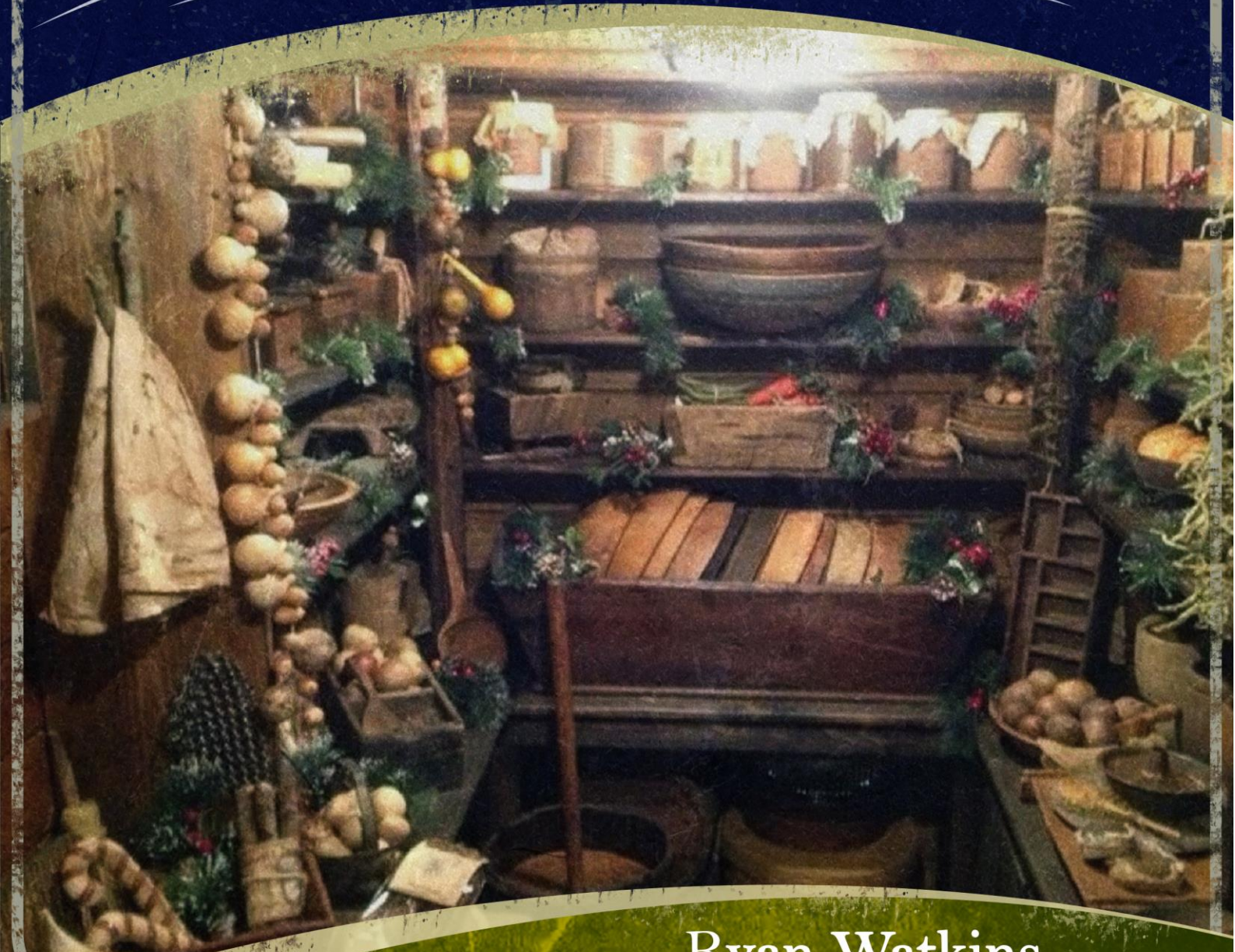
THINGS TO DO TO BE READY FOR A

NUCLEAR ATTACK



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Introduction

Nuclear weapons were invented by some of the most brilliant scientists of all time. J. Robert Oppenheimer, Niels Bohr, Edward Teller, Enrico Fermi, even Albert Einstein… it's like a Who's Who of the 20th century's greatest physicists. Since the Manhattan Project the weapons have gone from huge bombs that needed the world's biggest bombers to carry them, to sophisticated devices that can be delivered anywhere in the world by tactical artillery, stealth cruise missiles or intercontinental rockets – and, after flying thousands of miles, land in an area the size of a tennis court. They really are technological masterpieces.

This makes it slightly ironic that, if they're ever used on a large scale, most of the other technology we all rely on will be destroyed.

Apart from massive physical destruction, a nuclear attack would also create EMP effects that would wipe out most of our modern electronics (and erase most of our data, too). Huge fires and possibly even nuclear winter would cause crop failures and collapse our elaborate food processing and distribution system. Utilities – electricity, gas and even water and sewerage – would shut down. The economy would be devastated for years to come. Health care, law enforcement, the justice system and emergency services would all collapse. Basically, everything that makes the USA a modern, advanced country would fall apart.

Most people aren't going to cope with this too well. You can't really blame them; they've grown up in the modern world, and when it's taken away from them it's understandable that they're going to be lost without it. Unfortunately, the result will be appalling. Starvation, the breakdown of law and order, huge refugee movements and disease on a scale not seen since the Middle Ages are almost inevitable.

It doesn't have to be that way, though. There's no way to stop a major nuclear attack destroying most of our modern infrastructure and economic systems, and we definitely won't have as easy a time without them, but do we really *need* them to survive? There's an obvious answer to that: No, we don't. We know this because, in living memory, most of us survived just fine without them.

Thirty years ago everyone got by just fine without Amazon, social media and online banking. Fifty years ago most homes contained maybe one or two electronic devices. A hundred years ago 95% of Americans didn't own a car. A hundred and fifty years ago nobody had electricity at home.

They survived.

The aftermath of a nuclear war won't be so appalling because we need all the things it will destroy; it will be appalling because most of us have never learned the skills that can replace them. In previous generations almost everyone had those skills, and some people still use them even now, but most people wouldn't have the first idea how to make their own clothes, grow their own food or heat their home without modern utilities. If the USA suffers a nuclear attack, anyone who doesn't have those skills is going to be in trouble. The aim of this book is to show how the lost ways of our ancestors can help us survive and rebuild no matter what happens to the country.

Building a Water Supply

After oxygen and shelter, water is one of the most vital things you'll need to survive the aftermath of a nuclear attack. Without water you can survive for a few days at most. You might string that out to a week if the weather isn't too hot, but only if you keep physical activity to a bare minimum.

Unfortunately, to get through a nuclear attack you're probably going to have to spend at least two weeks inside your shelter – and while you're in there you'll need at least a gallon of water a day. Then, when it's safe to come out, there's going to be a lot of hard work to do. Taking it easy to conserve water isn't an option. The problem is that getting water isn't going to be as simple as turning on a faucet.

A nuclear attack probably won't shut down every water treatment plant in the USA; plenty of homes will still have water in the pipes, at least for a while. It's unlikely to be safe, though. For a start, most water supplies will be contaminated with radioactive fallout. Others will be polluted by industrial chemicals – there are going to be a lot of environmental disasters as factories suddenly lose power and computer control. There will be plenty of fires, too, and a lot of soot loaded with hazardous chemicals is going to be landing in lakes, rivers and reservoirs. Rain will wash more contamination into the water supply, and in a few days it will soak into the ground so that even ground water is contaminated.

That's the *really* bad news. Even if you have your own well, the water that comes out of it will be contaminated. There might not be any water at all. Nuclear ground bursts pump a lot of energy into the ground, and shock waves set up by that energy can travel huge distances. Along the way they can break water pipes, destroy dams and levees, and even break open the rock around aquifers. There's a real chance that the aquifer your well taps into could disappear as the water escapes through new fissures.

To survive, both through the immediate aftermath of the attack and in the longer term, you need a two-stage water strategy. The first stage is to have enough water stored that you can survive for at least two weeks in your shelter. The second stage is to be able to purify water once it's safe to come out. Doing that in a nuclear environment has some extra challenges, but in fact old techniques that our ancestors used will give handle most of the job.

Storing emergency water supplies

Old techniques are also useful for storing your initial water supply. For each person in your shelter you'll need to store at least 14 gallons of water; if you have room for more, that's even better. Even with the bare minimum that's still a lot of water, and you're probably going to end up storing it in barrels or jerrycans.

Storing water in barrels, for months or years at a time, isn't a new problem. It's one that sailors were familiar with for centuries. During the age of sail voyages regularly lasted for weeks or months – sometimes years. On a modern ship, storing water for a long voyage isn't a problem. They have stainless steel tanks, often fitted with UV lamps to kill any microorganisms that try to grow. Some ships can even produce fresh water from seawater by distillation or reverse osmosis. On an old sailing ship, every drop of water for cooking and drinking had to be carried in containers in the hold; because of the amount they had to store, the only practical solution was to put it in wooden barrels.

It has to be said that wooden barrels aren't ideal. They're never totally airtight, and after a few months the water in them could get pretty lively. Sailors often mixed their wine or rum ration with the water – they didn't know about bacteria back then, but they did know that water with alcohol in it made fewer people sick.

They also made a link between how many things were growing in the water and how likely you were to get sick from it. Before long, people realized that while wooden casks were the only realistic way to carry large amounts of water – glass bottles were much too expensive – the wood itself wasn't ideal. They started looking for ways to cut down the amount of tiny wildlife that lived in the casks, figuring that this would help preserve the water. One way to do that was by chemical purification; they would burn sulfur inside the barrels before filling them. It was smelly, but the fumes did a pretty good job of sterilizing the wood. A simpler alternative was to just char the inside of the barrels; the heat also killed lots of microorganisms.

Like sterilizing water with bleach, these steps would slow down the process of things growing in it, but rarely stopped it completely. A simple way to slow it down even more was to put silver coins in the water barrel. Silver has antibacterial properties, and the coins would slowly release silver into the

water and slow down the growth of microbes. Silver could even be used to purify water that was already foul; two coins per gallon would be added, then the water would be left to stand for a day before being filtered through sailcloth and drunk.

Finally, sailors discovered that if they added gunpowder to foul water it made it a lot safer. It didn't necessarily make it *taste* a lot better, because two of the three ingredients in black powder are sulfur (which smells of rotten eggs) and saltpeter (which has a salty taste) but it did take out many of the impurities.

We now know that what took out the impurities was the *third* ingredient of black powder – charcoal. Activated charcoal is something every prepper should have, because it has a lot of uses. The charcoal in gunpowder wasn't activated, but it was the next best thing. High-grade powder, like that used on British warships, was "incorporated"; the ingredients were mixed together then finely ground under high pressure. This crushed and fractured the grains of charcoal, maximizing their surface area. Particles of sulfur and saltpeter were then forced into the surface. When the gunpowder was mixed into water the sulfur and saltpeter dissolved, leaving tiny pits. This increased the surface area even more. Activated charcoal is just powdered charcoal that's been chemically treated to pit and crack its surface.

You can avoid salty, eggy water by leaving out the other ingredients of black powder and just using activated charcoal. Adding two cups to each gallon of foul water will get rid of most toxins and microorganisms; just mix it in well and leave the water to stand. It isn't very efficient, though; you'll use a lot of charcoal, and while the water will be much purer it will still need to be boiled. Instead, make activated charcoal filters and run the water through them. That will get rid of all contamination from your stored water.

Anyway, you're a lot luckier than those old sailors. You don't need to put your water in wooden casks; you can get food grade plastic barrels or military jerrycans. Military cans are good because they're specifically designed for storing water, but blue barrels are actually better for long-term storage. Many microorganisms need sunlight to grow (so don't use clear plastic) but blue light tends to kill them.

Supplies for the future

Your stored water will run out eventually, and you're going to have to start collecting more. The problem is that almost all water supplies will be contaminated with fallout, and will be for a while. Smaller particles of fallout can stay up in the atmosphere for months, and while their radioactivity will slowly decay it will still be a hazard. Your main challenge is to get as much radioactive material as possible out of your drinking water. You won't get all of it, but every little helps.

Fast-flowing rivers are a good source of water after an attack, but they won't be completely free of fallout. Rain will wash radioactive dust into rivers, lakes and ponds; the advantage to fast-flowing ones is that they get rid of it quicker, and there will be less fallout accumulating at the bottom. You still have to purify it as well as possible though.

Our ancestors used to collect rainwater from their roofs, channeling it through gutters and downpipes into barrels. If the barrel is full of sand it acts as a very effective filter, and clean water can be drawn from a tap fitted at the base of the barrel (this is easier if you stand the barrel on some cinder blocks). That won't help with radioisotopes dissolved in the water but it *will* clear out any particles of fallout. With this sort of filter it's usual to throw out and replace the top few inches of sand, which collect most of the contamination, every couple of weeks. In a nuclear environment you should do this after every rainfall; if you leave it too long the top of the barrel will slowly accumulate a high level of radiation, and disposing of the sand will be dangerous.

Don't even try to collect rainwater for at least a month after a nuclear attack. If the weather is disrupted by smoke and dust veils, any rain or snow that falls is going to be highly contaminated. Wait until the weather goes back to normal. Then cover roofs with clean plastic sheet and set up your sand filter.

Once the water has been through the sand filter you have two choices. If you can distil it that will eliminate almost all contamination – but the residue left behind will be dangerous, and you'll need full protective clothing to handle it. The alternative is to use an activated charcoal filter. That isn't as effective as distilling but it still gets most of the fallout, and it can even extract some dissolved contamination. Again, the charcoal will slowly become radioactive and needs to be disposed of carefully.

The main thing to remember about post-attack water is that fallout isn't a plague or some kind of dark magic. It's just dust with radioisotopes in it. It can't make the water itself radioactive; if you can remove the radioisotopes, the water is safe. You'll never get every last bit of radioactivity out, but you can cut it by orders of magnitude – and, combined with the fallout's own steady decay, that's enough to get you through.

Shelter – Before and After the Attack

Unless you live on a tropical beach, shelter is vital for survival. That's even more true when you're under nuclear attack. If you're caught in the open when the bombs go off your chances of survival fall sharply. If you're still outside when the fallout starts to come down, and you don't have somewhere to take refuge, they drop to basically zero.

It's actually easier to survive the blast without shelter than it is the aftermath – if you're not inside the zone of total destruction, and you know the Nuclear Immediate Action drill, you have a good chance of getting through the initial effects. On the other hand, if you spend the next two weeks in the open as the sky rains radioactive dust on you, you're dead. You *need* a safe refuge to get you through the critical first two weeks after the attack; after that you can start thinking about rebuilding your life.

One of the best ways you can protect yourself against nuclear attack is to build a good, spacious root cellar. That might be surprising advice, but think about it for a moment. A root cellar needs to be underground to keep the temperature low. A nuclear shelter needs to be underground to protect you from the blast and thermal pulse. A root shelter needs to have a thick, earth-covered roof to stop sunlight warming it up. A nuclear shelter needs to have a thick, earth-covered roof to resist overpressure and absorb the radiation from fallout that lands on it. A root cellar needs a filtered ventilation system to keep insects away from your food stores; a nuclear shelter needs a filtered ventilation system to stop fallout coming in. The two structures might have very different purposes, but they're basically the same thing. If you have a root cellar it can be turned into an effective shelter very easily.

The trouble with root cellars is that they're a lot of work to build. If you already have one that's great, but if global tension is rising and you're worried about nuclear war, you probably don't have time to build one. Unless your house has a solid basement with a concrete ceiling that leaves you a bit stuck, but there's one option you can adapt.

Mostly we think of Native Americans as nomadic peoples, living in tipis. Many of them were; others weren't. The tribes who lived on California's coast, around and north of San Francisco Bay, used a very different building style. Their sleeping huts were permanent structures of poles, bark and reeds; their communal village life took place in roundhouses. Each village had at least one small one used as a sweathouse, and one large roundhouse where meetings, dances and celebrations took place.

What makes the roundhouses interesting is that they were semi-subterranean – partly underground. As a nuclear shelter that isn't as good as being *completely* underground, but it still gives you a lot of protection. They also had thick roofs, supported by heavy logs and covered with earth. The roof is pretty resistant to blast and heat, and will absorb most radiation from fallout that lands on it. Then, if you stay close to the floor as much as possible during the first few days after the attack, you'll be below ground level; any radiation from fallout on the ground that makes it through the structure will go over your head.

No original semi-subterranean roundhouses survive, but good descriptions have been pieced together from historical accounts and archaeology. Traditional roundhouses were usually from 30 to about 60 feet in diameter, which involves a lot of digging; for a family shelter you can make it a lot smaller – aim for around 50-60 square feet per person, so a 16-foot roundhouse will hold four. It won't be spacious, but it will be big enough.

Start by marking out your pit. The circle you mark should be about two or three feet wider than the floor diameter you want, because the walls are going to slope inwards. Then start digging. Traditional roundhouses often only went down a couple of feet; you really want a minimum of at least three, and deeper if you can. Give the walls a gentle inward slope as you go down.

Once the pit is dug, line the interior walls with rocks to stabilize them. Now you can start looking at the roof. Start by finding four solid timbers or logs, at least eight feet long. Native Americans used logs up to a foot in diameter. Logs with a natural fork at one end are perfect; otherwise you'll need to notch the ends.

Mark out a six-foot square in the center of the floor. Dig a two-foot hole at each corner and sink the logs into them, forked end up. Pack the soil back into the holes to hold the logs firmly. Now connect the tops of the posts with cross beams; these will support the actual roof.

Form the roof with poles running from the cross beams down to the top of the rock wall. The more you can put in, the better. Leave a gap for the doorway. In a traditional roundhouse the next layers were brushwood, but to protect against fallout you should cover it in plastic sheet first. Lay more poles between the crossbeams and cover that too. Then you can add brushwood, straw or any other material that will insulate it and trap air. Put

on another layer of plastic, then cover the whole structure with the earth you dug out of the pit.

If you can build a hinged trapdoor for the entrance that's ideal; if not, you'll have to use some kind of heavy plastic sheet. Put the entrance on the side facing away from any likely nuclear targets. Then build earth walls each side of it to shield it from radiation as much as possible. If you can roof over the space between the walls to form a tunnel that's even better; hang a heavy curtain at the end of it to keep fallout away from the door.

A roundhouse like this will give enough space for you and your emergency supplies. It's not as solid as a fully underground shelter, but its log construction and sloping roof help it resist blast, and the earth covering will absorb a lot of the radiation from fallout – even six inches of soil makes a big difference to your chances.

Long-term shelter

Two weeks after a nuclear attack, radiation levels should have fallen enough that you can spend some time outside. At that point you have to decide what to do next. Is your home still intact? Is the area under threat from looters, fires or radiation? It might be safe for you to stay there and start rebuilding, or it might not. If not, the next question is where to go and how to find shelter when you get there. Maybe you can stay with friends or family in a safer area, but if not there's a building technique made famous by the people who built America that can help you out.

As settlers moved west they needed to put up homes for themselves, from whatever building materials they could find locally. Fortunately many of them came from Scandinavia and knew how to build a home from logs – and, in America's great forests, there was no shortage of logs. Before long the log cabin had become the iconic homestead of the Midwest.

Log cabins are incredibly versatile. They can be built in any size, from a small one-room home to large and elaborate structures (the world's largest log cabin, a Canadian hotel, is four floors high and contains more than 200 rooms). The raw materials are abundant. Best of all, the building techniques are simple and don't need a lot of tools. If you really have to, you can put up a log cabin with nothing more than an ax.

There's another advantage of log cabins. It's easiest to build them in rural areas, where most of the logs are. These areas are also less likely to be directly targeted for nuclear strikes, and will be less affected by issues like refugees and looters. Most people who've lost their homes are going to head for less damaged urban areas, where they think they can find shelter and food. If you're in the woods they aren't likely to bother you, and neither are government officials looking for work parties or supplies to confiscate.

To start building a log cabin, mark out the size you want it to be then prepare the foundations. Dig a hole about two feet deep and three wide at each corner, then build a solid platform of rocks in each one. Take care to get the tops of each platform at exactly the same level; your cabin will rest on them. Then connect the platforms with stone walls, again keeping them leveled.

Once you've done that, choose your strongest logs. These will be the sills that your walls rest on. Notch the ends of each sill so they can interlock, connecting all four into a rectangular frame. Then build the walls upwards from there, again notching the logs to hold them in place. For the floor, use boards or logs fixed to the sill. If you have a log floor you'll need to put a layer of packed dirt over it to give a flat surface and insulate you from drafts coming up from below.

A fireplace and chimney can be built from stone. Make sure it has a solid stone foundation and no parts that will get too hot are in contact with the logs. Packed dirt can be used to seal gaps in the chimney and keep it drawing; even better is to line it with a steel pipe, if you can find one.

To add door or window frames, cut your logs to the right size then notch the ends each side of the door or window. Hammer boards into the notches to hold the logs together and give you a base for the frame.

Adding the roof is the most complex part. You can build gable ends with progressively shorter logs, using vertical supports to hold them in place. The roof itself is made using logs or beams as a framework. Then you can cover it with shingles, if you have any, or more logs. Split logs are ideal; they can be overlapped to shed rainwater. Finally, once your cabin is complete, use moss or mud to caulk any gaps between the logs. That will windproof it.

A well-built log cabin will stand for decades, and can be easily expanded if you need more space. It's also cheap and simple to build, and doesn't need much in the way of tools or materials (except logs). If you're forced from your

home by a nuclear attack, being able to build a cabin will let you easily re-establish yourself and start rebuilding your life.

Eating After The Apocalypse

Once you've secured shelter and a water supply, your attention is going to turn to food. If you're already interested in preparedness you probably have enough stores to keep you going for a few months anyway, but what will you do after that? Your long-term survival priority is to keep your radiation exposure as low as possible, but fallout will have contaminated the land, plant life and many existing food supplies.

A lot of food *will* be usable. Anything sealed in cans, jars or packets will be safe to eat as long as any fallout is cleaned off the outside before it's opened. Supplies won't last forever, though, and in the long term you're going to have to find new sources with as little radiation as possible. It might sound bizarre, but some long-lost techniques will make all the difference here.

Pemmican

Plants will be worst affected by fallout. The dust will land on them, and while a lot of it will be washed off by rain or removed by the wind, some can get caught up in flowers, ears of grain and even leaves. Then, as the plants continue to grow, they'll absorb radioisotopes deposited in the soil. That can leave the plant itself radioactive.

So plants are a problem, but meat is much safer. Even though the animals the meat comes from feed on plants, their biology works hard to filter out any hazardous chemicals. Fallout will build up in their livers, digestive systems and some glands, but most of the meat will have much lower levels. As long as you throw away all the offal, meat will be your least hazardous food for a long time after the attack.

The problem is that eating meat on its own isn't exactly a balanced diet. What you need is some way to turn meat into a complete food, *without* adding much – or any – vegetable matter. That's exactly what pemmican is.

Pemmican was invented long ago by the Plains Indians, to help them overcome their own survival challenges. They were semi-nomadic hunter gatherer people living in an often harsh climate, and running out of food was a constant fear. In winter hunting was difficult and foraging even worse, with plants either dead or buried in snow; what they needed was a way to turn abundant summer and fall food into a reserve that would last them through the cold months.

That's exactly what pemmican is. In summer and fall the Plains Indians were able to hunt all the buffalo and deer they needed, and finally they found a way to process surplus meat into a compact, nutritious and long-lasting food.

The Indians were already familiar with dried meat, and they discovered that by pulverizing dried meat and mixing it with rendered fat they could make dense blocks that would last for years – and provided all the energy and nutrients they needed to make it through the toughest winters. It's not surprising that when American pioneers discovered pemmican they adopted in enthusiastically. For explorers and trappers it was an ideal expedition and survival food. That's still true today.

To make pemmican you need equal weights of dehydrated red meat and rendered fat. The meat should be very dry, but be careful not to dry it at too high a temperature. You don't want to cook it, as this will destroy many of the nutrients it contains. Meat from grass-fed animals will make for more nutritious pemmican. Keep the temperature below 120°F, if you're using a dehydrator; if you can air-dry, that's even better.

The fat, on the other hand, needs to be rendered at about 240°F. That's hot enough to get all the liquid out, without overheating it. Just finely chop fat and either put it in a heavy pan, heat and stir regularly for about an hour, or set the oven for 240°F, put the fat in a roasting pan and leave it there for between twelve and 24 hours. You'll know the fat is ready when the cracklins are brown and crispy.

Strain the fat and let it cool. Once it's down to about 120°F you can make pemmican right away; if you want to do the mixing later, just reheat the fat until it's liquid, but no hotter than that – you don't want to start cooking the meat.

Run the meat through a grinder or pound it into fluffy, powdery mulch with a hammer. Then weigh out equal amounts of meat and melted fat, mix the meat into the fat and blend them thoroughly until all the fat is absorbed. Finally, pack it into molds or cupcake tins and let it cool.

Pemmican can be stored in sealed plastic bags, or wrapped in baking paper. It doesn't need to be chilled or frozen, and will last for years at room temperature – and a pound a day is enough to keep you going even if you're working hard. It's a real miracle food, and every prepper should know how to make it. In fact, if you start adding it to your stores *now* then not only will

you have a valuable extra reserve when you need it, but you'll be ready to make more in the future.

Chuños

Of course, it's not the only miracle food. The Incas had their own way to preserving food to last them through the winter, and like the Plains Indians they made good use of natural resources to do it. One natural resource the Incas had plenty of was potatoes, and the USA conveniently produces about 22 million tons of potatoes every year. If an attack happens in fall, when potatoes are getting ready to harvest, you can use their techniques to make a light, nutritious food that will last for decades.

If potatoes stay in the ground too long after an attack they'll start to accumulate radiation, but if you can harvest them between two and four weeks after the bombs go off, and there hasn't been a lot of rain since the attack, they'll still be safe. Keep them that way by turning them into chuños.

"Chuño" is a Mesoamerican word that means "wrinkle", so it's appropriate for this food – basically chuños are freeze-dried potatoes. Collect potatoes as soon as possible after the attack then store them in a root cellar or clamp until the cold weather arrives. If you use a clamp, cover it with a tarp to prevent rain washing fallout down into it.

The traditional Inca method for making chuños starts with freezing the potatoes in snow. If it's less than two months since the attack, don't do that – the snow could still contain high levels of radioactivity, so unless you have a Geiger counter and can verify low levels, just lay the potatoes out in the open but under a tarp rigged to keep fallout off them. Let them freeze for a day.

Next, put them out in the sun for a day. Again, if you can have some cover directly over them, that's a good precaution. You'll see them start to wrinkle. When the sun begins to set, squeeze the potatoes in your hands to get as much water out as possible.

Repeat this process, then peel the potatoes – the skin will come off easily in your hands, so you won't need a peeler – then squeeze them again, as hard as you can. Finally, let them finish drying out. Your chuños will last for well over a year, and to prepare them you just have to soak them in water then cook

them. Like pemmican, the right time to experiment with this long-lost food is now.

Foraging wild food

Wild plants tend to be less nutritionally dense than modern crops, but they're going to be a safer food source after a nuclear attack. Farming in the USA is extremely efficient, because it uses advanced irrigation techniques and is closely tied to the transport network, but those features also make it vulnerable. In a major nuclear attack transport nodes will be targeted, and that means a lot of fallout landing in the fields. A lot of water is also channeled to agricultural areas, and it will bring more fallout with it.

Now look at wild plants. They can be found in less populated areas of the country, further from nuclear targets. They'll still be exposed to *some* fallout, but the radiation dose will be much lower. Wash them thoroughly, avoid plants with complicated shapes that tend to collect dust, and you can reduce it even more.

There are too many edible wild plants to even think of making a full list here. Foraging is something every prepper should learn, because whatever sort of emergency you face the plants that surround you will be a valuable resource.

Be ready to cook without utilities

It doesn't matter whether you're eating freshly hunted game or a massive stash of Mountain House meals; you're going to need somewhere to prepare your food. Obviously that's a bit easier with Mountain House – you just need to boil water – but, realistically, you'll be eating more conventional things too within weeks of the attack.

That means you're going to need a kitchen, but a typical modern one isn't going to be a lot of use after a nuclear war. The microwave? Fried by EMP. An electric stove? If it's an old one it *might* survive, but will you have enough power to run it? Gas stoves? If you run on bottled gas you'll be fine until the bottles run out, but a mains gas supply isn't going to help you. The gas that would have powered your stove is going to be fueling a huge fire somewhere instead.

Most likely, after the bombs go off you'll be relying on the cooking methods our ancestors used. It makes sense to start preparing for that now, because after an attack a lot of what you need is going to be difficult to find.

First, *where* are you going to cook? The best option is to have a wood-burning range in your kitchen. You can cook practically anything on one of those, and if it's set up the right way it can even heat water and your home. It also runs on renewable fuel that isn't tied to the grid, and the ranges themselves are immensely robust; there's no reason why someone can't still be cooking on it three or four generations from now. It's true that they don't let you adjust temperatures the way a modern stove does, but most cooks quickly adapt. Even if you don't have a wood rage as your main stove, it's a great idea to keep one in reserve and be able to get it set up quickly.

If you don't have a range, you can still do a lot of cooking in an open fireplace. An indoor fire can be equipped with a rotisserie spit for roasting meat, and a swing trivet to let you hang kettles or pots over the fire. Some bricklaying skills will let you build a bread oven beside the fire.

An open fire outdoors can give you even more options. Anyone can grill things over a simple fire, or rest a pot on a couple of rocks, but with some ingenuity you can also set up griddles, spits and a bread oven. To protect you from the wind and rain as you cook, add a roof and a couple of walls around your fireplace. Many of our pioneer ancestors did all their cooking outdoors, and it served them well.

Having the right cookware will also make it much easier to cook on an open fire. A Dutch oven is pretty much essential; with one of these you can cook almost anything, especially if it has a flat lid that can double as a skillet. If it doesn't you'll need a skillet too; a couple more pans and a kettle will round out a very capable cookset. For everything except the kettle look for cast iron. Properly seasoned, this is as non-stick as any modern material, and it's also a lot more durable. Well cared for cast iron cookware will last pretty much forever, and if you get the Lodge brand it's also made in the USA.

It's great to have all the appliances and convenience of a modern kitchen – but it's even better to be able to survive without them. Our ancestors cooked with much simpler facilities, but their way is also more resilient. Unlike what we've got used to, it's able to survive the aftermath of a nuclear war.

Staying Healthy

Illness is going to be one of the big killers after a nuclear attack, and it will be coming at you from two directions – disease, spreading like wildfire as the healthcare system collapses, and the threat of radiation sickness from fallout. If you do get sick you're going to have to treat yourself, because every hospital that's still running will be full of burn and radiation victims. It's best to avoid illness in the first place, but there are no guarantees of that.

Fallout

One thing you can do is minimize your radiation exposure. Radiation damage accumulates in the body; a series of small exposures will eventually do as much damage as one serious one. Every rad you avoid improves your chances of survival, and the best way to avoid them is to have as little contact with fallout as you can. It's probably going to be impossible to avoid it completely, but every little helps.

One way you can reduce your radiation dose is to avoid inhaling fallout particles. Most of the radiation they give off is the alpha and beta types. Beta radiation can penetrate heavy clothing, but the further you can keep it from your skin the better. Alpha particles won't penetrate the layer of dead cells on top of your skin, but if you swallow or inhale them they're incredibly damaging.

Fallout is dust, and any movement outside risks stirring it up. Protect yourself by covering all exposed skin with protective clothing – rain gear, even disposable capes, will work if you don't have anything else. Then wear a mask to filter the air. A military one is best, but you can improvise with safety goggles and a modified dust mask with an activated charcoal filter.

Activated charcoal is extremely good at absorbing dangerous chemicals, and that includes fallout. If you know how to make activated charcoal you can easily make yourself improvised masks.

Charcoal is just wood that's been heated in an oxygen-poor environment. Most modern commercial charcoal is chemical impregnated, and charcoal briquettes aren't really charcoal at all, but you can make real, high quality charcoal yourself. The process is simple; build a tightly packed stack of wood (hardwood is best) with kindling in the middle, leaving a tunnel to light it

through. Cover the stack with turf and soil, light it then close off the tunnel. Let it burn, closing up any gaps that open, until no more smoke is escaping. When you open it up and damp it down, you should have some ash and a lot of charcoal.

To activate charcoal, crush it to a fine powder then grind equal weights of charcoal and calcium chloride together. Next mix in water; the calcium chloride will quickly heat up, cracking and pitting the charcoal to maximize its surface area – activating it. Finally, when the chemical reaction stops, the charcoal out of the water, rinse it and let it dry.

Two disposable dust masks can be sandwiched together with a layer of charcoal between them; if you wet the charcoal into a paste it will be easier to spread evenly, and it will dry out in a day or two. Seal the masks together with tape or a hot glue gun. You now have an improvised mask that will keep fallout out of your lungs.

Preventing Illness

Activated charcoal is also a great treatment for more conventional illnesses. It's very good for stomach problems like diarrhea or vomiting, both of which are serious in an emergency – you can lose a lot of fluids and nutrients. Powdered activated charcoal, either spoon-fed or made up into capsules, will absorb toxins, bacteria and excess stomach acid.

You can also use activated charcoal if someone has been poisoned. It can't do anything for poison that's already been absorbed into the body, but it will soak up anything that's still in the stomach. Once poison is absorbed by the charcoal it's trapped, which effectively neutralizes it – it won't do any more harm.

As well as absorbing poisons activated charcoal also makes great water filters, and contaminated water is a common source of disease. After a nuclear attack, with treatment plants broken down and sewers broken by ground shock, diseases like typhoid and cholera will be rife. A charcoal filter will trap the organisms that cause them, leaving you with safe water.

Activated charcoal is so useful that every prepper should know how to make it. Our ancestors did, and they used it for all sorts of things – charcoal biscuits were a common home remedy, and charcoal dog biscuits survived into the 1970s. It's almost a miracle substance, but unlike a lot of expensive quack

remedies anyone with an ax and the right knowledge can make themselves a limitless supply.

Protecting It All

There's no point having shelter, food and water if you can't use them in safety. Unfortunately, a post-nuclear environment is one of the least safe places it's possible to be. You've survived the actual strikes, but now you have to make it through the fallout and societal collapse.

Basic preparedness will get you through most of the problems that others will struggle with – the loss of utilities, food distribution and communications, for example. Now you have to dal with the radiation hazard, and, maybe most vital of all, you have to protect everything you have from desperate people who want to take it away from you.

Right after an attack, most people are going to expect the government to take care of them. Unfortunately, it's not going to be able to. Emergency services will fall apart. Hospitals will be overloaded with the sick and wounded. Whatever emergency food supplies still exist will soon be gone. And when it becomes obvious that the government can't help, desperate people will form into groups and go looking for the things they need. You can't blame them for that – but you can't let them take your supplies either. It's fine to say you should share with people who have nothing, but how many people is your food supply going to feed even for a single day? No, you need to make sure that you can hold on to what you have.

American communities having to protect themselves without much help from the government is nothing new. The original colonies adopted the British system, but as the nation expanded to the west the settlers were pretty much on their own at first. If they wanted to be safe, and have some assurance that their land and possessions wouldn't be taken from them, they had to organize it themselves. So that's exactly what they did.

The bedrock of law and order in the Old West was the local sheriff. Each community would elect their own sheriff and give him the powers he needed to keep the peace. Incidentally, that's why the corrupt, cowardly or useless sheriffs shown in many Western movies were rare in reality; if a sheriff wasn't up to the job, they wouldn't get re-elected.

After a nuclear attack you have two choices. You can try to turn your home into a fortress and be completely self-reliant, or you can work to maintain law and order in your local community. Almost every time, the second option is going to be the best. There's safety in numbers, after all. If it's just you and

your family you'll find it hard to maintain security while getting on with all the other stuff that needs to be done. The secure area around you will be very small – it probably won't extend past your own property. And of course, you have to sleep sometime; for the average family, keeping even one person on watch through the night is massively disruptive.

On the other hand, if you can rope your neighbors in things get a lot simpler. The secure area expands. The responsibility of keeping watch is spread among more people. And, if a well-armed gang of looters turns up, they won't be able to pick you off one household at a time - you can organize to fight them off.

Basically, once the radiation levels fall and everyone can emerge from shelter, your goal should be to get yourself elected as sheriff. That doesn't mean having an actual election the way the pioneers did in the Old West, but if you talk to people and let them see that you have a plan that will make them safer, they're likely to support you. That's your best hope of protecting your neighborhood from social collapse.

One thing that made life easier for sheriffs in the Old West was the level of trust that existed between the townspeople. They were out there in a harsh environment, and all of them understood that they depended on each other. It's likely to be the same once the initial shock of a nuclear attack wears off. Huge areas will fall into civil disorder; people outside those areas will naturally be frightened of being caught up in the chaos, and they'll see the benefits in working together.

This means there probably won't be much in the way of petty crime; your biggest problem will be the modern equivalent of the outlaw gangs that plagued the West, raiding farms and towns for the things they needed. Those outlaws were criminals; many of the people who'll want your stuff will just be desperate, but the threat is exactly the same. So is the response.

To protect yourself and those around you, the most important thing is to know what's happening. The earlier you know about problems the easier it is to deal with them. Stay in touch with your neighbors. If you see anything suspicious, let everyone know – and make sure they know to do the same. If people know there's an issue they'll be more alert; that will deter many problems, and help you be prepared for the rest.

Towns in the Old West didn't have police departments in the modern sense; they couldn't afford them. What they did have was the sheriff's power to deputize. Larger towns sometimes had full-time paid deputies, but mostly the sheriff would have a few men he could rely on but would only deputize when he needed them. You should identify people you know can help, and talk to them about likely scenarios. Jobs for deputies include patrolling the neighborhood, standing watch at night or backing you up when there's trouble.

Another thing sheriffs could do was raise a posse. That comes from the old English tradition of Posse Comitatus, which literally means "power of the community". In an emergency a sheriff could call on every able-bodied man to help him. Generally that happened when a fugitive had to be captured – you won't need to worry about that – or a large group of outlaws threatened.

If your community is under threat from looters you probably won't have much trouble getting everyone to help. The key thing is to make sure everyone knows at least the basics of what to do – a point to meet up, for example – and has the equipment they need. Anyone who has a radio, a horse or a working vehicle should be asked to bring that, of course, but the most important piece of equipment is a gun.

There's no point having someone on a posse if they can't defend themselves and others. Unfortunately, not everyone is going to have a gun. You're probably going to have to ask people who have several guns to let others borrow one. That isn't ideal, but at the end of the day it strengthens your potential posse, so it's worth doing.

Not every law enforcement lesson from the Old West can be carried over to a post-SHTF scenario – you don't want to start hanging outlaws, for example, because one day when law and order is restored there will be questions about that. The basics still apply just as much as ever, though. Our ancestors in the Old West stayed safe by giving limited powers to a sheriff they trusted, then giving that sheriff their support when he needed it. If you stick to those same principles, you and the people in your neighborhood are a lot more likely to make it through.

Conclusion

Nuclear weapons are a very modern threat, and they have some unique dangers, with radioactive fallout being the worst by a long way. That doesn't stop old techniques, ones that our ancestors used every day but have been forgotten by modern society, being extremely valuable in getting through the aftermath.

In fact it makes perfect sense that these lost ways will be valuable after such a devastating attack. Nuclear weapons are immensely destructive, capable of devastating large areas and destroying the hardest targets – but the *real* damage they would do to a country like ours is tearing society apart. It's likely that a dozen people will die from disease, starvation and violence in the aftermath for every one killed by the attack itself. This will happen because these modern weapons will, in a way, destroy modernity itself.

Our intricate, carefully balanced society will collapse when the bombs go off, leaving us in the same position as the pioneers who built America in the 18th and 19th centuries – small groups, doing their best to survive in a hostile land. The techniques those pioneers brought with them were enough to let them conquer a continent; if it's ever necessary, they'll be enough to help you rebuild it.