To Carol and Megan, my two favorite ladies.

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-Ticom

Musings of a Man in Black: Prometheus

by Ticom (aka Tom from New England)
http://www.iirg.net/mib/

Homestead Design Works
P.O. Box 96
Plymouth, CT 06782
(203)-364-4225 (364-HACK)

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Introduction

Survivalism is becoming popular again. This last batch of survivalists have even become politically correct and call themselves "preppers". The term sounds too much like "preppie" to me, one of the least preparedness-oriented social subcultures existent in America. The term "survivalist" was coined in the 1970s by Kurt Saxon, author of the improvised weaponry book The Poor Man's James Bond and *The Survivor* preparedness newsletter. Up until the rise of the "unorganized" militia movement in the 1990s, it was the term used by self-reliance and preparedness-oriented individuals to describe themselves, and by the establishment media to describe anti-social isolationist gun collectors who managed to attract unwanted attention to themselves. Despite some rather good practical advice given by Kurt in *The Survivor*, most survivalists these days do the exact opposite of what was suggested and become anti-social, isolationist gun collectors. The only acceptable part of that is "gun collector", and then only upon recognizing that you simply collect firearms as a hobby for their aesthetic, historical, investment, et al. values and not because you erroneously think all you need is a bunch of guns and ammo to survive the end of the world.

The problem with those who have adopted this mindset is that they are concentrating and usually wasting their efforts on some nebulous future instead of concentrating and focusing on the possibilities that are presented now. You don't need to have an "end times" because any level of observation in the real-world will show that you are presently living in a dystopia.

A dystopia is a state which is characterized by such conditions as poverty, oppression, war, violence, disease, pollution, and the abridgment of human rights that results in widespread unhappiness, suffering, and other kinds of pain. One could present a pretty good argument that our country is currently, on many levels, in a state of dystopia. Yet, despite all of that there still remain unlimited possibilities for an individual to successfully operate and thrive in the environment provided they can acquire the necessary skill-

sets to navigate through a dystopia. I will refer to this process of skill-set acquisition and navigation as ***dystonautics***, and those who can navigate or are learning to navigate through such a state as ***dystonauts***.

Dystonauts are an evolutionary progression of Kurt Saxon's survivalist ideal from the 1970s. They possess multiple skill sets, because as sci-fi writer and preparedness advocate Robert A. Heinlein said "specialization is for insects."[1] They are a combination of Ayn Rand's John Galt and a Ninja warrior from medieval Japan. To wit, they can operate on a technical level from primitive to modern, are capable of field improvisation, can customize existing infrastructures to suit their needs, and if necessary create their own infrastructures if none previously exist. In matters sociopolitical they strive to support the current decaying establishment as little as possible, if at all. They avoid getting into altercations when possible, and when required to fight in self-defense use any number of neo-guerrilla tactics to gain as much of an edge over their enemies as possible.

This book is a sort of "field notebook" for dystonauts. There are plenty of other books that go into various aspects of general self-reliance, preparedness, and survival - this is not one of them. Instead it contains various observations of mine and some techniques that I noticed did not appear in any text I have read, and other items of interest to dystonauts.

Rome did not fall in a day. It actually did not fall at all, but underwent what many historians describe as a "complex transformation." The United States will most likely fare the same way. The successful modern survivalist or dystonaut will be the one who can successfully observe, analyze, and take advantage of the new possibilities resulting from this transformation, as opposed to those who concentrate on some nebulous event that might or might not happen. When a Black Swan does occur, the dystonaut will recognize it for what it is, adapt accordingly, and re-orient him or her self so he/she can successfully navigate past the hiccup.

Good luck, and enjoy the ride!

---

1 Read The Notebooks of Lazarus Long, by Robert A. Heinlein.

A Philosophy For Survivalists

By Kurt Saxon

You need a specific set of attitudes to keep you on course toward any goal. You must feel right about what you are doing. Otherwise, you might feel guilty about going your own way while people around you are united in doing nothing and suffering from it.

But why should you survive, and even prosper, when your fellows are dealing with a standard of living which gets lower all the time? Why shouldn't you share their situation and even deprive yourself or your survival program so that a few others might have a little more comfort in the hard times ahead?

After all, things might change for the better. Those who maintain confidence in their appointed leaders might be right.

The climate is said to be changing but there are still bumper crops here and there. Fuel is said to be getting scarcer but the big gas guzzlers are even more in demand. The population is still growing but the welfare system seems to be keeping up with it.

Pollution is getting worse. Herds are dying or being slaughtered because of chemicals misapplied. Resorts are being closed because fish caught by vacationers cannot be eaten. Whole populations of people are endangered and many groups sicken who work at certain factories.

But the government is cracking down. Laws are being written and penalties are being applied.

If we only stand together in common trust, our leaders can turn us toward a new era of progress. All they really ask for is our trust. If we could only drop our selfish egos for a while, we could pull together and solve our problems. But without trust and submission to the social ideal, we are to blame for any lack of success in the system.

The above are common reassurances and admonitions fed to the public by the politicians and their stooges in the

news media. Most people swallow such garbage by the bucket. After all, it is a lot easier to put your faith in someone besides yourself, if you do not have much of a self to begin with.

But if you have a well-developed feeling of self-worth, you will reject any plea to unite around anyone, especially those urging you to sacrifice your own interests to those of the majority.

As any system begins to decline, there are always those who are ready to take it over "for the common good". Their appeal is always to the poor, the disenfranchised, the helpless, the weak. They plead for your trust and cooperation and while you tighten your belt, they tighten their stranglehold on the economy.

After all their public assurances that they are working on the problems, you notice that they are not really doing anything. But they share a philosophy you have not been let in on and the philosophy they have dosed out to you just makes you feel guilty for not trusting them more.

You have got to have a philosophy which combats theirs. You have got to stop feeling guilty for their failures. You have got to see where they are taking the sheep-like populace so you can head in the opposite direction.

I have my own philosophy of life and, of course, you have yours. Our philosophies seldom deal with the whole picture. So it is convenient to borrow a philosophy which puts us in the picture concerning how we will, or will not, be used by our political and bureaucratic manipulators.

A dandy philosophy I chanced on a few years ago was that by Ayn Rand. This philosophy was beautifully expressed in her story, **Atlas Shrugged**. The title illustrates Atlas, holding the world on his shoulders. He finally gets fed up with the dummies he is supporting and so simply shrugs, sending the world crashing to the floor.

Atlas Shrugged is 1168 pages long. I do not say this to discourage you from tackling it. Actually, once you get into it and find you like it, you will be overjoyed that you have so much good stuff ahead to read. And fine reading it is. I am into my fifth reading and find I get more out of it every time.

Atlas Shrugged concerns the total breakdown of society due to the demanding parasites allowed to thrive as a system becomes more affluent. Those bringing about the affluence in the first place, are condemned for having a higher standard of living than those who do nothing to deserve any living at all.

In the story, as pressure mounts for the producing class to share the wealth, more producers are put out of business. Then the hero, John Galt, goes visiting the most productive members of society. He assures them that it is useless to fight people who have nothing but needs and the socialistic laws to force their betters to cater to those needs. They are advised to drop out of the system and retire, even if all they take with them is their ability to begin again once the parasites' game has collapsed.

Well, able people in critical areas of the economy start dropping out nationwide. They close their factories and the Liberals in control find that they and their parasitic constituents cannot make the factories go. Poor babies!

Then the rule of the Liberals becomes even more oppressive and they begin trying to force the able to stay and produce. Drop-outs are considered criminals and enemies of the people.

The most able of the drop-outs are hidden in a super-secret hideaway known as "Galt's Gulch". It is a neat village with all the comforts of a metropolis. All the best people are there, the smartest, the most skilled, the most fun be with.

Galt's Gulch is located somewhere in Colorado. It has some sort of refraction shield emanating from it. From the air, it looks just like another part of the forest. But a pilot actually seeing Galt's Gulch and trying to land there would only fetch up in the branches of some tall trees. Galt's Gulch would be about seven miles away from its refracted image.

Most of the characters in Atlas Shrugged are sort of overblown composites of types. They are either totally good or totally evil, refreshing in these times of lovable rapists, gentle child abusers and well-meaning politicians.

One of my favorite characters is Ragnar Daneskjold. He is a pirate who highjacks aid ships carrying goodies to this or

that Peoples' State. He is generally misunderstood.

Anyway, Atlas Shrugged is the only book which describes the complete collapse of a system, with all the details. This alone, makes Atlas Shrugged highly instructive to Survivalists who know little about how our socioeconomic system is balanced.

As you read the story, published over fifty years ago, you will realize that the government-imposed terrorism of Atlas Shrugged is being implemented all around us today. You will recognize our modern politicians in action page after page, as if they had memorized the book and adopted the villain's roles.

You do not have to believe long-range forecasts of shortages, bad weather, over-population and other calamities in The Survivor. You do not have to be far-sighted to compare the chaos of Atlas Shrugged with the chaos we see even today.

You do not have to be a social scientist to see how penalizing the productive on behalf of the non-achievers leads a system to ruin. You can see it happen in example after example and compare Ayn Rand's descriptions with what comes over your nightly TV news.

After reading Atlas Shrugged, you will know why you should survive and prosper regardless of the suffering going on around you. You will not share a crust with someone who thinks your sacrifice is his due.

You will stop looking for morality and ability in politicians or seeing them as leaders in any sense. Forget climate change, if that doesn't register with you. You will see food production being cut by inefficiency and government interference.

It does not really matter whether or not our planet is really running out of fuel. Shortages are guaranteed by political manipulations we see today which could have been copied from Atlas Shrugged.

Government restrictions against business and industry "for the common good" and to break up monopolies, is strangling our economy and, even now, putting it in the hands

of the least competent. Atlas Shrugged details how such things happen. Now you can look around you and see how these very same practices are costing the jobs and livelihoods of millions today.

You will also see how uniting in trust around a grinning do-gooder will put you in lock step with a bunch of morons, marching into an economic abyss. Submitting to the common will today is the same as walking up the slaughterhouse ramp after the Judas goat.

You may not be as neurotic as I or share some of my more extreme anxieties. This is probably for the best. But you should at least know what is going on around you and relate it to what forces are shaping your own future.

Atlas Shrugged will tell you what those forces are and show you, by fictionalized examples, just what happens when they are applied.

When you finish the book, you will not have a new philosophy, necessarily. It will be your own philosophy, but clarified and put into a usable pattern by one of the greatest social philosophers of our century. You can then put your own words and observations to some of the most rational ideas of our age.

You will then find not only comfort, but purpose in knowing that your motivation toward survival is the greatest strength in our nation today. If you have ever had fantasies of being great and extremely worthwhile, they will be realities long before you have finished Atlas Shrugged.

Although Atlas Shrugged is an indictment of our whole parasitic system, libraries have not gotten around to banning it. It seems too long for the average reader to tackle so they let it be. I do not think it would be banned, anyway, but I am sure it will not be on the "recommended books" list of any Federally funded library.

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2Visit Atlan Formularies at http://www.survivalplus.com/

The Basic Plan: What to Do

A lot of beginner survivalists wonder where they should begin. I dislike giving specific how-to advice as everyone's situation is different. You really need to do your own preparedness analysis and planning based on your specific set of circumstances. If you need someone to give you a full instruction set, you aren't cut out for this sort of thing. Yet there is some utility in a general purpose plan that is applicable to 90% of all individuals and likely scenarios. With that said, here is my concept. It's based on my personal philosophy and analysis of current and past trends. If you don't like it, then don't bother with it and find another plan.

Start with the three basics as taught in Army basic training: **shoot, move, and communicate**. Get your defensive preparations taken care of. Put together your basic survival battery. Learn how to defend yourself against aggression. Become familiar with the area you currently live in. Get your transportation in order. Figure out where you're going to eventually relocate if you're not already in a sustainable location. Start spending time there on weekends and vacations. Acquire area knowledge of your eventual destination. If you can't live there full time then at least purchase a weekend cabin or vacation property that will eventually become a full-time residence when you are able to do the permanent move. Learn a viable trade (or three) that will enable you to start a business or find work so that you can participate in the local economy of your new home. Last but not least we have communications. This involves monitoring the airwaves for news and intelligence, keeping in touch with fellow survivalists, and perhaps even becoming a part of a community or regional communications network.

One of your most important activities is putting together a survivalist library. Your library serves several functions. The first is your education. As Robert A. Heinlein once said *"A human being should be able to change a diaper, plan an invasion, butcher a hog, conn a ship, design a building, write a sonnet, balance accounts, build a wall, set a bone, comfort the dying, take orders, give orders, cooperate, act*

alone, solve equations, analyze a new problem, pitch manure, program a computer, cook a tasty meal, fight efficiently, die gallantly. Specialization is for insects." Afterwards your library will serve as a reference source. It will help others learn, and could act as a knowledge base during the rebuilding if there was a serious enough Black Swan event.

I generally prefer paper. In some ways I'm old school like that. It requires nothing electrical to read. Paper takes up space however, and moving old-school book libraries is a pain. USB storage sticks and CDs take up very little space. You can carry an entire library of survivalist reference material in your pocket. You also need a computer to read it. Since I feel TEOTWAWKI[3] has already come as a gradual Atlas Shrugged-style decline, we can safely work with the new generation of energy-efficient laptop computers working on off-grid alternative energy systems. If rugged low-cost laptops such as the XO[4] can be developed for $100 for use by children in third-world countries, then a robust, inexpensive network infrastructure could be developed here in United States by fellow technological survivalists to keep everyone connected and a knowledge base available in even the worst disaster scenario.

Tools are another important thing that gets overlooked by many "expert" survivalists. Repeat after me, ***"You can never have too many tools."*** Your tools are what you defend yourself with, communicate with your community and fellow survivalists, maintain your personal infrastructure (shelter, vehicles, et. al.), and perform your trade(s) with. Man is a tool-using species, and without tools you operate at a severe disadvantage. This is one of the reasons for adopting an anti-bug out strategy. It's impossible to move a properly stocked workshop on short notice under less than adequate circumstances with less than adequate transportation. **Relocate to a sustainable area, and get yourself established in the community NOW. Do that and you'll never starve.**

---

3 TEOTWAWKI – The End of the World As We Know It. Common term for the apocalypse in survivalist culture. Taken from a song of the same name by the progressive rock band REM.

4 See **One Laptop Per Child** at http://laptop.org/

Tools of the Trade

The best part about Middle School and High School was the shop classes. A room full of power tools, raw materials, and a teacher eager to show you how to put the two together to make stuff. The geeks in the computer room couldn't understand why you were getting your hands dirty with the "stupid people", and the motor-heads in the shop class were wondering what the fuck some nerd from the computer room was doing in the metal shop. Being a modern technological survivalist and fledgling dystonaut you ignored them all.

My friend Paul came up from New York City sometime in the seventh grade. I remember our English teacher blowing a fit at the class over some minor issue and seeing him with a bemused look on his face. He was from "The City" and had seen it all before. Compared to the times he had to fight off muggers while walking to and from his old school, a screaming English teacher was entertainment. We were probably the only two in the class who weren't quivering.

Paul was into Ninjitsu. Yea, well it was the 1980s and who wasn't into ninja stuff back in those days with all the movies coming out. Ninja weapons were readily available at flea markets and variety stores of the era, but the cost was prohibitive to our meager budgets and most proprietors weren't going to sell to teenagers lest they invoke the wrath of the law. What was available were our dads' basement workshops where we found you can do a lot with little more than a hacksaw, tin snips, files, and a bench grinder while working from pictures in the books you found in the martial arts section of Waldenbooks at the local shopping mall. We made numchucks and throwing stars that were at least of the same quality as the stuff the flea market at the Baldwin Place Mall sold. Fun times.

Harry, another high school friend and co-conspirator of mine, was into lock picking. Locksmithing tools were available via mail order from places that advertised in *Survive* and *Soldier of Fortune* magazines (two must-reads for modern technological survivalists of that era), but thanks to a writer going under the alias "Eddie the Wire" and a publisher called

Loompanics you could pick up flat metal stock at the local hobby or hardware store and whip out a functional set of picks for about a tenth of the cost with the same set of tools I used a few years earlier during my ninja weapon phase of my interesting youth. Loompanics now exists only in the memories of technological survivalists old enough to have been there, done that. Fortunately another publisher picked up Eddie's informative work.

Phone phreaking during the mid and late 1980s was hobby that used yet another set of technological skills; this time electronics. Personal computers were also coming into vogue at the same time, and basic electronics knowledge was necessary to fix your equipment back then. We all got our ham tickets as a cover for action. Tell someone you're a ham radio operator and you have an automatic excuse for just about any type of weird electronics.

Going over to yet another aspect of modern technological survivalist craft, I had read an article in *SWAT* magazine (another one old-school types will remember) about a guy who makes his own tactical gear out of materials he finds in the fabric section of Wal-Mart and at fabric stores such as Jo-Anns. With some basic sewing tools and skills you would have picked up at home economics class in middle school (if you went to school the same time I did), he made all sorts of interesting accessories for his Class III weaponry.

After a few classes in leather work, metal shop, and electronics you soon learn that with a good set of tools and the right knowledge you can either modify common off-the-shelf equipment for your specific needs or custom make something for a fraction of what it would normally cost you. This is really the ultimate in survival skills: being able to make your own stuff, and understanding how things work.

The primitive living types are on the right track, but as Wildflower and Jim Teff (two of the most skilled survivalists I've met during my long strange trip here) were fond of saying, “You don't have to make it using stone tools and your bare hands. Use whatever works!” This means any technique from cave-man times right up to the present is valid and should be fully employed whenever feasible. Towards that end, I think

the “back to the earth” survivalist types have done serious damage to the movement as a whole. I see the proverbial “forces of evil” using modern technology so if we want to have countermeasures we need to be up to speed as well. End rant.

Probably the closest equivalent to the modern-day technological survivalist dystonaut would be the Ninja of medieval Japan. In addition to being skilled field operatives, they made a lot of their gear by modifying common items. Tools and raw materials will always be available, and the skill sets required to use both are easily acquired by those willing to put in the effort. Imagine being able to walk into a Wal-Mart, a Radio Shack, and a Home Depot, making a few innocuous purchases, going home, and changing into a real-world version of Batman. Comic book allegories side, it is entirely possible to outfit yourself from common consumer-level off the shelf items.

I was shopping at a couple retail chain stores one night, and decided to try an experiment. I wanted to see if it was possible for a modern-day operative to equip his or her self with gear purchased from common nationwide department and home improvement stores in true Poor Man's James Bond[5] fashion. These places are known to cater to the lowest common denominator with both their customers and their employees. Their marketing is aimed at the general dumb Amerikan sheeple consumer. I expected this experiment to be a bit of a challenge based on what I know about these places, and I was a bit surprised to find out it wasn't as hard as I originally thought.

Just what can you find at retail establishments? For starters, you can acquire the ingredients to make one of the holy grails of my youth: black powder. Actually you can buy Pyrodex muzzle-loading propellant (aka “synthesized black powder”) right from the sporting goods section of Wal-Mart, but nothing provides a greater sense of accomplishment and satisfaction than rolling your own. Go right over to the garden section of any decent hardware or agricultural supply store. You will find something labeled “Garden Sulfur”. It is 90% pure Sulfur and will work adequately for any home chemistry

5 Kurt Saxon – http://www.kurtsaxon.com/

experiment you wish to conduct. Then look for stump remover. This is Potassium Nitrate, aka Saltpeter, and will also serve your needs adequately. Even in this day of product liability and “terrorism” concerns you can still buy the components for the planet's oldest explosive right off the shelf.

Perhaps there is hope for Amerika yet? You can actually find the components for much more powerful mixtures if you know what to look for, but I will leave it up to you to do the necessary research should you feel it necessary to do so. Home improvement and local hardware stores contain enough neat stuff for a small dedicated band of brothers (and sisters) to take over most third-world countries. I wouldn't be fond of becoming a benevolent (or even malevolent) despot and having to deal with the whining and petulant demands of an entire population of second-handers, but to each their own I guess.

That doesn't mean you'll be able to walk into a Wally-World wearing BDU pants, combat boots, and your "Kill a Commie for Mommy" t-shirt to have a friendly knowledgeable sales clerk assist you with your tradecraft shopping needs. Chances are the only reaction you'll get from the sales clerk would be a call to 911 as the news coverage of all those shopping center shootings hits his atrophied brain like a junkie's hit, and he automatically assumes the tactically-dressed gentlemen walking up to him wants to be the evening's top story on CNN. It's a brave new world out there, and the modern technological survivalist dystonaut needs a different approach.

It is true that today you can pretty much order anything you want online and get it in a few days. That is all fine and good, but you are missing out on a lot by doing so and also committing a gross personal security violation by linking purchases to you. For the most part, retail purchases done with cash are totally anonymous, especially when you apply a little basic tradecraft and you remain in the sales clerk's eyes one of the faceless anonymous public that he or she deals with day in and day out. Knowing what you can find and where is handy when you need something on short notice.

You must start by knowing that unless you are one of the rare ones who is blessed with a mentor you are truly out

on your own, a veritable army of one. There are web sites and books that may help you, but your preparations should truly be kept to yourself and you will have to ultimately rely on your own judgment. This is but one of the first steps on a long journey and if you cannot make the relatively simple decision of what personal equipment to purchase then you won't be of much use in the long run.

You've seen the type before. They read through hundreds of product reviews on the Internet, ask the same questions numerous times on every forum they frequent, and despite having a wealth of information available to them still cannot make a simple yes or no decision. I made a rather humorous observation at a gun show recently. There is this local survivalist whom Vivian christened “Neuro John”, a combination of his psychological condition and first name. This guy used to ask twenty questions about what survival gear to buy, dance around with the fanciest excuses to delay his purchases, and then come up with the same twenty questions again because some Mickey Mouse Rambo Ranger posted up contradictory information on a web site. We saw him at a gun show once walking around like he was on Thorazine displaying absolutely zero situational awareness of anything. While doing this he was missing all the stuff he would continually ask about. ***Do not be like Neuro John.***

Your first task is a simple one. You are to proceed to a nearby retail chain and observe your fellow shoppers. Look at how they dress. Look at how they act. When making your acquisitions you will want to dress and act exactly like them. By doing this you will become invisible. One fashion trend that has become useful for the operative is the indoor wearing of baseball caps. Observe what your fellow shoppers wear and acquire one of the same. Local favorite professional (and college) sports teams and NASCAR are generally the most popular. Wear your baseball cap with the brim forward as they were intended to be worn. Generally speaking, the wearing of baseball caps backwards or sideways is only acceptable among certain urban youth known to have a penchant for criminal activity. This is not a group that you want to be misidentified as. Wearing the brim forward also serves a specific security and OPSEC function. With your

head titled slightly downward indicative of a weakened posture that is common these days, much if not all of your face will be concealed from the ceiling-mounted surveillance cameras commonly encountered in retail establishments. Remember these four simple rules that will help you out immensely in your quest to get you kit and shadow gallery together. Memorize and heed them well:

- Look normal.
- Act discrete.
- Know the mundane purpose of your purchases.
- Pay cash.

Adapting or “kit-bashing” your trade craft equipment will require you to receive a working education in a wide variety of fields: electronics, computers, chemistry, basic industrial shop, arts and crafts are all very useful. You will also want to acquire a working collection of tools as well. For all this you will need what I like to call a “shadow gallery”, a place that is a combination of library, workshop, and refuge where you can remove your John Doe mask and work on projects unmolested.

It is essential to have a space specifically set aside for working on projects, so you don't have to constantly disassemble and put away a work in progress because it's dinner time and your family needs the kitchen table. The most important aspects of a shadow gallery involve isolation and sacred space. You are setting aside a location for the specific purpose of working on projects and general contemplation. The act of going into a sacred space enables the individual to achieve a certain state of mind conducive to one's work, and be free of distractions while working. In essence one is putting aside the mundane for a period of time and entering a different state of being and a different reality.

Many artist-types and modern-day dropouts in urban areas have found inexpensive loft (or is that l0pht ☺) space in old factories that have been subdivided into multiple rental units. These spaces offer an inexpensive place where they can work and sometimes live. I prefer more compartmentalization

and would rather keep my sleeping space and work space in separate locations. Rent the least expensive small apartment or a room where you basically keep a bed and clothes, and have the rest of your stuff at a commercial location where you can work on projects. The best cover business would be that of a consultant or artist/artisan-type. Pick something that is vague-sounding, a good explanation for having all sorts of odd stuff around, and requires no licensing from the local regime.

Those of you who already have mortgages and possibly families will probably have to settle for setting up in a basement, attic space, or backyard shed. Thanks to magazines such as Make[6], the DIY handyman thing is coming back into vogue, so as long as you keep up the appearance of a simple tinkerer and keep the noise level down (No testing of home brew Acetone Peroxide and audio shock wave generators in the back yard!)[7], you shouldn't attract negative attention from the neighbors. Should your shadow gallery be at your residence, you would preferably want it in some out of the way place where a casual visitor wouldn't notice it.

Books can get to be expensive and take up a lot of space, especially when it comes to technical books. Enter used bookstores. You should put together a list of all the used bookstores within reasonable driving distance in your area and frequent them regularly. You will also find certain mail-order sources such as Lindsay Publications[8] to be extremely useful. The Internet is also another source of material, and an entire library can be stuffed in PDF format on a CD-ROM or USB stick. Digging through all of the fluff on the Net to find the good stuff takes time and superb search engine skills. For those of you who are fortunate enough to find copies, the *Doomsday Disks* put out by Wildflower LTD contain some of the best technological survival information gleaned from the Internet.

The two essential technical books that belong on every dystonaut's bookshelf are the ARRL Handbook for Radio

6 http://www.makezine.com/

7 http://www.gbppr.org/

8 http://www.lindsaybks.com/

Communications and the Machinery's Handbook. One covers electronics, and the other covers machining. Both of these new will cost you about $150. Look for a used copy of an earlier edition at your local second-hand bookstore. I find used recent editions of the ARRL handbook all the time at hamfests, and towards the end of the year ham radio stores always have a clearance sale on the previous year's edition, typically offering them for 50% off regular price. The Machinery's Handbook is a little harder to come by as their users tend to hold on to them. I've seen some rather well-used 10 year-old copies still being regularly consulted in machine shops.

Going through the science/technical and computer sections of any bookstore will net you any number of books that resonate with you. When I was younger, a significant portion of my funds went towards book purchases. That was long before the Internet. A lot of techie knowledge is now available online for free download, **if** your Google-Fu is up to the task of finding it. This is a good thing because gives you more money for buying tools and hardware. However, if you find a book that really resonates with you, one that you know is a must-have, then support the author's efforts and buy it, even if there is an online version available or the information is available online.

There are a few books that I've found to be particularly good, and therefore worth adding to the library in physical form. The *Evil Genius* series of books published by McGraw Hill contain a lot of useful projects and information. Many of the titles in the series have material of direct interest to dystonauts. The *MAKE: Projects* series published by O'Reilly are another library staple. Two titles in that series that stand out are Making Things Talk and Small Form-Factor PCs.

If you live near any small to medium sized city, there is probably a plethora of local sources to check out. Back in the days before the Internet, I sat down with a copy of the local Yellow Pages to compile a list. I lived at the extreme north of the LATA, and missed some neat places in the LATA north of me before acquiring its phone books. I also learned of many cool places via word of mouth from fellow modern

technological survivalists.

Yellow page-type searches are now a lot easier with the Internet, and getting a list of every Army/Navy store (or other place) within fifty miles is now a trivial task. The hard part is finding which places are good. You may find some reviews on the information superhighway, but for the most part you will have to resort to the real-world blacktop highway. So go hit the bricks and have an adventure in non-virtual reality. When compiling a local source list for future investigation, you want to look for the following in your area:

- Army/Navy stores
- Ag stores (ie. Agway)
- Bookstores, especially used bookstores
- Department stores such as Wal-Mart and Target
- Dollar stores
- Electronic and computer stores
- Goodwill and Salvation Army Stores
- Ham/CB shops
- Hardware stores
- Hobby/Craft stores
- Home improvement stores (Home Depot, etc.)
- Industrial/Electronic surplus
- Odd lot/Job lot stores

You will also want to keep track of the following transient sources:

- Book sales
- Gun shows
- Tag sales and flea markets
- Dumpster diving

Dumpster diving is a topic that always generates some

interesting discussions among technofreaks and survivalist types. Back in my younger phone phreak and survivalist days, dumpster diving was considered **the way** to get interesting telco documents, find interesting technology, and extend your limited budget by re-purposing a whole spectrum of cast-off items. While some people do have better "luck" with dumpster diving than others, the two major factors towards dumpster diving success are location and items of interest. Dumpster diving has better results in urban and industrial areas. Suburban areas with curbside pickup can also yield good finds. Unless you're looking in an industrial park, you are more likely to find consumer electronics and low-tech items than you would high-tech and industrial electronics. Keep your eyes open during trash day, and do research on local industrial and office parks to see if stuff you're interested in might get thrown out there.

My best sources of material have always army/navy stores, hamfests and second-hand stores such as Goodwill. I have found all sorts electronics: high-tech from hamfests, mostly low-tech from Goodwill, and occasionally some really interesting items from the army/navy stores. Rugged outdoor military surplus clothing is a staple of any army/navy store, and is not uncommon at Goodwill. Hamfests are often a good source of various tools, although when I'm in need of something specific and need it right away the local hardware and home improvement stores are very handy. Sometimes you can find surplus milsurp (and therefore mil-spec) tools at the local army/navy store. Usually it's limited to knives and multi-tools.

You will need a good set of hand tools. I recommend a country of manufacture other than China. My preference is Klein. They are still made in the USA, and can handle serious abuse. Older American-made tools found at second-hand stores are also a good option. Unless totally abused previously, they will still have many years of life left in them. Some Crescent and Craftsman tools are still made in the USA. You will have to check carefully. Kobalt is another American-made tool brand, and is available at reasonable prices. Other countries known for quality tools are Germany, Switzerland, and Japan. Taiwan might be an option as well, as often the

steel is Japanese in origin.

Going beyond a good set of hand tools, I would recommend getting a quality cordless drill, bench grinder, and Dremel Tool with every bit you could conceivably have a need for. Dremel Tools are the Swiss Army Knife of small power tools. If you are working on any electronics stuff, a good multimeter and 25-30 watt soldering iron will also be essential. Small table-top lathes have come down in price to where they are affordable to a techie on a budget, and are useful for fabricating many types of small parts. At a slightly higher cost are the combination lathe/milling machines which are even more versatile.

Odd Things You Should Get Now

The following is a list (in no particular order) that I've compiled over the years of items that every modern technological survivalist and dystonaut should acquire to assist them in their experimentation, general wanderings, and overall preparedness. This list could go on forever, but here are some handy items you should consider starting out with.

- Locksmith tools (and the necessary skills to use them)
- DTMF decoder (standalone type – not soundcard software)
- Night vision gear (NVDs)
- Police scanner usable for your area(s) of operations
- Wide-band communications receiver (Icom, Yaesu, AOR etc.)
- Camping gear
- A cast iron dutch oven and frying pan
- Comfortable, low-observable outdoor-type clothing
- Pair of sturdy hiking boots, or maybe two pairs
- Comfortable socks
- Visqueen plastic sheeting

- Duct tape, 550 cord, cable ties, wire, electrical tape
- Bicycle
- Reference library of useful books
- A couple good knives and a multi-tool (Leatherman tools are best)
- The means to sharpen your knives: sharpening stones, diamond rods, etc.
- A .22 rifle and maybe a pistol (and a few bricks of ammo)
- Pocket notebooks (Get them at the dollar store)
- Scientific calculators (not the graphing type), especially solar powered ones
- Solar panels
- Hand tools (and a tool box to put them in)
- Dremel tool (and a good assortment of bits)
- Parts to build small generators
- AC inverters and deep cycle batteries
- A good pair of binoculars
- Topo maps of your area (paper ones)
- CB radio
- A pallet of late-model laptop and small form-factor desktop computers (usually salvaged from dumpsters or bought from Goodwill)
- Linux (and other open-source OS)
- Assorted electronic parts and scrounged electronic devices that you can scrounge components from (usually salvaged from dumpsters or bought from Goodwill)
- A well-stocked medical kit

Preparedness Planning

When I started writing what would later become this book, I was reading an article in the Westchester County, NY *Journal News*. It disclosed how the local governments in the area were not cooperating with FEMA by not providing data needed for the re-certification of the Indian Point Nuclear Power Plant emergency plan. The consequence was that the plant owner, Entergy Nuclear Northeast, and FEMA would invoke the Reagan-era Presidential Executive Order 12657 that lets FEMA and Entergy create evacuation plans without any input from the locals, and later bill the locals for the cost. Executive order 12657, interestingly enough, came about from New York State's refusal to participate in the emergency planning for the Shoreham (Long Island) Nuke Plant in the late 1980s. According to the story, New York State hired former FEMA Director James Witt to analyze the current Indian Point plans. Witt concluded that the plans were ineffective. As a result, the four counties in the Indian Point Emergency Planning Zone (Westchester, Rockland, Putnam, and Orange) refused to state that the plans were workable and up-to-date. One county, Westchester, has also refused to let FEMA officials have access to county records that would "allow" FEMA to rubber-stamp the plan as workable.

This story provides a good lesson for the survivalist. Only YOU can be responsible for your own safety and preparedness. While the county, local and federal officials in Southeast New York (mostly Liberal Democrats) played games with each other, the people who live near Indian Point remained without an effective emergency plan. Should something happen those people will be absolutely screwed save for the few who had the foresight to make their own plans. **Proper planning prevents pitifully poor performance.** Unfortunately, many often overlook the planning aspect of their survival preparations. I have met some otherwise very intelligent individuals whose planning never went beyond "If the shit hits the fan I'm heading for the hills." While "bugging out" can be a viable strategy in many instances, the espousal of "crisis relocation" by government planners will ensure that in a disaster situation there will be

large amounts of sheeple on the road with nowhere to go. If you think rush hour is bad, just wait.

The first step for the survivalist is to perform a hazard analysis of his locale. This should focus on his locale's disaster history, frequency of severe weather, geography, and proximity to high-risk areas. The following questions should be asked:

- **History:**
  Has the locale experienced past disasters?
- **Weather Patterns:**
  Is the locale prone to severe weather?
  What are the prevailing wind patterns in case of nuclear fallout or a hazardous materials incident?
- **Location:**
  What is the geography of the locale?
  Is the locale near the coast or a river?
  Is the locale near a fault line or active volcano?
  Is the locale urban or rural?
  How large or vital is the locale?
  Is the locale a seat of government?
- **Proximity to High-Risk Areas:**
  Are any major cities or industries located nearby?
  How are the ethnic/race relations in the locale?
  Is the locale near a major military installation?
  Do major highways or pipelines pass through the locale?

By and large, the most likely problem you will have to contend with regardless of where you live is a natural disaster of some sort possibly compounded by government incompetence. Think Hurricane Katrina. Every locale has its own particular quirks. If you have been living in your locale long enough, you remember all the times things became interesting. If you are a recent arrival, you can find some long-time resident to give you a local history lesson, or check the newspaper archives at your local library. Natural disasters and severe weather occur just about everywhere, and it's just a matter of knowing whether you will have to eventually deal with earthquakes, tornadoes, hurricanes, blizzards, floods, or

whatever.

Generally speaking, you are best situated to deal with a natural disaster in a rural area of a predominately Republican state, although rural areas tend towards Republican attitudes even in Democrat states. The worst place to be in a natural disaster would be an urban area in a Democrat state (as many residents of New Orleans can attest). This alone should be enough for any of you living in a big city to relocate to greener pastures. Northern New England, especially Vermont, is an interesting exception to this rule as they are libertarian in their attitudes. This is why in Vermont gays can marry each other and anyone can carry a pistol open or concealed without having to apply for permission (CCW permit). **Ideally you want an area where people have an attitude of "Leave me the hell alone and I'll do the same for you." which is often missing in some very socially conservative (religious intolerance) and liberal (nanny-state mentality) areas.**

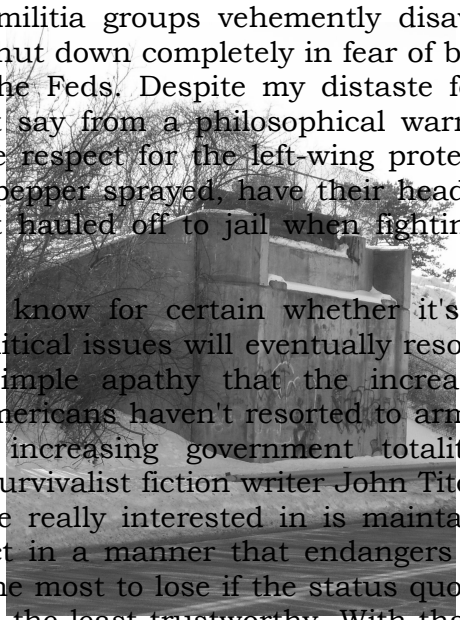
Behind natural disasters, urban areas and transportation corridors will next need to be concerned about hazardous materials (hazmat) incidents. You will be interested in when that railroad tank car, tractor-trailer, or pool supply store has an accident or fire, and whether or not that smoke plume is going to become a concern. The wind speed and direction will become very important to you. Whereas in a rural natural disaster a properly equipped and sturdily built homestead along with the proper attitude will see you through all but the very worst natural disaster without necessitating a bug-out, you may have to temporarily relocate in a hazmat incident in order to avoid breathing that smoke plume going your way. Plan accordingly.

I'm going to talk about one survival situation that is very controversial and receives a lot of play in survivalist circles, and that is the possibility of a totalitarian government tyranny in the United States. I concur that certain actions taken by recent previous administrations certainly point in that direction. I have also noticed that the demographic of individuals who become concerned about this changes with whatever political party is currently in charge.

During the Clinton administration, there was an

increase in unorganized militia units whose members were politically right leaning, and it was they who decried the unconstitutional acts of the administration. When the Republicans held the executive branch, the cries of alarm were taken up by left-wing activists. With the Democrats back in the White House the Republicans are now becoming political activists and taking up the cause of fighting totalitarianism in the government. Being a libertarian I have found this circus to be quite entertaining over the past twenty years. Political cartoonist Matt Bors[9] coined the term **Partisan Civil Liberties Disorder** which is when an individual only cares about the nasty stuff a government is doing when his or her political party is not in power.

When Timothy McVeigh allegedly bombed a Federal Building in Oklahoma back in 1994, I watched all the unorganized militia groups vehemently disavow him and in many cases shut down completely in fear of being harassed or arrested by the Feds. Despite my distaste for their political views, I must say from a philosophical warrior standpoint I have far more respect for the left-wing protesters who aren't afraid to get pepper sprayed, have their heads busted by riot cops, and get hauled off to jail when fighting for what they believe in.



I don't know for certain whether it's a statement of belief that political issues will eventually resolve in a peaceful manner or simple apathy that the increasing number of disaffected Americans haven't resorted to armed revolution in response to increasing government totalitarianism. I do concur with survivalist fiction writer John Titor[10] that all most Americans are really interested in is maintaining the status quo, won't act in a manner that endangers it, and that the people with the most to lose if the status quo changes should be considered the least trustworthy. With that said I feel that a more likely scenario would be a slow gradual collapse much like what Ayn Rand wrote about in Atlas Shrugged. Should you feel that the totalitarian Amerika scenario is a likely prospect, the most important thing you will need to figure out

9 Website at http://mattbors.com/.
10 See http://www.johntitor.com/

is, as John Ross said so eloquently in Unintended Consequences, “when the state is standing by the van with the handcuffs out.” Until that time occurs, I advise readers of that slant that the soapbox and ballot box come before the bullet box.

The big question all survivalists have to answer is "When should I bug out?" Only you can answer that question based on your survival plans and current situation. When I’m asked that question by novice survivalists, my immediate answer is "Now." If you feel that where you are living right now could become so dangerous that you would rather flee your home than ride it out there, then you should move to a potentially safer location. If you cannot maintain a resilient sustainable lifestyle at your current residence, then you should move to where you can. If you have a job that entails a long commute into the city via public transportation, you should try to find something closer to home. Like everything else in life, you will probably wind up working out some form of compromise. Anything you can do however, to improve your self-reliance, preparedness, and resilient sustainable lifestyle is a step in the right direction.

However during certain contingencies, you may have to temporarily leave your primary residence for an alternate location. A severe natural disaster may damage your residence enough to make it uninhabitable, or a severe hazmat incident may make your neighborhood too dangerous to be in. Rural residents fare better in both contingencies mentioned. Disaster response entities in rural areas generally acknowledge the sustainability and resiliency of the people in their area, as country folk are usually prepared to handle situations that leave urban dwellers in dire straits. Severe hazmat incidents are for the most part an urban problem unless there is a nearby interstate highway, railroad, or industrial park.

You will be making extensive use of maps. A good set of maps is probably one of the most important tools any survivalist could own. Having the ideal number of maps can get to be an investment, especially considering one state topographic atlas can cost $20. You should start by

concentrating on your local region first, as you'll first be doing a hazard analysis. Then expand to areas you find yourself in regularly. If you are bugging out to another region, you will want the appropriate maps for that area as well. Ideally you should have the following for every area of operation:

- 7.5 minute series USGS Topographic Maps of your area, and adjacent maps. **These are the basic essential maps you should get first.**
- Road maps for every state you may find yourself in
- DeLorme[11] topographic atlas for your state, and neighboring states. **I highly recommend these maps.**
- Street maps for your town/county and surrounding ones. You can often get these for free from local businesses or your town hall/county office building.

There is one thing about maps to be aware of: Sometimes what is on them doesn't correspond with the real world. Roads are always being worked on, and the one that appears to go from point A to point B may be washed-out as a result of a storm last year, or turned into a dead-end because some local big-shot didn't want all the through-traffic on "his" street.

When planning routes, always confirm that they will work by making a practice run. Ideally, you should have at least three different routes thought out. This way if one becomes impassible, you still have at least two others to use. Natural disasters can flood out roads and bridges. A hazmat accident on the highway can not only block the road, but also the areas around and downwind from it. You might have to go way around the problem area. In a case like that, detailed street and road maps will help you get home.

The new generation of mobile GPS units with mapping and route generation capabilities have helped me out immensely since I first started using them. These devices will not only show your location, but also generate a set of travel directions to whatever location you desire either by the fastest or shortest route, and can help you detour around problems

11 http://www.delorme.com/atlasgaz/

you encounter while traveling. I would suggesting having one for your vehicle. The better ones also feature a database of gas stations, parks, campgrounds, retail outlets, and other locations of interest and will show you what is near your location, any other given location, or along your route.

Besides side roads that may get you to the same place as your primary route, you may find other byways that may come in handy. You may need to get off a highway by means other than the normal exit. You may have to travel via an alternative route such as a railroad, rail-trail, or utility right-of-way. There may be a railroad right of way that will get you out of the city, or an abandoned rail line that has been turned into a rail trail for joggers and bicyclists. A utility company right-of-way for high-tension lines may have a dirt road on it for service vehicles.

In a survival situation, you may need a temporary secure place for you and your vehicle while bugging out to your retreat, so you will also look for potentially useful structures that you may use as emergency shelter. There might be an abandoned gas station on a side road that is part of your secondary bug-out route, or a public works shed that doesn't seem to get visited too often. It doesn't matter if your routes go through an urban, suburban, or rural area. You will find these things.

There is one warning on railroad right-of-ways that I have to share with you. Stay well away from the tracks. If you get surprised by a train you will lose the encounter! Even if you don't get hit by a train, the railroad will arrest you for trespassing. Many railways do have enough space off to one side of the right-of-way for a vehicle to go down them. Obviously abandoned railways are a different matter, and the local information you've collected will help you best judge that.

If you do not have an extensive knowledge of your area, navigation of terrain becomes an arduous task during difficult times. Start acquiring area knowledge by studying maps of your locale. You should have a DeLorme atlas for every state in your area of operations, and USGS 7.5 minute topographic maps for the territory your group lives/travels in. Study the maps and look for interesting places to check out, such as old

railroad rights-of-way (which often become rail trails), hiking trails, parks, state hunting land, old roads, and other natural features that look interesting. Once you have found some spots, go on an adventure and check them out. One cool and interesting hobby that perfectly ties into this area exploration is **Geocaching**[12]. Besides acquiring first-hand area knowledge you cannot get by any other means, getting out and walking or bicycle riding is an inexpensive way of getting into and staying in shape. **Having twenty extra pounds of unnecessary dunlap and considering walks to the refrigerator as your daily exercise routine will not cut it.**

A lot has been said about alternative methods of transportation, and my recommendation is a bicycle. It represents an order of magnitude faster speed than walking, and requires no fuel other than what you eat. In some areas, a bike is more efficient and effective than a car. You can get a decent mountain bike for less than $300 at any department or sporting goods store. There are also auxiliary motor units that can be fitted on a bicycle such as the Omni Insturments EROS Bicycle Electrification System[13] and The Slipstream made by Convergence Tech[14]. An electric-assisted bicycle and a bike trailer would make an excellent combination. Also, and this should go without saying, the one absolutely necessary accessory you need for your bike is a small repair kit that fits in a bag that you can mount to the handlebars or frame.

One of the most ignored issues of survivalism is the period after TEOTWAWKI. People will want to rebuild, and the time to think about that process is now. An irksome trend I have noticed on survivalist forums is the lack of foresight when it comes to dealing with the so-called post-TEOTWAWKI period. Users seem to be all ready with stockpiles of guns and ammo to take on the zombie hordes, but have put little thought into the reconstruction. This is quite evident when discussions of silver and gold stockpiling come up. Many users sarcastically state that they will be stockpiling lead as their precious metal.

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12 Check out http://www.geocaching.com/!

13 Omni Insturments - http://www.mcn.org/a/omni/index.html

14 Convergence Tech - http://www.econvergence.net/emb.htm

Kurt Saxon, whom many consider the father of the survivalist movement (or at least its patron saint), emphatically advocated an emphasis on small-scale cottage industries that could be used to establish a robust sustainable lifestyle in a suitable area that would enable an individual to successfully deal with all sorts of contingencies and disasters. As a result of this common sense philosophy towards survivalism, Kurt gets a bad rap from the fantasy types for whom this approach isn't sexy enough.

As a part of a self-reliant and prepared lifestyle, you need a profession, or at least an enjoyable hobby, that will continue to be useful after TEOTWAWKI. Someone once told me regarding jobs and work, **"If it's something you would enjoy enough to do for free, then you'll make a million dollars with it."** You could take the attitude that it is simply a job, but since you have to be there 40+ hours a week, you should be doing something you find enjoyable. Even if you have gone Galt and are denying your mind to the current society of parasites, you should find something mundane that is tolerable if not enjoyable.

After the dust has cleared, there will be a lot of infrastructure in need of restoration, repair, and reclamation. Hobbies such as ham radio, computers, electronics, welding, and metalworking are very useful as they can give you important skills for the reconstruction. Medical skills will also be important. As an added bonus they are in heavy demand at present and in the foreseeable future. People will still need products and service, and that need opens up the opportunities for many different cottage industries.



Keep track of places such as this. Old streamside mill and power plant sites will become valuable during the post-TEOTWAWKI reconstruction.

The Kurt Saxon Interview

The full interview appears in Cybertech Issue #6.

Q – *How did you get into the survival business?*

A – When I realized that the world was really going downhill, I just started collecting information for people to use who would survive the calamity, and I've been doing it ever since; putting out books on mainly 19th and early 20th century technology on which to rebuild then civilization collapses.

Q – *What type of preparations do you feel people should prioritize in order to deal with the upcoming crisis?*

A – Well first of all if one is in an urban area, leave it, or forget it. I mean if you're going to stay with the mess, then just eat, drink, and be merry, because your bell is about to ring. But if you have any sense, and you want to be in your grandchildren's history books, then you'll relocate to a rural area; maybe 100 miles from any city, take a trade with you, buy maybe an acre of land with a house on it, and start living the way your great-grandparents did.

Q – *You were talking about learning a trade in your previous statement. What trades do you think are going to be needed after the collapse occurs?*

A – Supplying what your neighbors need. What do you need on a day-to-day basis? Learn to make toothpaste. You get whiting, and a little sugar and spices for flavoring, and that makes tooth powder. You put a little water in it and that makes tooth paste. Make shoe polish. The Survivors have hundreds of domestic formulas for making day-to-day things; which you can make for yourself, and to trade to neighbors. They have hundreds of cottage industries and trades. Like for instance, in Survivor Volume Five is the 1851 Molders and Founders Guide by which you and maybe four or five guys with you could turn out castings up to 32 tons without electricity. These old industrial revolution days techniques for when things really fell to pieces, will help anyone with any brains, and someone who wants to put forth the effort, start industries; that could grow from then on. Regardless of whether you know anything about them or not, I've got the

books that teach them the way your great-grandfather learned them; in a language that anyone can understand, as long as they can read. So, the intelligent person, and the person who has persistence, can become great. Whereas, if her just stayed in with this dying establishment, not only would he die with it, but if he managed to escape from dying by luck; without the proper survival training, and without the proper attitude then he;s be a mediocrity until he finally died in some ditch. But if you use your brains, then you can take advantage of this awful thing that's going to happen, and it wouldn't be to the detriment of anyone else.

Q – *Is there any equipment a beginning survivor should have?*

A – You ought to have a Corona Grain Mill (CGM). With the CGM you can buy 50 pound bags of wheat for $7 (1991 price). Hard Red Winter Wheat has the highest protein. You can sprout that gain too; makes it a lot more nutritious. And then when you dry it, then you can grind it and you have the finest breakfast food; most nutritious possible. Your CGM is made in Colombia. It's so sturdy I've had one for 30 years, and it works just as good today, as the day I bought it. The CGM was made for peasant women, and they don't go for planned obsolescence down there because they can't afford it. So, you buy your CGM, the simplest tool for your kitchen, and you can grind wheat, corn, rye, barley, whatever you got. You can always buy that. There's never going to be a real shortage of bags of grain, and if you've got the little CGM, you are not going to go hungry.

It's also good to have a food dryer; where you can dry your garden produce, make beef jerky, and make fruit leather. You can dry your leftovers; so you just put them in plastic bags and then you save them for soup later. Nothing needs to spoil in your refrigerator. You might think about buying a bandsaw, and various shop tools for making all kinds of things; like your great-grandparents would make in their shop to trade and use around the house.

Kurt Saxon's web site is http://www.survivalplus.com/.



The Lone Wolf

"No man can cut out new paths in company. He does that alone."

- Oliver Wendell Holmes, Jr.

"The creator lives for himself. He needs no other men. His primary goal is within himself"

- Ayn Rand, **The Fountainhead**

All things considered, after studying preparedness and watching the rise and fall of many survivalist groups and so-called "militia units" over the past twenty years, I advocate a Lone Wolf survivalist philosophy. This means that your core group consists of you, your significant other (if you have one), and perhaps your parents and siblings if they think along the same lines as you and you are so inclined to include them. The majority of the rest of the population you deal with as a trader[15] in that the context of the relationship is businesses-oriented, the mutual beneficial trade of products and services. Friends fall into a category somewhere between the two, depending on how close the friend is, but it still comes down to you and your family if you have one.

In many ways, the Lone Wolf philosophy is superior to that of being in a group, as it is better suited for the gradual decline that has been the current trend for decades. You basically choose your own path, and can rise to your own level without interference from group think. Lone wolves are free from the stagnation and loss of focus that all too often occurs with survival groups after a couple years when the much-heralded total collapse fails to occur within the group majority's arbitrary and hazy time line.

I recall one local survival group, actually more like a survival club, that a few years ago I was introduced to. The group's problem resulted from too many fantasy-types joining, and the group leader not having the necessary wherewithal to keep them in line. The mechanics of actual practical preparedness do not lend themselves well to survivalist fantasies, and demonstrations of easy practical preparedness

15 Read **Atlas Shrugged**, by Ayn Rand.

technology by my survival technologist friend known as "Wildflower" did not go over well with the fantasy-types. What did go over well was one fantasy-type member's involvement in a controversial organization and the results of what happened when he failed to observe basic personal security procedures while being a part of that scene. Everyone in that clique oohed and aahed over hearing about how he purportedly suffered a loss of property as a result of his other activities, but showed little interest in learning basic OPSEC[16] procedures that could have prevented such an occurrence from happening in the first place. This is an example of how group think can throw otherwise functional members into decline.

Lone Wolf survivalists who have been in the hobby for a while are at the top of the food chain because they are able to practice their skill sets and develop their own unique metaphysical viewpoint without interference from others. Lone Wolves are also more willing to share what they know with others, especially those whom they feel are worthy of teaching, usually another Lone Wolf. Paradoxically enough Lone Wolves are more social than survivalists who are part of a group. Group-think tends to isolate its members from the survivalist community at large - the proverbial "us versus them" mentality. A lot of this stems from a sense of inadequacy. Lone Wolves suffer no such delusions, so they have no problem with stepping up, offering what they can, admitting they're no expert on everything, and gladly switching teacher/student roles when necessary for their own self-improvement.

Gathering the Pack

I suspect that if something did occur, if the shit hit the fan and TEOTWAWKI happened, that the Lone Wolves would be the ones to actually do something towards mitigation, recovery, and reconstruction (unlike typical survival groups which would likely be too paranoid and isolationistic to interact with the real world). While independent and individualistic, Lone Wolves would have no compunctions against forming temporary associations, or working groups, with one another based on mutual trade and benefit,

16 OPSEC – Operational Security

especially post-TEOTWAWKI.

The difference between a working group and the stereotypical survival group is that a working group is a loose temporary association of Lone Wolf survivalists for a specific purpose, much like the posse of the Old West or perhaps the post-TEOTWAWKI version of a Chamber of Commerce. Stereotypical survival groups on the other hand are considered permanent associations, perhaps like a commune, and have a more isolationist attitude towards their neighbors and the community at large. The former would be the ones who will be leading the rebuilding, whereas the latter in many instances would only be exacerbating the problem.

As a Lone Wolf, you will come across other individuals in your travels. Most others will be operating on the same wavelength as you, but there is a possibility you may come across some who are not. Since you don't wish to waste your time and effort on those who are not, an evaluation would be in order.

One of the best nuggets of wisdom I've ever heard on selecting worthy people to work with came from Titor: *"The people whom you can trust the least will be the ones with the most to lose when the system changes."* It doesn't get any more simple or eloquent than that. Individuals who will be the most effected as a result of a status quo change will be the least trustworthy. I feel that you have to have known an individual for at least ten years before you can make a realistic judgment-call as to his/her trustworthiness. However, there are certain indicators that you can use for a rough estimation: Generally, family members and (combat) veterans (especially if you served with the individual in question) are your first consideration (Titor stressed the importance of the bonds formed by family and by shared military service). How well does the person take care of him/herself? Many people have medical issues, but there is a HUGE difference between the person who manages his/her health issues and the one who lets medical problems get out of control. Does the person have any addiction problems? Is he or she on any form of state/federal assistance? Is the individual a creator or a second-hander(end user)? Those who can affect changes in

their sphere of existence by an application of intent and action are more likely to take any change in the status quo in total stride and not be effected by a change, whereas a second-hander needs the status quo to exist and will act against you to preserve it. What is the person's overall attitude? Does he or she consistently express negativity, or are they a person who tries to innovate and improve things while maintaining a positive outlook? The former will be of little use (in fact they will drain your personal assets) while the latter are people you want associated with and working with you. Again, *"The people whom you can trust the least will be the ones with the most to lose when the system changes."*

Optimal Working Group Size

Much has been said about what size a working group should be. Size truly matters not in this instance. It is far better to have a group of two people that intimately know, trust, and work well with each other than a dysfunctional dozen. If you are fortunate enough to achieve a high level of trust and operational ability with a dozen good survivalist friends consider yourself blessed, but otherwise when it comes to forming up a group don't fall into the trap of "bigger is better." I would put the optimal group size at four to six. In infantry terms this would be known as either a fire team or reinforced fire team.[17] A fire team is the basic element with which all infantry tactics are practiced. A group this size is small enough to remain unnoticed, but still able to offer adequate diversity of skill sets. The maximum size I would recommend is no more than twelve. If you go past twelve people you start getting beyond standard small unit tactics. Twelve is the number of people in a Special Forces ODA,[18] and depending on survivalist composition can offer a diverse enough skill set to establish and maintain a small community, or reconstruct one during the recovery phase. If you get more

17 A fire team consists of four people. Five or six is considered a reinforced fire team. See US Army Field Manual FM 7-8 or FM 7-70: Infantry Platoon and Squad.

18 ODA – Operational Detachment A or "A-Team". See FM 31-21: Guerrilla Warfare and Special Forces Operations, or ST 31-180: Special Forces Handbook.

than a dozen people to work together, than you should be splitting into smaller groups and considering yourself blessed.

Distance

The beauty of the Internet is that it allows fellow Lone Wolves to keep in touch with one another across long distances. For those who travel, having contacts in a variety of regions is a good thing. The SHTF reality however is that you will likely to be forming working groups with fellow Lone Wolves who live closer to you.

The generally recommended maximum distance between members of a group is generally considered to be one hundred miles. To put a hundred miles into perspective, driving in a car at sixty miles an hour will take you one hour and forty minutes to arrive at your desired locale. Averaging twenty-five miles per hour on a bicycle, it will take you four hours. At twenty-five miles a day walking, try four days. I would consider a hundred-miles to be a good maximum distance for a few loosely-affiliated working groups to be within each other. However, it's too far for efficient operation of your own working group.

A more realistic distance, actually travel time, for members of a working group would be a **maximum** of one hour vehicle travel. That equates to about 50 miles of highway driving or 20-30 miles of local/city driving. In an extreme situation that equates to a day or two of walking assuming you cannot scrounge up better transportation. On a bicycle, you should be able to do 50 miles in about two hours.

Communications

You and your fellow lone wolves should have alternative methods of communications set up and already tested out in the event the Internet and commercial telephone service goes out. The communications systems need to be adequate to cover the distances involved, infrastructure independent, and adequately robust. A detailed description of various types of radio communications systems and recommendations are detailed later in this book.

Bug-Out Kits, Contingency Kits, Go-Bags, and Possibles Bags

I dislike the terms “bug-out kit” and “contingency kit” as they encourage bad preparedness habits. These kits are not something to be put aside and forgotten until some specious event occurs. They are made to be taken out every day, used, and worked out of. Your kit should be more like a mountain man's possibles bag, or what these days is called a go-bag. Having a go-bag should be considered a requirement.

Helping you bug-out to a safe location is only one potential use of a go-bag. Bugging out may be impossible to do, or may take longer than expected. In instances such as these, the traditional bug-out kit needs to be expanded to cover additional functions. You may need to procure alternative means of transportation. You may have to find a secure location and sit tight for a little while until things calm down. In certain situations, you may even need to "set up shop" somewhere for longer than expected. Depending how what scenarios and problems you may envision running into while doing your survival planning, you will equip your contingency kit accordingly. As I mentioned in a previous article, a contingency kit needs to serve several essential functions. They are (in no particular order):

- Communications
- First Aid
- Food
- Fire-Making
- Self-defense
- Tools
- Shelter
- Water

The specifics depend on your potential scenarios and situations you think you may encounter. Your kit could

consist of two parts. The first is the personal kit consisting of core items that you would keep in a backpack. The second part would be a vehicle kit that supplements your personal kit. Should you have to abandon your vehicle for whatever reason, you can always cache the less portable parts or your vehicle kit, or have the means in the kit to hide your vehicle until you can recover it later.

There are a few different general philosophies towards assembling a kit. One assumes a short-term problem, usually a time frame of 72 hours (3 days). Kits of this nature are intended for the user to "ride things out" at a basic existence level for the duration. After 3 days disaster relief services are supposed to come in and render aid. A variation of this philosophy is a bug-out kit. This version is designed to get the user to his retreat in the event of a TEOTWAWKI-type disaster. Instead of riding things out in natural disasters and minor problems such as blackouts, this kit is focused upon getting its owner to their destination intact. It would, for example, contain more in the way of weaponry and firepower than a simple 72-hour kit. Yet another kit philosophy is what I refer to as a "Robinson Crusoe"-type kit. This kit assumes you will be stuck someplace during a long-term disaster, and will have to "temporarily" set up shop. This type of kit may lean a little heavily towards tools, security devices, and "infrastructure" items. Another basic kit design is based on the "Possibles Bag" that American frontiersmen carried in the 18th and 19th centuries (a “go-bag”). The most important consideration for your kit is that it be convenient so that it will be handy when you need it. A Swiss Army Knife or multi-tool fits nicely in a pocket or belt pouch, is carried comfortably, and proves its usefulness several times a day because you aren't aware of the fact that you are carrying it until you need it. During recent events, many people would have been much better off if they had a small kit put together and ready for use.

Most kits will borrow a bit from all philosophies depending on the situation and whims of its user. This leads me to the most important fact to remember: It is the gray matter between your ears that's most important. Broad knowledge and common sense are the two most important survival tools anyone can have. Those two items will let you

make the most of whatever you happen to be carrying with you when the shit hits the fan. The longhunters and mountain men of old used to prosper in the wilderness with little more than a good knife, tomahawk, flint 'n steel, rifle, blanket, and a small possibles bag filled with some sundry items. It was their legendary skill in woodcraft more so than what they carried that enabled them to survive.

When you start putting everything together, you need to decide how you will lug it all around. I have used various methods depending on the environment, equipment in the kit, and purpose. Starting on the small side are modern-day versions of the possibles bag carried by mountain men and longhunters of the 18th and 19th centuries. Traditional possibles bags were made out of buckskin or leather. Many living history buffs make their own bags. My friend and co-conspirator Jim Teff used to make possibles bags out of old blue jeans, much like the gentleman on the Frugal Outdoorsman[19] website. Anyone who can handle a needle and thread without sewing his or her fingers together should be able to make one of these whether they decide to go the traditional animal skin route, or use more modern materials.

For those of you looking for a manufactured solution, there are a myriad of military surplus shoulder bags from as many different countries that can be bought for under $10. You simply go visit your local army/navy store that deals in military surplus (some of them around here are yuppie sports stores) and see what you like. I found a Belgian military engineer's shoulder bag at a local surplus dealer for $4. It is OD canvas with brass hardware, and measures 12" x 5" x 5". There is a clip on the shoulder strap that was perfect for hanging a Coleman zipper thermometer/compass from, and a D-Ring on the side of the bag that the handle of my tomahawk fit though nicely. A U.S. Army individual first aid kit is attached to the shoulder strap. A bag like this makes an excellent possible's bag for short forays.

Duffle bags (usually with a shoulder strap) are a very convenient way to store the contents of a kit, especially if you have a number of smaller bags that comprise it. They are very

19 See http://www.castbullet.com/

discrete looking, and don't attract attention. I have used the medium-size LL Bean Adventure Duffle for a few years now (it was a gift from my wife). It has proven to be a rugged piece of luggage. The medium bag is big enough to hold a change of clothing, the Belgian shoulder bag, a U.S. Army medics bag, knife, tomahawk, and Grundig FR-200 emergency radio. The military-style cargo (or parachute) bags can be had in sizes large enough to hold a medium rucksack (without frame) and set of LBE.

For larger kits, there is the ubiquitous backpack or rucksack. There are a wide variety of them available, ranging from Jansport and LL Bean daypacks, to the large rucksacks used by the world's militaries. In addition to the US military surplus and new manufacture gear, there has been a lot of high quality foreign military surplus imported into the country over the past few years, It is offered at very reasonable prices. The German, Austrian, Australian, and Swiss gear is probably among the best in quality when it comes to the foreign stuff. A quick trip to your local military surplus store will find a plethora of items for you to examine and decide upon.

My current backpack is a Spec-Ops "T.H.E. Backpack" (Tactical Holds Everything). It's in the medium ALICE size range, and is great for general use. It's complimented with a small possibles bag, and occasionally a British DPM assault vest. It appears that the overseas and older American military surplus is built better than current "GI-style" equipment often found at today's army/navy stores. There are American companies such as Spec-Ops and Blackhawk that make very good tactical gear which can be of use to the modern survivor. It is more expensive than the "GI-style" gear, but the difference in quality shows. I am personally fond of the backpack and possibles bag combination, a la Nessmuk. The possibles bag is for equipment you use frequently and want to be readily available. This arrangement also lets you cache your backpack and use the possibles bag for when you make short excursions and want to travel light.

Water

The U.S. Army says that under normal circumstances a

soldier needs a minimum of six quarts of water a day to remain effective. Under physical exertion you can sweat a quart out of you in the course of an hour. A lot of water intake is done via the foods you eat during the course of the day. Eating survival food such as freeze-dried and MREs means you will have to drink more water, or need more for preparation. A gallon (four quarts) of water weighs 8 1/3 pounds, so a day's supply would be at least 12 pounds. Carrying around "enough" water for more than a day would be prohibitive considering everything else you might be carrying. The standard U.S. Army individual load for water when I was in consisted of two one-quart canteens on the web gear, and a two-quart canteen kept on the rucksack. However we always had a "Water Buffalo" trailer nearby for filling our canteens.

Chances are you will have to acquire water from sources that are potentially contaminated. I recommend that your contingency kit contain a high-quality water filter such as a PUR/Katydin or MSR unit. At the very least get enough good purification tablets, such as Chlor-Floc, to treat the amount of water that you may need during the course of the problem. The Chor-Floc tablets are sold 30 to a package, which will treat eight gallons of water. and are what the U.S. Military is currently using (having replaced the old Iodine tablets). Some people cannot drink water treated with purification tablets. They suffer digestive upset from it. If you are going to use them make sure your system can tolerate them. I was recently at a local Eastern Mountain Sports (EMS) store, and noticed that they were selling straw-type filters for $7 that were good for filtering 20 gallons of water, and would filter out most non-viral nasties that you might encounter. That was the same price that the local Army/Navy store was selling packages of Chlor-Floc.

For long term contingencies or situations where you might be stuck someplace for a while, you might want to learn how to make medium to large-scale water filter systems using sand and other materials. You can find chlorine bleach everywhere, and it can be used to treat water sources by adding 1 teaspoon to every 10 gallons. Make sure the brand of bleach you use has no extra additives in it. That means no Clorox.

Food

Unless you can cache food along your bug-out routes or in areas you frequent, you will have to carry enough food to last however many days you will be operating out of your kit. If you have to hike back home with a pack on your back, you will need to eat two to three times what you normally do, due to the extra exercise you will be getting. You will also want stuff that can be eaten with little to no preparation, possibly while on the move. I don't care for MREs from having eaten them in the Army way too many times, but they get the job done. You can greatly reduce their bulk by discarding the packaging and just carrying the actual food pouches. I would also not carry the MRE heaters, as they use precious water in order to work. You only need one plastic spoon, or you can discard it if you're carrying a hobo kit. Besides MREs, you could carry common hiking/backpacking foods such as energy bars, GORP, beef jerky, and instant soups and cereals. You can also get survival food such as the Mainstay emergency cookies, "survival food tabs", and Datrex food bars.

While planning your bug-out routes, make note not only of places where you might be able to cache a few MREs, but also places where you might be able to scrounge food. Some of them may be seasonal in nature, and you should take note of this as well. Some may not be obvious, and take some research to find. For example, an industrial park along your route may have a company such as Sysco as a tenant. Sysco is a provision supplier to schools, office buildings and other institutions. They maintain large local warehouses of provisions to supply their customers.

Shelter

The purpose of shelter is to protect you from extremes in the environment. This can be something as simple as a lean-to shelter in the woods, a protective shelter in the event of a Nuke/Bio/Chem attack, or defensive fortifications in the event of a civil disturbance. Shelter should also in a TEOTWAKI/bug-out situation provide concealment in order to avoid potential trouble if possible. Along your bug-out route you may find abandoned buildings, seldom-visited public

works utility sheds, and other such buildings. In a life-or-death situation, these can be used as temporary emergency shelter. In rural/wilderness areas there should be plenty of natural materials to build a shelter with, if you can't find a place immediately suitable to hole up in. I carry a military poncho, some wire, and 550-cord in the contingency kit to assist in building shelters. At the very least the poncho and 550 cord can be used to make a quick-n-dirty "hooch" that you can sleep underneath. Jim Teff once shared an interesting and useful shelter technique with me: he cached lengths of Visqueen plastic sheeting at various potential bug-out locations and along bug-out routes. Using this material not only cuts down on the amount of natural materials you have to collect, but also makes the shelter more weatherproof.

Tools

When I was in high school, I had a part-time job as an electronics technician at the local TV repair shop. I started out as a clerk, and was promoted a few months later when the owner found out I was knowledgeable in electronics. As a matter of course I kept in my backpack a pair of needle-nose vise-grips, diagonal cutters, a 6" adjustable wrench, and an allen wrench set. That was in addition to the Buck knife and Swiss-Army knife I carried on my person. I would have carried a TRS-80 Model 100 too if I could have afforded one back then. These tools did see quite a bit of use as my primary mode of transportation was via bicycle. If I noticed something not quite perfect on my bike I would simply stop and fix it. It is flat-out amazing what you can do by having a few simple tools on your person. A student who carried that amount of hardware into school these days would be considered some sort of terrorist, and that shows how sad things are these days. If they put metal detectors in my high school back then, my friends and I would have had nothing but fun screwing with them, much to the school's chagrin. Nowadays it appears that most public school students are carbon copies of their sheeple parents. I feel that any parent who does not teach their child the essentials of handling firearms and knives is guilty of child abuse, and feel that any parent who does not at least try to get their child interested in science and technology

is as low as a pedophile. But I digress.

A good knife is one of the basic elemental tools of survival. I first started carrying a knife at age 8. It was one of those Boy Scout pocketknives that had a knife blade, bottle opener/screwdriver, awl, and can opener. It was so handy that a few years later I started carrying a Buck lock-blade, and one of the medium Wenger Swiss-Army knives. I remember back in high school that the Buck lock-blade was a status symbol among the "redneck" clique. The carrying of knives was technically against school regulations, but as long as you didn't brandish it, get into a knife fight, or stab someone the school generally turned a blind eye. If I recall correctly, they didn't even consider Swiss-Army pocketknives to be "knives". That was over 20 years ago however, and back then they didn't even care if you brought your rifle or shotgun into school to do some gun-smithing on it in shop class, as long as you gave the shop teacher advance notice. Kids are getting kicked out of school today for bringing in sporks, nail-clippers, and zip-lock bags of sugar for their breakfast cereal. It is just another example of how sad and disgusting matters are becoming in this country.

There are many good makes and models of knives out there. You can read pages of information about what some writer constitutes the "best" knife", and this knife collector's advice is to try a few out in the field and see what works for you. I like Benchmade, Spyderco, Cold Steel, Ontario, Case, older Camillus, and older Gerber.

Many preparedness hobbyists like to make their own knives. This is something I'm going to do in the near future. Knife making is beyond the scope of this book, but bladesmith Wayne Goddard has written a book called Wayne Goddards $50 Knife Shop; ISBN 0873419936. The title pretty much explains it all. The book shows you how you can put together a shop to make knives for $50. It is a collection of all sorts of hints and tricks from one of the world's foremost bladesmiths.

I think the one item that is universal among self-reliance and preparedness hobbyists is the multi-tool that has replaced the Swiss Army Knife. A multi-tool packs a high utility-to-weight ratio and an individual who carries one can

be considered adequately equipped to handle many tasks in the field. The Leatherman Wave, for example, has a pair of needle nose pliers, wire cutters, two different knife blades, a file/metal saw, wood saw, scissors, can/bottle opener, and a few different sized screwdrivers (both regular and phillips). I've used mine for building shelters, fence work, electronics, removing a stuck door mat from a snow blower, and tightening up eyeglasses. The two major brands are Gerber and Leatherman, although other manufacturers such as Victorinox (of Swiss Army Knife fame) produce them as well. Quality-wise there is little difference between them, although it is my opinion that the Leatherman and Victorinox tools have a slight edge on quality. A small, but very capable tool kit was put together by Wildflower in a Military Surplus M1 Carbine magazine pouch. It consisted of a Leatherman Wave multi-tool, Victorinox "Swiss Champ" pocket knife, 4LN and 4WR Vise-Grip pliers, toenail scissors, and a small butane blowtorch-style lighter.

Shelter-building tools are always a useful addition to a kit. I like Christopher Nyerges' idea of using Florian[20] pruning shears for shelter building. They pack a lot of cutting power into a small package. The "pocket chain saws" also have a high cutting power to size/weight ratio. Cable ties, especially the big black ones, are useful for constructing or repairing a number of things. Besides its primary use in maintaining oral hygiene, dental floss can be used for a multitude of things. A hundred yards of the stuff fits in the palm of your hand. A small sewing kit is handy for maintaining clothing and equipment. In a pinch you could also stitch up a wound. A couple items can be stuffed into the corner of a go-bag, or a small field repair kit could be made that would weight only a pound and fit into the corner of a backpack.



20 See http://www.floriantools.com/

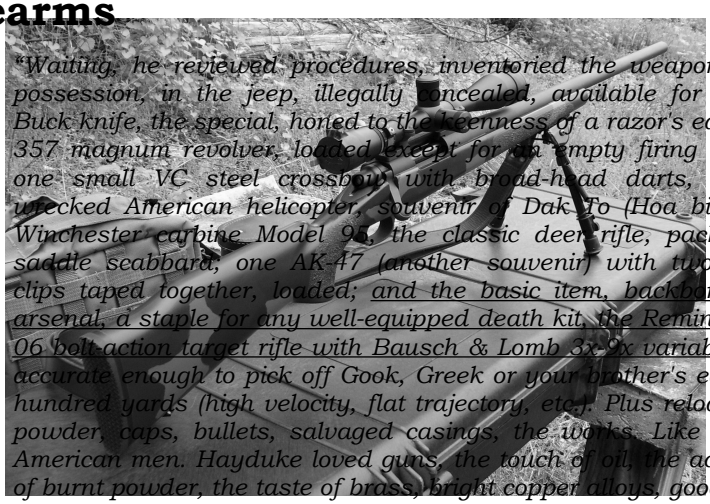
First Aid & Hygiene

At the very least you should pick up a current book on first aid and read it. The US Army has a Field Manual, First Aid for Soldiers, that you can download online[21]. You can also take the first aid/responder and CPR courses offered by the American Red Cross and other organizations. You then can put together a first aid kit based on your level of expertise, or purchase one of the pre-assembled kits. The member of your group designated as "medical specialist" should have at least an EMT certification, and have a well-stocked medical kit put together. As far as bugging-out is concerned, your kit should be able to handle problems you may encounter while en-route to your retreat within the limits of your medical skill. There are a few books on survival medicine that you may want to put in your library. They will help increase your knowledge in the event of a long-term contingency where you may not have access to medical facilities. On that note, unless you in a severe situation such as an aircraft crash in the middle of nowhere or a long-term socioeconomic collapse in which you absolutely cannot find medical help, know your limits and go to the emergency room when the situation exceeds them.

Ditch Medicine, by Hugh L. Coffee
Do It Yourself Medicine, by Ragnar Benson
Emergency War Surgery, NATO Handbook
Medicine for Mountaineering, edited by James A. Wilkerson, MD
The Survival Nurse, by Ragnar Benson
U.S. Army Special Forces Medical Handbook - ST 31-91B
Where There Is No Dentist, by Murray Dickson
Where There Is No Doctor, by David Werner with Carol Thuman and Jane Maxwell

21 See http://survivalmonkey.com/field_manuals_in_pdf.htm for a whole collection of downloadable military manuals.

Firearms



"Waiting, he reviewed procedures, inventoried the weapons in his possession, in the jeep, illegally concealed, available for use: one Buck knife, the special, honed to the keenness of a razor's edge; one .357 magnum revolver, loaded except for the empty firing chamber; one small VC steel crossbow with broad-head darts, made of wrecked American helicopter, souvenir of Dak To (Hoa binh!); one Winchester carbine Model 94, the classic deer rifle, packed in a saddle scabbard, one AK-47 (another souvenir) with two banana clips taped together, loaded; and the basic item, backbone of his arsenal, a staple for any well-equipped death kit, the Remington .30-06 bolt-action target rifle with Bausch & Lomb 3x-9x variable scope, accurate enough to pick off Gook, Greek or your brother's ear at five hundred yards (high velocity, flat trajectory, etc.). Plus reloading kit, powder, caps, bullets, salvaged casings, the works. Like so many American men. Hayduke loved guns, the touch of oil, the acrid smell of burnt powder, the taste of brass, bright copper alloys, good cutlery, all things well made and deadly."

- Edward Abbey, **The Monkey Wrench Gang**

Few preparedness-oriented individuals will argue about the need for defensive weaponry. Samuel Colt was not speaking in jest when he referred to his pistols as *"equalizers"*, for they allow the five-foot ninety-pound lady to be on the same level as a six-foot, two-hundred fifty pound man when defending her honor. This also works on a larger scale as a good rifle in the hands of a trained individual will allow citizen ***militias*** to keep foreign invaders and domestic tyrants at bay. Some survival experts recommend a shotgun, and as a long-time shooter I can understand their choice especially in urban areas, thick forests, buildings, and jungles. For defensive purposes within 100 meters and sustenance hunting the shotgun would be an effective tool. Shotguns are also among the last firearms banned in totalitarian states, often making them the only choice of people who at the very last minute decide they need to be armed. Unfortunately, a shotgun is at a serious range disadvantage past 100 meters when going against a rifle, even one in such short-ranged calibers as 5.56mm NATO (aka .223 Remington) and 7.62x39mm Soviet.

The best pieces of advice I have received about firearms

came from Kurt Saxon[22] and from an old-friend I will refer to as "Scout". Kurt Saxon's advice was this: *"A pistol for the bedroom, a shotgun over the door, a 30-06 for reaching out- You don't need any more."* Kurt's basic three-gun battery approach is probably some of the most sage advice I've ever heard regarding firearms. The advice I received from Scout is similarly minimalist, but also extremely profound. He said that whatever firearm(s) one decides to carry, one should ensure that they work flawlessly by practicing extensively with them. Therefore, when you acquire the basic three-gun battery, make sure they work flawlessly, and practice with them. You can then consider yourself well-armed.

The Rifle: Your Cornerstone

I will part ways with the experts who recommend a shotgun as a primary survival firearm. While a shotgun is certainly an essential part of one's survival arsenal, the cornerstone of a survivalist's battery is his or her rifle. Many "bad guys" will be carrying rifles, and as such you will need a rifle to effectively defend yourself. You will need a good rifle in a ".30 caliber" cartridge. This could be a semi-automatic military-style homeland defense rifle, but a bolt-action will suffice nicely, especially if you live in a totalitarian state that has banned "assault weapons" or you cannot immediately afford a semi-automatic. The caliber is the most important factor as you will likely be going up against bad guys armed with rifles in calibers such as 5.56mm NATO (aka .223 Remington), 7.62x39mm Soviet, .30-30 Winchester, and assorted pistol-type calibers. These calibers are generally only effective out to about 200 or 300 meters depending on the skill of the person behind the gun. With a .30 caliber rifle, a good rifleman can engage targets at ranges of 500 meters or more. That range advantage will help keep you safe.

When I use the term ".30 caliber" I am referring to two cartridges in particular- either the 7.62mm NATO round (aka . 308 Winchester), or the .30-06. Your rifle should be in one of those two calibers. The 7.62mm NATO is the current military round for machine guns and sniper/designated rifleman rifles

22 Kurt Saxon's Website: http://www.kurtsaxon.com/

in the western world. It is also a common hunting rifle round especially here in the United States. The .30-06 was the rifle round of the US Military in World Wars I and II, Korea, and to some extent Vietnam (it was replaced with the 7.62mm NATO round). Also, the .30-06 is probably the most common hunting rifle cartridge in the United States. With either of these two rounds, you should not have any problems scrounging ammunition: Other foreign military surplus rounds in the .30 caliber class such that were inexpensive to purchase surplus in bulk now cost as much as commercial ammo.



Back in the early 1990s excellent milsurp[23] Lee Enfield rifles were in $100 price range and military surplus .303 British ammo was dirt cheap. A lot of militia-types were advocating them as the both the rifle and its ammo were inexpensive, they offered a 10-round magazine capacity (versus 5 for a Mauser), and being a bolt-action they didn't run afoul of semi-auto Homeland Defense Rifle bans being enacted in some locales. Then as the supplies of military surplus .303 were bought-up by shooters and ammo prices increased. Now .303 owners are in the same boat as every other .30 caliber rifle owner when it comes to ammo prices with the added disadvantage of post-End Times scrounging problems.

As long as the Second Amendment isn't totally gutted, you will be able to walk into any hardware store in the rural United States or a Wal-Mart that still sells ammunition and find .30-06 ammo. More likely than not you will also be able to find .308 ammo too. Since it is a current military round, and will be for some time, you will be able to scrounge .308 post-End Times from a number of sources. The other common American rifle round is .30-30 Winchester, but many individuals put that round in the carbine category, much like 7.62x39mm Soviet.

23 “Milsurp” is shorthand for “Military Surplus”.



From top to bottom: Savage Scout (.308 Win.), Sporterized M1903A3 (.30-06), Enfield P-17 (.30-06), and M1 Garand (.30-06) with ammo belt and 8-round enbloc clip. All are good choices for a survival battery.

Now with caliber choice taken care of, we can talk about actual model choice. The specific model is unimportant as long as the gun is ergonomically comfortable, reliable, and accurate. With semi-autos, this boils down to four choices: There is the M1A (which is the civilian version of the M-14 battle rifle); civilian versions of the German G-3 (aka HK-91) and Spanish CETME; civilian versions of the Belgian FN-FAL, L1A1 and STG-58 (which are variants of the same rifle design); and the M1 Garand (which was rifle of US forces until the adoption of the M-14).

The M1A, HK, and FAL are all chambered in .308, whereas the Garand is in .30-06. Each of these rifles has its advocates and detractors, and each one has its pluses and minuses. Being familiar with all four, I'd say any one of them would serve you just fine provided your particular weapon is in reliable condition and you practice with it. My advice is to try out all four, see which one resonates with you, and go with that one. When pricing out these rifles, you will find that they cost more than typical sporting arms, and, when all is said and done, you will find yourself spending a couple thousand

dollars for the rifle and all necessary accessories. While this may seem expensive to some, it is a one-time investment that if properly maintained will last a lifetime. Sell off your excess possessions in a yard sale or take a part-time job if you have to so you can properly equip yourself while you still can.

There may be a situation where you cannot acquire a semi-auto homeland defense rifle. For example, they may be illegal in your state and you may be unable to relocate. In that case, a military surplus bolt-action would be an good second choice. There exist several military bolt-action rifles already chambered in .308 or .30-06 calibers. Among them are the Springfield M1903 (.30-06), Enfield P-17 (.30-06), Spanish FR-8 (.308), Israeli Mauser 98K (.308), and Ishapore Enfield (.308). My preference would be either a Springfield M1903 or Spanish FR-8



The Spanish FR-8 Mauser – A favorite of the author.

. There have been many foreign military surplus bolt actions (especially Mausers) that were sporterized and rechambered in either .308 or .30-06 over the years. Any of these would suffice. Due to the age of these rifles and inability to know how well they were maintained by previous owners, I would have any potential purchase examined by a competent gunsmith. I have seen sporterized military surplus bolt actions in good condition selling in the $300-$500 range. You may even find one for less if you look around. A possible solution for those on an budget would be to buy an inexpensive large-ring Mauser (such as a German 98K or Yugo M-48) and then have it converted to .308 or .30-06. Recently there have been Norwegian Mauser 98K barrels in .30-06 seen in the surplus market from different sellers.



Mosin-Nagant: The current bargain in Milsurp rifles.

Since I'm sure someone will ask, citing extreme poverty due to the current economic situation, I will offer the extreme bargain basement solution to arming oneself with a military-style Homeland Defense Rifle. This goes against my advice regarding selecting caliber selection, but any gun is better than nothing at all. Go to your local gun-dealer that specializes in used/military surplus guns. You may have to look around and go through all the dealers that cater to the sporting crowd, but every locale has one. Buy a Russian military surplus Mosin-Nagant and as much 7.62mmx54R Russian ammo as you can afford. The 7.62mmx54R Russian round, unlike other military surplus ammo, is still in current production as it is the standard round for Russian and other Eastern European machine guns and sniper rifles. Its status as such **should** mean that inexpensive ammo will be around for the foreseeable future **as long as it continues to be allowed into the country**. Aim to get at least 1000 rounds. Practice with the rifle, and replace ammo as you use it by purchasing two boxes for every box you shoot. If the shit hits the fan you will at least be armed with something decent. When you can afford something in either .308 or .30-06, keep everything as a spare, or sell it to someone and put the resultant cash back into your preparations budget.

Shotguns

Continuing on with the basic three-gun battery we now go to your primary close-quarters weapon, the shotgun. Within 50-100 meters a shotgun is a very effective combat arm. It is also among one of the last firearms to be banned by a totalitarian state, since they are considered “sporting guns” by anyone who hasn't stared down the barrel of one, or used one to clean out a room. Carried with an assortment of shells ranging from bird shot to buckshot and slugs, a shotgun can handle both sustenance hunting of small/big game as well as defensive applications. The shotgun's big disadvantage is that past 100 meters it is outclassed by a even a rifleman armed with the basic 5.56mm M-16. When engaging in homeland defense one wants to stay out past 300 yards where one cannot be easily reached with standard infantry small arms, and it is for that reason the shotgun doesn't qualify as a substitute for a .308 or .30-06 Homeland Defense Rifle. When it comes to shotguns, the two size choices are twelve and twenty gauge (in that order). Get a twelve gauge unless you absolutely cannot handle the recoil, in which case get a twenty gauge. There is a much greater variety of ammunition in twelve gauge, so if you go with a twenty you may have to load your own specialty shells. When it comes to specific models, most people go with either Remington or Mossberg, and that would be the Remington 870, Mossberg 500, or Mossberg 590. Also, there are a few individuals who are very fond of the older Winchester 97 and Ithaca 37. Pick whatever you like. Just make sure it functions flawlessly.

Pistols

The class of firearm whose decision is the most difficult to make would be the pistol, only as there is such a large assortment to choose from and every make and model has people that swear by it and swear at it. Popular choices include variations of the Colt M1911A1 (the famous “Colt 45”), Glock, SIG, Browning, and Smith & Wesson. A similar dilemma exists with calibers. Viable choices are .45 ACP, .40 S&W, .357 Magnum/.38 Special, and 9mm NATO (aka 9mm Parabellum).

The best advice I can give about pistol selection is very basic: I would chose something in the largest caliber you can comfortably and accurately shoot. As my friend "Zed" once told me, *"Pistol bullets work, ie. kill things, by making holes that let blood out. Get the pistol that makes the largest hole."* Find something that is comfortable in your hands and reliable. The exact choice is really unimportant as long as it works when you need it (ignore all the fanatics). Once you've made a choice, take it out (often!) to the range and practice with it.

If one were on a tight budget, the best bet would be to get a good condition used medium or large frame revolver in .357 Magnum. Since the popular handguns these days are automatics in either .45, .40, or 9mm caliber, you can often find a good revolver at a reasonable price. The .357 will give you the capability of firing either .357 Magnum or .38 Special rounds. They are available at any sporting goods store. The classic 125 grain soft-point .357 round has been shown over many years to be an effective defensive round. It is commonly available (although better defensive rounds have been developed since then), old-school, inexpensive, and works. Period.

Carbines

Going beyond the basic three-gun battery, many survival gun experts recommend getting a carbine. A carbine is a smaller rifle that fills in the 100 to 300 yard niche where you need more range than a shotgun and a full-sized rifle would be cumbersome. Common carbine cartridges would be 5.56mm NATO/.223 Remington, 7.62x39mm Russian, .30-30 Winchester, 5.45x39mm Soviet, and pistol-calibers such as .357 and .44 Magnum when fired from a long gun.

One of the more popular carbines in the United States is the AR-15/M-4 platform. Two variants are shown on the next page with a bolt-action CZ527 varmint rifle in .223 Remington. Of all the carbine calibers, 5.56mm/.223 is probably one of the most common in the US along with .30-30 Winchester, and readily available in bulk as military surplus. Most people seem to find the ergonomics of the AR-15 family

to be excellent, and prices are reasonable for a semi-auto homeland-defense carbine due to the large number of AR-15 vendors out there.



AR-15s are easy to build with a few common gunsmithing tools. However, I would have a more experienced firearms enthusiast help you build your first one. The wide variety of parts enable you to build up anything from a small M-4 type carbine up to a heavy barrel varmint-style rifle. The registered part of the AR is its lower receiver. That's all you have to buy from a licensed dealer. You can get all the other parts at gun shows or via mail order, and assemble multiple upper assemblies with different barrel lengths and calibers. Should you decide to purchase an AR-15 platform firearm, make sure you get a copy of TM 9-1005-319-23&P, which is the military's tech manual (Unit and Direct Support Maintenance Manual) on the M-16/M-4/AR-15 platform. You can find copies at gun shows or download a digital copy online.

The AR-15 is an exceptionally accurate platform, although its direct gas action has been known to cause some reliability issues when the firearm gets dirty. There are now gas-piston “AR variants” available such as the HK-416 and FN SCAR. Reports indicate their reliability is significantly greater

than the standard AR-15.



In this picture we have from top to bottom: Ruger Mini-14, Marlin Camp 45 carbine, SKS carbine, sporterized 7mm milsurp Mauser carbine, Spanish Destroyer Carbine in 9mm Largo, and .303 British Lee-Enfield Jungle Carbine (missing its magazine). The Mini-14 is often purchased as an alternative to the AR-15. Its modified Garand action is more reliable in function than an AR-15, but the rifle is generally not as accurate. The Marlin Camp 45 carbine (this one has a

replacement folding stock) accepts M1911A1 magazines which is handy for those of you who own one. It's more common sister, the Camp 9, accepts Smith & Wesson M59 magazines. Finally we have the ubiquitous, inexpensive and reliable SKS in 7.62x39mm. In many areas the SKS has replaced the traditional lever-action .30-30 as the poor man's deer rifle. Ballistics between the two are very similar, and ammo for the SKS is less expensive. Sporterized Mausers and Enfields have always been a hunting staple in this country. Both examples in this picture are handy little carbines with a solid-performing .30 caliber class cartridge. The Spanish Destroyer is an early example of a pistol caliber carbine. The 9mm Largo round is available as inexpensive surplus, although not as common as other pistol rounds. However, those of you looking for a budget pistol-caliber carbine would do well considering one if it became available.

Thoughts on Milsurp Guns

I am a big fan of milsurp bolt action rifles despite the problems one can have with commercial ammo availability. They are inexpensive, reliable, simple to maintain, generally accurate, and the ammo is reasonably priced when you can find it surplus. The primary issue with them is ammo availability, but all survivalists should have a reloading set-up.

Towards that end, if you are into shooting older or milsurp calibers then the one book you must absolutely have on your shelf is The Handloader's Manual of Cartridge Conversion by John J. Donnelly and Bryce Towsley. This book will show you how to take common cartridges such as .30-06 and .270 Winchester and convert them to your older and milsurp calibers. For example the milsurp standbys of 8mm and 7mm Mauser can be made from .270 Winchester cases, as can the flat-shooting 6.5x55mm Swedish Mauser. For those of you who want to shoot that Japanese rifle your (great) grandfather brought back from World War II, you can convert .30-06 cases to 7.7x58mm Arisaka. I suggest anyone who is into antique or old military surplus rifles buy a copy of this essential book.



I will include one last Mauser conversion for those of you who feel you might have a need for a handy little carbine that can stop rampaging buffalo, bears, and Buicks with a single shot. Here is a large ring Mauser that has been converted to .45-70! Right above the action there is a .45-70 round placed next to a .308 Winchester round as a size comparison. I have not had an opportunity to fire this piece, but I suspect it would be an interesting experience. If you were wandering around in the Adirondacks and needed to stop a Black Bear that wanted a piece of you, this would do the job.

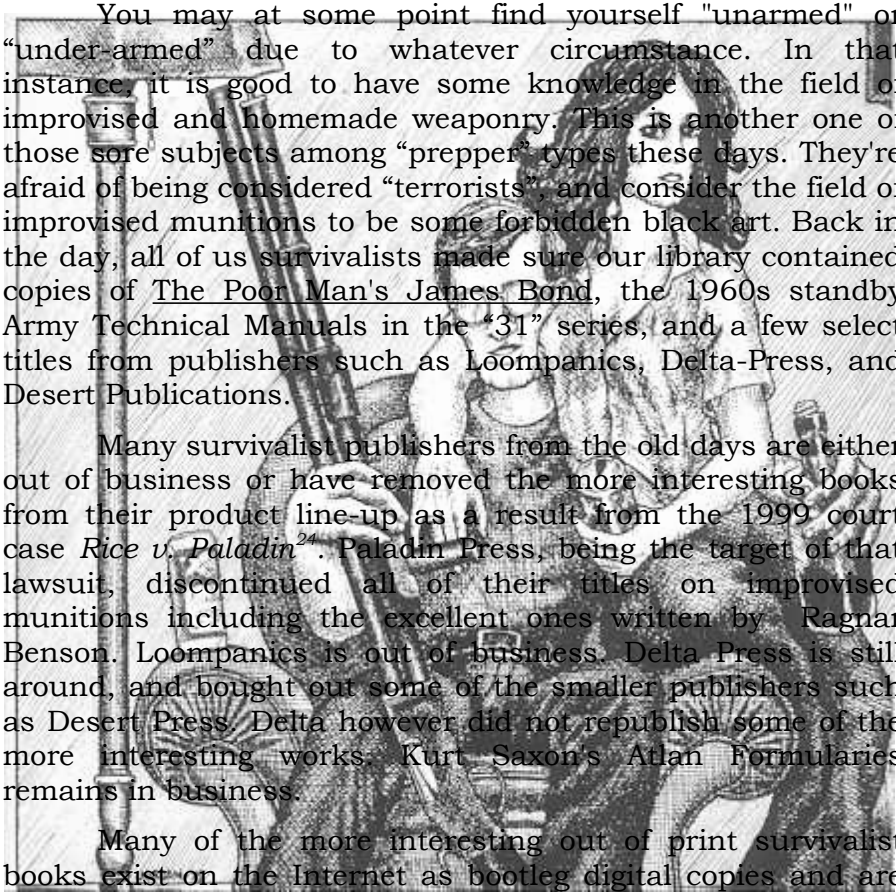
.22s and Black Powder

A lot of mention is made of .22 rimfire and black powder firearms in survivalist circles. A .22 rifle is a handy piece for keeping around the homestead to use on pests when a larger rifle is overkill. You can get a good .22 rifle for under $200 new and ammo is among the least expensive to purchase. You can buy .22 rounds in everything from low velocity CB caps to CCI Stingers. Recoil is practically non-existent and noise levels are minimal, especially when using low-velocity rounds. While I would not recommend a .22 rifle as a primary firearm, their utility recommends you keep at least one in the battery.

Black powder firearms are considered “antiques”. In most states there are no laws regarding them. In a pinch you can make your own black powder, so with a flintlock piece you can keep it going no matter what happens. Black powder firearms are also fun to shoot. However unless you are looking at a serious long-term “grid down” survival scenario that brings us back to the 19th century, or for whatever reason live in one of the worst states for firearms ownership, I would put

together a battery of more modern firearms before starting on your black powder collection.

Improvisation



You may at some point find yourself "unarmed" or "under-armed" due to whatever circumstance. In that instance, it is good to have some knowledge in the field of improvised and homemade weaponry. This is another one of those sore subjects among "prepper" types these days. They're afraid of being considered "terrorists", and consider the field of improvised munitions to be some forbidden black art. Back in the day, all of us survivalists made sure our library contained copies of The Poor Man's James Bond, the 1960s standby Army Technical Manuals in the "31" series, and a few select titles from publishers such as Loompanics, Delta-Press, and Desert Publications.

Many survivalist publishers from the old days are either out of business or have removed the more interesting books from their product line-up as a result from the 1999 court case *Rice v. Paladin*[24]. Paladin Press, being the target of that lawsuit, discontinued all of their titles on improvised munitions including the excellent ones written by Ragnar Benson. Loompanics is out of business. Delta Press is still around, and bought out some of the smaller publishers such as Desert Press. Delta however did not republish some of the more interesting works. Kurt Saxon's Atlan Formularies remains in business.

Many of the more interesting out of print survivalist books exist on the Internet as bootleg digital copies and are circulated among the computer hacker underground. Gun show vendors often still have copies of discontinued books in inventory, but the reason is that potential buyers feel they are charging too much for them. I have found some interesting survivalist-type books at used bookstores near military bases, and to a lesser extent at better army/navy stores. If you can check out either of those potential sources, it may prove worthwhile.

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24 See http://reason.com/archives/1999/08/01/the-day-they-came-to-sue-the-b/

One of the better books I have seen that covers this topic (and is still in print) is Kurt Saxon's The Poor Man's James Bond. The PMJB is now at five volumes, although only volumes 1 & 2 are still available in print form. You can purchase the complete set on CD from Atlan Formularies[25]. Delta Press[26] sells Volumes 1 and 2 in printed form. Each "volume" of the PMJB is about 400-500 pages in length, and there is quite a bit of information in them. Kurt Saxon gets a bad rap in many survivalist circles, but the quality of the information is there. Just don't follow his personal example and blow a hand up and become an alcoholic.

Ending Thoughts on Guns

Survival guns is a interesting topic that generates quite a bit of heated discussion, especially with the militia-types who believe they may have to defend themselves against foreign invaders, usually depicted as Blue-helmeted UN "peacekeepers" of the New World Order and the zombie[27] apocalypse-types who think there is going to be this one big event that brings about TEOTWAWKI.

Most survivalists place way too much emphasis on firearms, and I suspect it has to do with them justifying the existence of their extensive gun collections. There's nothing wrong with collecting guns as long as you acknowledge that you're doing it as a hobby, simply for your own personal enjoyment and pleasure. Just don't delude yourself into thinking that your gun collection is the mainstay of your preparedness measures.

Back in 1990 when I wrote **By an Order of The Magnitude**, I gave the country six years to go before it completely collapsed. Thirteen years after my erroneous prediction I now know better. The country is suffering from a gradual Atlas Shrugged-style decline as thousands of special-interest groups fight it out via their pull-peddlers to get their piece of the pie while maintaining the appearance of the

25 Website at http://www.survivalplus.com/

26 Website at http://www.deltapress.com/

27 Zombie is a slang term for the unprepared sheeple after the great disaster.

status-quo, and as more and more people see what's going on and decide to go Galt.

A lot of people are benefiting from the present system and don't want it to change. While it is likely to eventually collapse under its own weight, there is no point to holding your breath waiting for it. The key to preparing for this is to achieve as much of a robust, self-reliant, sustainable, off-grid lifestyle as possible while doing as little as possible to support the current system. Like any other **tool**, your firearms should be good solid reliable "working guns" chosen with that purpose in mind.

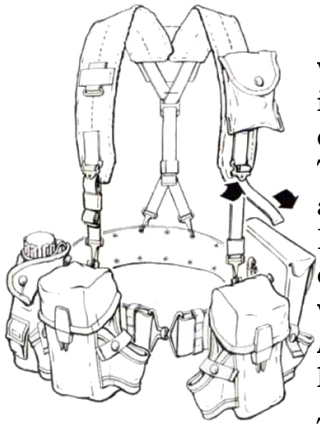
An invasion of this country by any foreign force, ie. "UN Peacekeepers", would likely disrupt the status-quo, and therefore, is unlikely. I suspect many otherwise undecided people would get off the fence in short order, and even if 3% of all gun owners decided to take action an invading force would have its hands full and then some. The people that are running the show aren't stupid. They have the majority duped via the mass media so there's no need to risk derailing the gravy train by doing something that will cause the three-percenters to react violently.

Should it ever come down to where the United States is invaded militarily (we were invaded economically decades ago), choosing weaponry with the thought of taking on a light infantry platoon at 5.56mm ranges is suicidal. If you are not out-gunned and maneuvered, you're going to get hosed by artillery and close air support. The safe approach will be deliberate aimed fire with weapons that out-range standard infantry assault rifles, followed by getting the hell out of the area as quickly as possible. Getting into firefights is generally considered a bad idea. Therefore any type of activity is going to be more along the lines of "sneak and peek - shoot and scoot" while you stay out of range of all those M4s and AK-74s and avoid getting ordinance dropped on you from above. This means emulating Natty Bumpo instead of someone else.

Load Bearing Equipment (LBE)

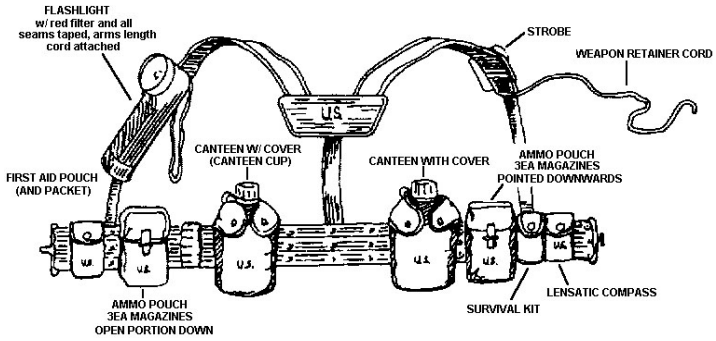
In a nutshell, LBE is how you carry your essential items in the field. There is a wide variety of LBE available at army/navy Stores and via mail order, ranging from foreign milsurp and commercial load-bearing vests, to US ALICE[28], to current US MOLLE[29] gear.

ALICE



In most cases you will be dealing with US military surplus ALICE gear, as it is inexpensive, and readily available off the shelves at any army/navy store. This set-up was created in the 1960s, and continues to see use today in Reserve and National Guard units. It consists of a belt and suspenders to which pouches are attached. When an ALICE LBE set-up is fully assembled, it looks something like these pictures:

The picture above is an ALICE set-up circa 1973. It consisted of the belt/suspenders, two ammo pouches, canteen and cup with cover, entrenching tool (E-tool) with cover, and first-aid dressing with pouch.



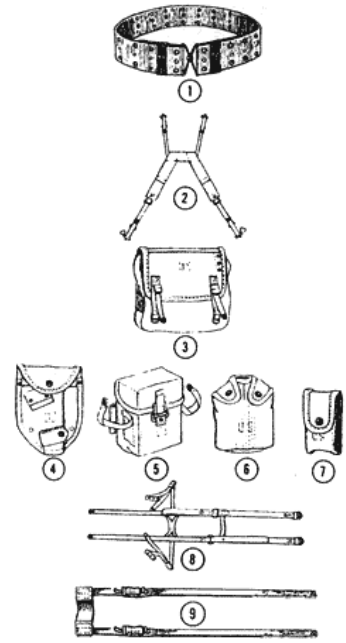
The picture above is a "current" configuration as suggested by US military instructors. The E-Tool has been removed from

28 ALICE - All-purpose Lightweight Individual Combat Equipment
29 MOLLE – MOdular Lightweight Load-carrying Equipment

the LBE as it is now usually carried on the rucksack (military backpack). The first-aid dressing has been replaced by a more comprehensive first-aid kit. A compass (with pouch), strobe light, flashlight, and small survival kit have been added.

M1956 Gear

You may also come across some older M1956 LBE which predates ALICE. Many individuals prefer the M1956 gear for a number of reasons. M1956 LBE is made of cotton canvas, as opposed to the nylon used in ALICE. Cotton makes less noise when moving in the field than does nylon. The M1956 LBE suspenders are said by some to be more comfortable than the ALICE LBE suspenders. The M1956 gear also featured a handy "butt back" (aka field pack) that was removed from service with the introduction of the ALICE gear (although commercial copies remained available). The older M1956 gear is also considerably more rugged than the later ALICE gear. M1956 gear was compatible with ALICE, and was used by the US Military into the early 1990s, especially in National Guard Units.



1 Belt, pistol
2 Suspenders, field pack, combat
3 Field pack, combat
4 Carrier, intrenching tool
5 Pouch, small arms ammunition, universal
6 Cover, canteen
7 Case, first aid packet
lensatic compass
8 Carrier, sleeping bag
9 Strap, pack adapter

Figure 14. Components of individual load-carrying equipment.

I remember a time when army/navy stores had barrels of this stuff, and you could buy it dirt cheap. These days M1956 gear has acquired "collectable" status among some militaria enthusiasts, and sometimes costs more than surplus MOLLE gear. Yet if you look around tag sales and flea markets you'll find it priced well-below collector value.

LBE Rigs Utilizing ALICE and M1956 Gear

ALICE gear remains reasonably priced and is available either surplus or new commercial manufacture. The surplus stuff is generally better-made than the commercial copies, and there is enough of it in good condition at present. Keep in mind however that the military surplus market is very dynamic. There was a period of time in the early 1990s when a Democrat administration, government surplus policy change, and rise in citizen "unorganized militias" caused a shortage in LBE and other military surplus items.

Most survivalist-types I know have put together LBE rigs that are a combination of military surplus ALICE, M1956, and commercially made components, according to their field experience, gear preferences, personal philosophy, potential mission profile, and equipment availability.





In these two pictures we have an excellent example of an LBE rig that my friend SnarlingChesty put together. The basis of this rig is an OD Green commercial copy of a US Enhanced Load Bearing Vest that was part of the US Individual Integrated Fighting System. The ammo pouches are from M1956 LBE. Looking at the back side of the rig, we have

ALICE LBE canteens, a first aid pouch, a SAW[30] magazine pouch (They make a great utility pouch.), and a European milsurp butt-pack.

Foregin Milsurp LBE

A lot of Cold War-era Western European LBE was based on M1956 and ALICE gear, and is interchangeable. Some Euro milsurp LBE is considered to be superior to its American counterpart, such as Austrian rubberized canvas butt-pack. Right after the Cold War ended in the early 1990s a large quantity of European gear hit the US milsurp market. This stuff has mostly dried up in this country as the limited quantities were purchased by survivalists and military memorabilia collectors. It still shows up on occasion in the corners of army/navy stores and at gun shows.



Here is a picture of a British Webtex LBE vest in DPM camouflage pattern. This is representative of the foreign milsurp LBE that's often available. Many LBE vests are configured for an Infantryman's or SWAT team member's mission load, which is somewhat different than what a survivalist may carry. The pouches on the Webtex vest are generic enough that they will handle a typical survivalist load-out.

30 SAW – Squad Automatic Weapon

MOLLE

The current issue in US military LBE is MOLLE. MOLLE gear is based on a one inch webbing strip system, called PALS[31], to which a multitude of pouches and other accoutrements can be attached. PALS has become the modern de-facto standard for field equipment. In addition to military surplus MOLLE gear, there are multitudes of commercial manufacturers making mil-spec LBE implementing PALS.

The advantage of PALS is that an individual can customize an LBE load-out to whatever their personal specifications warrant. PALS has also seen widespread acceptance by the paintball and airsoft hobby communities due to its customizable nature, and several manufacturers of paintball gear have produced reasonably-priced MOLLE gear of good quality.

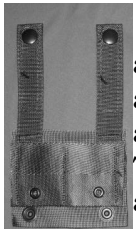
When MOLLE gear first hit the civilian market, it was more expensive than ALICE gear. This has since changed. MOLLE has now reached the milsurp market in quantity, and there is plenty of reasonably-priced commercial versions marketed at paintball hobbyists. MOLLE is probably the best overall LBE system for technological survivalists because it is the most versatile when it comes to equipment layout.



Here we have an example of a "work in progress" MOLLE rig set up as a general purpose bolt-action rifle/shotgun vest. It has two one-quart canteens on back, a first-aid kit, three general-purpose pouches, two ammunition pouches that can be used with either stripper clips or shotgun

31 PALS - Pouch Attachment Ladder System

shells, and a pistol magazine pouch. Some may consider it a little light on immediate ammunition storage, but the design philosophy was for more field-sustainability than firefights. The MOLLE pouches on this rig are a combination of woodland camouflage, digital woodland, OD green, and coyote brown patterns. The vest is desert tan and the canteen covers are three-color desert. The desert patterns are OK for the American Southwest, but a little on the light side for other regions. In this uncertain day and age, especially when purchasing military surplus, you often get what you can. If not in the desert, spray on a camouflage pattern on the gear with flat green, brown, and black spray paint.



Although they look like they are, ALICE pouches are not really compatible with PALS. While you can attach ALICE gear to PALS, it will be loose, flop around, and eventually cause the webbing to rip. There are adapters, shown at left, that will let you attach ALICE pouches to PALS.

Putting Together a Rig

By now you should have compiled a list of all Army/Navy stores within an hour's drive and visited them all. Consequently you should know who has what and for how much. For the most part, Army/Navy stores carry surplus and new commercially-made ALICE and MOLLE equipment, so unless you go the mail-order route for something more exotic or happen to find the rare Army/Navy store that gets the interesting surplus in you will be choosing one of those two.

There is nothing wrong with ALICE gear. It is inexpensive and many of us still use it because we bought it twenty years ago and are familiar with it from having worn it in the military. If that's what you can afford, then get it. If you can however afford going the MOLLE route I would recommend doing so as the versatility is much greater than the old ALICE gear. If you happen to find some nice foreign milsurp LBE that resonates with you, then snap it up quickly because it will probably be gone on your next visit.



VHF/UHF Radio Communications Monitoring and Communications Intelligence (COMINT[32])

A common "police scanner" is one of the most potentially useful tools a survivalist could have. Scanners have come a long way from bulky, crystal-controlled affairs with a handful of channels. Contemporary scanners fit in the palm of your hand, have a thousand keyboard-programmable channels, and have wide-band frequency coverage from 100 Khz. To 2+ Ghz. Certain models even have the ability to follow communications on trunked radio systems used by government and business, and can demodulate APCO-25 (P-25) digital modulation now becoming popular on both conventional and trunked radio systems. For the uninitiated, a scanner is a VHF/UHF communications receiver that has the ability to step through multiple channels or "scan", stopping on a frequency it detects traffic on. Scanners monitor frequencies used by government agencies, the military, public safety, emergency services, utility companies, businesses, and wireless telecommunications devices. Some of the more deluxe units even cover the "HF" shortwave region. While the use of mobile data systems and encryption is on the rise, there is still plenty of activity to be monitored for the foreseeable future.

Equipment

Generally speaking, the purpose of a full-scale COMINT set-up would be the following:

- RF spectrum search for new frequencies and fingerprint

32 *"Communications Intelligence: Technical information and intelligence derived from foreign communications by other than the intended recipients."* - DOD Dictionary of Military and Associated Terms

of local RF spectrum

- Monitoring of applicable local & regional RF activity
- Monitoring of local "indicator" frequencies that provide notification of unusual events or activity
- Monitoring of 1-50 "priority" frequencies of interest
- Detection and monitoring of nearby RF activity
- Identification of previously unidentified RF activity
- Recording of select RF communications

With the exception of the newer models that feature P-25 demodulation and 2+ GHz. frequency coverage, 90% of your equipment needs can be acquired at a significant savings by purchasing it used. There is always Ebay for those who are willing to pay premium prices, buy equipment sight unseen, and deal with fascist policies undoubtedly created by lawyers. I much prefer checking out local hamfests, ham-oriented electronics stores, and pawnshops. There is no way you would, for example, be able to buy a mint condition Icom R-10 for $100 or a $75 Radio Shack PRO-43 off Ebay. Yet, that is exactly the price my friends and I have paid for them at local pawnshops.



Radio Shack PRO-2006
The "hacker's scanner" that started it all for many of us...

There are some specific models of scanners that deserve specific mention. The first two are the classic Radio Shack PRO-2004/2005/2006 and PRO-43 base and handheld scanners. These units are considered to be the ones that started it all in respect to custom modifying scanner receivers, and were the focus of the Scanner Modification Handbooks written by the late Bill Cheek. Out of the three base units, the last in the series, the PRO-2006, is considered the "primo" unit. Another highly regarded unit is the Radio Shack PRO-26 handheld that featured full 25-1300 MHz. coverage when properly modified.

Two other notable scanners are the Radio Shack PRO-2035 and PRO-2042. While post-1994 units, they were the first units to have prompted the discovery of the virtual downconverter mod, and were considered some of the last units that were easily customizable. Of the two, the PRO-2042 is considered the better unit. The Uniden/Bearcat BC-780XLT is yet another unit that should appear in used equipment circles and worth a look at. Icom and AOR communications receivers for the most part are always worth acquiring when found on the used equipment market, despite their high resale price. There exist many sites on the Internet that contain equipment reviews, and I recommend checking them out when you have a specific piece of equipment in mind.

As far as specific recommendations are concerned, that would depend on the communications systems that are being used in your area. For example, Southern California would have vastly different requirements than upstate New York. In my kit, the scanners are a Radio Shack PRO-83 and PRO-96 (Both now discontinued). Both units operate off commonly available AA batteries, as opposed to some units which require a proprietary battery pack. With the use of rechargeable batteries and a small solar charger, these units can be kept powered up sans electrical infrastructure almost indefinitely. The PRO-83 is capable of near-field reception to detect and monitor nearby radio signals with its “Signal Stalker” feature. The PRO-96 is a digital trunktracker, being that many systems in my region are either P25 digital, trunked, or both. The PRO-96 is for general purpose monitoring of local systems and agencies. The PRO-83 is for secondary system monitoring and indication of RF activity in the immediate area.

For those of you who are beginners to the monitoring hobby, what scanner to buy is a little confusing. The short answer is: Buy one that can monitor your local communications systems of interest. This information can generally be found at the Radio Reference Website[33]. Radio systems will be either conventional or trunked. Besides being conventional or trunked, they can be analog or digital. If the

33 http://www.radioreference.com/

system is digital, it could be APCO P25 CAI[34], Harris Open Sky, Mototrbo, or a few other lesser-used modulation schemes. Finally the system can also be encrypted. If the system uses encryption, you are out of luck.

Let's start with an analog conventional system. This is a base, mobiles/portables, and maybe a repeater. You are dealing with one or two frequencies, and any scanner can monitor them. Digital conventional works the same, except instead of good-old analog FM the system uses a digital modulation scheme. Currently, the only digital modulation you can monitor with a scanner is APCO P25 CAI, which is a common public-safety standard. Anything else and you are out of luck.

Trunking systems use multiple frequencies. One is typically assigned as a "control channel", and different agencies are assigned "talkgroups". When a unit comes on the air with a specific talkgroup, the system assigns everyone on the talkgroup to a certain frequency in the system. The most common system is Motorola Smartnet, although there are also EDACS, LTR, and other systems. The three systems that a "Trunktracker" scanner can selectively monitor are Motorola, EDACS, and LTR. When I say "selectively monitor", I mean follow talkgroup activity on a specific talkgroup as it goes from frequency to frequency on the system. While you cannot follow talkgroups on other systems, you can still scan the individual channels conventionally and monitor them that way. Digital trunking works the same way, except that the RF modulation is digital instead of analog FM. Just like with conventional digital systems, the only modulation that is currently monitorable is P25. You will need a "Digital Trunktracker" scanner. Digital trunktracker scanners are available from Uniden-Bearcat, Radio Shack, and GRE. They cost around $500 new(!), but if your local monitoring targets use P25 CAI systems it's what you need.

To summarize:

- If the radio system is analog conventional, you are fine with a basic scanner.

34 CAI - Common Air Interface

- If the radio system is analog trunked, then you could get by with a basic scanner, but a Trunktracker is nice so you can follow talkgroups. However...
- You can only follow talkgroups on a Motorola, EDACS, or LTR system.
- If the system is digital (either conventional or trunked), then you will need a Digital Trunktracker, but If the system is not P25 digital, then you are out of luck.
- If any system uses encryption, then you are out of luck.

So you either cannot afford the $500 for a digital trunktracker, or live in an area that has a system you cannot monitor such as Open-Sky. Don't fret. There are still useful frequencies that you can monitor with a scanner.

Scanners Versus Communications Receivers

It used to be that the line between police scanners and communications receivers was well defined. Police scanners covered from 25 or 30 MHz. to at least 512 MHz. The then top of the line police scanner, the Radio Shack PRO-2004 had a frequency coverage from 25-1300 MHz. minus the analog cellular phone band (before you clipped the diode) and the UHF TV broadcast band. Scanners also had large memory channel capacity and the means to rapidly cycle through them looking for activity. Communications receivers were considered the domain of the HF bands, and were often called shortwave receivers. Their frequency coverage was from around 100 KHz. to 30 MHz. They were designed for tuning through the shortwave spectrum and sitting on a particular frequency for a period of time. Their channel memories were intended for ease of recall as opposed to scanning for activity. Icom did make a VHF/UHF communications receiver, the R-7000. It boasted excellent receive performance and 25-2000 MHz. frequency coverage. Many radio shops I have been in used one as a piece of test equipment. Most scanner hobbyists eschewed it however because for the purpose of monitoring the locals their Bearcat BC-200 or Radio Shack PRO-34 worked better.

Towards the late 1990s, the line between shortwave communications receivers and police scanners blurred with the introduction of wide-band receivers that covered the HF, VHF, and UHF bands. The classic representative examples of these receivers were the Icom R-8500 and AOR AR-3000 wide-band communications receivers. For handheld receivers it was the Icom R-10 and AOR AR-8000. These units had frequency coverage from 100 KHz. to 2 GHz. with adequate performance. Being communications receivers however their were not as well suited for typical VHF/UHF monitoring scenarios. During this period of time we also saw the introduction of police scanners capable of following communications on trunked radio systems, such as the pioneering Uniden Bearcat BC-235XLT. Many an Icom R-10 found its way to a hamfest or pawnshop with a $100 price tag on it because some scanner hobbyist bought it and attempted to use it as a police scanner instead of wringing out its full potential as a wideband communications receiver.

The big question asked among dystonauts interested in picking up some intercept gear is “Which one is best?” The answer depends on what your primary purpose would be for such equipment. While all dystonauts are tied together by common interests along a general continuum, an invisible worlds hacker has different requirements than a survivalist looking for local COMINT. Current electronic and monitoring hobbyist publications, especially those based in the United States, fail to address this need. At present there are three basic categories of hobbyist signal intercept equipment:

- Police Scanners – These would be VHF/UHF receivers featuring generalized frequency coverage of 25-1300+ MHz., multiple memories, and high speed scanning capability, typically 50-100 channels per second. Higher-end models may also feature P25 digital modulation reception, “trunk tracking” to more easily monitor communications on trunked radio systems, “Signal Stalker” reception capability for detecting and monitoring near-field communications, and CTCSS/DCS tone decoding capability to help identify and selectively monitor specific users on a shared frequency.

- Wideband Communications Receivers – Featuring continuous frequency coverage of 100 KHz. to 2+ GHz., and generally designed for searching the RF spectrum for whatever is out there. Unlike police scanners, wideband communications receivers feature intermediate frequency (IF) outputs for spectrum scopes and data decoding equipment. Receiver performance is usually better than police scanners, but scanning capability is not at police scanner levels.

- Shortwave (HF) Receivers – A communications receiver with 100 KHz. to 30 MHz. frequency coverage. These receivers are specifically designed for dedicated HF reception. As a result they will usually outperform a wideband communications receiver.

Police scanners are commonly available with Radio Shack being the most common walk-in retail source for new scanners. Older but perfectly serviceable models are also available used at hamfests, pawn shops, and often at tag sales and flea markets in predominantly rural areas. For monitoring local public safety and other LMR frequencies of interest, this would be the recommended piece of equipment. The sophistication level of the unit would depend on the local communications systems you wish to monitor.

Wideband communications receivers are generally only available new from dealers in amateur radio equipment. Hamfests are a good source of used wideband communications receivers. They are generally too specialized a piece of electronics to be found via non-techie second-hand sources, although I have found them confused with police scanners at pawn shops. If you decided to get into serious electronic interception and investigation or COMINT beyond the basic local traffic monitoring, then you will eventually want one. This is a much more advanced piece of equipment and the tool of choice for hacking invisible worlds: finding and investigating electromagnetic emissions regardless of what frequency they might be on or its purpose. For simply monitoring the locals they will do the job, but a less expensive police scanner serves that purpose much better.

If you want to check out long-distance communications,

then get yourself a shortwave receiver as it will outperform a wideband communications receiver by a considerable margin. Low-end shortwave receivers are available from common consumer electronics outlets such as Radio Shack, but to really appreciate what's out there from 100 KHz. to 30 MHz. I would get a high-end receiver made by one of the ham manufacturers such as Icom, Kenwood, or Yaesu. Older tube gear from such greats at Hallicrafters, Johnson Viking, and Hammurlund also work very well and often have better audio then the new stuff. High-end shortwave receivers are available from the same places you get ham gear, either a retail ham outlet or a hamfest.

Full 800 MHz. Reception

The Electronic Communications Privacy Act and subsequent legislation has been a sore point with me since its inception in the 1980s. The ECPA is now approaching the twentieth year of its abhorrent existence, and remains an example of how idiotic this country has become. Back before the advent of Advanced Mobile Phone Service (AMPS) in the 800 MHz. region and when the 800 MHz. land mobile band (including cellular phones) belonged to TV channels 60-69, mobile phones used a handful of channels in the VHF and UHF land mobile bands. Mobile phone service was then called IMTS (Improved Mobile Telephone Service), and few people could afford it. The few users were well aware of the fact that people could listen in, and either spoke accordingly or didn't care.

When cellular phones came out, the FCC reallocated TV channels 60-69 for land mobile service and 666 cellular phone channels (later expanded to 832). Now mobile phone service became more affordable, and a larger segment of the population purchased them. Privacy concerns were raised, and congress with the help of bribes from the cellular phone industry passed the Electronic Communications Privacy Act that made listening to mobile phone communications illegal. At the time even the U.S. Justice Department stated that there was no way the ECPA could be enforced, but sellers of mobile phone service could now tell their potential customers that

there was a law protecting the privacy of their unencrypted radio communications. If I recall correctly there was no law prohibiting the sales of cellular-capable scanner receivers, but manufacturers cooperated by manufacturing receivers with this frequency coverage blocked. What was known among hobbyists is that the firmware was programmed to block coverage if a certain data line on the receiver's microprocessor was active. This was so they could easily manufacture and sell full-coverage units to other countries. By cutting that particular data line, usually done by clipping the diode attached to the line, full 800 Mhz. coverage was restored.

This charade went on for a few years until the declining IQ of scanner dweebs and the increase in cellular phone usage resulted in a few instances of people getting caught doing stupid things as a result of what they heard from monitoring cellular phone conversations. It came out in public that the whole cellular privacy thing was a sham from the onset of the ECPA, and the Feds reacted by taking action against the special interest groups that would give them the least amount of hassle. The FCC in April, 1994 declared that they would not provide certification of any scanning receiver capable of being readily modified to receive cellular phone signals. Manufacturers redesigned their receivers, and other than some more complex (than clipping a diode) "virtual downconverter" modifications in a few models, that was the end of scanner cellular mods.

The relevance of all this to the present state of monitoring is that mobile phones have gone digital, and there now exists a surplus of analog cellular phones ranging from 3-watt bag phones about the size of a hardcover book, to portables that put out 300-500 milliwats. There are also decommissioned AMPS base stations available from various electronic surplus outfits. This obsolete equipment is being converted for various applications ranging from electronic surveillance to covert communications systems. As of this writing it is not illegal to monitor communications of this nature, but currently manufactured receivers can not cover the frequency ranges. At present the use of a receiver with full 800 MHz. coverage is not for monitoring mobile phones, but for the more interesting stuff that's hiding in the same

frequency range.

Due to the increase in trunked and P-25 digital radio systems, many of the average scanner dweebs are trading in their old equipment to be able to afford the new generation of digital trunktracker scanners. Since digital mobile phone systems eliminated all those "juicy" (read: boring to anyone with an IQ above 70) conversations that used to occur in the cellular phone band, they felt no need to keep the equipment;, especially when the local police had switched over to ASTRO trunking. This has resulted in an increase in the availability of older scanners with full 800 MHz. coverage.

The list below contains all the Radio Shack and Uniden/Bearcat scanners that I was able to find a mod for continuous 800 MHz. reception. In addition to this list, Icom and AOR receivers made before 1994 are capable of being modified if they don't already have full coverage. Use this list when you are looking for equipment at hamfests and pawnshops. When going the used equipment route, I'd say about eighty percent of the time when you find a model on this list it has already had the mod done to it. The models in boldface type are particularly desirable. The ones listed with a thumbs-up are the best.

Radio Shack Handheld Scanners



PRO-26 (Shown at right.)
PRO-34
PRO-37
PRO-39
PRO-43 (not the 20-0300A model)
PRO-46

Radio Shack Base/Mobile Scanners

PRO-2004
PRO-2005
PRO-2006
PRO-2022
PRO-2026 (not the 20-0148B model)
PRO-2030

PRO-2032
PRO-2035 (virtual downconverter)
PRO-2042 (virtual downconverter)

Bearcat Handheld Scanners

BC-200/205XLT
BC-2500XLT

Bearcat Base/Mobile Scanners

BC-760XLT
BC-780XLT (virtual downconverter)
BC-800XLT (factory default)
BC-855XLT
BC-8500 (virtual down-converter)

Antennas

Now that you have some receivers to play with, you will need some antennas. The antenna system will make or break your monitoring setup, although you can get away with more things receiving than you can when transmitting, especially when it comes to stealth installations. My first antenna set-up was a 70-foot long wire antenna that I used with my Radio Shack DX-100. I only had it about 15-20 feet in the air strung between two trees, but it worked quite well and was barely noticeable in the back yard. Long wire antennas are still a viable alternative for shortwave listening, and can be made very stealthy.

After getting my ham ticket, a two-meter Isopole[35] Antenna went up on the roof. My Putnam County, NY location wasn't optimal for VHF, but 5 watts out of an Icom IC-02AT was enough to hit repeaters out on Long Island. Great little HT, that Icom. It went MIA after I moved out of my parent's house to New England. One of these days I'll find another one at a hamfest. I soon discovered that the Isopole was also an excellent monitor antenna, especially for aircraft and VHF high-band. Ham antennas make good monitor antennas for

35 See http://www.isopole.com/

frequencies adjoining the ham band in question. Two meters for VHF high-band, UHF for 70cm, ten and six meters are good for VHF low band.

Many individuals opt for a discone antenna for VHF/UHF monitoring. Discones have wide frequency coverage, but little gain. They can also be used for transmitting on multiple ham bands. Discones are available commercially, or can be built by a hobbyist of moderate skill with a basic tool kit (that everyone should have).

For HF listening, probably the best performance for the amount spent is given by a simple longwire antenna. Get a wire up as long and as high as possible. For truly limited spaces, many have had luck with active antennas. The last time I lived in an Apartment, my HF antenna was a Barker and Williamson AP-10. Worked well enough on both transmit and receive, and went into my go-kit when I moved to a real house. It's since been discontinued, but MFJ appears to have an adequate substitute, the MFJ1622 Apartment Dweller Antenna[36].

My advice to the beginner is to first get a copy of the ARRL Antenna Book. It has the best overall coverage of antennas in general. This should be your second radio book purchase after you have the ARRL Handbook.

Finding Frequencies

Eventually, the serious scanner hobbyist gets the urge to go beyond listening to the standard widely available public safety and business frequencies. They get the desire to look for the good stuff that you will not find listed in the scanner frequency directories or FCC web site. The object of the hobbyist's listening might also be something mundane like the local mall security force, but a search through the directories fails to uncover their operating frequency. In either of these situations, the hobbyist can resort to using these techniques to acquire an elusive frequency.

There are two basic approaches to finding frequencies.

36 See http://www.mfjenterprises.com/

The first approach is to go on an electronic fishing expedition. This is how hobbyists operate most of the time. You simply take a small piece of the frequency spectrum that your radio is capable of receiving and listen to see what you can find. The second approach is to pick a specific target to be the focus of your monitoring attention and attempt to find the frequencies they use. During the course of using this second approach you will find other users which you might find interesting later. I recommend that you use the first approach once in a while. Knowing the usual activity around you will help determine how far you can listen, and especially important, when a transmission out of the ordinary appears.

It used to be that you could get all the public frequencies in your region by taking a quick trip to Radio Shack. They once sold the excellent Police Call scanner frequency directory. Alas, this resource is no longer available. There are still some regional directories available in print format, such as the frequency guides from Scanner Master[37]. Frequency information however is readily available on the Internet from websites such as Intercept Northwest[38] and Radio Reference[39]. These sites should be your first stop when looking for frequencies used in your area. They also feature online forums where novice hobbyists can sometimes get assistance from more experienced ones.

The tool that every monitoring hobbyist has is the "search" function on his or her scanner. Most of them however, do not know how to use it. You should know the frequency band that your target uses. You should have an idea of where in that band they would be operating. You should search probable areas in small sections.

Knowing what band a target operates on could be a matter of general knowledge. If your local police's dispatch channel is on VHF-high band, then it is a good bet their unlisted tactical channel is also there. It can also be determined by looking at the antennas on vehicles, unless the vehicle has a disguised antenna. A VHF-low band antenna will

37 http://www.scannermaster.com/
38 http://northwestradio.com/
39 http://radioreference.com/

be a 60 to 100 inch whip or a 35-inch whip with a 5-inch coil on the bottom. A VHF-high band antenna will be either an 18-inch whip or a 40-inch whip with a 3-inch coil on the bottom. UHF band antennas will be either a 6-inch whip or a 35-inch whip with a plastic band in the middle. 800 Mhz. antennas are either a 3-inch whip or a 13-inch whip with a "pig tail" coil in the middle. A cellular phone antenna is a common example. I suggest ordering the catalogs of various antenna manufacturers to get a visual idea of what antennas on each of the bands look like. You can do the same thing with HT antennas. A VHF-low band antenna will be about a foot long. A VHF-high band antenna will be about six inches long and about as thick as your index or middle finger. UHF antennas will be either 6 inches long and slender compared to the VHF-high band antenna, or three inches long. 800 Mhz. antennas are about an inch and a half long, or about a foot long with two different thicknesses.

Once you know the frequency band, you determine where in that band they might be operating. Back in the Police Call days, we consulted the Consolidated Frequency List that was in the back of the book. This was a list of what public safety service or business type was allocated what frequency, and probably one of the most useful features of Police Call. There are digital copies of the Consolidated Frequency List available on the Internet, and a Google search of the proper words should find you what you're looking for. The data is also available in Part 90 of the FCC regulations[40], but takes a little searching to find.

The two types of users you might have problems with are police departments and the federal government. Police departments can use any land mobile frequency for "tactical" communications on a non-interference basis. The Intergovernmental Radio Advisory Committee (IRAC) handles licenses for the federal government. IRAC listings have been exempt from the Freedom of Information Act since 1983. The mundane agencies have been using the same frequencies for the past 25+ years, but some of the more interesting ones have changed frequencies. The IRAC listings in the

40 Also known as 47CFR90.

Consolidated Frequency List are still fairly accurate. Remember that they are only fairly accurate.

You should search a range that covers three to five seconds, and with the scanner's fastest speed. This seems to be the average duration for a radio transmission. Let us say you are searching the VHF-High band with a scanner that does 50 steps a second. Channel spacing for VHF-high band is 5 KHz. You should search your target areas in sweeps of 750 KHz. to 1.25 MHz. Search a range for one to two weeks at different times, to catch everything in that range.

One little known trick is to use one of those old tunable public safety band receivers that predate scanners. An example would be the Realistic PRO-2. It covered 30-50 MHZ. and 152-174 MHz. You can pick one up at a flea market or hamfest for as little as $5. While these units lack the sensitivity and selectivity of a scanner, they are excellent for doing high-speed local area searching. Once you get a hit, you will have narrowed the possible frequency range down to roughly 500 KHz. You then use your scanner's search function to find the exact frequency. They are also good dedicated single channel receivers for things like NOAA weather radio and the local fire department's dispatch frequency. If you ever find an old multiband portable that covers UHF-TV, remember that channels 70-83 are now the 800 MHz. public safety, business, and cellular phone band.

A frequency counter is a useful tool for the COMINT hobbyist. A frequency counter works by locking on the strongest radio signal in an area, and displaying the frequency. I used to recommend the Optoelectronics Scout frequency counter because of its features that make it useful for COMINT. Recently, I became aware of other brands of frequency counters that will accomplish the same task at almost half the price. One such brand is the Aceco FC3000 series of frequency counters that are also sold under other names. The useful feature of these counters is a CI-V interface. This is essentially a TTL serial interface and command language that enables the counter to connect to a PC for automatic frequency logging, or to a receiver for reaction tuning. Reaction tuning is a feature in which the

frequency counter automatically tunes a CI-V equipped receiver to the frequency it detects. Most computer controlled Icom receivers (such as the R-10) are CI-V equipped. AOR receivers have a different command language and interface, but both the Optoelectronics Scout and Aceco counters are capable of switching between the two. You can interface many frequency counters to a PC for logging hits.[41]

Frequency counters work in a radio signal's near field. This means that you will generally have to be within a couple hundred feet of the target transmitter in order to acquire the frequency. The table to the right shows the average distances one will acquire a particular type of transmitter:

Transmitter & Power	Distance
1.2 GHz., 3 watts	25 feet
870 MHz., 3 watts	150 feet
450 MHz., 1 watt	200 feet
88 MHz., Part 15	10 feet
150 MHz., 1 watt	90 feet
49 MHz., Part 15	20 feet
27 MHz., 3 watts	40 feet

There are some things you can do to enhance a frequency counter's operation. The first technique involves antenna usage. The standard telescoping whip is good for many operations, but you can do better. With the standard whip antenna, the Scout will pick up a cellular phone at approximately one hundred fifty feet. Hook it up to a 5/8 wave 800 Mhz. antenna, and the range increases to approximately three hundred feet. A high-gain antenna designed for the band of interest will increase your range on desired frequencies and reduce interference from undesired ones. If you use a directional antenna, such as a yagi, you will be able to select a particular target location to investigate, and eliminate interference from another location. The second technique is using filters. Using filters will block out undesired frequency ranges and pass desired ones. An FM broadcast notch filter is very useful. Optoelectronics sells the N100. FM broadcasters are a major source of undesirable interference, and having one

41 *"Frequency Counter Logging to a PC"*, TICOM 'Zine Issue #2 - http://gbppr.dyndns.org/2600/TAP/cybertek/TICOM_Zine_2.pdf

nearby will cause your counter to lock up on the broadcast station's frequency.

There have been recent scanner models such as the Radio Shack PRO-83 and Uniden Bearcat BC-246XLT that feature a near field signal detection mode. They offer an advantage to the frequency counter/reaction tune receiver combination in that the signal detection range is greater, specific annoying frequencies can be locked out, and the region of RF spectrum searched is limited to the frequency coverage of the scanner. The units are also less expensive than the frequency counter/reaction-tuned receiver combination. The primary disadvantage is that the lack of full-range frequency coverage means you will not detect a signal in some odd portion of the spectrum. One high-end unit does lack this disadvantage. The Alinco DJ-X2000 handheld communications receiver has a near-field detection & tuning mode and features "DC to daylight" frequency coverage (minus cellular, of course). I recently had the opportunity to evaluate a Radio Shack PRO-83 (made by Uniden), and was fairly impressed with its signal stalker performance. With a $5/8^{th}$ wave two-meter mag-mount on the roof of the car, it was able to detect a 169 MHz. wireless microphone from a distance of about 100 yards while driving down the road. A similar range was also experienced testing the unit with an old AMPS cellular phone mag-mount and some Part 15 devices operating in the 902-928 Mhz. garbage band.

By using these techniques, you will find the frequencies you desire. How quickly you find a frequency depends on your skill as a COMINT hobbyist and how much the target uses their radios. You can acquire a target such as a mall security force in as little as thirty seconds. This was how long I had to loiter near a help desk with a frequency counter before a security officer keyed up a radio. Some of the less active federal agencies can take a week or two to find. If you do not find the frequency, there are two possibilities: The first is that your target either does not use radios or uses them very infrequently. I will assume that your target does indeed use radio communications. The only solution to finding an infrequent radio user is persistence and patience. Eventually they will key up and you will have their frequency. The second

possibility is that you found their frequency, but failed to identify it properly. Learn who operates on what frequency ranges. Listen to what frequencies you have found during previous COMINT attempts over a period of time. My COMINT experiences have taught me that sometimes the true nature of the parties using a frequency may take a while to become apparent.

Certain users use encrypted or spread spectrum (frequency hopping) communications. Until recently, it was thought that receiving spread spectrum communications (FHSS) was beyond the ability of the average hobbyist, but with the right equipment and under the right conditions it is possible to detect and monitor FHSS communications.[42] Encrypted communications present a low to almost impossible technical difficulty in regards to cracking them, and are also illegal to listen to under the Electronic Communications Privacy Act. Encrypted communications system users will sometimes have equipment difficulties and operate in the clear. A patient listener will wait for this opportunity.

Introduction to Signal Analysis

I will assume that you, in the course of your COMINT endeavors, have come across a genuine unidentified ("unid") user while searching the spectrum. You've checked all the scanner frequency lists, e-mail lists, web sites, and online forum postings and have come up with nothing. You wish to identify the unid, and determine the extent of its communications network. To do this, you ask the following questions:

- Frequency (or talkgroup/subfleet if monitoring a trunked system)?
- PL/DPL tone, if any? Single PL/DPL used, or multiple?
- Encrypted or clear? Type of encryption: digital or analog?

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42 *"Experiments in Spread Spectrum Interception"*, Technical Intelligence Communications (TICOM) Zine, Issue #1 - http://gbppr.dyndns.org/2600/TAP/cybertek/TICOM_Zine_1.pdf

- How many stations do you hear?
- How do they identify themselves?
- Signal strength of stations communicating?
- What are they talking about?

The first five characteristics are noted as soon as you discover the unid. You will have some initial information about the others, but as time goes on you will acquire more information. What you should be doing now is noting what information you do have on the unid. Some people like using a computer database, others like 3x5 index cards. The more info you have, the easier it'll be to identify the unid.

The frequency in question can help tell you the approximate range, extent and purpose of the unid's communications net. For example, the VHF low-band would likely be used for regional communications between base stations and maybe mobile units. UHF on the other hand, would be for short-range tactical-type communications between several mobiles and portables. UHF portables are limited to a few miles. A VHF low-band base station can communicate a few hundred miles under the right circumstances. What other identified users operate on nearby frequencies?

PL/DPL tones are another identifier. Knowing the PL/DPL tone of an unid enables you to cross-reference it to other frequencies. If a police department uses a certain PL on their repeater, and an unid with surveillance activity is noted on the same band with the same PL, then it's quite possibly an unlisted channel for that police department. Knowing how many different PL/DPL tones are in use on a given frequency tells you approximately how many different nets, or distinct groups of communicators, are active on that freq. On a low-power portable frequency such as 154.600 MHz., users will use a "unique" PL/DPL tone so they don't have to hear everyone else. There are only a limited number of PL/DPL tones however, so duplication by different nets is inevitable. Other users won't want to spend the extra money for radios with PL/DPL capability, run without it, and tolerate the other users on the channel breaking their squelch. If you hear an

unid running DPL, then you can be reasonably certain they are running real "commercial land mobile" equipment as few ham rigs have DPL.

Most radio communications businesses maintain commercial trunked radio systems and the occasional community repeater. The license for the system is in their name, and they rent airtime to various businesses and organizations. The individual users will not be licensed, instead running under the radio shop's license. Each subscriber will be assigned his or her own talkgroup on the system, or PL/DPL tone on the repeater. Motorola sold all their commercial SMR systems to Nextel who took them off the air and replaced them with iDEN (digital) systems. This prompted many radio users to seek out alternatives to Nextel. Many radio shops have set up LTR trunked systems, which have replaced their community repeaters for the most part. LTR is an open protocol. This not only means a wide availability of equipment for the business offering these services, but equipment for the monitoring enthusiast as well. There are also a few commercial SMRs running the GE/Ericsson EDACS system on 800 MHz. Each system can have several dozen users on it, making them a nice challenge for the monitoring hobbyist who wishes to map them out.

If an unid is encrypted, you will at least know whether or not the encryption method is analog or digital. If they are using a simple single-frequency inversion method, then it is possible, although illegal, to decrypt their communications and proceed. If they are using something advanced such as DVP, DES, or Rolling Code then you will not be able to monitor the actual communications. You will still at least be able to note how often the frequency sees activity, and the signal strengths of the stations communicating. Voice encryption is often subject to failure, and you might catch a station operating in the clear if you monitor long enough. DIY-types should note that single band frequency inversion is the same system used in the Ramsey Electronics SS-70A.

At this point, you have all the immediate characteristics of the unid noted down. The rest is just a matter of time. The remaining questions you have in identifying the user are:

- How many stations do you hear?
- How do they identify themselves?
- Signal strength of stations communicating?
- What are they talking about?

All these will eventually answer the main question, "Who am I listening to?" The best thing to do at this point is take a receiver and dedicate it to the given frequency. You can acquire basic 16-50 channel scanners for almost nothing at flea markets, pawn shops, and hamfests for this purpose. If you want 24 hour monitoring of the frequency, attach a VOX-operated tape recorder to the scanner. Many scanners come equipped with a "tape out" jack for easy connection. Otherwise, go to Radio Shack and pick up one of the suction cup telephone microphones. This is attached to a telephone receiver by the earphone to record phone calls. Attach it near the speaker of the scanner. Experiment to find the best place to attach it to the scanner. For those of you who really want to get into things, the late Bill Cheek's Scanner Modification Handbooks contain a wealth of information on modifying your scanner to make COMINT easier. You can add event counters to see how many times the frequency breaks squelch, time-stamping for monitored communications, and a whole host of other enhancements.

You will be able to initially discern IDs used on the frequency and the signal strength (even if approximate) of the stations on the net. You will also know what they are saying if it's in a language you can understand, although you might get a little tripped-up on any specialized jargon. Log it all down. Eventually you'll also be able to recognize the voices of the various people on the frequency, and match them to IDs. The signal strength of each user will tell you how approximately how far away they are from your location, and whether they are base or mobile/portable stations. Consistent signal strength will indicate a base station or repeater. Mobile and portable stations will have varying signal strengths and often "mobile flutter" on their signal.

When listening to an unid with the intent of identifying it, two things you should listen for are locations and

specialized trade jargon. They can be cross-referenced to assist in identifying the user. Street maps of your nearby locales are good reference to have. I don't advocate "call chasing", going to the site of an incident that you've heard on your scanner. This can be dangerous, and complicates matters for public safety personnel who are working the incident. However, if you've determined you are listening to an obviously civilian unid on a trunked system or community repeater who was just sent on a service call to a location that's a few blocks away from you, it would be a different matter. It would be worthwhile to take the dog for a quick walk to see who you are listening to. On that note, information you discover on community repeaters or trunked systems is transitory in nature. The talkgroup or PL may belong to a different business next month.

If you listen long enough and pay attention to the communications you are receiving, you will identify the user. The amount of time will vary with the nature of the user, and how often they are on the air. Once you identify the user, the rest is up to you. You can become quite intimate with the operations of a business by monitoring their communications. Monitoring local public safety communications will often give you a better handle on what's going on in your community than the local newspaper. The possibilities are endless. As an intellectual exercise your COMINT endeavors will be delving into such diverse areas as electronics, geography, sociology, research skills, and current events. At any rate, COMINT analysis is far better a pastime than sitting in front of the television. Chances are you'll have some questions regarding communications systems or activities in your locale that could be answered by using COMINT analysis. Some questions that might come to mind are:

- Who are the users of local community repeaters and SMR systems?
- What are high crime areas in my community?
- What are the most common crimes in my community?
- What is the reliability of the local utility infrastructure (electrical, telephone, CATV, gas)?

- "X" is obviously employing radio communications, but no license is listed for them. What's their frequency?
- What frequencies and/or radio systems are the local public safety agencies using other than the publicly listed ones?

The best way a beginner can start is to just do it. Pick a local radio system, and see how much information you can acquire on it. You might have some specific questions regarding a system you already have some information on, or you might even be interested in something non-technical such as crime statistics in your local community. Whatever your specific interest happens to be, remember that patience and persistence is a good thing.

Budget Scanning For Survivalists

So you either cannot afford the $500 for a digital trunktracker, or live in an area that has a system you cannot monitor such as Open-Sky. Don't fret. There are still useful frequencies that you can monitor with a less expensive scanner.

In most places, some form of emergency medical services dispatch is done on 462.950 and 462.975 MHz. which are also known respectively as MED-9 and MED-10. Due to the myriad of commercial ambulance services and community EMS agencies all using different radio systems, the MED channels will probably remain analog FM for some time. In most medium-sized and larger cities, there is a constant stream of traffic on EMS channels. Most of it consists of routine calls.

Due to the variety of communications systems that could be used by various public safety and emergency services agencies in a region, mutual-aid, interoperability, and emergency management agency frequencies are generally analog and unencrypted. These frequencies generally remain unused unless there is a major incident occurring, so they good indicator frequencies.

Volunteer fire departments and ambulance corps whose

members carry voice pagers will have their dispatch channel analog and unencrypted. This is because members also have scanners in addition to their pager that they listen to for call-outs. Fire departments in general have been slow to adopt P25.

Fire departments are a useful monitoring target as the frequencies are only active when something is happening, and they are first responders to any disaster situation. Many areas maintain a regional/county dispatch center that handles all departments in a locale on a common frequency. Mutual-aid/intercity frequencies are useful for indications of incidents requiring multiple department response. Response and mitigation operations are often moved off to tactical/"fireground" frequencies.

VHF aeronautical and marine band frequencies are analog and unencrypted. They are often a good indicator of an incident involving aircraft and nautical craft. The two primary frequencies of interest are the aviation emergency/"Guard" channel of 121.500 MHz. and Marine Channel 16, which is the calling and emergency frequency, at 156.800 MHz.

Many bus and taxi companies still operate on conventional analog systems. They are useful for indications of incidents on the roads. Taxi drivers are especially known for making various comments over the air about interesting things they see on the road. Taxi companies in urban areas are often concerned with their calls getting stolen by the competition, so encryption and the use of mobile data services is not uncommon.

Public works departments and utility companies generally consist of routine traffic until something happens. Then they are full of information about disaster response, and services recovery. I personally find that the routine traffic of utility companies provides an interesting picture of the local infrastructure. Public works departments and utilities are required monitoring after many types of heavy weather.

Public works departments are generally slow to upgrade their equipment, and often reuse surplus radios from their municipality's police and fire departments. This means that in most cases you'll be able to monitor them with you basic

analog, non-trunking police scanner. While FCC licenses can be looked up for specific localities, they traditionally operate in the following frequency ranges:

33.2– 33.10 MHz. (20 KHz. spacing)
37.90 – 37.98 MHz. (20 KHz. spacing)
39.06 – 39.98 MHz. (20 KHz. spacing)
45.00 – 46.00 MHz. (20 KHz. spacing)
47.00 – 47.40 MHz. (20 KHz. spacing)
150.9950 – 151.1375 (7.5 KHz. spacing)
153.7400 – 154.1225 (7.5 KHz. spacing)
154.9850 – 155.1525 (7.5 KHz. spacing)
155.7150 – 156.2400 (7.5 KHz. spacing)
158.745 – 159.2025 (7.5 KHz. spacing)
453.0000 – 454.0000 (12.5 KHz. spacing – Paired with mobiles at 458.0000-459.0000 MHz.)

Most utility services in the US, especially in rural areas, are still on VHF low-band due to having a need to communicate over distant regions. This enables you to monitor a large area with just a few frequencies, provided you have an adequate antenna. Try searching through these frequency ranges:

37.46 - 37.86 MHz. (20 KHz. spacing)
47.68 - 48.54 MHz. (20 KHz. spacing)
153.4100 - 153.7325 MHz. (7.5 KHz. spacing)
158.1300 - 158.2725 MHz. (7.5 KHz. spacing)
451.0000 - 452.0000 MHz. (12.5 Khz. spacing - Paired with mobiles at 456.0000 - 457.0000 MHz.)

Police departments are probably the least desirable monitoring target. Many agencies are sensitive to being monitored and are encrypting their system. Even on unencrypted systems, most of the radio traffic is mundane. Your best bet for PD monitoring are the interoperability and mutual-aid frequencies as they are only active during a major incident.

Radio Communications

Amateur (Ham) Radio

There are some who say that getting a ham license puts you on "a list" with "the government", and I say "So what?" The only thing that getting a ham license will have an effect on is that it will slightly increase your chances of getting a job in the electronics industry. As Titor said, *"The enemy will be those detaining and holding people without due process."* Should this ever come to pass, we will be in the middle of a civil war and will have to act accordingly - therefore you will need to prepare accordingly. You need to practice getting your communications systems up and working in all sorts of conditions. While bootlegging may be good if The End Times ever occurs, at present it is a good way to get yourself negative attention, especially on the ham bands. Some argue that privacy on the ham bands is non-existent. They're right, it is. However, you're not using it for privacy when you are learning how to set up communications links. Since you should be meeting your friends face-to-face on a regular basis, and have access to PGP and email, you'll already have a means of privately communicating. The radio is for when all that stuff stops working, and during The End Times certain verboten things become acceptable. Despite the relative simplicity of the license tests, radio communications and ham radio is a fairly complex field.

The best source of information for getting your amateur radio license comes from the American Radio Relay League (ARRL).[43] Their website is goldmine of information for anyone interested in getting their ham ticket. The license structure has changed significantly since I was first licensed over twenty years ago. Proficiency in Morse code (CW) is no longer required for any class of license, and there are only three classes of license: Technician, General, and Extra. The entry-level Technician class offers all VHF, UHF, and microwave ham band operating privileges. The next level is General class, and

43 http://www.arrl.org

offers the majority of shortwave (HF) bands. Extra class is the highest level, and offers the remaining portions of the HF bands not open to General class. The pool of test questions for each class is published and available online. If your recall is good enough, you can simply memorize the test pool questions for all three tests and walk away from having no ham license to an Extra in a single sitting. Most people however require a few weeks of studying per test. In my wife's case, she took a week of studying to pass the Technician class, and three weeks after that for her General.

Ham radio is a multi-facted hobby, and as a dystonaut there are some facets that you'll want to concentrate on. One of the easiest facets to start with is EMCOMM[44] through RACES[45], ARES[46], or Skywarn. In most places, all three organizations are handled by the same club. RACES is an actual official government function sponsored by an area's emergency management office for emergency disaster communications via ham radio. ARES is similar, but operates through the ARRL as opposed to the local government. Skywarn is sponsored by the National Weather Service and ARES for severe weather reporting. I have found that many hams involved with these three functions are not only a wealth of information on disaster communications, but are also often survivalists.



Yaesu FT-817 QRP ham rig & antenna tuner in MOLLE radio pouch.

RACES, ARES, and Skywarn are organizational as opposed to technical facets of amateur radio. There are also technical aspects of the hobby that are well suited for survivalists. QRP is one of them. QRP is an aspect of ham radio in which hams communicate using low power (under 5 watts) radios. QRP

44 Emergency Communications
45 Radio Amateur Civil Emergency Services
46 Amateur Radio Emergency Services

equipment can be small, battery operated, and often home-brew. The quintessential QRP rig, survivalist favorite, and personal go-to rig for the author is the Yaesu FT-817. This radio is battery operated, fits in a LBE SAW or MOLLE radio pouch, and covers all major amateur radio bands. Within the past few years, an aspect of the hobby called "HF Pack"[47] has steadily increased in popularity. HF Pack entails portable operation of low-power portable HF radios such as the FT-817 in a backpack configuration similar to military manpack radios. The FT-817 is by no means the only portable battery-operated SSB transceiver. **An American company** by the name of MFJ[48] makes an inexpensive series of small monoband radios that cover the 80/75, 40, 20 and 10 meter HF bands, 6 meters and 2 meters.

One of the most notable characteristics of QRP operation is the extensive use of CW. When I got my Novice ticket in 1984, CW proficiency was a requirement for an amateur radio license. I did a little CW operating after first getting my ticket, but at the time it held little interest for me. These days I've been dusting off my rusty CW skills as I find myself increasingly interested in operating QRP. CW is no longer a requirement to get any level of ham license, but as a dystonaut skill knowing how to send and receive code is very useful, especially since you could fit an entire QRP station in the pockets of a BDU jacket. You can put together a QRP station that fits in two tuna cans for under $100[49]. I have used the "Tuna Tin" transmitters, as they are called, as a test with survivalist newbies to see who is serious about communications. Individuals who fail to see the utility of an inexpensive pocket-sized transmitter-receiver combination that runs off of a couple of 9-volt batteries automatically fail the test.

EMCOMM types desiring more output power for the times when QRP is truly unable to do what's needed opt for one of the relatively new wide-coverage multiband rigs such as the Yaesu FT-897. Like it's lower-powered cousin, the FT-897

47 Website at http://www.hfpack.com/

48 Website at http://www.mfjenterprises.com/.

49 Website at http://www.qrpme.com/

covers all major ham bands and is battery-operated. The difference is that the FT-897 has a higher power output when using its internal battery pack, and has the capability to run as a 100 watt station when powered by 12 volts from either a separate battery or a power supply.

Many survivalist hams are fond of older tube-type equipment, known affectionately as "boatanchors". Boatanchors do have some features that make them suitable for survivalist communications. Schematics for them are readily available. Just about every boatanchor manual I've examined included a full schematic of the radio in question. The technology is repairable with hobbyist resources. A workbench of basic test equipment and tools is all that you need, along with some spare parts and RF knowledge. Tube gear is also more resistant to effects of electromagnetic pulse (EMP) which may be a concern among some survivalists.

There are some models of boatanchor gear that are of particular interest to survivalist hams, such as the early mobile and "portable" rigs that run on 12V DC. The best-known of these were manufactured by Gonset, whose "Gooney Box" radios were used by Civil Defense organizations. Heathkit rigs are another popular boatanchor. As the name implies, these radios were sold as kits that were then built by the ham operator. In addition to radios, Heathkit also made kits for all sorts of test equipment.



The classic Gonset Communicator, aka "Gooney Box". Available in six and two meter band versions. A popular Cold War-era Civil Defense radio.

Many older boatanchor rigs date from a time before the now common single-sideband (SSB) mode of operation was used on the HF bands. These

rigs have CW and AM modes of operation. While CW is becoming an esoteric mode on HF, its use is still considered acceptable by the majority of amateur radio community at large. AM operation on the other hand is thought to be less so by some. This is a position I strongly disagree with as I feel that AM operation has a definite place on the ham bands for a number of reasons, especially when it comes to dystonaut communications.

In my brief interactions with the "AM Window"[50] ham community, I have found them to be extremely adept from a technical standpoint, always willing to help a beginner get a vintage AM boatanchor station on the air, and in possession of a more robust sense of humor than many others in the ham community. There is also a big crossover among many AM Window hams with military surplus "green radios", and other survivalist-type hobbies. I suspect that if the collapse ever occurs, these guys will be keeping their "Armageddon Modulation" rigs on the air long long after the more-modern gear has died.

In a similar vein, many survivalist hams are also into military surplus, or "green" radios. Milsurp radios typically cover the HF bands and the VHF six meter ham band. Military radios are extremely rugged and hardened against the effects of EMP. Many older tube-type milsurp radios also qualify as boatanchors. Much like their civilian brethren, full schematics and repair information are available in the radio's Technical Manual (TM). The older TMs are considered by many to contain a comprehensive education in radio theory and circuitry.

Just the the AM boatanchor gear, milsurp radios remain a growing, but still small subculture within the amateur radio community. Green radio parts and accessory availability are an unknown factor for the amateur radio majority. Older HF radios ran AM voice. Newer SSB HF radios operated exclusively on upper-sideband in traditionally lower-sideband HF bands. VHF sets operated "wide-band" (in excess of 5 KHz. deviation) FM on the traditionally unpopular (due to TV interference issues) six meter ham band, and used

50 See http://www.amwindow.org/

unusual military batteries. Despite the fact that military surplus was the way that many amateur radio operators got on the air during the 1950s and 1960s, there are numerous reasons given to the novice ham for not going this route.

Shortly after I was first licensed in 1984, I remember going to my first hamfest and seeing plenty of military surplus radios and names such as Viking, Clegg, Gonset, and Hammerlund. I was steered away from “that old junk” by the hams I associated with at the time, and it wasn't until I later picked up a Singer Stoddart NM-20A “radio research” receiver and a US Military PRC-25 VHF manpack transceiver that I discovered on my own how much fun you can have playing with the old surplus stuff.

While disaster communications is a major aspect of amateur radio, certain survivalist-related aspects of the hobby remain a minority form of specialization. Most EMCOMM types put together a basic HF and 2-meter VHF station, erect nominal antennas, and concentrate on the operation and public service aspects of EMCOMM. Survivalist-oriented aspects of the hobby such as QRP, CW, boatanchors, milsurp green radios, and home-brew electronics don't enter into their participation of the hobby.

One of the nice things about the Internet, especially as it relates to ham radio, is that you can interact with a greater variety of fellow hams than you would if you were limited to your local ham club, as I was back in the mid 1980s. For example, I know of one local ham who plays with military surplus radios, and his specialization is different than mine as he focuses on older military aircraft rigs. There are however numerous lists catering to the military radio enthusiasts, and on one such list I found about a dozen members who hail from New England and get together regularly at NEAR-Fest (formerly Hosstraders). Some of them have been getting together at Hosstraders long before I was licensed twenty-five years ago.

So where does this bring the novice dystonaut ham, and what should you do? That depends on how much you want to get into amateur radio as a hobby. I'm an old-school hardware hacker, like tinkering with electronics, and believe

that technological skills are are very important part of dystonautics. Other dystonauts, yourself included, may feel that communications are important, but are involved in enough related hobbies at present to preclude starting with electronics.

Get your ham ticket, and get in with a local EMCOMM-oriented club. But a copy of the ARRL Handbook and ARRL Antenna Book. Pick yourself up some basic gear. Get an FT-897, FT-817, or something similar, and maybe a mobile rig for your car. Build antennas for your station. Get up on HF, 2-meters, and 6-meters if you can. Your communications needs are now set and you can talk with other hams. Get your EMCOMM practice with your club during disaster drills and public service events. This is all stuff you'll need no matter where you decide to go in the hobby afterward, if anywhere. Once you've done all that, if you want to expand to other aspects of the hobby, pick something that piques your interest whether it's QRP, boatanchors, or whatever. Use the Internet to do research, make regional (maybe hopefully local) contacts with hams who have the same interest, and go from there.

License Free Communications

When it comes to license-free radio communications for dystonauts, you have four modes available. They are CB, FRS, MURS, and 902 MHz. CB has 40 channels in the 27 MHz. region, on the top end of the HF band[51]. FRS radios are small handheld units that use 14 very low power channels in the 450-470 Mhz UHF LMR[52] band. MURS is a recent service that uses 5 channels in the 150-174 MHz. VHF-high LMR band. The CB, FRS, and MURS services are covered under Part 95 of the FCC Regulations. 902 Mhz. Is covered under Part 15 of the FCC regulations, the same section that covers such things as WiFi computer networks, Wavecom wireless video senders, and baby monitors. The four services operate on different frequency ranges with different power levels, and offer different capabilities for the dystonaut.

51 HF – Denotes the "shortwave" frequency range of 3 to 30 Megahertz (MHz.)

52 LMR – Land Mobile Radio. Used to denote commercial and public safety radio communications.

Citizens Band (CB) and Family Radio Service (FRS)

I can recall a time when the only option for legal license-free communications was Citizen's Band. Those of us who were seriously into communications went the extra mile and acquired our ham licenses, but even after getting my ticket I still used CB for its de-facto "jungle telegraph" capability. On the highway, it was unlikely that you would ever get a speed-trap report on 146.52 MHz, but all you needed to do was listen on Channel 19 and the information would usually come to you unsolicited. In 1991, I took a summer job at a Boy Scout camp in New York's Adirondack Mountains. My traveling companion during frequent weekend trips back downstate was a Radio Shack CB installed in my Ford Escort with a magnet-mount whip antenna on the roof. This provided adequate communications intelligence on my forays up and down I-87 to avoid getting any fast driving awards over the course of that summer. Even with that basic set-up I would routinely hear stations up in Quebec, and soon learned how to swear in French.



The classic Cobra 148GTL CB

Mobile and base CBs provided some decent communications capability. While hardly in a prime transmitting location, I routinely achieved a 20-mile range communicating between my base station and mobiles. This was with a stock CB and a quarter-wave ground-plane antenna on my roof, up about 25 feet. Using CB in portable mode was a different story. A quarter wavelength antenna on CB is about 8 ½ feet long, and even the bulky telescoping whips on handheld CBs offered almost no range compared to a good mobile installation. Power was another issue. Most handheld CBs required 8 or 9 AA batteries that were depleted in a couple hours of transmitting. Those of us with ham tickets used our two-meter band HTs for portable ops. You could access a local repeater ad talk to another portable within the repeater's range; usually about 20-50 miles from the repeater's location. Then in 1996, the FCC authorized FRS (Family Radio Service)

Looking at the FCC's Part 95 regulations, there is very little difference in the description between FRS and CB. CB is "a private, two-way, short distance voice communications service for personal or business activities of the general public." FRS is "a private, two-way, very short distance voice communications service for facilitating family and group activities." In practice and in the technical aspects of the FCC regulations however, there is a significant difference between the two. CB uses forty channels around 27 MHz. in AM or SSB mode with power limits of 4 watts carrier power on AM, or 12 watts peak envelope power on SSB. You may also connect external antennas to CB equipment. FRS uses 14 channels around 460 MHz. in narrow-band FM mode with a power limit of .500 milliwatts (1/2 watt) effective radiated power into a permanently attached antenna. You cannot use an external antenna with a FRS radio. Twelve watts on sideband at 27 MHz. will consistently achieve a 20-mile range if you have a good antenna. Although it is illegal to communicate with stations more than 155.3 miles away on CB, any ham who has worked the Ten-meter band will tell you that 12 watts is more than enough to achieve world-wide communications when the band is open. On the other side of the spectrum a half-watt FM on UHF will give you about a two-mile range tops unless you're talking between two mountaintops.

These technical differences are apparent when monitoring the traffic on FRS and CB. FRS radios are intended to purchased, have batteries put in them, and be ready to go with a simple channel and maybe CTCSS tone ("privacy code") selection. They seem to be primarily used by non-techie types. Except for a few bells and whistles, FRS radios are pretty much all the same. CBs on the other hand generally require a more technical know-how in that they have to be wired into a vehicle or to a power supply, and an antenna installed someplace. CBs can be either AM-only or have SSB capability, and there is a plethora of antennas and radio types to choose from. The technical ability of some of the hardcore CBers equals that of ham operators. Some may actually be ham operators who still do CB.

In talking on FRS radios I have never heard the

equivalent of a ham's "CQ", and have never had a response from a general call-out for anyone who was monitoring the channel. I have heard individuals on FRS tell me that I was "using their channel" when attempting to communicate with my wife at the mall via this band. Now CB is hardly the pinnacle of communications, and people can be as obnoxious on CB as they are on FRS. In CB's defense however, I've never had problems getting a "radio check" from some local enthusiast with his "ears on", and often had a good rag-chew session for a bit. SSB CB in many instances sounds no worse than some ham radio operators on the 20 or 75-meter ham bands.

When it came to FRS radios, groups have taken an "all or nothing" proposition. Except for bells and whistles, there is little difference between the $15 FRS radio and the $50 FRS radio from a communications standpoint. For the cost of a single high-end radio, one can buy five basic radios. If your group is in need of short-range tactical intra-group communications, you can pick up FRS radios for less than $10 each in quantity and outfit a whole squad for $100. FRS radios are advertised as having a range of "up to 2 miles". Realistically the range is about a half-mile to mile. For a group needing an inexpensive way to keep in touch over short distances while in the field, they are very useful. FRS radios are plug and play. You insert batteries, select a channel, and start talking.

There are also 22 channel FRS/GMRS radios that you may see. The extra 8 channels belong to the General Mobile Radio Service, and require a license from the FCC to legally operate on. Some of the FRS channels (1-7) are shared with GMRS. A GMRS license allows one to run higher power than FRS for longer-range communications. Some of the more expensive FRS radios advertise that they have "38 privacy codes" (or more) for a total of "532 channels of communications" (or more). This is a misleading gimmick, and those radios still only have the same 14 frequencies as any other FRS radio. The "privacy codes" are simply a subaudible tone or digital code, aka CTCSS/PL or DCS/DPL, that is transmitted under your audio. When used, it keeps you from hearing communications on your frequency not using the

same tone as you. It's mostly used as a courtesy and a means of filtering out other parties who are using the same frequency from breaking your squelch. They don't offer any communications security. People with police scanners, and FRS radios that aren't using a "privacy code" can still hear you.

Recently there has been advertising of what appear to be FRS/GMRS radios that offer more than 22 channels. This is another misleading gimmick, as it has been determined that the extra channels come from a duplication of frequencies. In some instances channels 1-7 are duplicated with low and high power channels for FRS and GMRS usage respectively. In other instances, particularly with the 42 channel Midland brand radios, the extra channels are duplicates of other channels with preset CTCSS or DCS codes.

The one feature that is useful on the high-end units is voice scrambling. This is a simple single-frequency inversion system that will make your audio sound like Donald Duck with a bad cold to any receiver or FRS radio not equipped with voice scrambling capability. It will provide a modicum of privacy if used with that caveat that it is a low-end encryption system and is breakable by someone with more than just a casual interest in monitoring your communications. Considering that there are only 22 channels between FRS and GMRS and that most police scanners can go through them in about a half a second, you should seriously consider buying radios with this feature if you plan on any moderate to extensive use of FRS/GMRS portables.

Very recently, Midland, the most-visible manufacturer of the FRS/GMRS radios with speech inversion scrambling, was given a Notice of Apparent Liability for Forfeiture by the FCC for including this feature in the radios. This was likely due to a reinterpretation of FCC rules by the current administration regarding the use of speech inversion on GMRS. It is expected that Midland will appeal this notice, but whatever the outcome I expect FRS/GMRS radios with this feature to be pulled from the market. Should you have already procured this units, remember that using the speech inversion scrambling is illegal on GMRS.

The 10/11 Meter and "Freeband" Connection

The 27 MHz. CB band was created in 1958. Before then it was the 11 Meter ham band. You can still find vintage amateur radio equipment made before the reallocation that covers the old 11 meter ham band. More modern amateur radio gear can be modified for extended transmit coverage outside the ham bands, typically from 1.8-30 MHz. This feature is for amateur radio operators who are involved with CAP[53] or MARS[54] communications on their respective frequencies. Although such equipment is not legal for CB use, this does not deter some CB hobbyists from seeking out ham gear in order to operate on CB with higher power than is normally allowed by FCC regulations.



In 1987 a section of the 10 meter band, 28300 to 28500 KHz., was opened up to entry-level hams for SSB voice operation. This prompted many hams to modify early model CB gear as an inexpensive way of getting on 10. Radio manufacturers followed suit and started marketing 10 meter ham rigs, such as the classic Uniden HR2510, followed by the HR2600. Many hobbyists consider the Uniden HR2510 and HR2600 to be the premier 10 meter radios. With the Chipswitch[55] modification, operation on the 12 Meter ham is available as well as additional operating features for enhanced operation. These rigs have been discontinued for a while now, and their owners tend to hold on to them. They nevertheless can still be found on the used equipment market if one is willing to do a little looking. The Ranger Communications[56] RCI-2950/2970 is another 10/12 meter radio that is well-received by hobbyists. These rigs were capable of being easily modified for full operation between 25 to 30 MHz. and thus are very popular with CB hobbyists, especially freebanders.

In between the CB band and the 10 meter band is a

53 Civil Air Patrol
54 Military Affiliate Radio System
55 See http://www.chipswitch.com/
56 See http://www.rangerusa.com/

region known as the “Freeband”. The Freeband actually encompasses from 25-26.965 and 27.405-28 MHz. which is the spectrum directly above and below the standard CB band. Above 28 MHz. is the 10 meter ham band, and the bottom end of the Freeband is the tuning limit of most modified CB gear. Of the two, the higher frequency range is the most popular. The Freeband is actually allocated for other land mobile services, but is generally perceived as being an underutilized part of the spectrum. That combined with the availability of modified CB and 10 meter ham gear made it a haven for CB hobbyists wishing to get off the standard 40 CB channels for better communications or privacy.

From a dystonaut standpoint, 10 and 11 meters offer excellent regional signal coverage running moderate power with inexpensive radios. While operating CB with anything other than a type-accepted radio is against FCC regulations, there is nothing illegal with listening and after TEOTWAWKI it is suspected that many will find FCC regulations irrelevant. To speak realistically without encouraging illegal activity, it would appear from monitoring 25-28 MHz. that the FCC has more pressing matters at hand than going after Freebanders unless they receive an interference complaint. Judging from their past behavior towards deregulation of Part 95, it wouldn't surprise me if eventually the FCC makes the Freeband a legal part of CB. There was already a precedent set when the FCC turned business band radio frequencies previously known for extensive unlicensed operation into the license-free MURS radio service.

Multiple Use Radio Service (MURS)

MURS is an interesting animal with a lot of potential. MURS operates in the VHF-high band on 5 frequencies: 151.82, 151.88, 151.94, 154.57, and 154.60 MHz. The last two were once low-power business band frequencies that were part of a group known as "color" or "dot" frequencies. The freq of 154.57 was "blue dot", and 154.60 was "green dot". This scheme is from manufacturers placing little circle-shaped stickers on the radio to indicate common low-power frequencies. The 154 MHz channels see regular traffic from

previously licensed users, and others. The 151 MHz. channels have seen some increase in activity over the years, but are still fairly quiet for the most part, especially in rural areas.

MURS handhelds are on the market starting at about $100 each. In spite of it having only 5 frequencies instead of CB's 40 and FRS's 14, there are some nice things you can do with it. MURS is allowed 2 watts output, which is really about the same as CB, and much more than FRS. You can run external antennas like CB, and a ¼-wave antenna is only 18" long instead of 104". This makes nice high-gain antennas on MURS much more manageable than on CB. That 45" whip antenna that only performed moderately on CB is now a 5/8 wave on MURS that gives you 3 dB of gain; doubling your radiated power output. MURS uses FM (Frequency Modulation) and is higher in frequency than AM CB. This makes it less susceptible to electromagnetic noise, and makes it more reliable for local and possibly regional communications depending on terrain.

You can also adopt some of the tricks hams use on their two-meter band (144-148 MHz.) to squeeze extra range out of those two watts of RF. All this may prompt you to go to the extra effort to get MURS equipment for your group's communications. Most VHF high-band commercial LMR equipment capable of MURS operation also can be programmed for the two meter ham band.

902-928 MHz.

The **902 Band** as I call it is a relatively new addition to the license-free wireless communications inventory for dystonauts. It is also known to ham radio operators as the **33cm Band**. It covers the frequency range of 902-928 MHz. and is shared by many different users. In this band you will find ham radio operators, older cordless phones, wireless cameras and microphones, baby monitors, older wireless networking and data communications equipment, RFID, other FCC Part 15, and various users in the industrial, scientific, and medical (ISM) radio service. Over the years, the 902 Band has become a catch-all for any number of different radio users.

My first experience with the 902 Band was hacking on the first generation of consumer electronics wireless video transmitters known as **VCR Rabbits** marketed to let home entertainment enthusiasts watch movies from their VCR on another TV in their residence. Since the band was shared with amateur radio, it was an easy way to play with Amateur Television (ATV). Later on, the electronic toy company V-Tech came out with hand-held radios for voice communications on the 902 Band called the V-Tech Communicator. They only put out a few milliwatts into a rubber duck antenna, but were usable over a couple floors in your typical urban office building. Some ham operators modified them by replacing the rubber duck antenna with an antenna connector so as to use higher-gain antennas for greater range, the same way we modified the VCR Rabbits for ATV. Wireless networking, consumer video transmitters, and cordless phones have since gone higher in frequency to 2.4 GHz and beyond. Some legacy data networking equipment and SCADA[57] systems still operate on the 902 Band, as well as older consumer electronics devices and an increasing number of amateur radio operators using surplus equipment.

About two years ago, Motorola released their DTR series of radios, and Trisquare came out with their eXRS radios. These radios operate in the 902 Band using spread-spectrum communications. What this means is that instead of a radio channel being a single frequency as it is on FRS, GMRS, MURS, or CB a spread-spectrum channel is actually a group of frequencies that the radio hops through in a predetermined algorithm. This is called **Frequency Hopping Spread Spectrum** (FHSS). This means that police scanners, including the near-field Signal Stalker type units, are not supposed to be able to intercept the signal from these units. While this was the case with one model, it was discovered that wasn't necessarily true with the second.

The 902 Band radios are more expensive than any other license-free radios, but not by much in some instances. The eXRS radios sell at consumer electronics and sporting goods stores for around $100 a pair. Motorola DTR radios

57 SCADA – Supervisory Control And Data Acquisition.

start at around $200 each for the low-end DTR-410 series and go up to $350 each for the top-tier DTR-650s. In comparison the top-tier Midland FRS/GMRS hand-held with frequency inversion scrambling costs $100 a pair.



In evaluating the Motorola DTR and Trisquare eXRS units, I discovered a few disturbing vulnerabilities and operating bugs in both models. The high-end Motorola DTR650 radios have a supervisory mode feature which when allows the user of said radio to remotely monitor and disable any DTR radio on the same channel with nothing more than the ID number of the radio that appears on the receiving units display. This allows **anyone** with a DTR650 to disable any radio on the channel. There are no additional security measures built into the DTR radios to prevent a hostile party from using this against other users on the channel. Under normal circumstances if someone disabled a radio on your net you would simply use one of your DTR650s in supervisor mode to re-enable it, but in a SHTF situation a communications disruption of this nature could be life-threatening. While the DTRs were unable to be monitored by common off-the-shelf intercept equipment, they don't have any encryption built in and therefore are wide-open for monitoring to anyone who also has one.

The Trisquare eXRS radios don't have any such supervisory features, but I have found that they often have trouble synchronizing with each other if no one has transmitted after about 20 or 30 seconds. In one instance it took six seconds before the radios were synchronized. In another instance the radios had to have their channels changed in order to synchronize properly, which happens to be the corrective action for this problem according to the user manual. While bugs like this may be acceptable for mundane communications, in a survival situation it is unacceptable. While electronically investigating the eXRS radios it was discovered that they use regular analog FM with slow

frequency hopping over a small frequency set. They have about a 300 millisecond dwell time time per channel over 50 channels. A fast-sweeping near-field receiver such as an Optoelectronics R-10 had no problem monitoring the eXRS radios, and a police scanner with a fast enough scan speed programmed with all 50 channels could do the same. One interesting observation noted while testing the radios was that at time of the test my wife was talking on a cordless phone downstairs and was able at times to hear what I was saying!

In light of their cost, security flaws, and lack of interoperability with other more common radio systems, I would advise passing on the current generation of 902 Band license-free radios. While an excellent concept, the current implementation of the two current offerings leaves a lot to be desired. From a COMINT standpoint however, it may be advisable to acquire a used Motorola DTR410 for the sole purpose of being able to monitor parties who are using them in the field.



I have also seen pairs of 902 Band data transceivers used for SCADA and other telemetry communications in utility and industrial applications for sale at hamfests. While these units use proprietary hopping schemes and data protocols that are unique to each make and model, their user interface is usually either standard Ethernet or RS-232. For secure data applications, especially if supplemented with encrypted communications software, they would be useful for point-to-point applications between retreat locations and offer greater communications range than 802.11 WiFi equipment.

What to Choose?

If you are a "lone wolf", CB will probably be your primary communications system. If your group wants communications over a longer range than FRS then you should favor CB or MURS. CB is not as plug and play as FRS, but can be a more powerful means of communications. CB operates on forty channels as opposed to FRS's 14. CB is also much lower in frequency, which means you can go a lot further than a mile or two, although by FCC regulations you can't communicate more than 155 miles. (A rule that is commonly ignored by many CB hobbyists.) Back in the mid-1970s, my parents installed a base station at home and mobiles in their cars. We consistently achieved a 20-mile range with our set-up, and would hear stations all up and down the East Coast when "skip" conditions were right. Even after getting my ham license, I still kept a CB rig in the car for getting info on road conditions. CBs are not as portable as FRS. Handheld CBs are about 4 times bigger, use twice as many batteries, and require larger and more cumbersome antennas. You can still however, put together a portable station that will fit in the radio pouch of a rucksack and outperform any FRS radio. You can purchase a basic CB rig for about $35 new; either a mobile unit or a handheld.

Here is where things get interesting. If your group was going to rely on CB and had some extra money to spend on communications, you could upgrade to single sideband (SSB) models. Most CBs use standard Amplitude Modulation (AM). A higher end CB also has SSB. SSB is a form of AM that has a narrower signal than standard AM. AM has three parts: a carrier and two sidebands. SSB removes the carrier and one of the sidebands enabling you to talk further with the same amount of power. SSB also adds a little bit of "security through obscurity" since most CBs are AM only. AM CBers will hear this faint garbled voice-like noise if they tune into a SSB signal with am AM rig. Similarly, police scanners that cover the CB frequency ranges only receive AM. This is of course offers no security against someone listening in with a SSB CB or a shortwave receiver equipped with a BFO. CB is still more of a jungle telegraph than FRS, especially when traveling. Despite the increased popularity of FRS, it still has

no equivalent of channel 19.

For the most part though, FRS is more popular than CB with the general populace. Ideally, you should have both. In spite of its higher popularity, people are more "private" on FRS than on CB. Where CBers never thought of their band as "private", many FRS users erroneously believe their communications is secure because they used one of the 32 "privacy codes" on "their" channel. At the very least, every member of your group should take $20 and by a pair of FRS radios. Now you can all keep in touch while in the field or traveling. Just don't expect much from an FRS radio going from inside one car to inside another car. You'll get about a quarter of a mile. The next step up is to put CBs in your vehicles. If you use decent antennas you'll get at least a few miles car-to-car, and they'll work much better than FRS radios. The factor that makes or breaks a mobile CB installation is the antenna. The ideal length is a quarter wavelength. For CB that is 104" or 8'8". Now you know why that little 2 foot antenna doesn't work very well. If you can't go with a full ¼ wave whip antenna, then get a reputable 40-50" whip antenna such as a K-40 or Wilson 1000. They offer good performance in a manageable size.

Having been a ham operator for 25 years now, I try to encourage individuals who are interested in dystonaut-type communications to at least get their entry-level ham ticket. That opens up a whole new world of radio communications capability you simply don't get with license-free modes. Besides amateur radio, my personal suggestion for license-free communications would be MURS. You can run encryption on MURS, and get both 2 meter ham band and MURS capability on one package by using surplus VHF high-band radios. I would also recommend looking into finding surplus frequency-hopping data transceivers operating on the 33cm band for semi-secure point to point links.

Epilogue

Sadly, some people just don't get it...

The topic of retirement often comes up among the co-workers at the day job. The talk usually revolves around the sad state of their 401K plans, followed by a "Group W Bench" moment when I tell them I'm retiring in 10 years and it involves a Quonset hut filled with tools and test equipment at the end of a dirt airstrip on a ridge in the middle of nowhere.

Let's take a look at a Quonset hut for a moment:



It's a functional, utilitarian structure. Beautiful in a technical, DogSolitude kind of way. The type of place where a modern Cyberpunk technological survivalist dystonaut would want to go Galt. They are often found at the types of airstrips where feral barnstormers launch crop dusters and ultralights into the wild blue yonder. The airstrip also serves another useful function: your friends have the option of flying in if they want. Hardly some isolationist retreat, they are the type of place where things get done. They are the proverbial garage where a couple of hackers get together and invent the next big thing.[58] They are also the best hope for our country in these difficult times.

To be continued...



58 See http://en.wikipedia.org/wiki/Apple_I