. A cant hook is a tool for rolling logs so that you can move them in to position to cut them for firewood. This assumes a source of timber to be cut for firewood. A list of hand tools could be as long as the rest of the list. At a minimum it should include pliers, wrenches, screwdrivers, and a hammer. The funnels are for transferring fuel and other liquids from bulk storage containers to daily use containers. A come-a-long is a portable cable winch. It could be used for moving heavy objects like dead cars or fallen trees.

Item	Quantity Required	Purchase Priority	Purchase by Date	Planned Duration
1 gallon gas can for mixed gas	1	3	4-1-06	30 Day
10" Wire Cutters	1	3	4-1-06	30 Day
2 cycle oil	6	3	7-1-06	90 Day
24" or 30" Bolt Cutters	1	2	7-1-06	90 Day
Axe	1	3	4-1-06	30 Day
Bar oil	1	3	7-1-06	90 Day
Blades	Assortment	3	4-1-06	30 Day
Bow saw	2	3	4-1-06	30 Day
Bow saw blades	2	3	4-1-06	30 Day
Bungee Straps (variety of lengths)	6	3	4-1-06	30 Day
Bush or Tree Saw	1	3	7-1-06	90 Day
Caulking gun	1	3	4-1-06	30 Day
Chain	1	3	4-1-99	30 Day
Chainsaw	1	3	7-1-06	90 Day
Chainsaw extra chain	2	3	7-1-06	90 Day
Chimney cleaning brush	1	3	10-1-06	1 year
Chisel/Wedge	1	3	4-1-06	30 Day
CO Detector, battery powered	2	3	4-1-06	30 Day

Come-a-long	1	3	4-1-06	30 Day	
Crowbar	1	3	4-1-06	30 day	
Drill, Hand-operated	1	3	4-1-06	30 day	
Dust Mask	1box	3	4-1-06	30 day	
Duct/100 MPH Tape	1 box	3	7-1-06	90 Day	
Extra air filter	2	3	7-1-06	90 Day	
Extra spark plug	2	3	7-1-06	90 Day	
Funnels	Assortment	3	4-1-06	30 Day	
Garden fork	2	3	7-1-06	90 Day	
Generator	1	1	4-1-06	30 Day	
Hacksaw	1	3	4-1-06	30 day	
Hammer	1	3	4-1-06	30 Day	
Hand tools	Assortment	3	4-1-06	30 Day	
Hatchet	1	3	4-1-06	30 Day	
Ladder	1	3	4-1-06	30 Day	
Maul	1	3	4-1-06	30 Day	
Oil for generator	12 qt	3	4-1-06	30 Day	
Paint brushes	2	3	10-1-06	1 year	
Pick	1	3	4-1-06	30 Day	
Pins	1 box	3	4-1-06	30 day	
Pliers, needle nose	1	3	4-1-06	30 day	
Pliers, regular	1	3	4-1-06	30 day	
Post Hole Digger, auger type	1	3	4-1-06	30 day	
Rope, Nylon	100 feet	3	4-1-06	30 day	
Saw horses	2	3	4-1-06	30 day	
Scissors	2	3	4-1-06	30 day	
Screwdriver, Flat Head	2	3	4-1-06	30 day	
Screwdriver, Phillips	2	3	4-1-06	30 day	
Sharpening files	1	3	4-1-06	30 Day	
Sharpening instruments	1 set	3	7-1-06	90 day	
Sharpening stone	Assortment	3	4-1-06	30 Day	
Shovel, round	2	3	4-1-06	30 Day	
Shovel, sharpshooter	2	3	4-1-06	30 Day	
Shovel, Snow	1	3	4-1-06	30 Day	
Shovel, square	2	3	4-1-06	30 Day	
Sledgehammer	1	3	4-1-06	30 Day	
Smoke Detector, battery powered	2	3	4-1-06	30 day	
Staple Gun and Staples	1	3	4-1-06	30 day	
Swiss Army Knife	1/person	3	4-1-06	30 day	
Tin snips	1	3	4-1-06	30 day	
Tow Chain/Straps	1	3	4-1-06	30 day	
Twine or Heavy String	100feet	3	4-1-06	30 day	
Two man tree saw	1	3	10-1-06	1 year	
Vice Grips	1	3	4-1-06	30 day	
Wedge	1	3	4-1-06	30 Day	
welding outfit	1	3	7-1-06	90 Day	
Wench and Cable (come along)	1	3	7-1-06	90 day	
Wire Cutters	1	3	4-1-06	30 day	
Wood Saw	2	3	7-1-06	90 day	
Wood Screws	Assorted	3	4-1-06	30 day	
Wrenches	Assorted	3	4-1-06	30 day	

Transportation

Vehicle maintenance shouldn't be a problem in the short run or the long run if fuel supplies dry up. A "mid-length" crisis could call for some basic maintenance though. Bicycles should come in hand for short trips and to avoid drawing attention to yourself when most people are walking. An old rebuilt car. No electronic ignition.

Item	Quantity Required	Purchase Priority	Purchase by Date	Planned Duration
12 volt air compressor	1	3	4-1-06	30 Day
Antifreeze	2 gals	3	4-1-06	30 Day
Bicycle	1/person	3	4-1-06	30 Day
Bicycle chain repair kit	1/bike	3	4-1-06	30 Day
bicycle tire repair kit	1/bike	3	4-1-06	30 Day
Bicycle tube hand air pump	1/bike	3	4-1-06	30 day
Fan belts	1set/auto	3	7-1-06	90 Day
Fuses	1 set	3	4-1-06	30 Day
Handlebar Basket	1/bike	3	4-1-06	30 Day
Hi-Lift Jack	1	3	4-1-06	30 Day
Hoses	1set/auto	3	7-1-06	90 Day
Jacks and stands	1 set	3	4-1-06	30 day
Jumper Cables	1	3	4-1-06	30 Day
Manuals	1 set/auto	3	7-1-06	90 day
Oil filter	4	3	7-1-06	90 Day
Oil	24 quarts	3	7-1-06	90 Day
Ramps	1 set	3	7-1-06	90 day
Snow Chains	1set/auto	3	4-1-06	30 day
Spare bicycle tires	2/bike	3	4-1-06	30 Day
Spare bicycle tubes	2/bike	3	4-1-06	30 day
Spare replacement parts for the car	1 set	3	4-1-06	30 day
Tire pressure gauge	1	3	4-1-06	30 day
Tires and blocks	1/auto	3	4-1-06	30 day
Tire sealer/inflator (can)	2/auto	3	4-1-06	30 Day
Tire wrench	1/auto	3	4-1-06	30 Day
Tools that your particular car needs	1 set	2	4-1-06	30 day
Torx screwdrivers	1 set	3	4-1-06	30 Day
Tow chain	1	3	4-1-06	30 Day
Tow strap	1	3	4-1-06	30 Day
Tube repair kits	1/bike	3	4-1-06	30 Day

Water

55 gallon water drums	2/person	2	4-1-06	30 day
Bleach - 1 gallon (5.25%)	1	3	4-1-06	30 day
Bung Wrench				
Hand pumps for drum	2	2	4-1-06	30 day
Pool tarp - 11 x 16 ft.	1	3	4-1-06	30 day
Pool water testing kit	1	3	4-1-06	30 day
Water bag (collapsible) - 5 gallon	1	3	4-1-06	30 day
Water can - 5 gallon	2	3	4-1-06	30 day
Water chlorinating granules (pool)	1 box	3	7-1-06	30 day
Water Distiller	1	3	10-1-06	90 day
Water filter	1	1	4-1-06	30 Day
Water filter, replacement cartridge	1	1	4-1-06	30 Day
Water funnels	2	3	4-1-06	30 day
Water jug bottles, 2qt	2/person	2	4-1-06	30 Day
Water pump	1	1	7-1-06	90 Day

Space Cramp???

(er.. cramped space... where to hide all that Food Storage!)

by Kim Hicken

Storage space got you down? Do you feel as though you are tripping over your food storage? Never fear - there is a light at the end of the storage tunnel! Storage space seems to be a never ending problem these days. Many new homes are built with terrific vaulted ceilings, great views, and NO storage space!!! Older homes can also have a shortage of space.

With a little creative thinking, and some planning, Saints can have space to store the important things in your life.

The first thing that must be done, (and this is the very hardest part) is that you must de-junk your home. Saints are all pack-rats to a certain extent. At a speech regarding the de-junking of our homes, the presenter asked how many people present had a watch at home that did not work. Every single person in the room held up his hand. Do YOU have one of these treasures in your home? (Be honest, now!) We all have things in our homes that were once priceless treasures, but have now become a nuisance. Get rid of them! There are probably a million suggestions of ways to de-junk. Choose one that fits with your life style. A book that can help you with this is **Clutter's Last Stand: It's time to de-Junk Your Life by Don Aslett**. Check your local library for this, and other books on this subject.

Once you have gotten rid of some of the non-essentials, you must become creative.

Stand in each room of your home and take a good look around.

- Is there storage space that is currently not being utilized?
- Is there space that is being used inefficiently?
- Are there shelves that could be built taller?
- Are there shelves that are deep that are only filled partially?
- Making efficient use of the storage space you already have may net you enough new space to store quite a bit.
- There are a lot of nice, new plastic storage containers on the market that may help you store things more easily, and stack them a bit deeper. Sturdy cardboard boxes can also help. Grocery stores will generally give you fruit boxes if you ask.

One Saint who is raising four children in a very small turn-of-the-century stone house has come up with some very creative storage space. She built her own couches

using a basic toy-box type design. She purchased thick foam rubber, and made cushions to go on top of the boxes. Then she made coordinating pillows to add more comfort to the couch. The hollow bottoms have given her lots of extra space.

When she moved into the home, the cupboards had space above them. She modified them so that now her kitchen cupboards go all the way to the ceiling. No space has been wasted. She completely utilizes the space under her stairs. An upstairs bedroom built into the attic space still has some space (under the eaves) that she utilizes for additional storage.

Since she does not care for crawling around in dark places, she built small doors into the wall approximately every four feet. When she needs to put something in the space or take something out, she simply reaches in the closest door.

She does not like to move things to vacuum, so she puts many shelves on the walls, and up off the floor. By building shelves in this manner, she has moved miscellaneous family items out of prime food-storage space, allowing her to store more food. In many cases, our best food-storage space is full of things that could be stored elsewhere.

Another Saint who has six children in a modular home has learned to be creative with her space as well. She stood in her rooms and looked around, and before long, she discovered that there was a hollow space between two walls. This was not a huge space, but it was enough to provide her some more storage space. She took the paneling off that portion of the wall, and put a cupboard door on. Cupboard doors are not expensive, nor are they difficult to install. Now she has a storage closet where non existed originally.

The floor in a small bedroom has a trap door in it that allows her to actually go under her home. There she has found a lot of great space to store things that need to be kept cool. Even in the heat of summer, this space is cool. She uses it to store potatoes, and foods that are in air-tight containers. She has buckets of honey, buckets of wheat, and buckets of beans under this room.

One good trick is to use garbage cans as bedside

tables. This is done by purchasing regular garbage cans at a discount store. New ones are recommended because they have no odd smells or dirt attached! One sheet of plywood is then used to cut two circles four to five inches bigger in diameter than the top of the can. The lids to the garbage cans are not used. Let the kids use them as shields when they play. Place the plywood circles over the top of the garbage cans, and then cover your new bedside tables with nice round covers (called "table rounds") that coordinate with your bedspread. Nobody will know that your lovely bedside tables are actually garbage cans! This provides wonderful food storage space for some of the items that need to be stored in bulk, such as beans or wheat.

Don't forget the space under your beds! There are lots of food items that can be stored in the small spaces under your beds. Salt, peanut butter, cans of potato flakes, canned vegetables, and cans of shortening can all be stored easily under the beds. They are also easily accessible.

Take a look at your closets. Is there room on the floor of the closet? There are many commercial closet storage systems on the market that can help you more efficiently use your space. But you can also build your own for less expense. Five gallon buckets can be stored on the floor of the closet, and a board put across the top of them to make a handy shelf for shoes and boots. Does the space in the top of the closet go all the way to the ceiling? Five gallon buckets could be stored up there as well, but it is not recommended to store heavy things in them. This may be a good place to store tissue, paper towels, or toilet paper. If you buy your laundry detergent in big buckets, these make terrific storage containers for such items.

One Saint who struggled with a tiny dining area solved two problems with one solution. She built her own benches with hollow bottoms (the toy box design again). She put colorful cushions on top, and then used her own dining room table. Benches generally seat more people than traditional chairs. Now her entire family can fit in her small dining area, and she has extra storage space as well.

Don't let storage problems scare you! You are smarter than the things you own! A little creativity

and elbow grease can go a long way toward providing more storage space in your home. Now roll up those sleeves and take a good look at YOUR home!

Here are a few more ideas sent by Food Storage Editor, Andrea Chapman:

"I have some ideas for storing in small places. One idea is a little radical, but my husband and I did it and it worked well. We **took apart our bed frame** and used buckets, about 12-16 to hold up our bed. It was a little higher than before, but it looked fine.

I have a friend who used the **#10 cans in boxes** that the fit in 6 at a time. She stacked those and used that under the bed. Also, you can stack those three high and put a table cloth over it for a nice little table in the Living Room or Family room. I have also put food storage in the boys room, in their closet on the floor. Not many little kids use all their closet space."

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Emergency Sanitation

Care and Use of Water Supplies

If you are asked to shut off the service valve that controls the water supply to your home, or if the taps do not flow following a disaster, turn off all the water outlets. These include taps or faucets, valves on pipes supplying float-controlled equipment such as flush toilets, air cooling equipment, and heating equipment. Then when the water comes on again your home will not be flooded as these flotation devices sometimes stick after they have been allowed to dry out.

Turn off the gas or electricity that supplies your hot-water heater after closing your home water service valve, or when your water supply is interrupted for any other reason. Otherwise, if the limited supply of water remaining in your hot-water storage tank continues to be heated, an explosion may occur. Also, if no more water can reach the tank, continued heat will soon muddy its contents through oxidation and make the water useless for washing or drinking purposes.

If your water service is cut off following enemy attack or other natural disaster, do not try to telephone or otherwise communicate with your local water department or water company. Once service is restored, the water from your faucets may have a strong chlorine taste. Do not worry about this. It is a sign that extra precautions are being taken for your safety.

It is especially important to be sanitary in the storing, handling, and eating of food to avoid digestive upsets or other more serious illnesses.

Be sure to:

- Keep all food in covered containers.
- Keep cooking and eating utensils clean. Diarrhea may result from dish soap that is not thoroughly rinsed from dishes.
- Keep all garbage in a closed container or dispose of it outside the home when it is safe to go out. If possible, bury it. Avoid letting garbage or trash accumulate inside the shelter, both for fire and sanitation reasons.
- Wash hands and utensils frequently.
- Prepare only as much food as will be eaten at each meal.
- Paper cups and plates, paper towels and napkins are helpful if the water supply is cut off.
- Refrigerators and home freezer units should be kept closed as much as possible once the services they depend on are cut off. The food they contain will keep longer if you plan your meals well in advance so that you

won't have to open the doors any more than necessary. If the gas or electric service is not restored within 12 hours, eat or cook the most perishable items in your refrigerator before they spoil. If foods show signs of decomposition, discard them before they contaminate other foods that keep better.

- Food will keep in home freezer units after they are shut off for varying periods depending on the amount and kind of food, the temperature at which it was kept, and the construction of the freezer. Frozen meats and other frozen foods can be preserved for later use by cooking them soon after they have thawed or by quick refreezing before they have completely thawed.

Official instructions regarding food will be issued locally in the event of an emergency. These instructions will tell you the type of disaster and its effect upon milk and other foods. Follow official instructions closely. Don't listen to rumors, and don't pass them on to others.

Laundry and Cleaning Supplies

During times of emergency it is critical that sanitation be strictly observed in the cleaning of clothing, bedding materials, and all kitchen and food preparation utensils. A book entitled *Housecleaning on a Shoestring* is available by writing to the Cooperative Extension Service, Utah State University, Logan, UT 84321. It contains useful recipes to make housecleaning products out of basic ingredients found in the home.

EMERGENCY TOILETS & GARBAGE DISPOSAL

What will you do if your toilet stops flushing and you can't get anyone to take your garbage away? If an emergency causes your toilets or garbage service to stop working you **MUST** find a way to safely dispose of the human waste (sewage) and garbage yourself. **If you don't, you will soon be spending most of your time and energy treating sick people, including yourself.**

The three most important things to do are:

1. Bury or store all garbage and human waste at least 100 feet away from water wells or open water.
2. Keep flies, roaches and animals out of the sewage and garbage;
3. Wash or clean your hands whenever you handle something dirty and **BEFORE** you handle anything that you will be putting into your mouth or someone else's mouth.

TOILETS #1 - If the toilet bowl and seat in your home are still usable (not wrecked) scrub the bowl clean using one part of laundry bleach to ten parts of water (10:1). When clean, drain the bowl and dry it. Line the bowl with a plastic or paper bag. Line the inside of the first bag with a sturdy plastic bag and lay the toilet seat on it to keep it open. Use the toilet as you normally do. After every use, sprinkle the waste with the bleach/water solution mentioned above or cover it with a layer of sawdust, wood shavings, lime, dry dirt, grass clippings, etc. Limiting the liquids that go into the bowl will make it easier to change the bags. When the bag is full or you can't stand the smell anymore, carefully tie the top of the bag tightly closed, remove it and replace with another bag. Dispose of the waste using the instructions below. Other chemicals that can be used in place of liquid chlorine bleach are: HTH (calcium hypochlorite), which is available at swimming pool supply stores and is intended to be used in solution. Following the directions on the package it can be mixed and stored.

Caution: Do not use calcium hypochlorite to disinfect drinking water as it kills all the beneficial bacteria in the intestinal tract and thus causes mild diarrhea. Portable toilet chemicals, both liquid and dry, are available at recreational vehicle (RV) supply stores. These chemicals are designed especially for toilets which are not connected to sewer lines. Use according to package directions. Powdered, chlorinated lime is available at building supply stores. It can be used dry. Be sure to get chlorinated lime, not quick lime which is highly alkaline and corrosive. **Caution:** Chlorinated products which are intended to be mixed with water for use can be dangerous if used dry. You may also use powdered laundry detergent, Lysol, Pinesol, ammonia, or other household cleaning and disinfecting products

#2 - If your toilet bowl is not usable, use a five gallon bucket, wooden box or some other container sturdy enough to sit on. Sit the seat from your toilet on the bucket or make one from layers of heavy cardboard glued together, two boards laid across the top with a gap between them or cut a seat from plywood. Line with bags as outlined in #1 above. Dispose of the full bags using the instructions below.

#3 - If the emergency will only last for a day or two, you can use "cat holes" outside. These are small, onetime personal use holes you dig in the ground and squat over. The hole should be deep enough to cover your waste **at least six inches deep** when filled. Do not do this any closer than **100 feet** from open water or water wells or the germs in the sewage will get into the water.

#4 - If the emergency will last more than a week and your toilet or bucket commode no longer will do the job you need to make a latrine. Use a shovel or post-hole diggers to dig a pit four to six feet deep and about one foot wide. Place a bucket, box, barrel or anything with a hole in it that you can sit on over the pit. Whatever you use **must** cover the pit tightly so that flies cannot get in while no one is using it. The seat and box must be cleaned regularly with the bleach water solution mentioned above and kept tightly covered when not in use. When the pit fills to within eighteen inches of the top, fill the hole in with clean dirt and mound it over. Cover the mound to keep animals from digging it up.

DISPOSING OF WASTES: All wastes must be buried **no closer than 100 feet** from the nearest open water or water well or the germs will get into the water. Buried wastes must be covered with at least eighteen inches of dirt and protected from animals digging it up.

GARBAGE is trash that has food or anything else in it that would make attract insects, rats and other animals. It should not be allowed to accumulate where these pests can get into it. If garbage service is expected to resume in a few days then dry garbage should be tightly sealed in bags or kept in tightly covered garbage cans. Liquid wastes that don't have a lot of fat in them can be poured out outside if kept **more than 100 feet** away from open bodies of water and water wells. Liquids that do have a lot of fat should be buried to prevent attracting flies and roaches.

If garbage service is out for more several weeks and you are unable to store it, then it should be buried. Garbage should be buried **no closer than 100 feet** from open water or water wells. Crush containers to make them smaller. Garbage must be covered by at least eighteen inches of dirt. If burial is not possible then it will have to be burned. To burn garbage you must use a metal barrel with holes in the bottom and a grate or screen over the top to act as a spark arrester to prevent wildfires. Only dry garbage should be burned. Wet garbage should be buried.

If you have a baby in your home, it is best to keep an ample supply of disposable diapers on hand for emergency use. If these are not available, emergency diaper needs can be met by lining rubber pants with cleansing tissue, toilet paper, scraps of cloth, or other absorbent materials. To help insure proper sanitation it is imperative that you store a sufficient supply of disposable diapers, disposable wipes, and plastic garbage can liners. Change infants and toddlers regularly and keep them clean. Dispose of the soiled diapers in the plastic garbage can liners and keep them tightly sealed when not in use to help prevent the spread of disease. Be sure to wash your own hands regularly when working with infants (especially after each diaper change). Typhoid fever, amoebic dysentery, diarrhea, infectious hepatitis, salmonella and giardiasis are diseases that spread rapidly in times of emergency and threaten all, yet are all diseases that can easily be controlled by simply following the rules of good sanitation.

Disposal of Garbage and Rubbish

Garbage may sour or decompose, rubbish (trash) will not, but offers disposal problems in an emergency. The following suggestions will make it easier for you to take care of the refuse problem.

Garbage should be drained before being placed in storage containers. If liquids are strained away, garbage may be stored for a longer period of time without developing an unpleasant odor. After straining, wrap the garbage in several thicknesses of old newspapers before putting it into your container. This will absorb any remaining moisture. A tight-fitting lid is important to keep out flies and other insects. Final disposal of all stored garbage and refuse can be accomplished in the following manner, provided there is no danger from radioactive fallout:

1. All stored garbage should be buried if collection service is not restored and if unpaved yard areas are available—keep a shovel handy for this purpose. Dig a hole deep enough to cover it with at least 18-24 inches of dirt, which will prevent insect breeding and discourage animals from digging it up.
2. Other rubbish may be burned in open yard areas (if permission is granted by authorities under existing conditions) or left at dumps established by local authorities. Can should be flattened to reduce their bulk. Do not deposit ashes or rubbish in streets or alley ways without permission. Such material may interfere with the movement and operation of fire-fighting and other emergency equipment.

Generators

Generator Basics

Generators are shaft-driven machines that produce electric power. Broadly speaking, they range in size and capacity from the tiny devices used as sensors to the extremely large machines used at commercial power plants. The term "alternator" is also used and means essentially the same thing. The term "generator set" or "genset" is sometimes used to describe a generator along with a gasoline or diesel engine or other power source.

This article covers the use of generators to provide standby power in an emergency for a single family or small group.

Generators are rated in terms of the amount of power they can produce. This is measured in Watts (W) or Kilowatts (kW). A Kilowatt is equal to 1,000 Watts. Some household items list their power requirement in Watts, such as light bulbs and small appliances. Others only list Amperes (abbreviated A or Amps). Most household electrical loads (including all cord-connected appliances that plug into a standard outlet) run on 120 Volts, and since Watts = Amps X Volts, you can determine Watts by multiplying the amp requirement by 120. Large heating and cooling appliances, and well pumps, sometimes use 240 Volts. This can be determined from the nameplate. For these loads, wattage is determined by multiplying amps by 240.

Generator Types

Commercially available generators useful for small-scale standby power fall into these categories:

Type	Wattage	Price Range
Small portable units marketed primarily for camping	Generally less than 2 kW	\$400-\$600
Midsized portable units	3-5 kW.	\$400-\$2,000
Large trailer-mount units without engines, driven by a tractor PTO	5-60 kW	\$2,000-\$5,000
Large trailer-mount units designed for construction or industrial use	10 kW or more..	
Large standby units designed for permanent installation.	5-40 kW or more	\$4,000-\$12,000

Costs vary depending on ruggedness, reliability, and features.

The more expensive units typically include features like:

- Better quality engines, with pressure lubrication, cast iron cylinder blocks (or cast iron sleeves), oil filters, and electronic ignition. The primary benefit of these is longevity, although the better engines may be somewhat more reliable.
- Larger fuel tank for long, unattended runs.
- Low oil shutdown to prevent engine damage
- Electric start
- Built in battery charger for 12V car batteries
- Quieter design, achieved through better mufflers, soundproofing, and lower operating RPM
- Ground fault circuit interrupters (GFCI) for safety
- Wheels. Even the smaller generators are heavy.

There are a wide variety of brands available. All of them work, and most are adequate for occasional standby use.

The generators that are driven by a farm tractor are a good buy if you already own one or more farm tractors. Unlike car and truck mount generators, tractor-driven ones produce ample power. Tractors

are better suited to continuous, stationary operation than cars and trucks.

Generator Uses

Generators can be useful in a long-duration power outage by providing power to run essential equipment, such as refrigerators, freezers, lighting, water pumps, sump pumps, and furnaces. They are also useful for providing power where it is inconvenient, costly, or impossible to bring commercially produced power.

Sizing

Determining the exact size generator required for a household involves adding up the wattage required by each load, including the starting power required by the largest motor and any others that will be started at the same time. It is difficult to get accurate results since starting current requirements often vary and because nameplate ratings sometimes overstate the power required.

If a generator is too small for its load, the voltage will drop. This can cause damage to the generator, the load, or both. Circuit breakers and thermal protectors may trip and prevent damage, but cannot be relied upon. Do not connect loads to the generator that are too large for its capacity.

If you only want to run a few critical items, you can use this chart as a guide:

Generator size	Loads typically supported
1000W or less	Lights, radio, battery chargers, clocks, fax, or computer
1500W	Above items, also small manual defrost freezer or refrigerator
3500W 240V	Same as 1500W, plus ½ H.P. well pump (if 240V)
3500W 120V	Most refrigerators and freezers, clothes washer, gas clothes dryer, sump pump, ½ H.P. furnace blower,
5000W 240V	½ H.P. well pump (if 120V), nearly any plug-connected appliance with a standard 120V plug
15,000W 240V	Same as 3500W, plus most well pumps up to 2 H.P.
	Will run all the loads in most households including electric water heaters, dryers, well pumps, and ranges; will run many central air conditioning units. Electric heat systems need to be considered case by case as many larger systems use more power than even a big generator like this produces.

Measuring the Load

Sometimes it helps to measure the amount of power a particular piece of equipment (or an entire household) uses. This may be the only way to determine power requirements accurately if there is no nameplate listing the power required. Clamp-on ammeters are available at most building supply stores for about \$50-\$100 that will measure the number of amps flowing through a wire. They usually include an attachment that you can use for cord-and-plug connected devices.

More sophisticated ammeters that measure starting current are available but are costly (\$400) and require some expertise to use.

Electrical Hookup

There are three ways to hook up generators:

- n Plug in loads directly, using extension cords if necessary.
- n Transfer switch
- n Suicide wiring

Plugging in loads to the generator's outlets directly is the simplest and works OK when only a few small loads are used. This method is used in remote areas and for construction, where no electric wiring is

present. It also works in standby situations for running a handful of things, say, a freezer, refrigerator, sump pump, and a couple lights. Generators must be operated outdoors unless specifically designed for indoor operation. Those designed for indoor use have an exhaust system that vents outside. Since the generator is usually outside and the load is inside, extension cords are needed. Be sure they're big enough. Most of the orange extension cords sold use 16 gauge wire and are rated for 13 amps. These are fine for a couple of small appliances but create a fire hazard when used for heavier loads.

Transfer switches

Transfer switches allow you to connect a load to either the generator or the commercial power source simply by flipping a switch. They are the only reasonable and safe alternative for running an entire house from a generator. They are also the only way to run equipment that can't be unplugged, such as furnace blowers, well pumps, and the like. Different configurations are available that allow switching of all or part of a household's electrical circuits. They are expensive and must be installed by an electrician or other qualified person. Some examples:

Transfer switches that have 4-6 different handles, each of which switches a single circuit, are available for around \$200 from many retailers that sell generators. They wire into the house's breaker or fuse panel. You only hook up the circuits that you will need in an emergency, which reduces the cost, and you can switch them one at a time so all the motors don't start at once. Some designs include an ammeter so you can see how much power you're using.

Some designs, including one from Square D that I have seen, use circuit breakers to perform the switching and have an interlock so you can only turn on one circuit breaker – either the generator breaker or the commercial power breaker. I have seen the se for as little as \$60 plus the cost of the circuit breakers. Again you only hook up the circuits that you think you will need in an emergency. These panels hook up to your main breaker panel as a sub-panel.

Large transfer switches switch the power to a house or group of buildings and are wired between the meter socket and breaker (or fuse) panel. These cost \$300-\$600 depending on capacity. They are costly to install as well.

Automatic transfer switches will start the generator and switch the load to it without intervention. Some standby systems have these built in. One catalog I have lists a 200A model as costing almost \$2,000. Telephone companies, hospitals, radio and TV stations, and the like use larger versions of these.

Transfer switches are wired with a large, flexible cord and plug for use with portable generators. The cord and plug are not normally included with the transfer switch and must be purchased separately. Welding supply companies are a good, inexpensive source for the heavy gauge wire required.

If you plan to connect the generator to building wiring, consider the transfer switch part of the cost of the generator.

Suicide wiring

Any method of connecting a generator to a building's electrical system, other than by using a transfer switch, falls under the category of suicide wiring.

You can be killed. And you can kill an electric lineman if you fail to isolate your generator from the power company's lines, by causing electricity to back-feed into the commercial power system. You can also burn up your generator or your house. It is also against the law in many jurisdictions.

Plan ahead. Buy a transfer switch. Get it installed. Don't use suicide wiring.

Safety

Here's some basic advice on generator safety. Read the instructions for your generator or check with a dealer or licensed electrician for authoritative safety rules.

1. Follow the safety instructions that come with the generator.
2. Keep the generator outside so you don't breathe carbon monoxide and die. Protected locations, such as a garage with the garage door open, are helpful if the weather is bad.

3. Follow whatever grounding instructions come with the generator. Generators should be grounded but the recommendations for how this is done vary depending on manufacturer.
4. You can get a bad shock by touching a wet power cord or plug while the generator is running. Shut off the engine before fiddling with the power connections if it is wet out.
5. Don't refuel a hot engine. If you refuel at night, use a source of light that won't ignite the gas. The cyalume sticks work well for this.
6. Don't overload extension cords.
7. Use a transfer switch.
8. Store gasoline outside, in a safe container.

More accidents happen during power outages than occur when power is available, particularly fires. Here are some general tips for safety during power outages:

1. Don't leave candles or oil or gasoline lanterns burning unattended.
2. Realize that smoke and carbon monoxide detectors will not work without power.
3. Have fire extinguishers at hand.
4. Have some water drawn up in buckets or pans to use in case the water supply fails.

Fuels and Fuel Storage

Most portable generators run on gasoline. But gasoline is a poor choice for standby use, because it is unsafe to store in residential areas and is prone to deterioration when stored for any length of time.

Gasoline is extremely flammable and should not be stored in any quantity in a house or garage. There is no safe way to store gasoline in a building. Building and zoning codes, and insurance requirements, vary; some municipalities prohibit permanently installed gasoline tanks and limit the size of portable ones.. In the author's area gasoline suppliers recommend that bulk storage tanks be at least 10' away from garages and other buildings. Some of the author's acquaintances store gasoline in 5 gallon cans in a little building not much larger than a doghouse, that is used for nothing else and is a long way from all the other buildings.

Gasoline can be stored in full, sealed containers for 1-2 years or more without deterioration, provided that high temperatures are avoided. Air, water, and

heat all contribute to deterioration.

The author uses a commercial fuel preserving additive in the gas tank for his generator, but there is no consensus on misc. survivalism that such additives materially improve the storage life of gasoline.

Some, mostly larger, generators are available with diesel engines. These engines are, as a rule, noisier than gasoline engines and are more difficult to start in cold weather. For standby use, they may be worth having because of fuel storage considerations.

Diesel fuel and kerosene are much safer to store than gasoline. It is still common to store fuel oil, which has similar properties, indoors in houses in quantities up to 250 gallons. Again, building and zoning codes and insurance rules may limit the amount or method of storage. These products should not be stored in red cans because of the potential for confusion with gasoline. These fuels can be stored 2-3 years before they deteriorate. Midsize and larger generators designed for permanent installation and standby use are available for use with LP gas or natural gas. The engines are like gasoline engines in most respects but replace the carburetor with a mixing system designed for LP or natural gas. LP gas standby generators are widely used in industrial/commercial settings. The chief benefit is that LP gas can be stored indefinitely without deterioration.

LP gas conversion kits are available for many small generators.

Readiness

There are no statistics available, but anecdotal evidence suggests that generators frequently fail to start when they are needed, even in industrial settings where regular maintenance and testing is performed. Electric start generators sometimes fail to start because the battery is dead. Batteries that are continuously trickle-charged may start the engine while being charged but fail when the charger is turned off, as in an actual emergency. Battery terminals also have a way of getting corroded. Stale gasoline can contribute to starting problems, especially in cold weather. Using

starting fluid will sometimes make up for this.

Spare parts and supplies should be kept on hand. At a minimum, some extra motor oil, suitable starting aids, air and oil filters (if used), and a spark plug should be available. You should periodically operate your generator, and hook up whatever loads you plan to use, to make sure that everything is ready if needed. Once a month is probably often enough to catch most problems.

How Practical Is a Generator?

The author has had to resort to using the generator during a couple of long-duration power outages. Severe weather can be extremely disruptive to power systems and the unlucky individuals whose own lines are knocked down in a storm end up at the end of the power company's list for repairs. Power losses can be costly if you stand to lose the contents of your freezer, or if cold weather and no heat threatens to freeze pipes.

On the other hand, unless you can afford a fully automatic, permanently installed system, you had better be able-bodied. It's work to pull out the generator and start it and hook it up even if you have a good setup.

Big generators are noisy. Everyone in the neighborhood will know that you're running one.

You may wish to consider running the generator during only part of a 24-hour period. Most refrigerators and freezers will maintain temperature if operated 50% of the time, depending on ambient temperature, condition of the door seal, and how often the door is opened.

Fuel availability is a thorny issue. Gas stations require electricity to be able to pump gas. The author is fortunate enough to live in a setting where it is possible to store ample quantities of fuel to run the generator for a week or more. Even the worst power outages are ordinarily corrected after a week, two at the most.

Those of you concerned about other TEOTWAWKI scenarios should consider other alternatives that do not rely on fuel availability.

Other Ways to Produce Electricity

Several companies sell inverters that produce 120V electricity using the power from a car or truck's battery and alternator. These are not suitable for most standby uses because the output power is too low. The largest car and truck alternators produce no more than 2000 watts, and this only at high engine speeds. The really big inverters – 2000W and over, capable of running a refrigerator – are expensive, big, heavy, and require heavy cabling to the battery. The logistics of operating a vehicle while stationary must also be considered: how do you secure the vehicle, potential for damage due to low oil or high temperature while unattended, potential for transmission bearing damage due to extended idling, poor fuel economy.

There are some belt-driven and PTO-driven generators for cars and trucks that have similar problems. In addition, most of these units must be operated at a specific speed. Unless the vehicle is equipped with an engine governor, this is difficult.

Uninterruptable power supplies (UPS) are designed primarily for use with computers and communications equipment. They generally are designed for short-duration outages, 15 minutes or less.

Solar, hydroelectric, and wind generators are a topic in their own right and are beyond the scope of this FAQ. Many products marketed for use with alternative power systems are also useful for standby use. It might make sense in some cases to have low-voltage DC wiring for lights that can be operated from batteries in an emergency.

Non-electric Alternatives

There are a number of low-tech techniques that can reduce your dependence on electricity. Some are effective by themselves, and others will reduce the size generator you need or the hours you need to run it.

Use something besides electricity for the primary source of heat. Although any modern central heating system requires some electricity to operate, you can run a natural gas, LP gas, or oil-fired furnace from a

generator of modest size. Electric heat systems can't be operated except by very large generators.

Replace electric appliances with gas. Houses that are served by a natural gas supplier rarely have gas outages and electric outages at the same time (except possibly in earthquake-prone areas). LP gas is stored in tanks and is independent of electrical and other utilities. A gas stove can be used without electricity if the burners are lit with a match. Most gas water heaters don't require electricity at all (except for horizontal exhaust and other power-vented units).

Have a wood stove or fireplace insert that is capable of heating your house. Have enough wood on hand to be able to use it in a power outage.

A wide variety of non-electric lighting is available. Aladdin lamps, which burn kerosene and produce a bright light, are practical and safer to use inside than gasoline lanterns. Lamps that operate on LP gas supplied through pipes are available. They mount permanently to a wall or ceiling, and are bright, safe, and cheap to operate. Inexpensive kerosene wick lamps are widely available and produce more light than candles.

LP gas and kerosene operated refrigerators and freezers are available. Some will also operate on electricity. Full-size units are expensive but no more so than a good generator installation. Smaller refrigerators, such as those used in RVs, are available too – though some require a 12V DC power source to operate the controls and ignition system even when running on LP gas.

By Steve Dunlop.

"TENT CITIES IN THE LAST DAYS?"

By Roger K. Young

*And they shall be gathered into the garner, that they are
not wasted.*

*Yea, they shall not be beaten down by the storm at the last
day; yea, neither shall they be harrowed up by the whirlwinds;
but when the storm cometh they shall be gathered together in
their place, that the storm cannot penetrate to them; yea,
neither shall they be driven with fierce winds whithersoever the
enemy listeth to carry them.*

*But behold, they are in the hands of the Lord of the harvest,
and they are his; and he will raise them up at the last day.*

*Blessed be the name of the our God; let us sing to his
praise, yea, let us give thanks to his holy name, for he doth
work righteousness forever.*

Alma 26: 5-8

FORWARD

As a young missionary in Chile in 1973, after a night of being able to preach the gospel to a large group of potential investigators, I was recording in my journal the wonderful opportunity and the spirit that had been present and was still present as I was writing. All of a sudden the veil grew thin and among other things I saw the formation of a tent city near St. George as the people were called to leave the Los Angeles area. I was given to understand several things concerning the event, which I dutifully recorded in my journal.

For many years afterward, every once in a while I puzzled over what I had seen and recorded, but for the most part it lay forgotten while the matters of life occupied my time. A few years ago, while I was beginning to give firesides and lectures concerning the events of the last days, a number of people began sharing with me their own personal dreams and visions. After a while I started hearing a few of the people describe in their visions & dreams almost exactly the same things that I had seen in my brief vision. I then began to research more into tent encampments or cities, particularly in the last days. This short book is the culmination of that research up to this point in time.

PURPOSE

This book is dedicated to the personal belief that in the very near future (within a few years perhaps) there will probably come a call from the Prophet of the Church (the First Presidency and the Quorum of the Twelve), through the proper priesthood channels, to the members of the Church to voluntarily gather to tent cities that will be primarily located in and around the Rocky Mountains. It will not be by commandment (as in "thou shalt"), but it will be an invitation to gather in a time of burgeoning adversity.

I believe that initially, such an invitation would come during a time of increasing widespread financial/depression like conditions, (increasing unemployment, loss of houses and personal property, scarcity of food) but before such conditions become "desperate" and will precede (perhaps by as much as a year or more) some sudden, catastrophic

events that happen in the United States.

Those few Church members who exercise much faith to walk into the “unknown” and heed such an invitation by the living prophet and the presiding quorums of the Church will avoid much, (but not all) of the ensuing prophesied disasters and destruction which will befall the American nation as a result of increasing wickedness.

I also believe that it will be a chance to further “perfect the saints” in preparing to live the law of consecration, because a larger portion of that law will be lived in these encampments than is currently being done. (In preparation of living the full law of consecration in the city of Zion.)

The hope is, that this book will help prepare and encourage members of the Church to be ready to heed such an invitation if and when it comes, so that perhaps instead of just a few responding, there might be many more who will brave their own doubts & fears, the “naysayers,” the derision, and the persecution (subtle and open from friends, family and fellow Church members) that will be inflicted upon them.

CHAPTER 1

HISTORICAL PATTERNS

The ways of the Lord are often repetitive. Given generally the same set of circumstance, the Lord will almost always respond in the same way. This is because He doesn't change and His methods of operation do not change either. In other words, the Master most often works according to a set pattern which is based upon principles that were established a long, long time ago. By reviewing history, we can begin to see and understand such patterns of the Master and the principles they are based upon.

All throughout recorded history there have been groups of people, some small and some large, that have been directed by the Lord to withdraw themselves from a larger wicked society in order to avoid suffering from impending catastrophic disasters. A partial list of such known groups looks like this:

GROUP

Enos
Enoch
Noah
Jaredites
Abraham First time...
Second time...
Third time...
Lot
Israel/Joseph
Moses
Lehi
Nephi
Mosiah I
Mulek
Alma I

CURRENT OR IMPENDING DISASTER

Wars and bloodshed, secret combinations
Increased wars and bloodshed, secret combinations
Destruction of all of the wicked
Wickedness
Wickedness in Ur, fled to save life
famine, moved from Haran
famines, moved to Egypt
Destruction of Sodom & Gomorah by fire from heaven
Terrible famines (moved to Egypt)
Slavery under Egyptians
Destruction of Jerusalem because of wickedness
Destruction at hand of wicked brothers
War & wickedness(prophesied by Jacob (Jacob 3:4)
Destruction of Jerusalem
Destruction at the hands of wicked king Noah
Slavery under the hands of Amulon/Lamanites
War with the Lamanites

Limhi/Gideon
Righteous of Amonihah
Church in Jerusalem 70 AD,

Complete destruction by the Lamanites in one day
complete destruction by the Romans

Of course, let us not forget how many times the members of the Church moved in the early days of

the restoration. It has been noted that the final removal of the Church to the Salt Lake Valley allowed the Church members to escape the terrible devastations that occurred during the civil war.

Joseph Smith From Palmyra to Fayette,

increased persecution

Joseph & Saints D&C 38:28-33 From Fayette to Kirtland,
Church members From Independence.

increasing persecution
Forced removal by mobs.

The Church

Wickedness, apostasy, persecution in Kirtland,
Ohio moved to Far West.

The Church Far West,

persecution, forced removal by militia/mobs
Persecution, approaching mobs/militias

The Church Nauvoo to Salt Lake.

Also, it should be pointed out that those who heeded the call and left Europe/Britain to gather with the saints in Utah, missed out on a lot of wars, devastations, etc. that later occurred there.

In addition, the scriptures indicate that there are many such groups that we have no record of at least at this point in time:

"For behold, the Lord God has led away from time to time from the house of Israel, according to his will and pleasure. And now behold, the Lord remembereth all them who have been broken off, wherefore he remembereth us also." 1

Almost always, it appears that when these groups leave... they live in temporary housing which we commonly call tents. The most famous scripture (which every seminary student has memorized) that records this fact for Lehi and his group is "*And my father dwelt in a tent*". 2

The scriptures are very clear in several places and many of the ancient prophets (both new world and old world) have prophesied that the majority of the 'Gentile' society that would come to inhabit North America, would become a very wicked society full of "*witchcrafts...lyings, and deceivings, and envyings, and strifes, and priestcrafts, and whoredoms*" and that it will be cleansed by several impending disasters, including plague, pestilence, storms, floods, drought, earthquakes, famine, internal strife attributed to Gadianton Robbers/secret combinations lusting for power and finally war.

We currently live in that wicked society described by the ancient prophets. (If anyone has any doubt of this, please read conference talks of President Kimball, President Benson and many others.)

With such prophesied impending destruction hanging over the heads of the people of this nation, is there any indication that the Lord is going to do as he has done in the past with other groups...namely direct a group or groups of the more righteous people to leave or break off from the current society. to gather separately off by themselves..to live in tents (as it seems that tradition has it) in order to avoid the major portion of such impending disasters and destruction?

The answer is...yes.

This short article is an attempt to outline the principles, prophecies, descriptions, visions of, and preparation of such tenting groups.

THE PRINCIPLE(S) BEHIND TENT CITIES

As mentioned previously, sacred history reveals to us clearly the principle(s) involved in such tent cities. The main principle was outlined by Jacob as a warning to the people of his day who had started to become wicked:

"And the time speedily cometh, that except ye repent they shall possess the land of your inheritance, and the Lord God will lead away the righteous out from among you." 3

Alma also mentions this principle as well, in a little more detail to the people of Ammonihah:

"Yea, and I say unto you that if it were not for the prayers of the righteous, who are now in the land, that ye would even now be visited with utter destruction; yet it would not be by flood, as were the people in the days of Noah, but it would be by famine, and by pestilence, and the sword.

"But it is by the prayers of the righteous that ye are spared; now therefore, if ye will cast out the righteous from among you then will not the Lord stay his hand; but in his fierce anger he will come out against you; then ye shall be smitten by famine, and by pestilence, and by the sword; and the time is soon at hand except ye repent." 4

In studying the examples listed above, the application of the principle appears to be in three parts or stages:

A. Both members and non-members or righteous and not-so-righteous live together for a period of time. This allows the righteous or the members to teach the gospel (missionary work) to the non-members or help encourage the not-so-righteous to do better. (Reaction) During this period of time the message is one of invitation

B. The wicked become more wicked and persecution becomes severe. A division begins to appear between the people, the righteous and faithful on one side (the minority in all cases) and the wicked on the other. As the message begins to be rejected by a majority of the people, prophets are sent forth to declare the gospel message with very strong testimonies. The message is still one of invitation, however it is often mixed with the message of you need to repent or there will be serious consequences.

C. The wicked have become so wicked and the persecution so severe that the very lives of the righteous are in danger. The division between the two groups of people have become very public knowledge, very wide, and a source of much "focus" on behalf of the wicked. Prophets are sent forth at this time or just prior to this time with a special, specific message: repent speedily or be destroyed. These prophets are willing to suffer, often even unto death, so that their message is sealed by their testimonies. The righteous are then invited by the Lord to flee out for their lives (no one is ever forced) or sometimes the wicked force the righteous to flee or suffer severe consequences. Almost always, (and this is important) the decision to suffer or not suffer is based upon denying ones membership in the Church and/or belief in Jesus Christ.

Of course when the righteous flee, often without much warning or preparation, they suffer as they travel to a place of safety. Tents seem to be the main method of providing temporary shelter during these times of fleeing. Many times these places of safety are places of promised blessings...but those who flee to them have to perform much work to receive the blessings.

THE FALSE ASSUMPTION

It is important to address a great false assumption that seems to be a favorite of the adversary to befuddle and put at ease the general membership of the Church in these situations. This is part of the "All is well in Zion" syndrome and is a subset of the principles of fleeing or gathering out. We have seen this in past history and we even see it happening today to a tremendous degree.

The False Assumption which particularly plagues us today is this: Many Church members have assumed (are assuming) that they will never have to flee their current homes, that they are already living in a place of safety...and that the wicked will be cleansed from among them. After all, their ancestors had been brought to the place of safety by the hand of the Lord.

The problem with this assumption is simple...**No where in sacred history does such a scenario ever present itself.** In fact the opposite seems to be true.. The righteous gather to a place of peace and safety and are blessed. After a period of time the people began to be divided into the two groups...those who still keep the commandments and those who don't. The longer the time period...the greater the division and the more those who have become wicked dominate the once righteous society. They take over control of the government and pass laws to help them in their quest for power and riches. The true humble followers of Christ become the very small (and diminishing) minority of the society.

It is important to note that in almost all past examples, the once righteous who are now wicked...go around pretending and loudly proclaiming that they are still righteous and still the chosen of the Lord. Many, if not most of them are still members of the Church. Some are even its lower level leaders and teachers. However, upon close scrutiny their actions point to the fact that they have started to become hypocrites/apostates-in-heart. They first ignore, then tacitly support, encourage the growth of, and even participate with the wicked practices of the society. Such actions put them in admiration of the majority of the population of the society who are now participating in these wicked practices, including, unfortunately, the majority of the membership of the Church.

The vision of Lehi expressly focuses attention on this fact:

"And it came to pass that I beheld others pressing forward, and they came forth and caught hold of the end of the rod of iron; and they did press forward through the mist of darkness, clinging to the rod of iron, even until they did come forth and partake of the fruit of the tree.

And after they had partaken of the fruit of the tree they did cast their eyes about as if they were ashamed.

And I also cast my eyes round about, and beheld, on the other side of the river of water, a great and spacious building; and it stood as it were in the air: high above the earth.

And it was filled with people, both old and young, both male and female; and their manner of dress was exceedingly fine; and they were in the attitude of mocking and pointing their fingers towards those who had come at and were partaking of the fruit.

*"And after they had tasted of the fruit they were ashamed, because of those that were scoffing at them; and they fell away into forbidden paths and were lost."*⁵

This was also part of the message of Samuel the Lamanite to the former & current (hypocritical) members of the Church in Zarahemla. I use the paraphrasing from Hugh Nibley:

"Ye do not remember the Lord your God," said Samuel the Lamanite to the people of Zarahemla, "but ye do always remember your riches" (Helaman 13:22). (And how self-righteous they were about it!)

Now when ye talk, ye say: If our days had been in the days of our fathers of old, we would not have slain the prophets. . . . Behold ye are worse than they; for . . . if a prophet . . . testifieth of your sins, . . . ye are angry with him; . . . yea, you will say that he is a false prophet, and that he is a sinner, and of the devil, because he testifieth that your deeds are evil. But behold, if a man . . . saith that all is well, then ye will not find fault with him. [On the contrary,] ye will clothe him with costly apparel . . . because

... *he saith that all is well (Helaman 13:25-28).*

These people did not want to hear what was wrong with Zarahemla, only what was right with Zarahemla. Anyone who wanted their vote had only to avoid any mention of repentance and tell them that they had done no wrong, that Zarahemla was great because Zarahemla was good.”⁶

This is another important part of the principle to understand. As this oft repeated scenario shows...the true humble followers of Christ begin to become even a minority in the Church. They are persecuted by the majority for being radicals, zealots, fanatics (imagine, they try to keep all of the commandments) and dare to be different than the mainstream society (the world) or Church membership. (Though upon closer examination it will be found that it is they who are still holding fast to the doctrines and practices that years earlier the majority were embracing.) At first this persecution is subtle, and then it becomes stronger and more severe, sometimes even coming to blows and murder. The division between the two groups becomes larger, more divisive and more apparent. It is then around this time that the few righteous are warned to flee or are cast out by their once family, friends, co-workers and fellow church members.⁷

Again, what would make us think that we are any different today and that it will be just the opposite of almost every other similar experience recorded in sacred history?

Have any of the prophets indicated that things will be different for us in these last days...or have they indicated that in fact, it will be the same as before...the once righteous cities and members become wicked, a division occurs and the fewer righteous are either invited out to gather elsewhere by their priesthood leaders or are cast out by the wicked?

Again, the answer is yes.

President Benson talked very clearly about this growing division in the Church that we are experiencing. He said:

“Sometimes we hear someone refer to a division in the Church. In reality, the Church is not divided. It simply means that there are some who, for the time being at least, are members of the Church but not in harmony with it. These people have a temporary membership and influence in the Church; but unless they repent, they will be missing when the final membership records are recorded.

“It is well that our people understand this principle, so they will not be misled by those apostates within the Church who have not yet repented or been cut off. But there is a cleansing coming. The Lord says that his vengeance shall be poured out “upon the inhabitants of the earth. . . . And upon my house shall it begin, and from my house shall it go forth, saith the Lord; First among those among you, saith the Lord, who have professed to know my name and have not known me. . . .” (D&C 112:24-26.) **I look forward to that cleansing; its need within the Church is becoming increasingly apparent.**

“The Lord strengthened the faith of the early apostles by pointing out Judas as a traitor, even before this apostle had completed his iniquitous work. So also in our day the Lord has told us of the tares within the wheat that will eventually be hewn down when they are fully ripe. But until they are hewn down, they will be with us, amongst us. The hymn entitled “Though in the Outward Church Below” contains this thought:

“Though in the outward Church below

Both wheat and tares together grow,
Ere long will Jesus weed the crop
And pluck the tares in anger up. . . .
We seem alike when here we meet;
Strangers may think we are all wheat;
But to the Lord's all-searching eyes,
Each heart appears without disguise.
The tares are spared for various ends,
Some for the sake of praying friends,
Others the Lord against their will,
Employs, his counsels to fulfill.
But though they grow so tall and strong,
His plan will not require them long;
In harvest, when he saves his own,
The tares shall into hell be thrown."
(Hymns, No. 102.)
"Tares among the wheat"

"Yes, within the Church today there are tares among the wheat and wolves within the flock. **As President Clark stated, "The ravening wolves are amongst us, from our own membership, and they, more than any others, are clothed in sheep's clothing because they wear the habiliments of the priesthood. . . . We should be careful of them. . . ."** (Era, May 1949, p. 268. See also, Conference Report, April 1949, p. 163.)

"The wolves amongst our flock are more numerous and devious today than when President Clark made this statement. "President McKay has said that "the Church is little, if at all, injured by persecution and calumnies from ignorant, misinformed or malicious enemies. **A greater hindrance to its progress comes from faultfinders, shirkers, commandment-breakers, and apostate cliques within its own ecclesiastical and quorum groups."** (Era, December 1967, p. 35. See also, Conference Report, October 1967, p. 9.)

"Not only are there apostates within our midst, but there are also apostate doctrines that are sometimes taught in our classes and from our pulpits and that appear in our publications. And these apostate precepts of men cause our people to stumble. As the Book of Mormon, speaking of our day, states: ". . . they have all gone astray save it a few, who are the humble followers of Christ; **nevertheless, they are led, that in many instances they do err because they are taught by the precepts of men."** (2 Ne. 28:14.)" 8

Remember this was over 30 years ago. If the situation was bad at that time, one must wonder its current status. A very interesting statement was made by President Benson about the need to cleanse the Church...and the possible method that would be used by the Lord. He wrote:

"Should the Lord decide at this time to cleanse the Church—and the need for that cleansing seems to be increasing—a famine in this land of one year's duration could wipe out a large percentage of slothful members, including some ward and stake officers. Yet we cannot say we have not been warned." 9

President Joseph F. Smith also spoke on this subject, which was included in our Priesthood and Relief Society manuals in lesson #44 (pg 393) for all of us to consider and ponder.

"I... testify, that unless the Latter-day saints will live their religion, keep their covenants

with God and their brethren, honor the priesthood which they bear, and try to faithfully to bring themselves into subjection to the laws of God, they will be the first to fall beneath the judgments of the Almighty, for his judgments will begin at his own house.

“Therefore, those who have made a covenant with the Lord by baptism, and have broken that covenant, who profess to be saints and are not, but are sinners, and covenant-breakers, and partakers of the sins of Babylon, most assuredly will “receive of her plagues,” for it is written that the righteous will barely escape.” 10

Modern scripture also talks about the coming division/judgement starting first with the members of the Church. Interestingly enough President Hinckley, in his now famous October General Conference (2001) address of Sunday morning, referenced the first part of this scripture in his talk. He said:

“I am familiar, as you are, with the declarations of modern revelation that the time will come when the earth will be cleansed and there will be indescribable distress, with weeping and mourning and lamentation.” (See D&C 112:24)

The referenced scripture, along with the scriptures that precede it and follows it, is as follows:

“Verily, verily, I say unto you, darkness covereth the earth, and gross darkness the minds of the people, and all flesh has become corrupt before my face.

“Behold, vengeance cometh speedily upon the inhabitants of the earth, a day of wrath, a day of burning, a day of desolation, of weeping, of mourning, and of lamentation; and as a whirlwind it shall come upon all the face of the earth, saith the Lord.

“And upon my house shall it begin, and from my house shall it go forth, saith the Lord.

“First among those among you, saith the Lord, who have professed to know my name and have not known me, and have blasphemed against me in the midst of my house, saith the Lord.” 11

Orson Pratt also elaborated on this scripture:

“I will make a few remarks upon these passages as I read them. It seems that this is a dispensation peculiar in its nature, differing from former dispensations. It is a dispensation of mercy and of judgment—of mercy to those who receive the message of mercy, but of judgment to those who reject that message. In other words it is a dispensation in which the Gospel has been revealed from heaven, the servants of God called to labor in the vineyard for the last time, and in which the Lord intends to pour out great and terrible judgments upon the nations of the wicked after they have been warned by the sound of the everlasting Gospel. We are told in the revelation I have just read, that vengeance cometh speedily upon the inhabitants of the earth; that it is a day of wrath, burning, desolation, weeping, mourning and lamentation, and that as a whirlwind these things shall come upon the inhabitants of all the earth.

“Where shall these great and severe judgments begin? Upon what people does the Lord intend to commence this great work of vengeance? Upon the people who profess to know his name and still blaspheme it in the midst of his house. They are the ones designated for some of the most terrible judgments of the latter days. This should be a warning to the Latter-day Saints, and not only those who are parents, but those who are children should diligently consider whether they are numbered among those who are mentioned in the 10th paragraph, which I have read. Upon my house, saith the

Lord, shall it begin, first upon those among you who have professed my name and have not known me and have blasphemed against me in the midst of my house.” 12

There are several other comments on this scripture and its interpretation, too numerous to include, but they all say the same thing. The members of the Church in the last days will indeed follow the pattern that has shown itself in times past, in that there will come a division in righteousness among the members of the Church.

Since it has been well established that the above mentions apostasy is in progress in the Church today, which is the first part of the sequence, is there any reason to doubt the second half of the historical examples will not take place as well? (That is, the righteous will be either gathered out from among their more wicked brethren and or forcefully cast out or jailed/murdered.)

Unfortunately, there are not any published, verified, first hand prophecies, dreams or visions by Church authorities, (at least that I can find) that specifically describe this part happening in the last days.

However, there is a statement by President Harold B. Lee counseling the general Church membership to look forward to such future instructions by the leaders of the Church to gather from the cities to places of refuge in the last days. He said:

“Thus, clearly, the Lord has placed the responsibility for directing the work of gathering in the hands of the leaders of the Church to whom he will reveal his will where and when such gatherings would take place in the future. It would be well—before the frightening events concerning the fulfillment of all God’s promises and predictions are upon us, that the Saints in every land prepare themselves and look forward to the instruction that shall come to them from the First Presidency of this Church as to where they shall be gathered and not be disturbed in their feelings until such instruction is given to them as it is revealed by the Lord to the proper authority.” 13

CONCLUSION

There is not only much historical precedence for the righteous saints to flee because of the wickedness of the society they live in, most often using tents as temporary housing, but prophecies by ancient and modern prophets indicate that such apostasy is going to happen again in the last days. Indeed, modern prophets indicate the process that eventually produces this need to flee has already begun and is in full swing. Also the Church membership has been instructed to look forward and heed instructions from the Church leadership concerning gathering to such places of refuge in the future.

CHAPTER 2

ANOTHER PRINCIPLE AT WORK....

ONE THAT IS MISUSED AND NOT UNDERSTOOD

THE GREAT FALSE ASSUMPTION #2

Most members of the Church also work under a second false assumption. This is because they are confused about two separate principles of the gospel and how to correctly apply them. These principles are the principles of justice and mercy.

They confuse the mandate/commandment of sharing and taking care of the poor and needy with sharing their food with the rebellious. This false assumption is held not only by the rebellious (who often use it to justify their rebellious ways and minimize the outlined consequences) but by many of the obedient as well. There is a big difference between the two concepts of taking care of the truly poor and needy and taking care of the rebellious.

The First Principle, the one concerning taking care of the poor and needy which everyone remembers, is exemplified by the following scripture:

"For the earth is full, and there is enough and to spare; yea, I prepared all things, and have given unto the children of men to be agents unto themselves.

"Therefore, if any man shall take of the abundance which I have made, and impart not his portion, according to the law of my gospel, unto the poor and the needy, he shall, with the wicked, lift up his eyes in hell, being in torment." 14

The second principle, the one that everyone often forgets to apply, (especially when its application produces negative consequences) is outlined here:

"There is a law, irrevocably decreed in heaven before the foundations of this world, upon which all blessings are predicated—

"And when we obtain any blessing from God, it is by obedience to that law upon which it is predicated." 15

The reverse of this law is the point that the wicked do not like. Those who are disobedient to the law receive the consequences of their disobedient or rebellious actions as well...because this is right and just. The Lord mentions some of the consequences for those who are disobedient and rebellious:

"Behold, the Lord requireth the heart and a willing mind; and the willing and obedient shall eat the good of the land of Zion in these last days.

"And the rebellious shall be cut off out of the land of Zion, and shall be sent away, and shall not inherit the land.

"For, verily I say that the rebellious are not of the blood of Ephraim, wherefore they shall be plucked out." 16

A few other verses help us to recognize this principle even further:

"Hearken, O ye people who profess my name, saith the Lord your God; for behold, mine anger is kindled against the rebellious, and they shall know mine arm and mine indignation, in the day of visitation and of wrath upon the nations.

"And he that will not take up his cross and follow me, and keep my commandments, the same shall not be saved.

"Behold, I, the Lord, command, and he that will not obey shall be cut off in mine own due time, after I have commanded and the commandment is broken." 17

It is important to recognize the difference between the wicked and the rebellious. The two groups are mentioned :

"Wherefore I, the Lord, command and revoke, as it seemeth me good; and all this to be answered upon the heads of the rebellious, saith the Lord.

"Wherefore, verily I say, let the wicked take heed, and let the rebellious fear and tremble; and let the unbelieving hold their lips, for the day of wrath shall come upon them as a

whirlwind, and all flesh shall know that I am God.” 18

President Joseph Fielding Smith hit the proverbial nail on the head when he wrote:

“One of the great failings of mankind is to ignore warnings of punishment for sin.” 19

For good or for bad....It is actually all part of the law of consequences.

And now the heart of the question.... “Is it right and just for the obedient who have sacrificed their means to be obedient and laid up in store for their families...to give to those who had the same opportunity...but who refused to obey the commandment and laid up nothing?” Wouldn't that be rewarding the rebellious for their rebelliousness? How are the disobedient going to suffer the consequences of their actions or inactions? How will the obedient gain from being obedient... if they have given all their food away during a time of famine?

It is one thing to share with those who either did not know the commandment or were prevented from complying (the truly needy and poor)...and something completely different to share with those who willfully rebelled against the commandment and were disobedient.

How many times have you heard the phrase (or something like it)...oh, I don't have any food storage...I will just share with my neighbor who has food storage. (Unfortunately, most of the neighborhood thinks the same...and so if it was allowed to come to pass, the family who had sacrificed and gathered the one year food storage would have nothing left after a few days.)

And yet... because of the nature of the true disciple...they would share with the disobedient, because they would share with any and all. What is the answer to this dilemma? Luckily, the Lord takes the problem and the decision away from us. Again, we go to the scriptures to see what the Lord has done in a similar type situation.

A Key Message For Us In The Parable of the Ten Virgins

First let us look at the parable of the Ten Virgins, a parable given by the Savior himself, that we have been told specifically refers to events in the last days. President Kimball indicated that the parable is specifically about and directed towards the members of the Lord's Church. There are several important lessons presented in this short parable but the key one is concerning the preparedness issue. In the parable, the preparedness issue is presented concerning physical preparedness. However, President Kimball indicated that it can be applied to spiritual preparedness as well.

Two groups of Church members are waiting for the coming of the Savior. Both are dressed in white, meaning that in all outward appearances they are the Lord's true disciples, but there is one difference between the two groups. What is it? Both groups appear the same. They both are standing or waiting in the proper place and are doing what they are supposed to be doing. Both groups have received the same instructions. **The only difference between the two groups is that concerning the preparedness issue...and in the parable, it makes all the difference in the world. In fact it is the one single difference between the one group being welcomed in by the Savior and the other group being rejected.** One group has fully prepared and the other group has only partially prepared. In other words, one group has taken the Lord's commandments and directions to heart and have followed them explicitly and completely...while the other group, though righteous in every appearance, has only followed those same instructions partially.

When the Savior does come and the importance of the issue of preparedness becomes critical, what do the ones who have prepared fully do? **They don't share with the unprepared!!!** The unprepared are left to suffer the consequences of their own inactions, and the consequences are extremely severe. Wow!! What a hard, difficult

and brutal lesson/message is presented here. The justice of the consequences are apparent...but where is the mercy? Justice, ie receiving the consequences of ones actions, is an eternal principle and it is often hard. Mercy is an eternal principle as well. However, it must be remembered that in the eternal law of mercy...mercy is only extended to those who accept and abide by the conditions attached to it...ie. by doing fully what the Lord has commanded them to do.

Is there any past experience where this hard lesson concerning preparation has been applied? The answer is yes....Noah and the Ark.

NOAH AND THE ARK, A TYPE AND A SHADOW OF OUR DILEMMA

Here we have the quintessential application of the principal of preparedness as taught by the Savior in the parable of the Ten Virgins. We do not need to belabor the story of Noah and the Ark. Those who listened to the counsel of the prophet, which had been given for several hundred years, to prepare by boarding the ark were saved. Those who didn't listen to the counsel of the living prophet and didn't board the ark...died. The lesson is very brutal and hard. There are, however a few interesting points to be presented.

Noah was a just and a perfect man in his generation and he, along with his three sons, walked with God. Noah's daughters, who had married wicked husbands, did not heed their father's counsel and died along with the other wicked. How hard it must have been for Noah and his wife and sons to not extend mercy to their family members, especially when it started to rain. The question might be asked...why didn't they open the doors of the ark and let them in, or perhaps others in? The answer is because the Lord wouldn't let them. The Lord had foreseen the problem and had taken care of it by taking it out of the hands of Noah. We read that the Lord shut the door or shut Noah and his family into the ark.

"And they that went in, went in male and female of all flesh, as God had commanded him: and the LORD shut him in." 20

I am sure that when the rain started and the floods started coming up that there were a lot of people who were suddenly very repentant and asked to be let into the ark. Could you imagine what it sounded like for those inside the ark to hear the screams, pleas and pounding of those, including children, outside of the ark? And yet the Lord in his wisdom did not give Noah the difficult choice of whether to show mercy and open the door and save them also or not. The Lord took Noah out of the decision making process on the issue. Instead we find that the Lord suffered them to receive the just consequences (death by drowning) of their non-action to heed the counsel of preparedness.

Of course the important lesson of Noah's Ark is applied to us specifically by a prophet of God concerning following the prophets counsel regarding food storage.

"The Revelation to produce and store food may be as essential to our temporal welfare today as boarding the ark was to the people in the days of Noah." 21

So how might the Lord take such difficult decision making away from those in the last days who have kept the commandment to have food storage...and not share with those who have not stored anything?

The answer is to remove the faithful people (the wise virgins) from among the foolish. This allows the faithful to reap the benefits of their obedience...while at the same time allowing the foolish to suffer the consequences of their disobedience. In other words...gather/invite out the faithful/obedient to places of relative safety...which is usually to live in tents. Examples of this abound in the scriptures and have been mentioned previously. Again, it would make sense that the Lord would so do again in the last days. In fact, Joseph Smith said it was the only way in the last days to be saved temporally.

“In addition to all temporal blessings, there is no other way for the Saints to be saved in these last days, than by gathering...” 22

An invitation to gather out from among the wicked, including away from those Church members who have not prepared (but who should have) to a separate place...will do so many things. Such a gathering would only include those with true faith in a living prophet. It automatically separates the wheat from the chaff...and gathers the wheat (who have prepared themselves for this time by collecting food storage) into places of relative safety. It takes away from them the problem of having to make the decision to sacrifice the fruits of their obedience with those who were disobedient and rebellious. It then allows the Lord to deal with those same disobedient and wicked people in a manner that will not harm the righteous...because they are not there.

As Lot and his family were gathered out from Sodom and Gomorah so that they would not suffer with the Sodomites their just consequences of their choices...so likewise, those who follow the counsel of the Prophet and Church leaders to flee from Babylon... will avoid the prophesied catastrophes.

CHAPTER 3

QUESTIONS CONCERNING TENT CITIES

In our exploration into the topic of tent cities there have arisen a number of questions. I would like to address some of them at this time.

1. Are All Members in the Church Going to Be Invited to Tent Cities?

The answer appears to be NO. There are very many who in their dreams and visions have been *personally* instructed to set up a place of refuge for their family and to set aside materials, food, and other resources for those they feel the Lord will direct to them at a later time. Most of these families have been blessed with the opportunity and funds to accomplish the task that they feel they have been assigned by the Lord. There is some commonality of these mini places of refuge.

A. They all know that these mini-places of refuge will be for a short period of time, usually about a year, and then they will be instructed or guided to abandon them and go somewhere else. They all instinctively feel the next place will be somewhere in the Rocky Mountain area but have no ideas as to specifically where or when.

B. They all feel or have been instructed in their dreams/visions that they are not to invite people to gather to their places of refuge. They feel that the Lord will direct people to them or that the Church leaders will be directed to use their facilities when it is needed.

C. All of the places are away from cities and towns with most being hidden so that if you were 100 yards away you would not be able to see that there are people there.

D. All of the places have water naturally (lakes, streams or springs) or wells that they control. Most have installed alternative means of energy, (mostly solar power) to supply needs to well pumps, etc.

E. Interestingly, almost all of these places are debt free and completely owned by families who currently live on them or have been working on developing them.

F. Most of these people have been working on these temporary mini places of refuge for many years. Often they had these dreams or impressions several years ago wherein they were told that in the future they would be blessed with the means to accomplish these tasks. Over the years, they were then lead to certain areas and blessed with opportunity and means to purchase these properties (often 30-100+ acres) and then develop them.

G. They almost universally feel that even though it is their property currently, when people gather to their mini places of refuge it will be under the authority and direction of the Church leadership and they will not be in charge. In other words at the appropriate time they will turn their property over to the Church or at least place it under the direction of Church leaders.

The big question, (that I do not have an answer for as of yet), is how are these people going to be “not invited” to the tent cities that a majority of at least the North American Church membership will be invited to? These are the very people who are prepared spiritually, physically, mentally, and actually somewhat eager to follow the prophet in gathering with like minded saints to places of safety such as tent cities. While the answer to this question is unknown as of yet, (at least to us) there are two possible answers that might resolve this question.

** Is it possible that these mini places of refuge might not happen at the same time as the tent cities? Is there perhaps a period of time before the call to gather to the tent cities that these mini-places of refuge will be needed, perhaps a year or so? Perhaps after providing a place of safety and of “preliminary gathering” they are then directed to gather to the Church sponsored gathering places?

** Are the invitations to gather to the tent cities going to be extended to everyone in the Church, or perhaps they are only extended to certain regions or cities?

Again, the answers are not known at this time.

2. What is going to happen to the Church membership outside of the United States? Will they be invited to gather to tent cities as well?

The answer to this is simply that we don't know for sure, but there are some dreams and other evidences that a similar call to prepared places of refuge in their respective areas will happen. It appears that the forthcoming destruction which will come as a whirlwind and is particularly devastating to North America. Joseph Smith indicated that these plagues would go forth in particular to sweep the wicked inhabitants of North America away for the building up of the city of New Jerusalem and the return of the Lost Ten Tribes to it.

After the city of New Jerusalem is begun, the scriptures indicate that the call will go forth to all of the world for the righteous to gather to it. The Lamanites will be among the first to come forth and will take over the main task of building New Jerusalem and subsequent cities of Zion that will stretch between it and a city of Zion that will be newly established in the Salt Lake/Rocky Mountain area after the area has been cleansed.

With this in mind, it is possible that there won't be such as great a need for protection for the Saints outside of North America. HOWEVER, the test of these Saints is the same as the Saints in North America, which will be to respond to the instructions of their priesthood

leadership quickly. This will include travel to America after it is cleansed and the 13 month war is over and the city of Zion is established.

3. What about the temples and temple attendance while in the tent cities?

The scriptures are very clear that an essential part of escaping a lot of the destruction and the deception that will occur is to attend temples often. "*Stand Ye In Holy Places*" is the command of the Lord. How is this to be done if the majority of those who are worthy to attend the temple and greatly desire its spiritual blessings and strength are gathered into tent cities away from the temples?

There are also indications in many of the dreams of the last days that indicate that the temples are closed and that the Church can no longer meet in groups. (Perhaps meetings of any kind are outlawed, which happens frequently under martial law.) How then can the saints stand in the holiest places on the earth as they have been commanded?

The answer appears that there will be instructions and authority given to build temporary temples next to the tent cities. In the dream of Sarah-13 she mentions that the people in the tent city had been instructed to build a temple near a cliff near the tent city. Further questions revealed that all she knew was that they had been commanded by President Hinkley to do so.

"President Hinkley told us to build a temple up on the mountain."

After some questions her father wrote, "She remembers that the temple was to be built near the edge of a high cliff in the mountains. She said she woke up before she knew if it was built and used. She doesn't know about using other temples already built."

The following two Emails from a five year old child (submitted by her mother) and an adult gives us further insight:

FIVE YEAR OLD DREAM OF TENT CITY TEMPLE

"OK, maybe the tent cities thing is a touchy subject these days. I'm of the opinion that it is a possibility. I feel sure that we will find ourselves "on the move"—— whether it happens as many have discussed here, well, it just remains to be seen. After seeing some of the rude posts concerning the tent cities possibility, I've debated all week long whether or not to share this.

"Last Saturday, I was travelling with my two youngest children. I mentioned that we were fairly close to the temple. My 5 year old said to me "FINALLY—I get to see the temple." I was shocked at my negligence, not having taken my youngest by the temple, so I said, "You really haven't seen the temple before?" She replied, "Well, I did see it once before...actually I dreamed about it." Naturally I thought, "ok, the primary theme is the temple....she's had it on her mind lately"

"Just out of curiosity, I asked her what the temple looked like in her dream, to see if it was the Atlanta temple. She said, "Well, there was this tent, and there was somebody in it"

"The hair stood up on the back of my neck! I've never mentioned the tent cities to my family members—only read about it, or "talked" about it online. Where was she going with this?!

"I wanted to know what the proximity was of the tent to the temple—as you may know, the Atlanta temple is up on a big hill. So I asked her about it, the location and such, was the tent on the hill in front of the temple, or down below it... or what.

"She copped that little attitude of hers, and said, **"MOM... the tent WAS the temple!"**

"She couldn't remember any more than that...but I was fascinated. How much more goes on in their little heads or in their dreams that they don't even think to mention to us?

TENT CITIES TEMPLE IMPRESSION

Roger,

Following are a few of my thoughts concerning our conversation the other day. Let me give you a little background. I manage an LDS Bookstore and have been reading your books for years. A little over a year ago I started have VERY STRONG impressions that our time to prepare was running out and I needed to finish getting my family's preparations done.

About May of last year, I started monitoring your web sight regularly. We have had several Family Home Evenings concerning our preparations both temporal and spiritual. Needless to say as we started to really focus on these things all HECK broke loose. We have one son 17 who is having some serious struggles. In addition, my father-in-law (not a member) was diagnosed with lung cancer which threw our family into a whirlwind. He passed away last November.

In....., we changed Wards to get better help for our son. Over the last year, I have had several conversation with my current Bishop who I've known for a long time about preparedness. Within a month of switching to this new Ward I was called as the Family Preparedness Specialist with the assignment to organize our ward, help them prepare with 72 hour kits then their basic food storage, create a Ward Disaster Plan, all during this coming year.

My Stake President (also in my new ward) wants to use our ward as a model for the Stake and roll it out into the other wards. I do have a committee of good people so I'm not doing this alone—but the weight of this calling is very heavy still as you well understand. **There are a lot who are responding to the Preparedness call, but A LOT who are not and cause some flack.**

Anyway, in January at our Ward Conference, our Stake President was pushing regular consistent Temple Worship (not just attendance) as he has been doing for the year he has been our Stake President. In that conference, he promised us that if we would consistently and regularly worship in the Temple that our families would be healed. With the concerns of my son weighing heavily on my mind, I felt prompted that I needed to go to the Temple WEEKLY—which I have been doing. What I am finding in myself (and I have seen it before when I would go to the Temple regularly) is that I also WANT and DO study the scriptures more regularly, pray more often and the result of all these things is that my attitude seems to be elevated and the little nitty gritty things of everyday life which had previ-

ous annoyed me no longer bother me. They just aren't important. I'm less contentious, slower to anger—basically I'm able to control the "Natural Man" better.

Anyway, **when your newsletter came out in February, and I was reading about the Tent**

cities, I was very interested to know how we would continue our Temple Worship. Would the tent cities be close to some of the Temples so that we could attend or would we have to wait until the conflict in the outer world settled down and not have the benefit of the Temple through this experience? I began to make those questions a focus of my pondering and prayer over the last month. I can't tell you when this impression or picture came into my mind, I just know that about 2 or 3 days before your March newsletter, my mind kept focusing on a "Temple Tent" that would be available for us. Then when I read "Sara-13"'s dream and she mentioned that President Hinkleley told us to build a temple, I couldn't get that picture of the Temple Tent out of my mind. I had to know where it was coming from. I thought that maybe you had mentioned something like that in one of your books which hadn't made much of an impression on me at the time, but since my renewed focus on the Temple lately it had come to the forefront. That was why I had to call you to see if that was the case.

That's it, though. No detailed dreams of going to tent cities or life in the tent cities—just I image of a Temple Tent against the backdrop of a Mountain Cliff, with a knee-high type fence structure around it—not so much to keep people out as to mark off the sacred ground. I have had the impression that it was guarded so that not just anyone could enter—not with guns but like Recommend Desk Attendants.

As I have continued to ponder on this a few other thoughts have come to me—(1) In the scriptures the Lord has used Mountains and Tents as a Temple when necessary and he could do it again just like the Children of Israel in the wilderness. (2) In my stake we have many experienced, qualified Temple Workers that could administer these ordinances under the direction of the Prophet. (3) These tent cities will be a place for us to sanctify ourselves and prepare to meet the Savior. And along with the physical trials we will be experiencing, it will need to be balanced and our progression enhanced by our Temple Worship.

I don't know that this impression is anything more than my wishful thinking or just the Lord's way of giving me some peace on this issue—that however it plays out the Lord will take care of it and I need not worry. I can't imagine going through this refining experience without the Temple. To be able to keep myself elevated so that the little things don't bother me or others, to help eliminate or minimize murmuring, so that we function on a more LOVING level of existence, I feel, will be critical to the success of our experience.

Anyway, sorry so drawn out but I wanted you to understand the background behind this and why I had been so focused on the Temple. I will keep pondering on this as I continue to attend the Temple weekly and if anything further comes to me, I'll let you know. Thanks for all you do. I really appreciate it. Your board is great. It so nice to know we aren't alone in this endeavor. There are so many great people I feel like I know because of the board. I only wish we could all be in the same tent city so we could continue our association face to face.

4. How many people would gather to the tent cities initially?

At first thought it would be next to impossible for all of the Church members to gather to tent cities. In North America, that would be over 5 million people. But all of the dreams indicate that only a few go, perhaps less than 10%. That would mean only 500,000 people. But if one of the main criteria for being invited to such a refuge is to have a years supply of food, the latest surveys indicate that in North America the average membership with a years supply of food is around 3%. That would drop the numbers down to around 150,000 people in North America. Also, several of the dreams indicate that not everyone with food storage go, since it involves a great leap of faith to drop everything and follow the Prophets invitation.

5. Is there any official pronouncements, published information or other evidence that would help confirm the concept concerning tent cities in the future.

The answer is no and yes. As far as I can find, (and the search is ongoing), there have been no official published pronouncements by the Church leadership. But there are several secondary sources of evidences that the Church has indeed planned and prepared for such tent cities in the future. This secondary evidence is growing weekly. The largest evidence is the tremendous rush building of girls & family camps by the Church, primarily in the Rocky Mountain area. I am personally aware of several camps that are in the process of being built that already have exceeded greatly the entire number of girls who attend such camps during the summer in their respective areas. Perhaps, the Church is just planning on a future explosion of growth in Church membership, and subsequently the need for such girls camps.

CHAPTER 4

OPPOSING QUESTIONS & CONCERNS

There are many who would say that the idea of Church members being called out to tent cities, perhaps in the near future, is absolutely absurd. Since they haven't heard about it, many commonly dismiss the idea out-of-hand and then put forth several reasons to support their hasty conclusions. I wish to address several of their "complaints."

1. Dreams and visions are not viable today. Ordinary members do not receive such dreams and visions...especially concerning Church wide events.

I have heard this complaint many, many times. Essentially, it is that we, as ordinary members of the Church, have no right to any dream or vision, that such dreams and visions are immediately suspect, (as well as the people who have them), and this is especially so for events that pertain to others beyond your immediate family. It alludes to the fact that only Church authorities, (ie General Authorities) can have or report any such experiences.

Joseph Smith said that dreams and visions were a special prerogative and even a right of all the Saints, especially in the last days:

"We believe that we have a right to revelations, visions, and dreams from God,
our Heavenly Father; and light and intelligence, through the gift of the Holy
Ghost, in the name of Jesus Christ, on all subjects pertaining to our spiritual
welfare, if it so be that we keep his commandments, so as to render ourselves worthy

in his sight. (The Prophet Joseph Smith, Times and Seasons, Feb. 1840, p.54)

Recently in Oct 2001 General Conference President Hinckley referred to the gifts of dreams and visions and of prophecy that would poured out upon men, women and even children in the last days:

“The era in which we live is the fulness of times spoken of in the scriptures, when God has brought together all of the elements of previous dispensations. From the day that He and His Beloved Son manifested themselves to the boy Joseph, there has been a tremendous cascade of enlightenment poured out upon the world. The hearts of men have turned to their fathers in fulfillment of the words of Malachi. The vision of Joel has been fulfilled wherein he declared:

“And it shall come to pass afterward, that I will pour out my spirit upon all flesh; and **your sons and your daughters shall prophesy, your old men shall dream dreams, your young men shall see visions:**

“And also upon the servants and upon the handmaids in those days will I pour out *my spirit*.” (Joel 2:28—32).”

I am also reminded of an experience recorded in the New Testament of the Antioch Branch of the Church (Acts 11:28-30), that it was not Peter (the head of the Church), nor Paul (an Apostle), nor the local Church leadership who prophesied of a near future famine that would happen, not only to the Saints in Antioch, but to all of the world, and which would be especially hard on the members of the Church in Jerusalem. This Agabus forewarned the saints in Antioch, which forewarning allowed them to prepare and send invaluable aid to those in Jerusalem via the hand of Paul and Barnabas. (visiting Church authorities.) Apparently, Agabus was called a prophet, not because of a Church calling (as a Prophet or an Apostle), but because he had the gift of prophecy. (Later on Agabus also exercised his prophetic gift concerning the imprisonment and death of Paul). That Agabus was known and well respected by the Church leadership is apparent, for he was not rebuked but believed and sustained by them. Notice that President McKay wrote that this Church member could see things by the spirit that other members of the Church could not see.

“While Paul and Barnabas were at Antioch, there came “prophets from Jerusalem,” one of whom was named Agabus. He is thought to have been one of the Seventy chosen by the Savior; but **just what priesthood and what position in the Church he held we do not know for certain. But he must have been a righteous man, and filled with the Holy Ghost, for he could foretell, through the inspiration of the Spirit, things that other people, by their own intelligence, could not see.** At the time of which we are speaking he prophesied that “there should be a great dearth throughout all the world,” meaning that there would be a famine in the land, and that people would go hungry.

“The disciples had faith in Agabus and believed to be true what he said. They knew of some of the Saints in Judea who could not stand a famine; in fact, many of them had given all they had to the Church; so “every man according to his ability determined to send relief unto the brethren who dwelt in Judea.” Paul and Barnabas were chosen as the messengers of relief.

“It was well they did so, for the famine came just as Agabus had said it would. Luke tells us that it happened in the days of Claudius Caesar (44 A. D.), and profane historians inform us that it was so severe that even the emperor himself was insulted in the market place by those who were starving.” 23

The gifts of dreams and visions and of prophecy are not gifts that all members of the Church have or exercise. Additionally, such spiritual experiences do not occur often, though there are some who

have been blessed with this unique gift which allows them to have many such experiences, such as Agabus. Elder Oaks reminded us of this fact in General Conference not too long ago and that most of the communication from the spirit is conducted by the still small voice and feelings in our hearts.

“Visions do happen. Voices are heard from beyond the veil. I know this. But these experiences are exceptional... Most of the revelation that comes to leaders and members of the Church comes by the still, small voice or by a feeling rather than by a vision or a voice that speaks specific words we can hear.”

(Elder Dallin H. Oaks, Ensign, Mar. 1997, p.14.)

If I personally am not blessed with the gift of dreams or visions, should I then deny and immediately suspect those that might be? If I do not conceive the warning voice in my heart first, then again it must be not true. This attitude of jealousy, misunderstanding, and shortsightedness only offends the spirit...insuring such a person of even less such instruction. Such an attitude in the days of 44 AD would have hurt only those who did not give serious consideration to Agabus' warnings. I imagine that there were probably some who didn't and therefore suffered more than they needed.

Are such attitudes prevalent in the Church, even today in our enlightened age? Unfortunately, the answer is yes. Of course the proof of this is there are even those members of the Church who do not even heed the warnings and counsels given directly from the Prophets and Apostles themselves, never mind other 'ordinary' members of the Church. Take the example of food storage, which again has been strongly encouraged personally by the prophet in General Conference, repeated again in a letter from the First Presidency in January to all of the Church leadership and members, and set as a topic for discussion in the Saturday night Stake Conference training sessions for the first half of this year by President Packer in a letter to all of the Church leadership. (Also note the changes made to the Church canneries to support this effort.)

And yet we are finding that not only are a large majority of the membership in the Church ignoring such warnings and counsel, that even many irresponsible Bishops and Stake Presidents are withholding the information from their respective membership.

What about the question concerning telling or publishing personal dreams and visions to others? Aren't they only for those individuals, or their immediate families benefit and consumption?

In the old days, telling such special experiences to others was actually somewhat a common practice. In fact, often we find the Church leadership publishing such personal experiences for the whole Church membership to read. (See the three dreams/visions that are mentioned in "Behold the Fig Tree" that were received by two members of the Church (not General Authorities) and one nonmember. The two dreams of the members were submitted to the First Presidency, which then directed them to be published for the Church membership in the Church magazine.)

It becomes obvious as one researches dreams and visions in the Church, that often members of the Church receive dreams and visions concerning events that affect others besides themselves and their immediate family. Upon hearing of such an experience, it would behoove us to ponder it in our minds on how the experience or prophecy might affect ourselves or our family...and then ask the Lord for confirmation and how to respond to it.

Another point that needs to be mentioned is this: If dreams and visions are usually rare, and then we see a sudden surge of such spiritual experiences happen among a larger portion of the Church than normalWouldn't that be of special note or interest? And further, what if a large majority of those dreams and visions are all concerning the same things...wouldn't that be something to consider and ponder even more seriously? Could it be the spirit of the Lord trying to warn us and prepare us for something that is coming, that will

affect not only those having the dreams, but all of us? Again, we refer back to the experience of Agabus and say "Take heed, and hearken, O Israel;" and also "And some believed the things which were spoken, and some believed not...Hearing ye shall hear, and shall not understand; and seeing ye shall see, and not perceive"

Why aren't the brethren teaching about tent cities. I cannot speak for them, but may I suggest the point that the key to favorably responding to a call to a tent city, perhaps when there is no other reason than faith and obedience, will not happen unless the Church members are obeying the basics, referred to as the milk of the gospel.

Without obeying the basic commandments...Church attendance, tithing, scripture study, prayer, temple attendance, etc. the call to places of refuge such as tent cities would go unheeded and any teaching of such an event, or any other higher principles of the gospel (often referred to as the meat) would be useless. It would be like trying to put the roof on a house when the foundation isn't firm and the supporting walls are weak. The result is total disaster.

While researching this topic, I came across an excellent article that addresses the problems between teaching milk and meat, and uses the early Saints experiences with the prophet Joseph Smith as a background.

"In March 1830, Martin Harris was instructed to "preach naught but repentance," and not to divulge to the "world" things he had recently learned until it was wisdom in God to do so. The reason given was that "*they cannot bear meat now, but milk they must receive; wherefore, they must not know these things, lest they perish*" (D&C 19:21-22).

"The milk/meat metaphor, often employed in the scriptures, communicates the principle effectively because of our common experience in feeding children. Children thrive on milk, but would choke on meat. But children also grow up, and their diet changes to suit the growing needs as their bodies mature. And so it is intended in the realm of spiritual things. When we are first introduced to the gospel, we are as children needing doctrinal milk. As we mature in learning and living the gospel, however, it is expected that gradually our spiritual digestive system will be able to handle more meaty doctrines. This process has both individual and institutional implications. Some individuals mature much faster than others. Unfortunately, some never become weaned from the bottle, coughing and choking, as it were, when any solid food is introduced into their diet. This reality presents an interesting challenge to the Lord and his prophets. What is to be taught to the Church as a whole? And what is to be done about those who long for and can digest more solid food than is currently appropriate for the body of the Church? Should they be deprived because some still need only milk? And what is to eventually happen to those who simply do not want and cannot handle much beyond milk? I submit the answer is tied to the two-edged sword analogy—doctrinal truths act as a sharp sword, exposing hearts, dividing loyalties, separating sheep from goats. This process leaves behind, if you will, those who will not or cannot abide the higher doctrines and covenants of the gospel and, at the same time, proves, strengthens, prepares, and purifies those who hunger for the fullness of the gospel.

"Interestingly, there is real pain involved for those at both ends of the spectrum. Those left behind often become frustrated and bitter. Some of these, with a mean-spirited obsession, lash out against the institution, its leaders, or its members, causing pain and sadness to themselves and to those who remain faithful. Even more painful, however, for the stalwart Saints, is the pain that must be endured in being proven in all things, We earlier quoted from D&C 98 indicating that the Lord will "try" and will "prove" the faithful "in all things...even unto death" (vv 12-14). The Prophet Joseph Smith taught that

before one could have his calling and election made sure he must be “thoroughly proved”; he must demonstrate that he is “determined to serve [God] at all hazards” (Teachings of the Prophet Joseph Smith 150; hereafter TFPJS). John Taylor said the Prophet also taught the following to the Twelve in Nauvoo:

“You will have all kinds of trials to pass through. And it is quite as necessary for you to be tried as it was for Abraham and other men of God...God will feel after you, and He will take hold of you and wrench your very heart strings, and if you cannot stand if you will not be fit for an inheritance in the Celestial Kingdom of God.” (Journal of Discourses 24:197; hereafter JD)

Examples from the Nauvoo Years

“The Nauvoo period in Church history is a showcase that vividly illustrates the principles discussed above. Time will allow mentioning but a few examples. First, we will cite some statements of the Prophet Joseph Smith lamenting the fact that he was not able to teach the Saints all that the Lord had revealed to him. Obviously, he wanted desperately to share what he knew, but the Saints generally were unprepared and unwilling to accept some of those truths. We will then focus upon William Law and his associates as examples of those who were cut asunder by the two-edged sword of doctrine. Finally, as representative of those who were tried in the fire and proved to be pure gold, we will review a tender account of a heart-wrenching test of Heber C. and Vilate Kimball.

Joseph Smith’s Lament

“The following quotations from Joseph Smith are all from the Nauvoo period. Both the message and the Prophet’s depth of feeling are clear.

“At a meeting of the Twelve in the Prophet’s home on 19 December 1841, Joseph Smith said the following:

“Some people say I am a fallen Prophet, because I do not bring forth more of the word of the Lord. Why do I not do it? Are we able to receive it? No! not one in this room... The reason we do not have the secrets of the Lord revealed unto us, is because we do not keep them but reveal them; we do not keep our own secrets, but reveal our difficulties to the world, even to our enemies, then how would we keep the secrets of the Lord? I can keep a secret till Doomsday. (HC 4:478-79)

In April 1842 he added:

“The Lord makes manifest to me many things, which it is not wisdom for me to make public, until others can witness the proof of them. (HC 4:608) A year later, April 1843, the Prophet encouraged and comforted the Saints at the death of Lorenzo D. Barnes, with these words:

“It is my meditation all the day, and more than my meat and drink, to know how I shall make the Saints of God comprehend the visions that roll like an overflowing surge before my mind.

“Oh! how I would delight to bring before you things which you never thought of. But poverty and the cares of the world prevent. But I am glad I have the privilege of communicating to you some things which, if grasped closely, will be a help to you when earthquakes bellow, the clouds gather, the lightnings flash, and the storms are ready to burst upon you like peals of thunder. Lay hold of these things and let not your knees or joints tremble, nor your hearts fail; and then what can earthquakes, wars and tornadoes do? Nothing. All your losses will be made up to you in the resurrection, provided

you continue faithful. By the vision of the Almighty I have seen it. (HC 5:362)

“The following month, 21 May 1843, Joseph Smith preached a sermon in the Nauvoo Temple. His text was the first chapter of 2 Peter, focusing on making one’s calling and election sure. It seems his purpose was to stretch the Saints’ understanding and their commitment to move forward in spiritual things. Among other things he said the following:

“I could explain a hundred fold more than I ever have of the glories of the kingdoms manifested to me in the vision, were I permitted, and were the people prepared to receive them.

“The Lord deals with this people as a tender parent with a child, communicating light and intelligence and the knowledge of his ways as they can bear it. The inhabitants of the earth are asleep; they know not

the day of their visitation. (HC 5:402)

“In July 1843, the same month that Section 132 of the Doctrine and Covenants concerning eternal and plural marriage was recorded, the Prophet Joseph spoke about a man’s foes being those of his own household. A report of those remarks states:

“The same spirit that crucified Jesus is in the breast of some who profess to be Saints in Nauvoo. [I have secret enemies in the city intermingling with the Saints...slightly touched upon the subject of the everlasting covenant, showing that a man and his wife must enter into that covenant in the world, or he will have no claim on her in the next world.] But on account of the unbelief of the people, I cannot reveal the fullness of these things at present. (HC 5:510)

“Six months later, 21 January 1844, the Prophet preached to several thousand people at the southeast corner of the temple. Again he spoke of the difficulty in getting people generally, as well as the Saints, to learn the things of God:

“There has been a great difficulty in getting anything into the heads of this generation. It has been like splitting hemlock knots with a cornodger for a wedge, and a pumpkin for a beetle. Even the Saints are slow to understand.

“I have tried for a number of years to get the minds of the Saints prepared to receive the things of God; but we frequently see some of them, after suffering all they have for the work of God, will fly to pieces like glass as soon as anything comes that is contrary to their traditions: they cannot stand the fire at all. (HC 6:184-85)

“On 7 March 1844, just three months before he died, in a speech in the temple, **Joseph said simply, “I know much that I do not tell”** (HC 6:244).

“Heber C. Kimball testified of another occasion where the Prophet said, “Would to God, brethren, I could tell you who I am! Would to God I could tell you what I know! But you would call it blasphemy, and there are men upon this stand who would want to take my life” (Quoted in Orson F. Whitney, Life of Heber C. Kimball [Salt Lake City: Bookcraft, 1945], 322).

“Wilford Woodruff testified of Joseph Smith: “His mind was opened by the visions of the almighty, and the Lord taught him many things by vision and revelation that were never taught publicly in his days; for the people could not bear the flood of intelligence which God poured into his mind” (JD 5:83-84).

“Truly, the Prophet Joseph Smith suffered a kind of spiritual loneliness, having so much to give and so few of his followers being willing to receive it. It is no wonder that he delighted in those who were willing to receive the truths of heaven, and who could be trusted—his brother Hyrum, Brigham Young, and Heber C. Kimball among the brethren, and several sisters of equal spiritual sensitivity and commitment.

"As indicated above, the Prophet said there were those upon the stand from which he spoke who would want to take his life. Evidently, one of such a mind was William Law.¹ William Law, four years younger than Joseph Smith, joined the Church in Canada in 1836, received the Melchizedek Priesthood in 1837, and came to Nauvoo in November 1841. Perhaps it is significant that he missed the Kirtland and Missouri periods of Church history—important schooling and testing times for the Saints. In Nauvoo William and his brother Wilson Law became successful in business. They involved themselves in real estate, a store, and a steammill. William was active in Church matters, and defended Joseph Smith against the accusations of John C. Bennett in 1842. He served two missions and was one of the nine persons who first received the temple endowment rites in this dispensation in May 1842. He was called as a counselor in the First Presidency early in 1841 (D&C 124:91). William rejected the revelation on plural marriage in the summer of 1843. **Gradually he became more and more disgruntled. He was released from the First Presidency in January 1844 and excommunicated in April, three months later. He became bitter. He claimed his excommunication violated the established order of the Church. He also claimed the introduction of new doctrines had corrupted the Church. The doctrines cited include plural marriage, plurality of Gods, ecclesiastical control over civil and business affairs, and the unconditional sealing up of persons unto eternal life."**²⁴

I find it of interest that I have heard the very same comments concerning President Hinckley as was said about Joseph Smith...that they were not prophets because they didn't bring forth as much revelation or prophecy as some people believed they should, or they acted or said something that was contrary to what others believed was right or not. The same spirit of the adversary is working its way among the hearts of the rebellious as was in the days of Joseph, and unfortunately many members of the Church then and now have partaken of it.

Is it any wonder then that very little "meat" is spoken from the public pulpit and the brethren are constantly counseled to preach almost exclusively "milk"?

Now I wish to address those who feel that preparing for the opportunity to be called into a tent city refuge by a living prophet and Quorum of the Twelve is an evil and wicked sin.

1. What does it hurt? So we prepare to camp for a year. Maybe we are called to go and maybe we aren't...but by preparing we:

- A. follow the counsel of the prophets (past and present) to get a years supply of food storage.
- B. We follow the secondary counsel to prepare ourselves beyond the basic food storage level.
- C. Those who so prepare are ready in case they are forced to leave their houses for whatever reason. Disaster, etc.

In other words...it never hurts to be overly prepared beyond the bare basics, as we have been counseled. In fact logically, in this time of tumult and natural disasters, it makes great sense to prepare for such a prospect. To argue against being prepared to leave our houses for a season is the more stupid and illogical aspect.

2. If we do walk to Zion....what are we going to live in as we walk back? And what are we going to live in while we build the city...especially since many of the prophecies by Prophets indicate that

it will be completely swept clean when we get there?

3. What if all of the witnesses and testimonies are right concerning a call by the prophet to gather to places of refuge where the majority live in tents? Then those who have so prepared can then make the decision to follow the prophet or not. Those who have not so prepared, have no choice and will have to suffer the consequences of their non-preparation. Remember the scripture: *"if ye are prepared ye shall not fear."*

In conclusion let me remind you of a story I am sure many of you have heard many times.

THE FARM HAND WHO COULD SLEEP THROUGH ANYTHING

There once was a farmer looking for a young man to help out at the farm. There were several young men who interviewed for the job and as far as the farmer could tell they were about equally well qualified. He then went and asked them each one final question... Tell me, he would say, Why should I hire you above the others?"

Of all of the applicants and their replies, there was one that was really different. One young man said..."because I can sleep through anything." At first the farmer thought it was just strange, then the more he thought the more he was intrigued and mystified by the response. So he figured, well I will give this young man a chance and he hired him.

Weeks went by and the farmer was pretty happy with the young mans work. He still wondered sometimes what the young man had meant by his strange reply, but he never got around to it. Then one night he was awakened in the middle of night got a phone call from neighbor. There's a big storm suddenly coming in with lots of wind, maybe a tornado. Better get ready for it," was the quick message.

Indeed as the farmer went and looked out the door he found that the wind was strong and rising and rain had started. He quickly ran and tried to wake the young man up to start getting everything ready for the blow...but try as he might, the young man couldn't be stirred. Muttering to himself about what a stupid thing he had done in hiring a lazy boy who wouldn't wake up when he really needed him...the farmer went out to the farm

He went out to tie down the hay...but discovered that the hay was already tied down securely. Next he went to the barn and the corrals...and every time he looked, everything had already been prepared.

After a while of just wandering around the farm, of discovering that there was nothing that needed to be done at the last minute...because it had all been done before, the farmer returned to the house, but instead of muttering, he actually found himself singing the praises of this young man. He had realized, to his great joy, that the reason that the young man could sleep through anything was because before he went to bed each and every night he had already prepared for the very worst. And so the farmer followed the example of the young man, since everything was already prepared, he undressed and was soon fast asleep, with a huge smile of peace on his face.

Moral of the story...it is better to be overly prepared than under prepared, you get more sleep that way.

"There is a law, irrevocably decreed in heaven before the foundations of this world, upon which all blessings are predicated—

"And when we obtain any blessing from God, it is by obedience to that law upon which it is predicated." D&C 130:20-21

"For behold, it is not meet that I should command in all things; for he that is compelled in all things, the same is a slothful and not a wise servant; wherefore he receiveth no reward." D&C 58:26

- ¹² *Nephi* 10:22
²¹ *Nephi* 2:15
³ *Jacob* 3:4
⁴ *Alma* 10:22-23
⁵¹ *Nephi* 8:24-28
⁶ *Collected Works of Hugh Nibley*, Vol.9, Ch.2, p.47
⁷ There has only been one exception to this sequence that I can find in the scriptures and ⁷ that is the story of the Nephites just before the appearance of the Savior to them. In this Nephite experience, all of the sequence happened as outlined, but the part of the righteous being cast out or gathered out is not mentioned. It does mention though, that there were very few righteous among so many wicked, (3 *Nephi* 7:7) the government was overthrown and the Church seemed to become almost non-existent as an organization.
⁸ *Ezra Taft Benson*, Conference Report, April 1969, p.10-12
⁹ *God, Family, Country*, p. 383
¹⁰ Conference report, April 1880, p 96
¹¹ *D&C* 112:23-26
¹² *Journal of Discourses*, Vol.15, p.330, Orson Pratt, January 26, 1873
¹³ *Harold B. Lee*, Conference Report, April 1948, p.55
¹⁴ *D&C* 104:17-18
¹⁵ *D&C* 130:20-21
¹⁶ *D&C* 64:34-36
¹⁷ *D&C* 56:1-3
¹⁸ *D&C* 56:4, 63:6
¹⁹ *Joseph Fielding Smith*, *Church History and Modern Revelation* 1:195
²⁰ *Genesis* 7:16
²¹ *Ezra Taft Benson*, *Ensign*, Nov 1987 p. 49
²² *DHC* 4:272
²³ *David O. McKay*, *Ancient Apostles*, p.150
²⁴ *Regional Studies*, Illinois, Dahl—*Teachings in Nauvoo*, p.129-133

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