

VISIONS OF AFTERMATH

The Boomtown



M10004

User Guide



From the Designer...

Visions of Aftermath: The Boomtown has been in development for twenty months now. It began life as a rainy day think-tank exercise for my friends and me and has evolved into what is presented here. I'm quite proud of it. When people first play with *The Boomtown*, their tendency is to expect it to be a tactical war-game or a graphic adventure. *The Boomtown* is more like an electronic Tinker Toy" (brand) play set for would-be pioneers-a valley construction set. Its goal is to present the laws of nature in an interactive environment without seeming arbitrary or trite. Modeling life always requires that short-cuts be taken, but *Visions of Aftermath: The Boomtown* strives to be as subtle as can be understood.

This program will begin by killing you.. . repeatedly. Don't judge it as too aggressive for what is actually a stern lesson in reality. *The Boomtown* is designed to model life to a larger degree than is common in a 'geographic scenario-oriented computer model: The land is designed to seem like places instead of squares. Lots of possibilities exist, and none are thrust upon the player. The reward for dying repeatedly in *The Boomtown* is that as you learn its interface, you are mastering skills which will give you unprecedented control of such a reality. You will interact on a more intense basis than you have ever seen.

As a multi-player game, *The Boomtown* is seductive in both its simplicity and its complexity. There are no survival tips that I can give. The "Golden Rule" applies well to some groups while "Cover Your Backside" works for others. In the most aggressive groups, "Search and Destroy" is the only reasonable advice. *The Boomtown* is like a Monopoly" board with 4000 squares where you can play or take any card and do most things on most squares if you have done the right things previously and brought appropriate materials. Know your opponents. Expect them to act as if it were real. Remember that desperate persons commit desperate acts.

My pride in *The Boomtown* is shared by a close-knit group of friends without whom the project would have been impossible. *The Boomtown* began as a "what if" discussion and has benefited by constant input from its conceptual creators. I promised that I would mention the names of my co-conspirators, so here goes: Thanks to Amber and Keating, and to brothers Chuck and Scott, and sisters Valerie and Sheril. Thanks to Monica and Shea and Ian and Kyle and Jeff-called-Lothaire and Jeff-called-Dimitri. Thanks to Neil and Cathy; thanks to Danya. Most especially, thank you Sherri, for the hours of play testing and the comfort and support when things seemed most impossible. Without these people *The Boomtown* would be less than the shadow of what it is.

It is the consolation to completion of a much-loved creation that when the artist has ended his enjoyment, others may begin theirs.

Enjoy, Sparky Starks

Ways to Play

Visions of Aftermath: The Boomtown

There are many ways to play *Visions of Aftermath: The Boomtown* (hereafter called *Visions of Aftermath*). Some of you will see this as a straightforward survival simulation; others will see this as a strategy game. It is all of these things and more. Always keep in mind that *Visions of Aftermath* is in fact a reality unto itself. It is a place where you can act as you wish and do what you want. Where the single player will go after the high-score, the group of players can interact and recreate civilization, or simply battle for territory. The rules are really up to you.

Visions of Aftermath can support up to 16 players on any single world. Do not feel that you need to find 15 of your closest friends and invite them over for a game. Be creative. Two people can just as easily play eight characters each as they can two, but the implications can dramatically change the game.

Before you begin your first game, take a look at the materials included in the *Visions of Aftermath* package. We have provided you with a copy of the 1988 survivalist's best-seller, *New World Vision* along with the *EZFISH Shelter Manual*. These two guides have been provided to you by the author, Sparky Starks, so that you may study the knowledge of the bygone days of pre-holocaust 1988 as you attempt to survive the radio-active present.

We will not tell you that you can not play the game without reading these books; you can. You will have just as likely a chance of surviving as would any uneducated person dumped into the middle of a radio-active catastrophe.. We STRONGLY suggest that you read them if survival is in your future plans.

Experiment, create, explore!! It's up to you to refashion the world as you see fit.

Mindscape Inc.

Installation

Installing COMMAND.COM on the Program Diskette

For Two Floppy Disk Drives:

1. Insert the DOS diskette into drive A and the *Program* disk into drive B.
2. Turn on the computer and the monitor.
3. Enter the date and time if prompted.
4. At the A>, type **COPY CDMMAND.CDM B:** and press either **[RETURN]** or **[ENTER]**.
5. Your *Program* diskette is now ready.
6. Remove your DOS diskette from drive A and replace it with the *Prugram* diskette.
7. At the A>, type **BOOM** and press **[RETURN]** or **[ENTER]**. The program will then load.

For One Floppy Disk Drive:

1. Insert the *DOS* diskette into drive A.
2. Turn on the computer and the monitor.
3. Enter the date and time if prompted.
4. At the A>, type **COPY COMMAND.COM B:** and press either **[RETURN]** or **[ENTER]**.
5. Follow the on-screen instructions using the DOS disk as "Diskette for drive A" and the *Program* disk as the "Diskette for drive B."
6. Your *Prugram* diskette is now ready.
7. Remove your *DOS* diskette from drive A and replace it with the *Prugram* diskette.
8. At the A>, type **BOOM** and press **[RETURN]** or **[ENTER]**. The program will then load.

Running from a Floppy Drive System:

1. Insert the *DOS* diskette into drive A.
2. Turn on the computer and the monitor.
3. Enter the date and time if prompted.
4. Remove your *DOS* diskette from drive A and replace it with the *Prugram* diskette.
5. At the A>, type **BOOM** and press **[RETURN]** or **[ENTER]**. The program will then load.

Installing the Program on a Hard Drive

After you complete the procedure outlined below, *Visions of Aftermath: The Boomtown* will run entirely from your hard disk. The procedure will create a sub-directory on the hard disk and copy all relevant files to it. You will be asked to provide a name for the new sub-directory.

NOTE: This is a ONE-TIME installation. After you have installed *Visions of Aftermath* on your hard disk, you will not be able to re-run this procedure unless you first follow the procedures in the "Uninstalling the Program from the Hard Disk."

WARNING: DO not attempt to Backup or "Optimize/Defragment" your hard disk unless you have first uninstalled *Visions of Aftermath*. Any attempt to do so could result in a corruption of the program files and would render the program unexecutable from the hard disk. You will be able to re-install *Visions of Aftermath* to your hard disk after you have run your backup or optimization only if you have followed the uninstallation procedures.

Installation:

1. Boot your system and get a C>.
2. Insert the *Program* diskette in the A drive and close the door.
3. Type A:SETFIXED <Name>, where <Name> is the name of your sub-directory.
Press [RETURN] or [ENTER].
4. Re-boot your system and type CD\<Name> and [RETURN] or [ENTER].
5. Type BOOM and press [RETURN] or [ENTER]. The program will then load.

Uninstalling the Program from the Hard Drive

1. Place the *Program* disk in drive A, and at the A> type UNINSTALL and press [RETURN] or [ENTER].

Running the Program

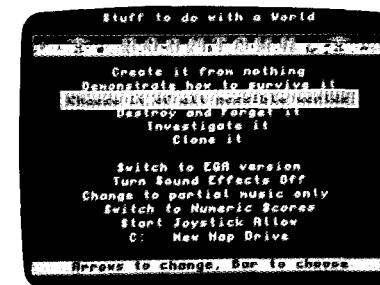
(Note: If you are running on a floppy-drive system, be sure to prepare a blank formatted data-disk. We strongly encourage you to store the maps you create on this diskette.)

Once you have loaded *Visions of Aftermath: The Boomtown*, you will see the title-screen. You will then be presented with the opening screen of the program.

Stuff to do with a World

The opening screen, titled **Stuff to do with a World**, will appear with several options divided into two groups. The top group:

Create It From Nothing
Choose It Of All Possible Worlds
Destroy And Forget it
Investigate It
Clone It



is the *World* Group. It is from this list that you will generate the world you will attempt to survive, examine the worlds you have created to date, delete worlds, and copy worlds.

The bottom group:

Switch To EGA Version
Turn Sound Effects Off
Change To Partial Music Only
Switch To Numeric Scores
Start Joystick Allow
A: New Map Drive

is the *System Group*. This list allows you to set the parameters of the system on which *Visions of Aftermath* will run. From here you can set up your graphics card, toggle music and sound on and off, enable your joystick, etc.

Using Menus

Menu selection in *Visions of Afreemath* is very simple. Your cursor keys will move the highlight either up or down, and the [SPACEBAR] is used for selection. If you are using a joystick, just move the joystick up or down and select with the fire button. There are a few different cursor types in *Visions of Afreemath*. They are:

- The Selection Box
- The Arrow
- The Caret

They all work very much the same way and should be considered identical when encountered. The only change is when you are playing the game and you want to exchange items back and forth. At this point you will be able to "Shuffle" items between two lists using the Caret and either the Left - Right cursor keys or by moving the joystick to the Left or Right. (More on this later.)

Status line

If you forget what to do or where you are, all you need to do is consult the Status Line at the bottom of your screen. It is the line, now yellow, which says "Boomtown World Editor." This line will always change to inform you of your current option or place in the game. When it is red as opposed to yellow, pay special attention because the action you are about to take is either irreversible or of extreme importance.



Status Line

SYSTEM GROUP

Before you create a world, examine the list of system options. When any one of these options is set, its setting will be saved in a configuration file as the default settings for your next game.

Switch to EGA Version

This menu will automatically switch the graphics mode between EGA and CGA graphics mode. Once chosen, EGA graphics will be used during game-play and the menu will be changed to read **Switch to CGA Version**. If chosen again, play will be returned to CGA graphics mode.

Turn Sound Effects Off

This menu will turn off the sound effects in the game. These sound effects are generally used to denote key-presses and events within the game. Once chosen, the menu will read **Turn Sound Effects On**. Choosing it at this time will restore the sounds.

Change to Partial Music Only

There are three levels of music in *Visions of Afreemath*. They are:

- Full music (now completely off)
- Change to partial music
- Disable music (now partial)

Cycling through these options will set the music accordingly. This will allow you to turn the music on or off, or to have it play only important musical clues.

Switch to Numeric Scores

Scores can be represented either numerically or graphically. You have the option of setting this by toggling **Switch to Numeric Scores** or **Switch to Graphic Scores**. Scores appear at the end of a turn or when you request the standing of the Hordes.

Start Joystick Allow

You can turn on/off your joystick by selecting **Start Joystick Allow/Stop Joystick Allow**. (NOTE: Some systems will only operate properly when joystick is not allowed. Please turn off this option if you are experiencing any difficulty running this program.)

A: New Map Drive

When you first start *Visions of Afreemath* we suggest that you create a storage disk for your maps or that you plan to store them on your hard drive. Once you have the **New Map Drive** option, the status line will read **Arrows to Change, Bar to Choose**. You have the option of setting the map drive to be any drive from drive A - G just by using your up/down cursor keys. (Just so long as you have the drive you have specified.) From now on, any map you create/load will be placed/taken from the specified drive.

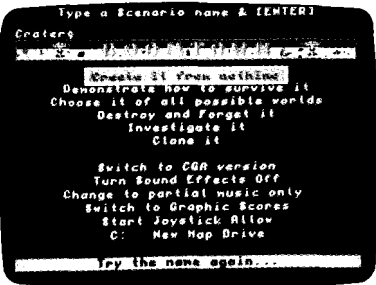
If you have selected a floppy-drive for your map drive, you will be prompted to insert a new blank formatted diskette before continuing.

WORLD GROUP

Now that you have your system set just the way you want it, it's time to create your first survival scenario.

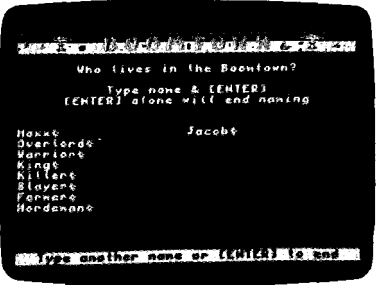
Create It From Nothing

Now create a world of your own. Choose **Create It From Nothing** from the menu and begin.



1. Your first prompt asks **you** to **TYPE A SCENARIO NAME & [ENTER]**. **You** need to supply a name for this new game before you can create it. This game will then be stored to disk under that name and can be recalled at any time in the future for further play. *Visions of Aftermath* will also automatically save the game for you at the end of each turn, so this world will always be kept current.

You may only use (8) characters to name your world. You are allowed to use both upper- and lower-case letters in your name. When **you** are done press **[ENTER]**.

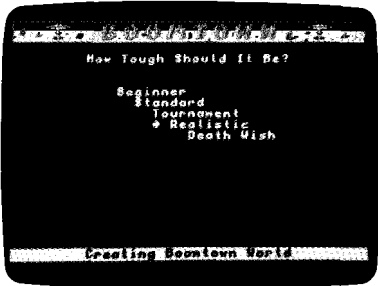


2. **Who Lives in the Boomtown?** **You** can type in up to (16) players. Once you have typed a name and pressed **[ENTER]** you will be asked for a shelter-key. This key is the password key for your bomb-shelter. It is the only way you have of preventing other players from wandering in and ransacking your supplies. It will also be necessary for you to press your shelter-key at the end of each round so that play may continue.

(It is advised that you not use the YN, or O keys as shelter keys as they are also used by *The Boomtown*. For added security you may also use a shifted key.) Once you have chosen your shelter-key, write it down and don't show it to anyone. If you wish to play without shelter-keys have everyone press **[SPACEBAR]** as their key.

Once you have finished entering all of the players, press **[ENTER]** one more time.

3. **How Tough Should it Be?** There are (5) levels of difficulty in *Visions of Aftermath: The Boomtown*, each one harder than the one before it. They are:

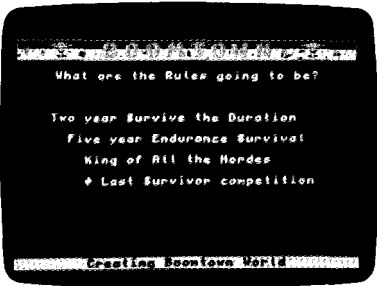


Beginner
Standard
Tournament
Realistic
Death Wish

The first time **you** play choose **Beginner** and go easy on yourself. *Visions of Aftermath* is not an easy game to master. In the beginner's game you are already given all of the skills that you need to survive as well as all the basic staples of survival. Remember, practice makes perfect-and you have to stay alive to be able to practice.

(NOTE: Beginner level has been designed to help introduce you to the game elements of *Visions of Aftermath*. We highly recommend that once you have played a bit in Beginner level that you advance to greater levels of difficulty and really test out your survival instincts.)

4. **What are the Rules Going to Be?** You will now be presented with either (3) or (4) options for the "WIN" conditions of the game. They are:



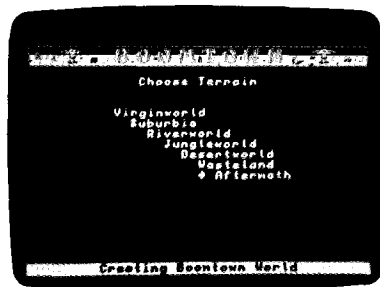
Two Year Survive the Duration
Five Year Endurance Survival
King of All the Hordes
Last Survivor Competition

In the first two options, **Two Year and Five Year Survive the Duration**, you are playing against the straight aggregate high-score that you can amass in the game-time allotted.

The **King of All the Hordes** adds The Hordes to the game and uses your strength in leadership ability to determine the scoring.

The **Last Survivor Competition** is only offered when there are two or more players. The win condition here is obvious.

5. **Choose Terrain.** Now you are asked to specify what the terrain is like in the area you wish to conquer. In order of difficulty, your options are:



Virginworld
Suburbia
Riverworld
Jungleworld
Desertworld
Wasteland
Aftermath

These areas are described as follows:

Virginworld-a beginner's park. Survival here is not too difficult.

Suburbia-populated with an abundance of deserted shelters.

Riverworld-a land covered by twisting rivers making travel difficult.

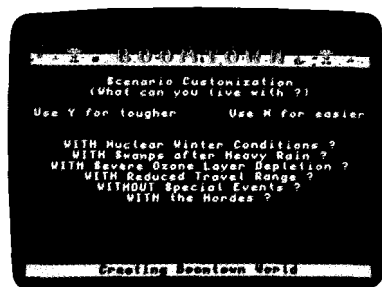
Jungleworld-a densely populated forest making farming difficult.

Desertworld-very little of anything.

Wasteland-crag covered, making settlement nearly impossible.

Aftermath-the worst of all worlds, where blast zones leave the land irradiated.

6. You can now customize your world. There are (6) additional options that you may or may not want to have some influence on game play. They will appear as questions for you to answer with either a [Y] for yes or an [N] for no. Choosing [Y] will always make the world more difficult to survive in. These options are:



WITH Nuclear Winter Condition?
WITHOUT The Greenhouse Effect?
WITH Swamps After Heavy Rain?
WITH Severe Ozone Depletion?
WITH Reduced Travel Range?
WITHOUT Special Events?
WITH The Hordes?

These options will effect the game in the following ways:

Nuclear Winter makes the year two months colder.

Greenhouse Effect, makes the year two months warmer, and doubles rainfall. (Only offered if Nuclear Winter is declined.)

Swamps appear after rain and create hazards.

Ozone Depletion doubles environmental radiation levels.

Reduced Travel doubles the amount of fuel and time needed for travel.

Hordes add a trading aspect in the game. (Automatic in **The King of all Hordes**.)

7. Your world is now ready to be created. You will see the game create your world step-by-step.

NOTE: This process may take anywhere from a few seconds to a few minutes depending on the world you are creating and the computer you are running on.

The game will inform you that the following things are happening (depending upon the scenario you chose):



Creating Map
Running Rivers
Doing Shelters
Interior Forests
Doing Blasts
Pretty Rivers
Placing You
Stocking Shelters
Placing Books for Shelters
Placing the Hordes

Once this is done you will need to press any key so that you may return to the World Maker menu and choose your newly created world for play.

Stuff to do with a World (continued)

Before you choose your new world, let's look at the other things that you can do with a world.

Clone It

Selecting this option allows you to "Clone" or duplicate a world. You may want to do this in order to save the game as of a certain month, or to share a particular scenario with a friend who also has a copy of *Visions of Aftermath*., *The Boomtown*.

When you select this option, you are presented with the list of worlds currently on your diskette (38 maximum). Simply choose the one you would like to copy. You will then be prompted for a new name for the copy and it will be stored on your diskette. If you decide that you do not want to duplicate a world, simply select the **Forget It** option.

Destroy and Forget It

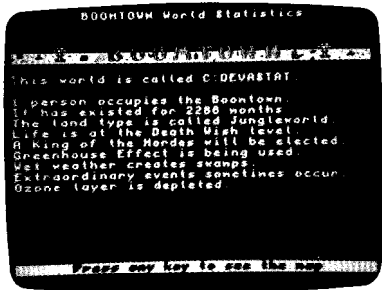
Selecting this option will forever remove a world scenario from your disk. DO NOT select this option unless you are absolutely sure that you really want to throw away the world forever. You will be prompted for a [Y] Yes or [N] No to confirm your choice before the world is erased.

Investigate It

When you choose this menu you will be given the list of all of the worlds presently available on your disk. This option allows you to look at the specifications of a world before you load it for play.

Once you have chosen the world you are interested in you will be shown the "Boomtown World Statistics."

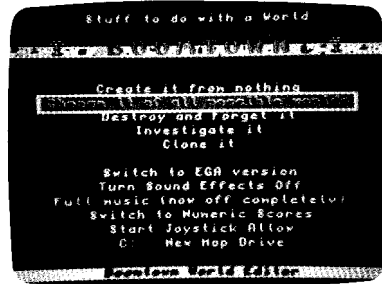
It will show you:



The name of the world,
The number of people in the world,
The age of the world in game-time,
The terrain type,
The win condition, and
The scenario customizations.

After you have looked this over, you can also press any key to view the map of the world. When you have finished viewing the map, pressing any key will return you to the main menu.

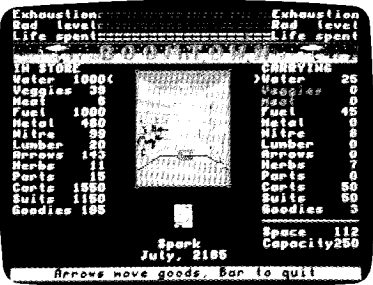
Choose It of All Possible Worlds



It is now time to choose the world you have created. Select **Choose it of All Possible Worlds** from the menu and then select your world from the list. Your world will now load.

(NOTE: If you have chosen EGA as your video type, the screen will go black and it will take a few extra seconds to load the scenario.)

Once your world is loaded you will be presented with a new screen. On the left is the stock of supplies that you have in the shelter, on the right is the stock you are currently carrying, and in the center is a picture of your current position-in this case inside your shelter. Below the picture in the center is an icon depicting the type of area you began the current turn on, also a shelter. Below the icon is the name of the current player (play order is randomized), and below that is the game date.



Exhaustion Level
Radiation Level
Life Spent

At the top of the screen you will notice a graph showing your current standings in **EXHAUSTION, RADIATION LEVEL, and LIFE SPENT**. These graphs go from the left at 0% to all the way right at 100%. When your **Exhaustion Level** reaches 100% your turn is over, and you collapse from exhaustion. You are better off deciding to sleep before this happens. If **Radiation Level** reaches 100% you will collapse and some life will be spent due to radiation damage. If **Life Spent** reaches 100% you are DEAD. The graph will change color and become red when you have reached a critical level.

At the start of your turn you will first see the messages of the day (if there are any). These messages alert you to weather conditions, problems with your shelter, etc. The status line will then read **Waiting for You to Continue**. Pressing any key will begin your turn.

Let's run through a sample turn to show you how it's done.

First press any key to begin. Now transfer some items from your storage so that you are carrying them. You can carry up to 150 W.U. (weight units) unless you have a cart which allows you to carry an additional 100 W.U.s. To transfer items simply cursor up or down to the item you would like to move, and then cursor left or right to move it. You will also notice that each item has its own minimum W.U. that you can move at any one time. Play around with shuffling items until you have them balanced as you would like and then go outside.

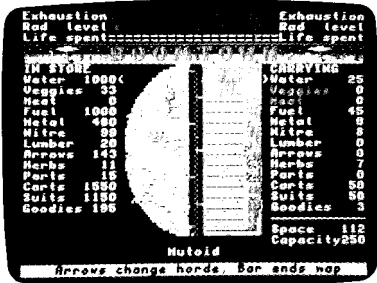
To go outside just hit the **[SPACEBAR]** to bring up your play options and then choose **Go Outside**. (Pressing the **[SPACEBAR]** anywhere will always bring up the list of your current options.) You are now outside and on the map, roaming around in your All

Terrain Vehicle or ATV. Go west three "Clicks" by pressing the left arrow three times. Notice the icon below the map. It is showing you that you started your turn in a shelter. Also notice the arrows around it? They are showing you the direction that you must travel in order to return to this point. You may have also noticed that the IN **STORE** list has disappeared and has been replaced by a heading of **TERRAIN**. Below this heading you will always see a description of the type of terrain you are currently traversing.

Now hurry back to the shelter by following the arrows. Once on top of the shelter icon press **[SPACEBAR]** for your options and then choose **Enter** to return to the inside of your shelter. Now choose **Sleep Over** to end your turn. Next time out you can do even more exploring.

Function Keys

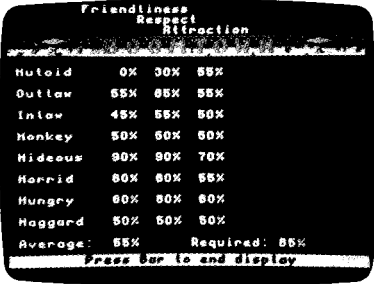
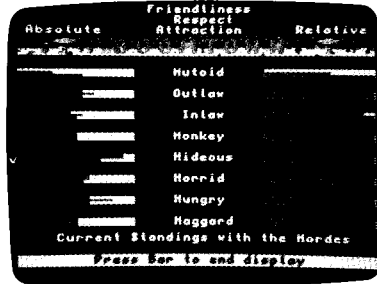
In addition to the menus presented on screen, you also have the capabilities stored in the 10 Function keys. They are as follows:



Display Map

- F1 -Horde Transaction Record
- F2-Graphic/Numeric Reports
- F3-Turn on/off Sound
- F4-Turn on/off Music
- F5-Add a New Player
- F6-Delete a Player
- F7-List Skills
- F8-Exit at End of Month
- F9-Display Map
- F10-Momentary Pause

Horde Transaction Record



Of all the function key commands, the only one which really needs further explanation is **F1, Horde Transaction Record**. When you are playing a game with The Hordes and you press the **F1** key you will see a report on your current "Horde Standings" This screen will let you know how you stand with regard to **Friendliness, Respect, and Attraction** with The Hordes.

In a one player game the scores are straightforward. The three categories are ranked on a scale of 0% to 100% left to right for each Horde group. This assumes you are in graphic scores. Press F2 to toggle back and forth between numeric and graphic scores. In a two or more player game you have two columns in graphic scores mode, **Absolute** and **Relative**. **Absolute** is the same as above, while **Relative** shows you how far (in percentage) you are from the current leader. In numeric scores, you will still only see the **Absolute** ranking.

In a **King of The Hordes** game you will also see another category on the numeric scores screen called **Required**. This is the percentage you will need in order to become the **King of The Hordes**.

Map legend

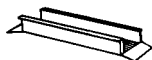
The following is a legend of all the different items that can be encountered on the map.



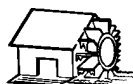
Shelter



Shed



Bridge



Mill



Road



Rivers



Stage 1 Forest



Stage 2 Forest



Stage 3 Forest



Stage 4 Forest



Fire



Veggies



Crops



Herbs



Desolation



Blast Zones



Caves



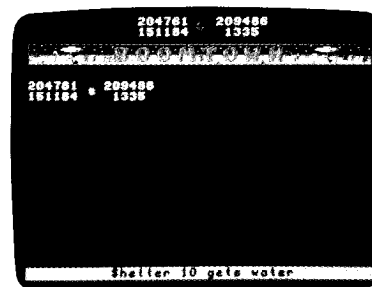
Crags



Horde Encampment

End Turn

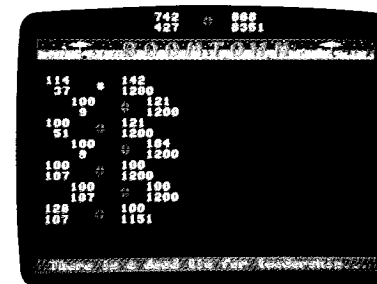
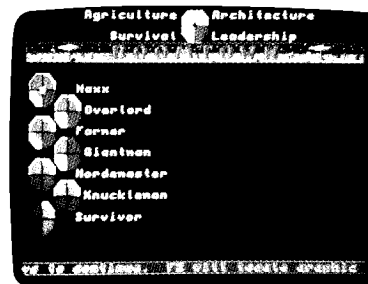
At the end of everybody's turn you will be taken to a screen which will report to you the events of the month, show you the present score, store the game and begin the new month with a weather and event report.



Events

Scoring

Scoring is broken down into four categories: **Agriculture, Architecture, Survival,** and **Overall.** (**Overall** is replaced by a **leadership** category if you are playing with The Hordes.) In most "win" conditions the first three (or four) scores are totalled to determine the current leader. The exception is the **King of The Hordes** scenario where progress is based solely on your **leadership** ability.) In the **Two and Five Year Survive the Duration** games the winner is the player with the most points at the end of the specified time. In the **Last Survivor Competition** the winner is chosen when there is only one player left alive. (**NOTE:** You can amass enough points to be the winner of the game and not be the last survivor. Remember, stupid actions can kill you off and leave a player with fewer points alive, thus ending the game. Be careful!)



Graphic scores are shown as follows. A green segment means that you are the overall leader in the specific area designated by that pie-slice. Red on a yellow segment shows the percentage you have of the leader's score in that area. The closer in the red is towards the center, the closer the contest. A yellow dot in the center of the pie designates the overall leader. At the top of the screen is another chart showing the

progress of all the characters combined. This is very helpful when you are all trying to work cooperatively.

End Game

NOTE: To exit from *Visions of Aftermath:The Boomtown* simply press the **Ctrl-Alt-Del** keys simultaneously while on the opening menu. This will reboot your system and clear the program from memory.

Author's Disclaimer Sheet

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NEW WORLD VISION

(The Day After the End)



By Rusty Bucket

Afterward by J. Pointdexter Especially

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Introduction

If you bought this book, I guess you feel just like I do about what the future has in store for the simple folk. Maybe we'll all be living in our fine and comfortable houses in a hundred years, just like we are today. On the other hand, we are probably going to have to face something a little scarier. The thought of total annihilation would scare anyone with an ounce of brains but maybe we can't just trust everyone to have that first little ounce they were given. Anyway, there is survival and there is survival. Anything that can be survived by anybody can be survived by everybody who is ready to make the kind of plans that are needed and who is truly willing to make those plans work, no matter what it takes. I've been living in the woods of Tennessee, Alabama, Missouri, Idaho, everywhere, on and off for years now, and I've seen a thing or two. If you are ready, really ready, to look at what you are going to need to do to stay alive and if you are ready to do what I show you here, well then you are going to have as good a chance as anybody to stay around after the fireworks. Heck, it might even be **fun!**

We are going to look at what will happen when the bombs fall and how they will change the world. Then we'll find the simple things that keep people hale and happy. Next we'll see what things give you the edge on the countryside and we'll find out how to plant fields and raise our own medicine. When we have a cozy spread, we'll talk about building and play. (How to make life a little easier and how to cure the boredom that will come along when we do.)

Then we'll look at anybody else left in the world. We'll see how to make friends without losing your scalp. We might even talk about what makes a primitive, well primitive. Lastly, we will talk about advanced earth-shaking-how to move mountains and rivers. When you're done, you will have built yourself the best tool you can get to survive, come what may. You will have improved your mind. With the skill to find what you need to get along and to use it in the best way you can, you'll be ready and waiting for the bombs to go ahead and fall.

There wasn't any way to write this book without a lot of help from my friends and a bunch of professionals in various different areas. I'd like to thank everybody that lent a hand in writing this little book and all those fine folks who brought it from me to you. Also, I have to say something especially important right now. No one here is all-seeing, all-knowing and all that, so you shouldn't go and take anything you read in my book as gospel without first reading the Author's Disclaimer Sheet that is included here separately. Also I'd like to say that I didn't think of the title. It sounds kind of funny and I guess I'm not really sure what it means but everybody said that it'd help to sell the book if it had some fancy title so there you go. Well, I hope you enjoy the book and tell all your friends about it. Thank you very much.

Chapter 1

Duck and Cover

It is sort of silly to talk about what to do when atomic bombs are falling around your ears but there are some good things to keep in mind. The best place to be is in a very deep hole. It ought to be a good hole: one with concrete walls and a really sturdy ceiling. If you can't find a good hole, find a pitiful hole. The first thing you should do is duck. Bomb blast is really bright. If you watch, you might get blinded. On a clear night, the bombs that they are talking about dropping today can blind you from 50 miles away. That's about from one side to the other of most counties. It's a long way. Even in bright sun, the flash from a hydrogen reaction can blind you as far as ten or twelve miles away.

If you are above ground level, say a story or two up, you will probably just die right there. The gamma radiation, expansion shock and fireball will all do the most harm to things out in the open and off the ground. If you find out that you are alive after the first blast, get down. Get as far down as you can.

There will be places to go. If you are in the city and you are not dust and ashes, you could go to a public fallout shelter. This is probably a better idea than just standing around outside but not by much. You might be better off in your own basement than in somebody else's, especially if you live in a cement building and have stored a few things there.

If you live in the country, you're smarter than most. There are plenty of bombs for everybody but nobody wants to kill the crops that feed both sides. The main problem with getting ready in the country is that the land is so cheap. In the city where the land costs more, everything is stacked up and made strong enough to pile high. In the country where you can spread out some, buildings are mostly made of wood and mostly above ground.

If you are lucky, you might be far enough from the closest bomb that your house doesn't burn down, but that won't keep you healthy later. Fallout is going to be everywhere, not just in the city. Radiation from fallout is stopped by the weight of the stuff in the way, and lumber, although a fine material for building, weighs a lot less than cement.

If you want to have the best chance you can to live for the first day and night, either make a cellar with dirt over it, not under a wooden house, or build and live as near as you can to a cave. In the place where I grew up, the mighty Mississippi has cut thousands of little caves miles from where it is seen to run. These caves often have underground rivers which connect to rivers on the surface up or down stream.

Because caves happen when a layer of soil or rock beneath surface is eroded away, they can cut deeply into the ground. Their overburden, the soil above them, is most often a lot more than you would ever want to build yourself. Where nature has made a gift to you, take it and be glad. Be careful not to pick the wrong cave though. If water runs into the cave when it rains, it might be worse than being outside! Even if you have a better place to live, a cave can be a good place to spend the night in a pinch.

Here is what to expect the world to be like. At first it will be a lot like you would expect hell to be. There will be a bunch of explosions. Each explosion will be followed by a shock. The temperature will be too high everywhere. The sky will be a strange color all of the time. It might be dark at day and at night. There will be earthquakes, probably, and maybe unnatural storms. Maybe bombs will fall for an hour or two; maybe they will fall for a couple of days. Don't come out of hiding until there haven't been any bombs for about a week.

In that week there will be lots of fires. Most of the people outside will be dying. Everybody will be desperate. Bomb blast could kill maybe a third right off. Then radiation sickness, hunger with blindness, normal exposure, will kill another third in a week or two. The third that remains will mostly kill off each other in the first month. This is a good time to stay inside. The water, the ground, probably the air will be poisonous for a while. How long and how poisonous depend on where you are, where bombs fall and how many.

Chapter 2

What to Expect Outside

You should start by staying inside of some kind of shelter or other for as long as you can. Sooner or later, you are going to run out of food and fresh water. Better start thinking about going outside when your stock pile is about half gone. When three-quarters of your food is gone, you had better be ready to start looking outside for whatever you are going to need.

The first thing that you are likely to see that's new is the weather. Maybe it will be dim most of the time and dark the rest. Maybe it will be very hot or very cold. Animals that you see might be sick and maybe desperate. Food is going to grow best on its own near water. Wooded places are a dandy place to find meat; game that is out in the open is probably feeling poorly and might be dying. Don't get surprised if there are big patches of wrecked land that weren't there before.

Don't go anyplace where the radiation is high. Mostly don't go anyplace where the overhead looks shaky. If you go right out of your shelter and all you can see is a lot of nothing then maybe it's a good idea to head straight for the nearest river. Water can give you most of what you need to stay alive while you get used to the new terrain.

If you're up on luck, you might just find a place around that's better than what you had. If you had neighbors before the world ended, they might still be around somewhere; go out and see who you can meet. Sometimes your friends will need what you have and have what you need. Sometimes they will just be a pain in the butt. Whatever you do, you've got to be careful at first.

You can't spend too much time outside unless you want to get burned out on radiation. Go easy. Look for good places to sleep, like sheds, shelters, and caves. Caves are good, really good if they go back a-ways and are dry. Caves that are mostly wet might be storing up radiation from rain water that falls in them. Check out the rad level in the cave before you sleep there.

If it is cold enough outside, you might be able to use the rivers to get where you're going; especially if you are someplace with heavy underbrush. Don't go too deep into the woods, though, or you could be trapped deep in the forest in the spring. It's really hard to get anywhere in the woods without losing your bearings, so try to stay near the edge.

If you get caught there are only four ways out that I know. If a river is close and it is frozen, you can walk out along the river. If you aren't too deep, you can just pick a direction and walk. You might spend more time than you had in mind in the woods and you might not come out where you thought but if you keep to one direction, you'll always find an edge sooner or later.

The third thing that you can do is to use explosives to level a path to the edge. If it takes too long to get out this way, the path can get grown over but at least you won't get lost clearing a wide path. If you don't have any explosives, your best bet is to raid a hardware store for dynamite or gunpowder. If you can't find a hardware store, the only thing I can think of that you might do is to use old bat guano or chicken droppings which can have an explosive effect.

Chapter 3

The First Priorities

Saltpeter, which is also called nitre, is really potassium nitrate and that's about two thirds of what's in gunpowder. Saltpeter bums great with sugar and explodes with sulfur and charcoal. It also makes a great fertilizer but you have to thin it out first. If you know how to use explosives, you can find nitre in caves. If you don't, then you shouldn't play around with it.

The last way is to just find a clearing, set the woods ablaze, and wait. This way if the fire doesn't get you, shortly there won't be any forest in your way. Be careful with fire because once it gets started, fire is hard to control. If you get a fire going that's out of control you should stay away from the burning acreage. Forest fire can trap and kill you in a hurry.

The best way to stop a forest fire is to wet it down or cut it off. If much woods is on fire, you won't be able to douse it any faster than it catches so don't bother. Sometimes you can find a bottleneck where the fire can't cross a river or something and then level a strip across the path of the fire. Sometimes all you can do is go to sleep, get some rest, and hope that rain comes to put out the fire.

Water is the second most important thing in the world. (Air is most important but if you're out of air, you're out of luck.) You are going to want water to wash off everything that's ever outside. You can die of thirst a long time before you starve to death. You might go out and find that it's 120 degrees in the shade. Don't laugh, it might really be 130 or 140 degrees in bright sunlight, (and that's hot enough to fry a snake in his own juice!).

We talked about finding water at rivers. You might also find some good water in caves. Be sure that you check the rad level of water before you drink it. Water can run right through you and leave the radioactive stuff in it behind. You could do without that.

Abandoned shelters are a really good place to find just about anything you could want. Don't forget that. If you come to a shelter and it's locked, you might try knocking. If no one answers then go ahead and put a big pile of rocks on the door. This way if they're dead, they can't spread whatever killed them to you or anybody else. If they're alive, serves them right.

When you know you have plenty of water for drinking, bathing, and planting, it's time to think about food. Where food is concerned, we might as well talk about two types. First there's meat. If you don't get meat, you can't make protein. Because you are going to get at least a little radiation poisoning, you want to get down plenty of protein. Then there's your veggies. Grains, fruits and vegetables are all stuff you need to get your working strength and vitamins. Since you can grow everything but meat, we can lump all of the grown stuff together. Later I'm going to get down to cases on meat and vegetables but just now we ought to stick to basics.

You want to have fuel stored. If you don't have any then you got to get some. The best thing to burn is gasoline but it's dangerous to store. If you have a diesel car, you can store diesel. It makes lousy fires but will keep the place warm as well as run a car.

If you're on foot, you are most likely dying. If you're not dying, then you are going to. I'm telling you to get a vehicle. Drive anything you can find. There will be extra cars a plenty in the first few weeks, and nobody to drive them. Pretty soon, in the first month or so, the gas will run out. When that happens, the best thing to have is a horse and buggy. The only thing with a horse is that you will want to eat it directly and then you need something else.

If you're near a highway, you can use a bicycle. I don't personally recommend staying to the roads though. Too many transients. My advice is to go electric. There's not going to be any ready-made electricity around but you can rig a still to a turbine and get electricity when there's no more gasoline to get. You can use electricity for anything and you can make it and then store it. You can't beat that.

If you can't get any other fuel, you can always cut wood. If you forget everything else, don't forget to lay up a good axe for wood cutting. Even if you don't live anywhere near a forest, there are always trees, and furniture, and barns, and

other stuff to chop for heat. Nobody knows how hot or cold it might get after the fall. When you cut forest, stick to the heavy woods where the forest won't lose health for the cutting. Never cut out a whole area. Just thin it a little. If you can, cut dead and dying to make room for the hale.

There are about a hundred things that you will read about here that you don't know how to do. Heck, I can't even do everything we're talking about. Don't let that slow you down. Remember that everything you know got learned once. The best way that I know of to learn anything is to do it. That being the case, if you have to do it, just do it. If you don't get it right, do it again.

It's a shame but I can't hardly recommend that you try the dependable way of learning before you try other things. It's going to be hard out there, very hard. Anything that you haven't mastered could just master you. When you can't do it yourself, the next best thing is to read about somebody else that did it. If you have books, read them. In fact, protect them, defend them, and treat them like the horse you probably already ate and wish you had now. If you don't have books, find some. Books burn better than firewood so look for them in protected places.

I can tell you most of what you will need to have to do what you want but I can't give you the skill. Books can. Go to bed with a good book whenever you can but don't spend all your time reading; there are plenty of other things that will need to be done. Don't read fiction but don't throw it away. There's nothing like a good trashy novel when the bins are full and the crops are in.

About the worst luck that you can have is to have made a mighty fine fallout shelter with everything you will ever need all laid up and then to be out in the fields and a bomb falls on your head. I hope that doesn't happen to you but you can bet it will happen to somebody. Don't be shy about foraging for what some poor soul no longer needs.

If you happen across an abandoned shelter well that's fine but don't expect things to just fall into your lap. There are plenty of other places you can look for things you can't make. We can talk about the shelters first and then some of the other places where you can find what you need.

You are most likely to find all the things a body needs to survive stored in a survival home. If you come across an abandoned shelter, first make really certain that it is abandoned. Look for signs that it's been lived in lately. Either no one has been there since the bombs or someone has. If the shelter has never been lived in at all, there won't be any trash. If there is, see if anything in the trash is really spoiled bad. Look at liquids to see how long they have been standing. Don't rob a home that has been used in the last month or so. The best way to make good neighbors is to be neighborly.

If a shelter is really abandoned, take everything you can carry. Trust other folks to have ideas you never thought of. If somebody has taken the time to store it here, it must have some use. You can always throw stuff away later. When you have all you can carry, take it home and come back for more. When you have everything out, come back one last time. The parts that make the shelter work might be of some use. If you need the parts more than you need the shelter, gut it for the parts.

There are plenty of places to look for stuff besides shelters. We already talked about caves. If you're in an area that has them, they can be found anywhere that

the ground has eroded into lower soil layers. Caves can sometimes be opened accidentally when people dig or blast above them. Be careful in caves. They are dark, slippery, and generally dangerous.

Sometimes, a good thorough search can find some pretty nice gear just lying around. Be careful when you go near anything dead. Some scavengers are more than just a little vicious to the living. Scavengers and the prey they like can both carry all kinds of nasty diseases. When you go searching in general desolation or anywhere else, be sure to bring a good stout stick to handle anything small and mean that you might meet.

There may be very heavy rains. If there are, and you live in a mostly flat place, the rain might make swampy places like you would find in the Southeast. Animals collect anywhere that there is water, so these seem like a good chance for dinner but I don't recommend that you frequent swamps, temporarily or otherwise. They tend to attract the worst of disease carriers and biting creatures.

Chapter 4

Getting It Going

O.K., I told you that I would get down to cases on food, so here goes. Most anybody can raise a garden and pick veggies. At first there will be wild edibles in good supply. There isn't anybody that can tell you what to eat in your particular part of the country but if you have a nature center or health food store near you, you can get what you need to know there. Maybe there's a good book for sale or someone you can talk to. If you just go into a health food store and start talking about natural foods, sooner or later someone who knows about eating bark and nuts and every other kind of thing will show up and talk your ear off. Make some notes. On top of finding things to eat, you can get some good advice on how to grow whatever it is that grows naturally where you live. Just remember to save the seeds of what you eat.

Genuine horticulture is another thing entirely. To raise real crops, you need seed, know-how, and plenty of water. Just scratch the soil and plant the seeds. Water them in good and go back and water them again whenever you think about it. The best thing about nature is that she worked real well on her own a long time before we ever started fooling around. If you have trouble, get a good book on agriculture and go from there.

We're on agriculture so there's one more thing important to say. Some lay stock in tribal remedies and then there's others that don't. Me, I like a little ginseng, (that's 'sang), or some chicory from time to time. One thing that's sure is that you are not about to find penicillin growing up from the ground and I wouldn't suggest eating moldy bread for your health. Some of the stuff that grows in the soil isn't legal to eat and some of what's legal will flat kill you.

I'm not about to tell you how to go about it exactly, but if you're careful when you harvest your crops, and you know how to go about it, you can find some of Mother Nature's best stuff right there in your own field. When you find any little natural gift, don't just go and pick it with your food. Let a little of the late season sun fall on it and focus all that natural energy where it will do the most good.

Maybe medicinal herbs aren't medicinal, strictly speaking, (and maybe they are!), but some say they sure can pick you up at the end of a long, hard month. And you never know, if you really learned what to look for, and how to pick it, and when, well maybe there really is medicine in those friendly little patches of natural herbs.

Now lets get the meat. Anybody can fish. Just put a safety pin on the end of a string and put a piece of meat on the pin. If you don't have any meat, (which you maybe won't if you're fishing for it), you can catch a bug or two, or use a ball of old bread. If you catch a little fish, cut it up for bait and get a bigger one. You could dig worms.

If you know how to hunt, you can hunt game. If you don't know how, don't bother. Too many people waste too much time and too much ammunition in the woods when they don't know how to find anything anyway and couldn't hit it if they did. If you have firearms and ammunition, save it to defend your home. You

probably won't hunt with firearms and that means you trap or you hunt with a bow.

If you are going to bow hunt, don't forget to take more arrows than you think you will use. Woodland creatures can make a simple fool of you in the woods. Remember to stay to the edge of the woods to keep yourself un-lost. Once you can bow hunt, you can use the bow to keep wandering neighbors civil, too.

Every now and then, make up some arrows if you knowhow. For arrows you will want some good sturdy wood and maybe metal for the tips. If you don't know how to hunt or make arrows, learn. Don't ever be afraid to learn what you want to know.

If you know trapping, you can set traps and let the game find you! Just take along a little metal to fashion a snare and make sure that you hide your tracks and scent around the trap. There's plenty of good books on trapping so I won't get fancy with stories about it. Be careful of traps you have set and especially traps of other folks. If you don't trap, be really careful of them that do. Give your traps some time to work and go back and check them. Every kind of hunting works best in the winter time when game is more desperate and tracks are more clear.

If the forests are not burned up in fire storms, they will give you a lot of things that you just can't find anywhere else, like wood. If the fire storms do take the woods, and you were close enough to have any use for them, you will probably go up with them anyway. The best place to find fuel and lumber is in a good stand of trees.

So, now we all agree that trees are alright. What can we do to make them come or go anyway? Well, for one thing, you cannot cut them all down. Cut wood a little at a time from heavy stands. Save the wood in slimmer stands until it gets its growth. Be very careful with fire. When you burn off land, it grows new things better, but fire is a down right terror when it gets out of control.

It can be hard to make your way in deep forest. Stay to the edge and to the thin spots. As long as you can sight landmarks, you'll be alright but if you get in too deep, it'll take longer to get out than you thought. If you can get out of sleeping in the woods, do it. The great outdoors will never be the same once the ground is radioactive.

The safest way to cut a path through heavy forest is to clear the land and build roads. Paving discourages the underbrush from growing back and makes good firebreaks. Canals can also stop runaway fire or forest growth. If the weather changes enough, you might be stuck with woods that won't leave you alone. In desert areas, you will need to be careful with each tree.

Replanting burned out forest is a hard thing to do. It helps to replant seedlings next to the woods that are left but young trees like the shade of their older cousins to grow in. Out in the open, they look like tender morsels to grazers. Till the soil near the woods like you were making way for veggies and hope for the best. You will most often just get the veggies. If this happens, pick them and try it again.

Chapter 5

Basic Amenities

When you are all settled in and have your food, water and fuel, the next thing you might want to do is to build yourself a little cabin in the woods. Odd as that might seem, a second house is a good idea when it's unhealthy to sleep outdoors. It doesn't have to be anything fancy. Just slap together a little lean-to near the end of a month's journey. This way you have a place to sleep when you're not at home.

Of course, you will need cabin plans, but they're not hard to find and you'll want a wood pile of lumber. Someone once said that everybody should plant a tree, build a house and something else that I don't recall just now, but anyway, it's a good idea to plan for some cabins at a good distance in every direction from your main spread.

Sometimes rivers are your best friend. In the winter when they freeze, rivers make the best roads that will be left around. They lend fish and water; they can keep hostiles away from your door, but sometimes rivers get in the way. If you see something that you know you are going to want on the far shore of a long river, there's only one thing you can do—build a bridge. Bridge building takes a little skill, but it's nothing you can't manage with a little training. Just take a good amount of wood or metal to the river's edge in a likely spot and start right in. Find a narrow place if you can and don't expect your homemade bridge to last forever. Heavy rains, most especially if the weather is rainier because of the bombs, will likely wash out your work, but once you know what you're doing, you can just build them again!

Dams are just a little harder, but they are rewarding to build and they can come in handy. When you dam a river don't expect to be able to cross afterward. What you need to do is to make a wooden dike most of the way across the river. This won't stop the river but it will speed it up a bit where it passes your dike. If you think that this is useless work then you've never seen a waterwheel.

Don't expect any Hoover dam though. Let's say you try to block the river completely and let, oh say, just a little culvert stay there for the river to go through. This sounds real good. You make the most of the flow and you get a good place to put a real turbine generator. What happens is that you just ask that river's power to wash away everything that you made the first time you get a good rain. Better to bargain with the power of the river for a little loan than to try and steal the whole load.

Now we are going to talk about some of the fancy comforts of life that you thought you'd have to kiss good-bye. With some honest effort and a little scrap metal, your little dam can make fresh running water and genuine electricity. And that's just the half of it. If you work it right, you can get these delivered right to your door, just like clockwork. All you have to do is to get the power of that old river working your way.

Once you have a backup in the river, all it takes is a little time, patience, and skill to make a metal trough that can take the water right to your cistern. Now

you can get it at home whenever you please. And there you have it, fresh water delivered to your door every single month. When you get things moving, you are going to want plenty of water for irrigation and to wash up the terrain around your home. Sometimes you find hot spots where the radiation is high. When you come on one of these, you can use some of your cistern supply to wash out the area and make it safe to travel through. Of course, you can't expect to do fancy jobs like these if you have to go and fetch water from a river every time you need a drink.

Another thing that you want plenty of is fuel. Fuel is power for everything you want most to do and you just can't have too much. It's not much harder to send fuel to your shelter than it is to send water. You just make a waterwheel at the place where the water runs fastest. If you have enough backup to get a little fall, you can make an overshot wheel. If the water is fast but there's not much head, then you are going to want an undershot wheel. Now you have motion that is as easy to use as that culvert that I told you wouldn't work and a waterwheel works just dandy anywhere there's a good flow.

To get power from the wheel, you just need to make electricity. Almost anything that uses electricity to work can be rigged to make it instead. Sometimes you need to do a little tinkering with the armature and maybe play with the field coil but if it was a motor, it can become a generator. Try to find motors from cars, or even better, there's a car part that's a generator already. If you want to do it the easiest way, old cars use a generator that will make 12 volt electricity when it turns. (Newer cars use alternators which are worse to start with than house fans.)

Check the little light on the dash and if it says 'GEN' you're in business. You might have more luck with trucks than cars; they tend to be used longer and use older ideas. Car starters can make great generators too but be sure to get the block with its crankshaft and flywheel and all. The starter has a little gear on the end that's hard to get to without the larger flywheel gear.

Any motor that was used in a home was built to work on the wrong kind of electricity, so you will have to fix the armature to make D.C., but it's not as hard as it sounds. Just pick up a good book on electric power and apply a little elbow grease and ingenuity. You can wire your house with 12 volt lighting and power anything that would use other fuels with the most useful kind of energy ever tamed—electricity.

Before you get started on a big waterworks or hydroelectric project, you might want to check the dam you are thinking of using to make sure that it isn't already working for someone. You could go ahead and build a new aqueduct or generator, but don't expect one little dam to work harder than it can. If you use someone else's mill to do your work, you might expect them to be a might upset when it stops doing theirs!

One more kind of power needs to get talked about. All of the electricity you can lay hands on won't be enough if what you want to do is level about a hundred acres rough terrain in a month or so. For the really heavy work, there's only one kind of power to use—explosives.

About any fool can blow things up with enough explosives but it takes some education to leave land flatter than when you found it. If you can get your hands on some good explosives, one good use for them is to level areas that are too craggy to pass or too wooded to track. Be careful though, high explosives are

dangerous to use. It's a lot easier to blow up one little idiot than it is to level a dozen acres of land, and that's the kind of thing that you only get a chance to do once. Leveling land is about the only thing that you can do anywhere with just explosives, but later I'll tell you about some other interesting and attention-getting projects that use powder, nitro, gel, or dynamite.

Chapter 6

Making New Friends

We'll, if you don't know by now that a body can live pretty well just about forever on what the land has to give, you haven't been reading. Go back and start again at the first. If you have paid attention, you probably noticed that we have been talking about you mostly as though you would be the only person left on earth. Maybe you will have to live with that but I would bet against it. More likely there will be others around and they will need to be thought about. First off, start right now by thinking of each new stranger you meet as being either a friend or an enemy. If you follow the things in this book, you will have a nice little nest for yourself.

People who are likely to be friends will want to share that nest with you. They will likely have their own skills to add to what can be managed. Two heads are better than one. If they are alive, you can bet that they know something about something. Even if they know precious little and can do nothing at all, they will make better company than your shadow ever did. If you get off to a bad start with a friend, you might just get an unneeded enemy.

If you're lucky, they know a lot. Maybe they have a spread just down the road and are itching to trade. I heard there's a pre-fabricated shelter you can get that comes with some darned little robot right out of Battle to the Stars or something. You just push his button and he takes stuff anywhere you tell him. If you've got robot butlers out of some science fiction story, you most likely don't need my help, but who knows.

On the other hand, there will be some who would rather take than share your nest. Start thinking right now that these are going to be your enemies. Might be that you never had an enemy before, lots of people get by just fine without them. If you need a lesson in enemies, good, because you're about to get one.

There's this fellow. If he is stronger or faster or better armed than you, he will hurt you, maybe kill you. He will take whatever he wants from you and leave you for dead. If you turn your back, he will hurt you. If you seem like a dangerous person, he will hurt you. If you seem weak, he will hurt you. If you don't hurt him first, he will hurt you. Your life depends on him not doing what he has on his mind.

He probably isn't awfully mean or ugly or anything that just jumps out and says, "Hey, look out for me, I'll kill you!" He probably looks more like anybody else than anybody. That's his advantage. He most likely doesn't hate you, might like you if he got to know you real well but that won't happen. Maybe he is just too hungry to think of your side of things. Maybe he has seen too much to care anymore. Maybe you're the first person that he's seen in a year and he's more scared than you. Maybe he's really a nice sort but he thinks that you are the kind of person that we're talking about here.

Whatever his reason is, this old boy will cause you harm if you do the wrong thing. Are things starting to look kind of dim for your chances? If they are then you are beginning to see why you need to know this fellow before you meet him.

There aren't a lot of constructive things that you can do with a person who wants to kill you but there are a few. Just as surely as it's a lousy idea to make an enemy out of what might have been a friend, it's a real good idea to make an enemy into a friend. If you can't do that, you can always kill the son-of-a-gun.

What I'm getting around to here is that there are some things that you can do to be friendly to friends without encouraging enemies. First, be stronger than you are pretty. I mean stay well armed. Keep in good health. Treat strangers with respect and caution but show them some hospitality. Never turn your back on anybody. When there's nobody there, don't turn your back on the woods. Keep well stocked in case there's a siege. (That's when folks outside are just waiting for you to get into the open.) Have something to offer that doesn't have to be taken by main force but don't ever let anybody know where your supplies end.

This is probably all pretty scary so let's look on the bright side for a while. If you make the acquaintance of one person, try to make the acquaintance of another. Two well meaning people can most often keep one slightly greedy one in line, and we all get a little greedy from time to time. Make rules for what is friendly and don't go back on them. Trade what you have for fair value. Join to fight the elements and anybody who seems hostile.

Look for the things that tell in a good person. If they are trying their level best to make what they need, they are probably more use than harm. Make sure that they have a home that they like as well as yours. The kind of world you will be in is not one where guests are going to be comfortable for long. Be careful of drifters and anybody who has interesting stories about all the places they've been. Chances are there is a good reason they never settled. Some people are just down on their luck. If they need help, show them all that you can spare and then some. If you give folks a chance to be a friend before they have a chance to be your enemy, you will head off most problems before they have a chance to get rooted.

Now that you have had a peek at the bright side, we can look at the rest. There are going to be bands of scavengers that roam the countryside looking for anything that turns up. If you go out right now, before any bombs fall, to places where the law doesn't seem to go, you can get a good look at them. Law abiding folks need their governmental agencies, **but** criminals don't use our society-they got their own. When we haven't got any law at all, the scavengers will have a big social head start. Just think a while about a street gang or a drifting bike club.

There are whole national organizations devoted to people who don't fit in anywhere in society-people who don't like it here and now. Wherever you see these people one thing always hits you right off. They make their own rules and they try them on everybody they meet. Whenever their rules are tested, they get real surly. They usually honor strength above wisdom, courage above common sense, and conflict above cooperation. Within their circle they might be loyal and trustworthy but they are vicious to outsiders.

If you need to get to know somebody, the first thing you should find out is what is important to them. When you run across people who honor strength, courage, and conflict, you had better be ready to show them a healthy dose of all three, often and with high spirit. Don't be afraid to fight when you can. Be direct. Go to them.

Mostly, be more prepared than they are. Strength, courage, and conflict don't make much space for planning. It's said that strong fences make good neighbors.

I suppose that bad neighbors need fences that are a might stronger still. Explosives make land un-level even quicker than they settle it out. Don't be shy to carry weapons and ammunition; you are the **best** law you've got. Be ready with something useful or attractive to trade. Most wanderers respect barter.

When you go to trade, make sure that you have other things to try if that doesn't pan out, and I'm not talking about just running away. It's usual for people that don't think too far ahead that they're attracted to simple, flashy things. They aren't likely to **be** able to make or keep anything of good workmanship. Anything that's not simple and plain is going to seem like great guns to drifters.

That brings us around to a little known truth about folks who don't settle. It always seems like they follow whoever is most impressed with himself. If you look at this in the right light, you can see some things that will work particularly well with drifters. Try approaching their leader. Get that leader off to the side for a private talk.

Chances are that he (or she) could use a little extra status. Chances are that he might do a deal for some little thing or other that nobody else has. In case you might be kind of slow on the uptake, I'm talking about bribery. With some quick hand and fast talk, you might just make a friend of that not-too-complicated fellow, at least for the time being and that's good enough.

So, it's trading time and you have your other possibilities all laid out and ready. What do you trade and what do you get? Here's where it pays to keep your eyes open and your mouth shut. Don't talk to anybody but the boss. Don't show your stuff off but make real sure your weapons are obvious. Don't look mean, just quiet. Wait for them to make the move. If you do it just right and are mighty lucky, they'll bring their stuff to you. Now you know what you're dealing for, and that's how keeping your mouth shut pays off. Look the leader over real good. You know that he gets the best the gang has, so he can tell you just what they need.

First off, don't expect that they will need anything that they give you for trade. If they were short on it, they wouldn't be trying to pawn it off on you. Even if all the signs say they need something, if you see it in their discard pile, they'd rather you gave them something else. If you load them up on more of what's in their trading pile, they will most likely charge you in the balance for giving them more to carry, and you can bet that they won't call that a favor.

Look at the leader's mouth first. If his expression is ruthless, and he has that kind of wicked smile you sometimes see in bankers, forget his mouth, **but look** real good. If his mouth is a little dry, maybe the gang is short on water. If his mouth is more like parched, you know they could use a cool drink. If there are little cracks in the lips and he keeps clearing his throat, he's either been drinking Sterno" or they will take all the water you can give them.

Now look at his skin. If his body is hard and he seems strong, they're most likely eating a well balanced fare, but if he eyes are a little sunken, maybe he could use some veggies. If his gums are bleeding, either he's been biting the tops off of beer bottles or he would just love some greens. If his nails are bleeding, sell some veggies and go back for more.

How is he handling the weather? If he looks a little tired, he may be pushing his wagon. If he is shivering, he might like a warmer fire. If his shoes are worn off, he isn't riding. If his teeth chatter a little between words, he might could use fire

wood. If his lips are downright blue or his feet are bleeding, give them all the fuel they can carry and go home for some more to bring back. Usually foragers can find more fuel than they can burn but you won't know for sure if you don't check.

The real trick of trading is in the little things. If he looks like he might be a tad under the weather and you have a few herbs set back, show him how to make a tea or maybe a poultice and hand off a handful of herbs. If he is really sick, he really needs your great and legendary medical skill. If he's on his last leg, you could make a friend for life with a little first aid.

That's how keeping your eyes open pays off. Well, you know just what they need and what they have extra. Now you need to guess how much value they put on each thing that's on the table. If you don't offer enough, you can bet that you'll get their dander up. That will be your last chance to trade today. If you give too much, you are going to look like a fool. That might get you through the trade, but it might just make it harder to make a better deal the next time around and it surely won't win their respect. If you drive a hard but fair bargain, you might just get their respect but scare them off from a deal the next time around. Try for a bargain that they like, but not too much.

That's the easy part. The hard part is to load them up with just enough of something so that you still have some left for yourself. These are strong people but that doesn't do much for their brains. You don't need brains for most things if you're strong enough but in swapping, it's the brains that count. If the gang is short of something and feeling it, it's likely as not that the biggest pile you can make will look the best. With luck, next time you trade, they will have most of your stuff on their discard pile. That's not your problem. Look for what they needed and you didn't have this time. Make a trade and then go home and load up on what they really need. The big secret of a swap is to know what that fellow wants before you come to the table.

If a gang knows how to use explosives, they will always have plenty. If they're short of food or water then they won't think twice about trading play stuff for essentials. They might have scrap metal they don't know how to work. There should be plenty around for scavengers to pick up. If there are woods around they might be carrying lumber. Trading for it is pretty likely to be less work than cutting it for yourself. Who knows, if you trade with your head, fight with your heart, and bribe when you see a chance, that gang might just make you their leader.

Chapter 7

Rainy Day Activities

You know there are going to be times when you don't want to be outside. Maybe the winter months will be colder than anybody's ever seen. Maybe summer days will be intolerably hot. Sometimes there will be storms and they might be a sight worse than you're accustomed to. Anyhow, when you look around and see that it's going to be an inside day, don't let that day get wasted. There are plenty of things to do at home.

We've been talking about skill this and skill that all the way through here. Well a rainy day is a fine time to catch up on your reading. There's no telling what you can learn until you read about it. The more you learn, the more you can do. The more you can do, the more comfortable you will get. I guess it's a fact of life that folks work all the harder *just so* they can rest.

When you don't have all day to read, take a good book with you to bed at night. Reading's not sleeping but it is restful and you get some education in the bargain. In fact, most everything that can be done indoors can be done a little after dark and maybe into the night some. Just you keep a fire going.

Everything that can be-can break. Most everything that can be-can be made better too. If you don't have a good hiding hole to sleep in, well then make one, and there's no better time than rainy weather for indoor work. If you got the best place around, keep it in good repair. If it needs it you can always fix your home. When your home is all fixed up, then you can fill your time making parts for when your home needs fixing again. Making plumbing fixtures and such takes more skill than putting them in, so if you might think to brush up on metal working and such, any chance you get.

When the work is done and everything is in top shape, it's time for arts and crafts. Someone once said that science is the study of what's useful and art is the study of everything else. In my mind, there's a little science in everything and a little art in everything good.

You can make cute and interesting things that have artistic value, especially to the simple mind. As an example, if you have some mechanical parts around and you know how to make clockwork things, you can build a little mechanical-do-itself machine that looks busy and doesn't really do anything at all. Because it is useless, it is high art!

With a little saltpeter, maybe a little sugar, scrapings from copper, nickel, or about anything else, and a little know-how about chemistry and physics, you could whip up some dandy fireworks devices. Fireworks are the kind of goodies that make friends and influence people. Everybody likes a show.

Welding is a craft that you will want to know. If you have electricity, it's easy as pie. If you don't, you *could always* char up some wood and use air blown coals to forge weld. If you could take two pieces of metal that matched exactly, and if they didn't have any rust at all on them, when you pressed them together, they would stick. I mean that they *would* just turn into one piece with no seam. The place where they joined would be as strong and useful as the rest.

You can't really do that. The air always oxidizes metal a little the very first moment it is in the air. This little bit of rust is all it takes to keep the metal from sticking. So what you need to weld metal is to get that oxide off long enough for the metal to stick itself. Heat is the best way to go about getting the oxide free. It also doesn't hurt to add a little something to grab the oxide and keep it off the metal.

Bright off, I can see four ways to get the heat that you want. First is flammable gas. Propane, acetylene, and hydrogen burn hot, and if you mix straight oxygen with them they burn even hotter. If you make a flame that has more gas than oxygen in it, the extra gas keeps oxygen from the air off of the melting metal so it can stick. The shame is that it's easy to make these gasses but it's kind of hard to pump enough into a container to make it useful, so we most likely won't have gas welding to use.

You could also maybe thermite-weld. This is a way to weld great big pieces of metal like the hulls of ocean-going ships. Thermite is just aluminum powder mixed with iron rust and maybe a little iron fillings for extra metal and magnesium dust on top to get it started. Thermite is a chemical welding. When this mix gets hot enough, the oxygen from the iron rust rusts the aluminum. This makes a lot of heat and the iron that is let loose from its rust is molten and it flows.

Because the aluminum like oxygen a lot when it's hot, it steals any rust on the metal around the thermite and there you have it. The melted iron fixes to the iron around it. Because the aluminum and aluminum oxide are much lighter than the iron, they float off and leave a pretty weld. There are just two little problems with thermite. One is that it takes a lot of heat to start it going. If you have that kind of heat, you most likely don't need the thermite, so this is not a kind of welding that you are likely to need.

The third kind of welding is electric arc. What you do here is to get a circuit flowing through the pieces that you want to weld together. At the other end, you want a thin piece of metal that you can 'bum.' Somehow you have to use flux to keep the oxygen off of the hot metal. The best thing to do is to melt borax (the 20 mule team type is fine), and dip steel wire in it. The borax cools on the wire and keeps the oxide off of it.

Fence wire works real fine for this but make sure that the wire is clean and bright. Some kinds of wire (like the kind that makes chain link fence), is coated with zinc to keep oxide off. The zinc will get in your way when you weld, so rub the wire bright and clear of any coating with sandpaper, concrete, or just gritty, dry dirt. The borax coats the wire and when it cools down it keeps air off of it.

Even fancier, when you strike a spark, the heat of it melts the borax. Now it runs down around the metal you want to weld and keeps the air off of it. Under this puddle, metal can stick with no oxygen to get in the way. The trick to arc welding is to make a spark keep going. If you hold the stick against the metal you want to weld, the whole stick will melt because it is the thinnest part of the circuit. If you let the spark get too long, it will go out and you will have to start it again. It takes some knowledge and skill to arc weld properly but there are books that you can get.

The fourth way to weld is to just heat it all up and use pressure to push the hot metal together. The way you get pressure on the metal is to hit it with a hammer.

To forge weld, you need a hot fire that makes extra carbon dioxide. This is a kind of smokey coals that are real hot. You can get this by burning charcoal in a strong draft. Put the metal you want to join together in the coals and when they are bright orange, take them out and beat them together. Because they are real hot and the carbon dioxide keeps off the oxygen, the metal will stick right together.

Once you have read up on welding and know how to use heat to join metal, you can make crafty things with scrap metal in your spare time. Goodies like this keep good and can be left outdoors. You can make them up out of any interesting metal junk that you can't find a useful purpose for.

Weaving is another thing that you can do at home when it's bad outside. Cloth is made by weaving and you are going to have to learn to make it sooner or later because there aren't going to be any dress shops. To make cloth, you will need a spinner and a loom. You spin whatever you want into thread and then weave the thread into cloth. Then you can cut the cloth up and sew it into whatever you want.

Tanning is actually better for strong clothes, but there are lots of other things you can do with weaving skill. You can make baskets and mats out of weeds. You can even weave awnings to keep the sun off and rugs for the floor. Something artful you could do is to weave a basket out of flowers and spices. In some primitive places, they make baskets like these and bum them as medicine. Even if, as medicine goes, you don't take stock in basket cases, you might find those who would like such goodies as flower baskets.

Once you know how to cut wood into any shape you want, you can make all kinds of things. You can carve a nice bedstead with your own hands. You could make furniture. You could make bowls and platters. You could fix your plow handle. One thing nobody should be without is a good sturdy cart. Wooden carts with metal shod wheels can go most anywhere you can walk. They help you to carry heavy loads a lot farther than you would ever want to carry them.

The secret of a good cart is good axles with well greased wheels. You can make a bearing from almost anything as long as you keep it rolling in heavy grease. Be careful with any grease you have on hand; make it last as long as you can. If you run across abandoned cars, get their back axle and wheel parts to make carts with later. When you run out of manufactured grease, you can boil animal fat until it gets mighty thick and use that.

Once you get the hang of making carts, you will want to make one up every now and then. With anything you hand craft, there is always a little space to improve it. About the time you get one done, another good idea will come up that you want to use. If you end up with a couple of carts laying around that are not really up to snuff, you can pretty up the worst and maybe give to passing travelers as a gift. You see, there's a useful purpose for everything.

Get used to it right now. It's not going to be easy to keep up on things. With the tools that will be left the day after the end, you will need all the wile and guts you've got. Make each day a step to the horizon and don't waste any minute you could put to good use. When every step you can manage is behind you, take that time to do something pretty for the world.

Chapter 8

Bending a World to Your Wishes

So far, we have talked mostly on how to live in the world you find. Now we need to figure out what you can do with the world. Once you have whipped fate for your basic needs, it's time to look for a little comfort in your life. There's no need to settle for a mean and low lifestyle when all the world is your oyster.

The first thing that you want to do if you're really serious about comfort is to select a good homesite and design a home with a good view. Pick a spot more or less near to water, but not so close that the river will crowd you later. Don't get too close to hard and impassible ground, but look to these spots as part of the wall of your finished castle. Think of where your fields will be. Cast your mind's eye on the site of your personal forest park. See the roads and canals radiating **out** to the horizon in every direction. You can be the master of everything you can see.

When you have your site all picked **out**, throw together some lumber and make yourself a cozy little cabin. This is a start but you are going to need more than a lean-to if you want true satisfaction and a really good place to live. To make a shelter out of a shed, you need a goodly amount of shelter parts. You should plan for air exchange, heating and cooling, a wash-down tub, and a secure garage, at least. Just get the parts together and use any shelter you have seen as a good example for your plans.

When you know where you most want to live, it is high time you thought about your irrigation plans. Most things that grow do **best** in moist, warm soil. Land near a river stays cooler in the summer and warmer in the wintertime, and that makes water a first friend of growing things. You can expect that fields, crops and forests near the water will grow much better than things that you plant out in the middle of nowhere. When you plan your irrigation ditches, make sure that you leave room to draw a cart between the rows.

Canal digging, like most of the real land development you can think of, takes a goodly amount of nitre and more than a little work. Be mindful of what you cut off with your man-made rivers. It's not so hard to walk around the headwaters of a stream, **but** crossing one usually takes a bridge to do. Once you get canals where you want them, fishing won't be hardly any trouble at all and you can reach down for a drink wherever you are.

Craggy land can be considerably hard to get across. It's not much different for those that would raid your spread. Roving hordes aren't hardly liable to cross craggy land **when they** can just go around. If you fence around your land by wrecking flat land, you will help to discourage unwelcome company. Make sure when you fence yourself in that you keep two things in mind.

First, don't be so hasty to cut off the world that you fence nomads in with you. Once you rope off your land, anything inside is going to be mighty tough to do away with. If you aren't careful of who's in there with you, you might just buy some permanent problems.

Second, don't be so hasty to **cut** off the world that you can't get out. There's bound to be something outside of your personal paradise that you come to yearn for some. If nothing else, you never know when you might need a refresher course on some of the skills you have learned. When you take a liking to something outside, it will be mighty handy to have a way out. A long and winding path through a somewhat hostile place is the best way I know to discourage lazy drifters.

The earthquakes that come along with the bombs might well wreck anything like a road, but there's no reason you can't just build them again. Like every other leveling job, road building will take some explosives. Hard pack is likely to be just fine for any vehicles around. Plan to **use** plenty of fuel grading, though. Well laid roads can raise your top speed when you travel and they save a lot of fuel. Of course, you should know more than I can tell about civil engineering **before you start**.

To round out your store of earth shaking skills, you need to get rivers out of your way. Rivers are mighty nice when you need meat or drink but they are liable to be discouraging to travel. If you want all the benefits of some river but don't want it in your way, you have just one thing you should do-bury it. Cities **bury** all their rivers. Most all the water that falls on a city needs to be carried away. What's more, humans tend to foul the water they use up mighty good and that water needs to be moved separate from rain runoff. What you need to do to civilize your rivers is culverts.

To build a culvert, you need training in civil engineering and also in water constructions like mills. Start with wood shoring and divert the river until you are ready to send it underground. Set up the diverted channel with a pile of earth and rocks to block it off when you're all done. Then just make a metal channel and cover it back over with enough earth to stop runoff from making a new river path on top of your culvert.

Now you can blast the diversion channel closed and, pretty as you please, the water will run underground. Now level the diversion path out like it was before and you have yourself a tamed river. Better plan on building some excavation and dredging machinery which will need parts. Also bring a lot of explosives, a whole lot. You won't be able to build your culvert unless you can get back and forth across the river, so you should plan to build a bridge as a start and begin the work from there or you should do the work in the wintertime.

Well there you have it. I could probably do this forever but maybe not and give you much more. The hope of a good future depends on who survives the present. Whether you prefer to think of it as part of God's Plan or Evolution in Action, as sure as I'm Rusty Bucket, nuclear war is going to be the biggest stile we ever jumped. I hope I live through it and I hope I see you on the other side. Maybe someday we'll all look back on this and laugh. But for now, if I were you, I'd read this book again.

REPRINT

Jesse is a tad bit hard to follow sometimes, but he just might know more about what people do to each other than any other man alive right now. He has been living in the hills, just growing corn and raising pigs, since he got his Master's Degree in Society a few years back. I had to walk to his house so I could get his go ahead to put his master's work in my book. Get out your dictionaries; this paper is required reading.

A Brief Dissertation on the Priorities and Habits of Post Nuclear Holocaust Tribal Congregations and Their Interaction with Individuals, As Differentiated from Current Social Trends

By J. Pointdexter Especially

Introduction

In order to fully understand the world which would succeed a nuclear holocaust, we must first examine the pressures that will conspire to create such a world. It will be of primary importance to determine who will survive the first few days. We will then continue by discussing the environment that these initial survivors must master in order to succeed for appreciable periods. Having established who among the initial survivors is likely to remain and compete, we will then discuss the probable nature of the competition for available resources. The competition and demise of the most aggressive will be discussed first, followed by a discussion of adaption of competitive techniques. Finally we will discuss the likely nature of the social structure within remaining groups and their possible interaction with remaining isolated individuals.

In the advent of a major nuclear cataclysm, severe tests face each individual and only those who meet each of these tests successfully will survive and contribute to the essence of the new structure. The diversity of these tests suggests that any individual capable of surmounting them all will have been so universally qualified as to be easily identifiable by virtue of their understanding of the nature of the tests.

Let us begin this examination then with some insight into the initial stress. Any severe stress will, in healthy human specimens, cause an immediate increase in adrenaline levels. At the simply metabolic level, blood sugar increases, heart rate increases, circulation is increased to the torso and decreased to the limbs. These accommodations have the common effect of enabling a dramatic increase in the physical capabilities of the affected individual. Any such affected specimen should be expected to strike harder, run faster, and come to decisions more quickly and definitely. The individual will, it can be argued, immediately prepare for life-preserving activity at the base organic level.

At a more sophisticated level, the individual will be faced with a decision as to how to apply this temporarily increased facility. By virtue of the nature of adrenal effect, decisions so made will be definitive, conclusive, and usually dramatic. All meaningful decisions which meet this criteria will qualify as either confrontation or evasion, or more colorfully, 'Fight or Flight' reactions. Decisions following extreme environmental stress are necessarily made in the presence of an adrenal effect. (For individuals for whom this is not so, survival is, unfortunately, unlikely.) Assuming that the environmental stress of a full-scale nuclear exchange will be adequate to cause the demise of a large majority of the population, only those who most appropriately apply confrontation and/or evasion are likely to survive. For those choosing confrontation, this implies great physical strength and a high degree of aggression. For evaders, it implies wisdom, guile, and subtlety. It may be safely assumed, then, that only the very strongest and the very craftiest will survive and that the leadership will consist of exceptional individuals in both categories. The social norms which are assumed presently would scarcely apply to this aggressive population of paranoid individuals. A strong sense of extreme insecurity would likely pervade the population.

Before understanding this insecure and aggressive personality, one must critically examine the environmental pressures at work. Although an in-depth treatment of any distinct aspect of these pressures would be beyond the context of this treatise, a general overview is certainly in order. Many of the past studies of post nuclear populations are so old as to be meaningless when considered in light of the current population distribution. Early studies assumed that population centers would be the primary targets for nuclear delivery and that rural sites would be the safest and most survivable places. Though these studies were doubtlessly accurate at the time, variances in population distribution, delivery systems, and construction of the weapons themselves must cause one to reappraise the findings. Current speculation should put the 'example survivor' of a major exchange in the outlying suburban area of a moderately sized city.

It is the sub-suburban environment that should be investigated if one is to hope to encounter the median candidate for post-nuclear preeminence. It is the initial environmental pressure encountered in this area that needs to be examined. One popular model presupposes first strike airburst. The major effect of such a strike is the possible complete dysfunction of electronics and electricity which implies the cessation of all transportation and communication, perhaps for an extended period. Following this strike, low altitude bursting of hydrogen weapons are expected. This could cause severe shock damage, direct heat and radiation damage, destructive wind, and upward displacement of super-heated matter which will later descend as 'fallout.'

In the area outside of the total kill ring, significant population will exist. This population will be within reach of a per-capita per-acre food supply of much greater magnitude than will exist in lower population areas. This larger body of available foodstuff can be accounted for by two factors. Primarily, nuclear devices are more effective against population than against their available stored food. Additionally, greater competition will diminish the remaining population. That which has been discussed to this point clearly supports that the most stringent survivable selection process will occur where continued danger from radiation and architectural deterioration are most marked.

The Hordes

Inevitably, the competition for available resources will exhaust all expendable ammunition; in fact, all tools available for competition any that are adaptable to survival needs will be expended. Likewise, medicines will be gone, consumed no doubt by radiation sickness sufferers. Much of the available resources can be expected to be similarly wasted in panic and despair. Having exhausted local resources and finding themselves alive but in close proximity to deadly primary radiation from bomb blasted cities, these deadly achievers will move outward.

In family and later friendship groups, the successful survivors will have banded into mutual defense groups. One can expect the internal social order of these groups to be primitive, probably along lines of aggression more than wisdom or any indication of supremacy and qualification for leadership. In time, this condition can be expected to change, but in the near aftermath of nuclear exchange, strength will be the most useful individual attribute.

A model is suggested that depicts these bands roaming the rural countryside, scavenging and looting, resembling nothing so much as the traditional representation of the primitive hunter-gatherer groups. As such a band becomes increasingly adept at adaptation, it may reasonably be expected to become somewhat more self-secure and therefore somewhat less aggressive. Attrition of population will, after all, have reduced environmental pressure.

Once the horde group is ensconced, it will effectively prevent social reorganization along the traditional lines. It has been established that even without the complete breakdown of a society, when social order weakens, the strong and aggressive move to rule their fellows, supplanting any existing order with their own. The Nazi movement in World War II Germany is a clear example of this behavior in an environmentally pressured society. If no outside agency intervenes, the horde group will not only become the dominant purveyor of social order, it will also systematically eliminate any advocacy of social reconstruction by elimination of the advocate.

The priorities of this new independent band must necessarily be accepted as being widely divergent from that of present cultural norms. Fuel, meat, foodstuffs, medicine, water, and ammunition will be its staple needs. Beyond these, a group such as this will disdain pleasantries. Sophisticated items of culture are likely to be little more than curiosities to its members. Icons of prominence, perhaps.

It would be unrealistic to expect these hordes to be composed of what one would consider to be sane persons. Each member of such a band has proved to be paranoid and ruthless and has survived radiation exposure both initially and on a continuing basis. Little hope for the future lies with these bands; the members are likely to be sterile or the parents of badly damaged offspring. Nonetheless, these 'super-survivors' are likely to comprise the bulk of the post-nuclear population.

A few others may also have survived. If the atmosphere is not too hazardous for too long a period of time and if they are not discovered and attacked in the initial fury of competition, some may survive in shelters. It will be with those who have planned well, not those who have competed well, that any hope for the future lies. If, somehow, these preservers of conservative restraint can survive their exposure to the warlike outdoor survivors, they may bring balance and

prosperity to the nomadic hordes. If these careful planners have preserved the knowledge required to rebuild the pre-nuclear exchange world, there is possibility that our culture may once again flourish.

Horde Interaction

How then is the shelter dweller to best encounter the nomadic hordes? Each will have tools and capabilities that the other desperately requires. They must, therefore, form some form of trade relationship. However, if there is to be synthesis of the shelter dweller and the wandering horde, both must survive the encounter. Aggression and the immediate expenditure of all available resources can be predicted to be the norm within the horde. Extreme rationing of all available resources will be the norm for the indoor dweller. The horde dweller is likely to be, by far, the better forager, while the shelter inhabitant is likely to be better at producing industrial and agricultural products. To gain the respect of the hordes, though, the shelter dweller must make use of stealth and guile; balancing elements of respect, attraction and friendship while fostering all three. If the 'indoorsman' fails in this undertaking, he is doomed. He will be facing superior numbers and superior training. There are several approaches to the control of a relationship between the hordes and the shelter dwellers from the perspective of the shelter dweller. It behooves us, therefore, to continue from the perspective of the shelter dweller.

One of the most effective ploys available to the shelter dweller for the management of a relationship with the hordes, is conflict. Of all options, this will be preferential to the hordes. It is the encounter with which they are most familiar. If the respect of the hordes is not won by the shelter dweller, they will show no restraint and no mercy. To effect this transaction, the shelter dweller would naturally wish to be armed in a superior manner. Single use ammunition will, by this time, be completely exhausted so the preferred ammunition is likely to be the bow and arrow. Without sufficient ammunition the shelter dweller is disadvantaged by the superior tactics and numbers of the horde. He would have no hope. By showing force on occasion, the shelter dweller will, no doubt, gain the respect of the hordes. This he will earn at the cost, of course, of friendliness and attraction.

Another option is outright bribery. By default, the shelter dweller will be possessed of superior technology and possibly advanced production skills. This makes possible the production of 'goodies,' items that the hordes could easily consider symbols of former status and highly prize. Given these speculations, the shelter dweller might do well to carry the products of whatever art or high craft he has developed. Bribery, although it may prevent outright rout by a passing horde, is not a perfect solution to the social interaction needs between the two survivor types. Bribery will increase attraction in the hordes and will probably also increase friendliness. Fed with such 'relationship-sweetener,' dominant parties in current systems return again for the 'sugar.' That return will be moderated by attraction to the bribe and reluctance to frustrate the briber. Bribery can naturally be expected to diminish the respect of the horde for the briber.

The third option available to the indoorsman is some attempt at a trade agreement. Of the available options, this is likely to be the most productive. If trade is to be considered attractive to the horde it must also be in its best interest. It is an

underlying assumption that the horde may, at its option, simply take what it requires. Bartered trade, on the other hand, suggests the availability of produced goods which the shelter dweller can make available only if he is able to survive for future interactions. In some instances, trade may take much the same aspect as bribery for the horde. It might seem at first to be most productive to make any trade as favorable as possible, but respect must be considered if any care is given to a well-rounded response from the horde. Trading has the possibility of detriment to the reputation of the shelter dweller if too much or not enough is offered in trade. The benefits to be derived from mature and careful trading are, however, more than adequate to compensate the possible dangers. It behooves the indoorsman to keep and carry stock in primary staples if encounter of a horde is anticipated.

When all else fails, there is one advantage left to the shelter dweller. Any individual may escape from a loosely knit group if he is willing to use due stealth and to travel as light as possible. This implies that the shelter dweller will need to leave behind as much as he can when fleeing from the hordes. This will be seen as a victory by the encountered horde and so can be expected to increase their attraction on future meetings. It can also be expected to detract drastically from their respect.

Summary

So it is arrived at that all available options when interacting with wandering hordes break into four distinct categories: bargaining, conflict, bribery, and flight. Of these four, bargaining holds the most danger and offers the greatest profit, both in materials gained and in reputation with the membership of the hordes.

Of the possible categories of trade goods, the most likely to be of primary interest to the hordes is actually of little real use. The fact that one can afford to indulge in useless items of aesthetic value is a mark of affluence in all societies. Therefore it is reasonable to assume that, on a per item basis, 'goodies' (or better stated-non-essentials) of various types might well be worth two to three times the value of such staples as water, meat and vegetables. Metal, wood, parts, minerals, and similar goods will have little usefulness to groups that are able to adapt available materials to their immediate needs.

The most hopeful scenario conceivable for the development of a new society is the possibility that the strength of the horde population will be merged with the wisdom of some few shelter dwellers to create a symbiotic relationship which limits the chaotic violence of the horde groups. Only on this foundation can reconstruction begin. Such an interrelationship could provide an augmented supply of goods for production to the sole remaining agent capable of acquiring fuel, water, and agricultural products to the informed and prepared shelter dweller. The skills of that shelter dweller could be applied to enhanced medical care, effective agriculture and husbandry, crafted item production, and other industry requisite products which the hordes might find useful. Through this symbiosis, each group has insured its dependence on the other by simply allowing the relationship to continue to exist. This phenomenon is self reinforcing, self perpetuating, and self limiting.

Conclusion

Throughout history, social groups have looked to the strong for leadership in times of extreme environmental pressure and to the wise in times of relative peace. In the model of classed survival and symbiosis between the two varieties of survivor, it has been seen that extreme environmental pressure can limit available options, or even more importantly, the perception of the availability of options by those thoroughly subjected to stress. In such stress, each group will first discriminate against anything even slightly dissimilar to itself and attack anything that does not accept its self imposed internal order and law. This adrenal tunnel-vision is the driving force behind lynch mobs, units of organized crime, close social cliques, and all other paranoid and/or isolationist groups.

Although this depiction has been expressed in terms of the horde sector of survivorship, it is probably and perhaps surprisingly more true of the shelter dweller sector. Although there may be no available and identifiable enemy against which to readily discriminate, the shelter dweller will eventually face a deadly contest against the elements. That inhabitant will occasionally be called upon to defend hearth and home and it is perhaps the ferocity, not the sophistication of that defense that will provide the most effective defense.

It can only be hoped, then, that for the good of the survival of both groups, the average shelter dweller exists who has prepared for nuclear exchange survival not only by stockpiling food and protective commodities, but also by accumulating significant industrial skills. Like the monks of a thousand years ago, if knowledge and order are to be preserved in any form, careful study and replication of these tasks must be undertaken. In time, if the model depicted in this treatise should indeed develop, it will fall to the wise to teach the strong, and to the strong to protect the wise, as it has always been. The most likely candidate for leadership of the horde groups, in the final analysis, is likely to be a shelter inhabitant who has been drafted for that honor by virtue of esteem, not fear. Such a leader might well rebuild, reunite and repopulate the world as it had been known.

Further Suggested Reading

This is a list of books for those of you who want to get a good head start on depending on yourself. I don't promise that they will all be easy to get through but when you finish this list, you'll know a darned sight more about living off the land. You might also get an education on what kind of different people know most about the world. Anyway, don't be shy to start, you never know until you learn.

After the Fire, Nuclear Waste Disposal; Charger, Max; Killer Printing

Killer Printing's books are always a little on the anarchist side but this particular one is genuinely worth the reading. Tips on handling 'hot' goods and good advice on protecting yourself from radiation.

Agricultural Science; Tull, Jethro; Diver Publications

This is a retrospective kind of work by a pioneer in the crop growing trade. Kind of primitive by modern standards but has got some real good methods for simple conditions.

American Indian Artifacts; Flying Chicken Feathers, Charles; Back Hills Publishing

Mr. Flying Chicken Feathers holds forth on arrows, spears, tomahawks and the like. A genuine Fualyu Tribe indian, Charlie is alright by me. Also a great dancer but he won't say much about it.

The Artistic Welder; Goodbody, John; Practical Publications

John is a blacksmith by trade and a damn good one. Knows a sight more about it than I do. 'Artistic Welder' is good for the amateur and craftsman alike. Not much of a sense of humor but a master of his trade.

Beat It! A Complete Guide to Metals; Goodbody, John; Practical Publications
Another real winner by John Goodbody, 'Beat It' covers the fine points of the metal forming skills. This is a basic text by John's standards but still and all, it's a very thorough treatment. Read it a couple of times at least.

Beaver Wisdom: Earth & Lumber Dams; McKinley, Jed; Back Hills Publishing

I know Jed McKinley from way back. He just might be the best authority on woods lore around. Kentucky line for twelve generations and it shows.

1001 Bomb Shelters YOU Can Build; Charger, Max; Killer Printing

If you want to be really prepared, Max can show you how. His shelter book has plans for anything from a hole to a castle. Good details, any idiot could build a nice shelter from scratch with Max's help.

Bow **Hunting**; Flying Chicken Feathers, Charles; Back Hills Publishing

An interesting discussion of hunting. Charlie will tell you how to be the animal you want to shoot. Really more about stalking than shooting, 'Bow Hunting' will get you understanding the woods all around. A real "must have" kind of book.

Civil Engineering Made Easy; Kincaid, Steven; Campus Press

Steve Kincaid is an engineer but don't hold it against him. When it comes to making complicated stuff easy to learn, he's the best around. Here he shows you how to build roads and bridges and about anything else you can think of about construction engineering. Kind of dry, but what can you expect from an engineer?

Clockwork Curiosities; Uiterwyk, Sven; Black Forest Printing

I threw this in because everybody should learn one fine craft in life. I don't know if Sven is Swiss, German, or something even stranger, but he knows gears. Lots of stuff on precision bearings and gear ratios. Interleaving step-down gears is an art in itself, not to mention speed regulation. Real interesting.

Entertaining Aerial Displays; Woe, Fun Loo; HyPower Press

Kind of reads like a bicycle assembly manual by some foreigner but it's not about bicycles. If you want to make fireworks from anything you can get your hands on, you want this book.

Gather Ye Roses: Spices & Medications; Witkin, Moon; Other Side Press

Moon is one of those people you meet who's here only part of the time. I never really asked her where she thinks she is when she's not around. Maybe I don't want to know. Anyway, she knows more about home remedies than about anybody and she gives away some secrets here which is a rare thing for her.

Hydroelectric Technology Made Easy; Kincaid, Steven; Campus Press

This one is about the fancy parts of power making. You kind of have to read between the lines to figure out how to do it at home, but you can't have everything. Steve, as usual, is pretty easy to read. I'm warning you though, if you lose your place in this one, you'll have to start again at the top.

Kill Furry Things With Traps; Boone, Daniel; Back Hills Publishing

I don't know if I'm ready to believe that this is by THE Daniel Boone. But even if it's not, you should give it a try. Most trapping books are about trapping for fur, but this one has a lot of good reading about trapping live. You are going to want the meat along with the fur, so this is a must read book.

The **Long and Short of Canals**; Finn, Mike; No Paddle Press

I never met Mike Finn and I don't know anybody who has, but he claims that he was around when canals were being made which was a long time ago. To hear him, you'd think you could build a canal with your teeth, but he knows his water and he likes to talk.

Mud Fishing; McKinley, Jed; Back Hills Publishing

Jed holds forth here on cat-fishing with your bare hands. Not for the more squeamish of you but a lot of fun to read. Some tall stories you should read even if you like pole fishing.

Personal **Notes of Alfred Nobel**; Nobel, Alfred; HyPower Press

Mr. Nobel spent his life getting rich inventing explosives and then went and started a grant foundation for science and peace. It's my opinion that old Alfred got a little bit guilty about wars but in my mind they weren't his doing. I'm not telling you to read this one because it's about peace; it is going to be too late for that. These papers are all about TNT (Tri-Nitro-Toluene) and such.

Roman Plumbing; Caesar, Nero; HyPower Press

I don't know where they dug this one up but it's good reading, sort of off-the-wall but also one-of-a-kind. Maybe something was lost in the translation because the writing style makes Mr. Nero look to be a little stuck on himself. Nothing at all about violins in it anywhere.

Step-by-Step Rustic Log Cabins; McKinley, Jed; Back Hills Publishing

Here, Jed will tell you about every kind of cabin that ever was. More than that, he talks about building log houses without a chainsaw which is the way you want it told. Sharpen your axe and dig in.

Victorian Carriages; Antoinette, Marie; Diver Publications

It seems that this book was first written in French for some reason or other. Marie carries on at length about "gingerbreading" everything from carts to horses. Maybe frivolous at times but I promise it will be entertaining if you don't take it too serious.

Weave Flower Baskets With Flowers; Witkin, Moon; Other Side Press

Another one of Moon's books, this is a little more down to earth than her herbal stuff. I don't know that I agree with her philosophy but I like to read her stuff. Like I don't hold to the notion that a flower cares what you say to it and I'm pretty sure a basket doesn't give a hoot. Lots of drawings and good instructions.

The Wheelwright; Goodbody, John; Practical Publications

John is a real craftsman and this book shows it off. Don't let all the trade jargon throw you, there's a good glossary in the back. Maybe you should read backwards from the end. Anyway, every single page is fine reading.



E-Z-FORM Individual Survival Home

(EZFISH)
Owner's Manual

E-Z-Form Distribution
Program, 1988



Notice

The following materials are presently temporarily out of print:

Shell Assembly Guide

Electrical Systems Installation Guide

Plumbing Systems Installation Guide

Environmental Control Systems Installation Guide

and the EZFISH Park List

These materials are essential to the proper installation and construction of your new E-Z-Form Individual Survival Home.

We know you appreciate that the demand for the EZFISH has been very high and that we have done everything in our power to provide the best kit available to every customer. Rest assured that you will receive this literature via the same shipper from whom you received the shell construction powder, shielding lead, reinforcing steel, and other parts. If you have any questions or problems, do not hesitate to call us at our toll-free number: 1-800-EZE-FISH.

E-Z-Form Laboratories, Inc.
Pleasant, Utah

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Visions of Aftermath: The Boomtown © 1988 Chivalry Software.

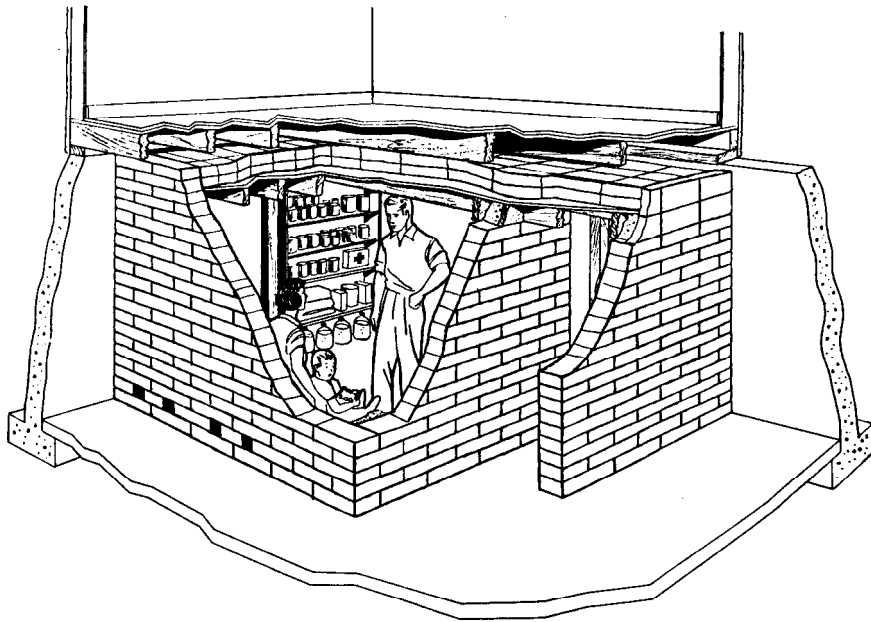
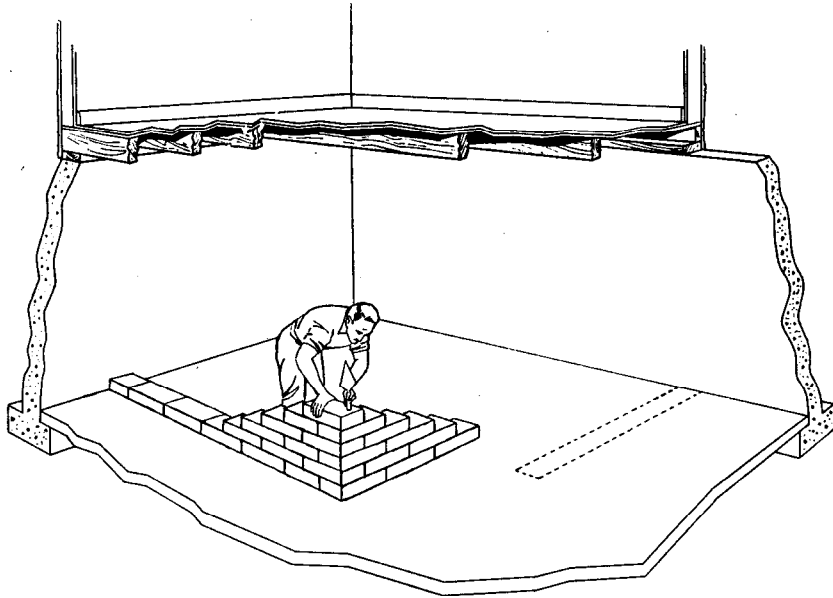
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Introduction



Congratulations on your choice of survival homes. We here at E-Z-Form believe the EZFISH to be the best survival environment available at any price. Our shelter has been designed to provide **the** reliable security that today's global threats demand. We have spared no expense in search of the best materials available. We have created the largest existing body of research on the topic of individual survival. We have applied our knowledge by collecting the included materials into an easily assembled and thoroughly dependable survival environment. We have also provided meaningful enhancements to the basic unit in the form of matching all-terrain transportation, a general data computer and local radar unit, a remote cargo robot, and a sealed system hostile environment suit.

Combined, the EZFISH system and its auxiliary components provide **a cozy nest that** anticipates the most hostile of situations and provides safe protection from the elements, be they natural or man-made. We have provided the features and functions that are most desirable to make survival of 'the virtual destruction of **the** world as we know it' not only practical but also comfortable and even enjoyable.

With all that is included, you are well on your way to enjoyment of your new home. However, the rest is up to you. We include this handy assembly manual and usage guide to gently pilot you through **the construction** and use phases of our product. All of the advice presented here **has** been pre-tested in our Micro-Holocaust Labs in Pleasant, Utah. We guarantee that you will find the EZFISH to be perfectly safe and convenient to use in any post nuclear exchange environment or we will cheerfully refund your full purchase price.

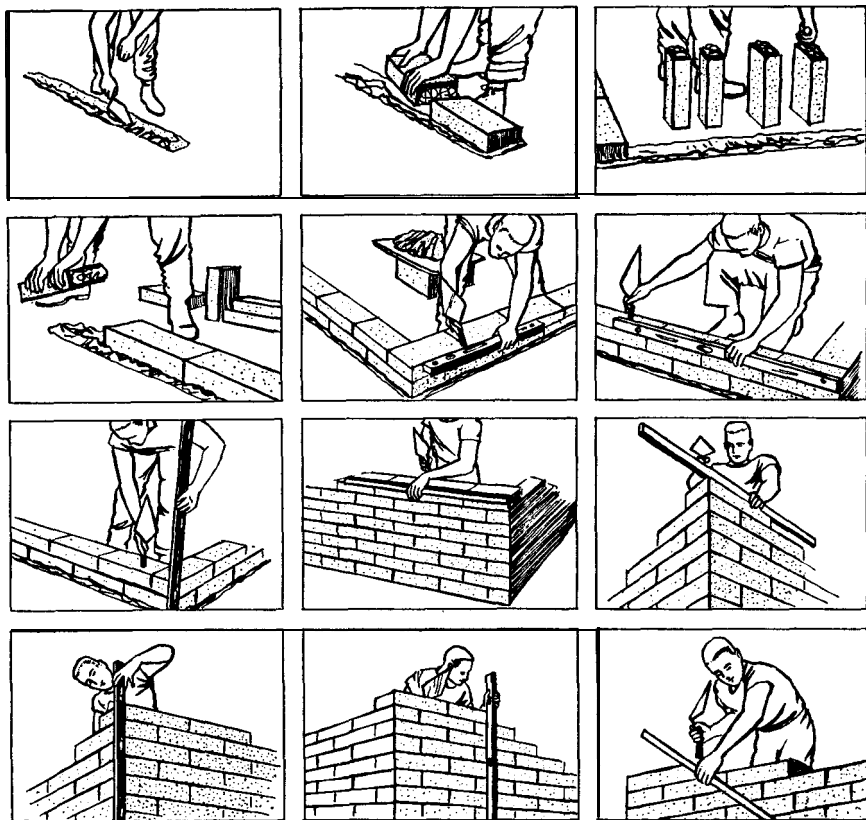
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Finally, in the **Environment Control Systems Installation Guide**, you learned how to install the heating and cooling systems, and how to test for unfortunate coolant leaks. In this guide, you will learn how

to clean the refrigerator, how to change the air conditioning filter, and how important it is to keep the door to the outside closed at all times. You will also learn to make ongoing repairs to these systems.

If you did not clearly understand any of what was presented in any of the Installation Guides, please feel free to call us immediately at 1-800-EZE-FISH to discuss with our qualified installation assistance personnel those areas which are unclear. They will be happy to discuss any aspect of installation and are available during regular office hours.

You are now prepared! Select your sturdy structure and assemble your EZFISH shelter.



Chapter 2 Selecting a Sturdy Structure

The EZFISH shelter kit contains everything that is needed to turn an ordinary basement, extra room, garage, even a well-built tool shed, into a complete, sealed environment with air and water purification, radiation shielding, and blast reinforcement. If you follow the simple instructions, you will find building your new hardened home to be easy and enjoyable. The first step in beginning assembly is to pick a nice spot. The EZFISH shell is designed to enhance any existing sturdy structure which has been outfitted with: 1) Electrical wiring, 2) Fresh water plumbing, 3) a septic tank sewage system, and 4) a sturdy roof.

The wiring should be in good repair and designed to provide at least 100 amp service to the structure. If the wiring system is designed to provide greater than 100 amp service, it will be limited to 100 amp service after installation of the EZFISH kit. The tap for a secondary external power source should be installed even if you have no external generator at present. If you decide at some later point to add an external generator, the EZFISH shell is not easy to modify.

You should know where the fresh water plumbing enters the structure. A test and filter unit will be installed at this point. If you are building the structure for the EZFISH, you might consider burying the incoming water line deeper than local building codes usually require. This is especially true if you live in a warm climate where the weather is seldom below freezing. Shallow inlet lines may cause the test unit to indicate fallout contamination that does not actually exist. Your structure must be equipped with a full bath. If it is not, have complete plumbing facilities installed. The bath tub will probably be usable for bathing only rarely but it provides a practical place for scrub wash-downs. As with the electrical tap, you should install the provided secondary water supply tap even if you have no auxiliary well at present. This will allow you to change your water supply plan in the future without breaking the EZFISH shell.

The septic system should be provided with a clean-out plug inside the structure. This special feature will allow you to clear some drainage problems without leaving the shelter. A second clean-out conveniently placed is also advisable. Important. The sewage disposal system must be of the local passive type, (septic tank and drain field), with no connection to central sewage disposal systems. Nuclear blast may pressurize city sewer systems to a degree capable of damaging the EZFISH shell seals and harming occupants.

The structure roof need not be watertight but it should be able to withstand the weight of the shell material until it has hardened. If you are not sure about the strength of your roof, see Appendix D of the "Shell Installation Guide," "Minimum Specifications for Underlying

Structure.' The roof should be of sufficient pitch to guarantee good run-off but not so steep as to weaken the ability of the shell to withstand horizontal stress from blast pressures.

Finally, the structure should be of a convenient size. The best way to decide if your building is the right size is to cut out the blocks in the back of the "Shell Assembly Guide" that match what you intend to install in the shelter. Place these blocks into a 1/36-scale drawing of your structure. Be sure to place each unit in a position that will allow you to make use of it in the finished shelter.

Units that you must include are:

- 1) **Cistern:** the 125 gal. cistern can be placed in a corner
- 2) **Fresh water filter:** should be very near the shell wall.
- 3) **Wash-down water filter and re-circulator:** near wash-down area.
- 4) **Air exchange and vacuum pump unit:** must be near the shell.
- 5) **Steam electric generator:** near the fuel bin for stoking.
- 6) **Pantry:** the fresh vegetable pantry must be accessible.
- 7) **Meat freezer:** major electrical load.
- 8) **Workshop:** storage for wood, metal, parts, and projects.
- 9) **Fuel bin:** for wood, coal or any liquid combustible.
- 10) **Wash down foyer:** to remove contaminant dust from self, etc.

In addition you may want to include:

- A) A small garage for the optional All Terrain Vehicle.
- B) Garage space for cartage trailers.
- C) Garage space for the optional robot cargo unit.
- D) More space in the wash-down foyer for environment suits.

Normally, you will want to place all storage areas near the shell wall to add the benefit of additional radiation shielding. Material storage areas should be convenient to the drive-in doors and the wash-down foyer must be convenient to both the drive-in doors and the hatch.

We strongly advise that you place the generator near the fuel bin. If you have the optional automatic coal stoker, you must follow the instructions included with the stoker when placing the generator and fuel bin. Remember that the stoker must be removed to fire the generator with oil or wood.

Chapter 3

Maintaining the EZFISH

There are six basic areas of the EZFISH that might require occasional inspection and possibly maintenance. These are the shell, the workshop area, the pantry, the cistern, the conditioning and refrigeration system, and the electrical system.

The pre-mixed materials provided with the EZFISH kit are designed to make construction of the shell a simple and fool-proof experience, and you should expect your shelter shell to give you many years of carefree service. There are, however, some things that you should know about the possible stresses to which the EZFISH might be exposed. Some of these fall into the 'usual' category 'Usual' stresses include snow load, rain, change of temperature with season and even near-hurricane force winds. Your EZFISH shelter is fully warranted against any damage which is caused by normal environmental stress as long as the damage is beyond what might be considered normal wear and tear of aging.

In addition to these 'usual' stresses, other more severe stresses are possible. These include such 'Acts of God' as hurricanes, tornadoes, severe flooding, and lightning. Also, in the event of certain unforeseeable circumstances, the EZFISH may be exposed to severe thermal shock, severe physical shock, extreme wind load, near complete vacuum, very high air pressure, and quake. These unfortunate stresses would normally only occur during exposure to nuclear weapon detonation which, of course, could only be expected to occur during 'Acts of War.'

No company can insure or guarantee its product against 'Acts of God' or 'Acts of War,' but you should know that we do sympathize with the unfortunate user who experiences difficulties of this type. If you follow these simple step-by-step instructions, you can easily restore the most damaged shelter shell to a pristine, like-new condition.

The EZFISH shell is designed to protect you. It is of high mass material that should stop most of the harmful ray emissions typically found around nuclear blasts. The simple layering of lead mesh and steel reinforced concrete is easy to maintain and difficult to damage severely.

Between the inner and outer mass shells is the vacuum sponge. This spongy wall layer is evacuated to the outside to prevent contaminated dust from collecting in the EZFISH.

Damage to the inner or outer mass shells will cause leakage of excess air from inside or outside of the shelter into the sponge layer. This leakage will cause the vacuum pump to work less efficiently than it must to insure safety within the shelter. In cases where the leak is adjacent to living quarters, it may allow higher radiation within the shelter than is tolerable. In cases where the leak is adjacent to storage areas, the danger of radiation or contaminated dust is lessened, but stores may be contaminated. In cases of extreme leakage, the shelter

may be invaded by insects, mice, rats, and other pests, all of which will certainly cause immediate damage to stores and which also can be expected to 'track in' contaminated dust. Ultimately, the general health of creatures exposed to environmental radiation will probably be poor. Such creatures are likely to carry disease and so may increase the problem of possible infection.

It is important to inspect all storage areas regularly to insure the integrity of the shell. If damage is found, the shell should be patched immediately. Extra material has been provided for repair purposes. There should be enough extra material for several repair jobs.

In order to patch the shell, first prepare the area to be fixed. Scrape any loose material from the crack or hole and wet the area thoroughly. Following the mixture instructions in your "Shell Assembly Guide," make a generous amount of cement slurry. Paint the slurry all around the break and then re-apply shell material as instructed in your "Shell Assembly Guide" in the section called 'Changing existing shells.' Re-inspect the break to make sure that the repair is total and **that** there are no other breaks. Shell breaks usually result in destruction of Contamination Pump parts. Failure to adequately repair shell damage will result in the destruction of whatever parts are replaced until shell repairs are adequate.

After confirming that shell repairs are complete, find pump parts in the shelter storage bin marked 'Parts' and repair the pump.

If your shelter is equipped with the optional data computer, you may disregard the instructions above about shelter inspection. The data computer will automatically inform you if shelter shell damage is detected and you have available parts to repair the vacuum pump. Important! The data computer will assume that no repairs are possible and **WILL NOT** inform you of shelter damage if no parts are available for pump repair! It is a very good idea to always keep plenty of parts on hand.

One final note on shelter integrity. The EZFISH has a high recovery, low exchange shell designed to handle large exterior stress. Because the shell is low exchange, it cannot vent internal pressures as well as conventional structures. To you this means that even the boiling of water inside the shelter **may** result in higher inside air pressure. Open fires will result in rapid exhaustion of available fresh air and partial vacuum. These conditions can be uncomfortable. Finally, explosions inside the shelter will almost certainly cause concussion and high pressurization which can harm or kill occupants. Be especially careful with hazardous materials that might cause open combustion or explosion. Explosions can be expected to damage the shelter seal extensively.

In the most popular building plan, the EZFISH workshop area is placed outside of the main living quarters of the EZFISH shelter. When the workshop is so placed, it is inside of the blast protection boundary but outside of the conditioned environment. Because the workshop may only be used occasionally, it is important to schedule regular inspections of its blast shell. Damage to the shell will not jeopardize the safety of the air inside the shelter, but **may** allow pest intrusion into the

workshop. Remember that anything that migrates from the outside to the inside of the shelter without thorough washing will cause accumulation of hard-to-remove contaminant dust. Air and pests should be considered to be such harmful migrants.

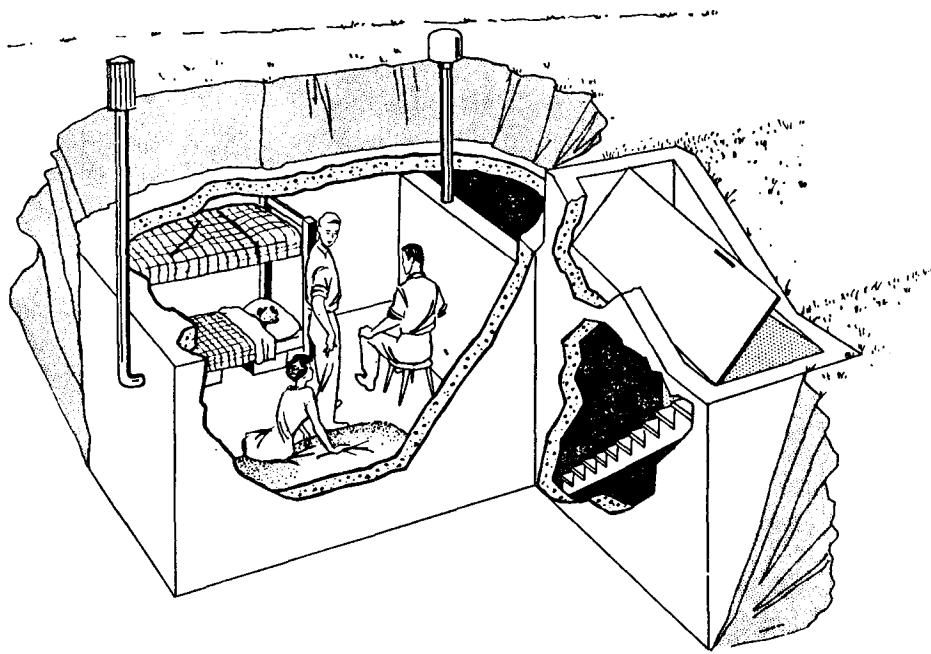
The pantry, like the workshop, deserves special attention when inspecting the shell for structural soundness. Because the pantry is a pest's delight, even small cracks here invite trouble. Pesticides cannot be used in the EZFISH because the air exchange rate has been minimized to protect against migrant unconditioned air from outside. Chemical poisons used inside the EZFISH are almost certain to be detrimental to human occupants. No provisions exist to halt accumulation of such poisons within the shelter. It is safe to use boric acid at any time as long as it is not dusted freely into the air. You **may** use most pesticides only until the shelter is sealed.

Your shelter's cistern has an associated active filter that effectively removes contaminants from water before storage. Although the cistern seldom leaks, this filter is a sophisticated pressure/vacuum reverse osmosis unit that may require occasional maintenance. Should the filter begin to leak clean, clear water with **no** scent or tint, the leak should be fixed immediately. This water will most likely drip at a slow rate from fittings near the cistern or from the bottom of the filter unit. If the filter leaks liquid that has a distinct scent or is cloudy or colored, turn off the filter immediately and repair it. This contaminated water will often spew from the filter unit in a high-pressure stream or spray. Do not cross the path of this spray. It may be of sufficient pressure to cause the water to damage skin. It may also be highly contaminated with concentrated environmental debris. The filter unit is especially subject to inlet and 'high-side' leakage following severe physical shock. The pump unit used in the filter is identical to the pumps used elsewhere in your shelter.

All temperature control within your shelter is provided by a single unit. This unit uses a universal pump **that** is identical to those used elsewhere in the home. Should you notice that temperature within the shelter is uneven or out of the desired range, check this pump immediately. Cold storage integrity and livable shelter temperatures depend on this pump. In very hot and very cold climates, you **may have a** booster pump installed. This second pump is identical to the first. If either pump proves to be working improperly, select a replacement from the storage bin marked 'parts' and repair the broken unit. Remember that the temperature control pumps provide cold-storage in addition to air conditioning and should be inspected regularly when the climate is moderate as well as in times of climate extremes.

The electrical system of your shelter has been, for the most part, sealed into **the** shelter shell. For this reason, most normal repairs will be somewhat impractical. The unique construction of the shelter shell makes the most common cause of gross electrical system failure almost impossible. Lightning strikes EZFISH homes frequently because of the attractiveness of the lead-layered shell and the height of the extended

radar dish but rarely causes damage to internal electrical systems. The unique grounding system provided with your shelter should protect you from any but a direct lightning strike. In the event of lightning damage to the electrical system, it is important that you turn off the shell pump and wear an environmental suit while making repairs. Always break the inside shell, not the outside, to gain access to damaged wiring. Always follow the instructions in the "Shell Installation Guide" when repairing the shell. If the electrical system is partially operable after lightning damage, you may wish to forego repairs altogether



Chapter 4 Supply-Stocking the EZFISH

Your shelter is designed to provide storage for all of the comforts of any normal home. In addition, areas are reserved for those goods and tools **that** may be difficult to find outside after a nuclear exchange. The cistern can hold 125 gallons (1,000 pounds) of water and will auto-purify any water provided to it. Unfortunately, tests with early prototypes of the EZFISH demonstrated that contaminated water cannot be collected from the roof of the shelter. Rain water contains fallout silt in sufficient concentration to damage the osmotic membrane used in the cistern filter. In addition, the accumulation of silt occurs at too great a speed for the silt to be removed by the auto-flush cycle of the filter. Changes to the filter **that** could have remedied these problems would have rendered the filter too inefficient for use with the EZFISH. Because of the limitations in the silt-handling capacity, only water from a fast-running ground source or a deep well should be used in the cistern filter.

The pantry, if built as suggested, can hold as much as 600 pounds of dried or preserved fruits and vegetables. It uses passive desiccation to provide a low humidity for storage of semi-preserved goods. Because of the low humidity within the pantry, it should be kept closed whenever possible. The white crystals in the pantry are silica gel. This interesting material attracts moisture to its surface, thus removing water from the air. When the silica crystals appear to be slightly bluish, they should be removed from the pantry and heated on the hot plate until they are again white. The air of the pantry will have a parching effect on the skin.

Some stored foods should be kept cold instead of dry. For these you have the meat locker. It has an 800-pound capacity. This large capacity allows its occasional use for short-term storage of undressed meat. The locker pumps heat to the living space of the EZFISH during the winter and therefore will often be colder than it has been set. If the temperature in the locker is below its setting and it also becomes colder than the outdoor temperature, heat will be taken from outdoors. This makes the outdoor temperature the lower limit of the distance below its setting that **the** locker will normally operate. The locker is operating correctly if its temperature is at or below its setting and at or above the outdoor temperature. If the temperature in the locker is above its setting or below its setting and below **the** outdoor temperature, the conditioning pump may need service. If in doubt, clean the evaporator/condenser units thoroughly. If the problem continues, replace the conditioning pump. In the summer, the pump exhausts heat from both the locker and the living area to the outdoors. In this case, the locker should always be at its set temperature. Never place anything in the

locker in the winter that would be damaged by a hard-freeze to the outdoor temperature. The locker may require at least 48 hours to attain its set temperature when first turned on. For this reason, it is a good idea to bring ice and a temporary chest for storage of cold stuffs until the locker is cold enough to do the job. If your stay in the EZFISH proves to be extended, you will occasionally want to defrost the meat locker. The simplest way is to set the locker temperature switch to 'environment' which disables heat pumping from the locker entirely. After turning off the locker, open the door and place towels at its opening. Up to eight hours may be required to melt the frost completely. The process may be speeded by removing any large chunks of ice that can be loosened from the walls and disposing of them. Under no circumstances should you chip ice from the locker walls with any hard or sharp object. Such chipping could result in damage to the heat pump which might vent hazardous gasses into the locker or the living quarters. Following the defrosting cycle, the locker may require up to 24 hours to reattain its previous temperature. All goods in the locker should be removed before defrosting and not returned to the locker. You should be prepared to eat or discard everything that is in the locker when it is defrosted. Return of thawed goods to the locker can, in some cases, result in food poisoning.

The fuel storage area is designed to store up to 1,000 pounds of fuel. Facilities are provided to store liquid and solid fuel sources in the locker. Some precautions should be followed. Cans are supplied for storage of liquid fuels and gasoline. You should not store gasoline in the fuel bin. Any aromatic hydrocarbon will burn successfully in the engines used by the electric generators in both your home and, if you have it, your optional vehicle. These engines operate by combustion-steam-motion-electricity-output conversion and although they are not highly efficient, they require minimum maintenance and will burn anything that is combustible. The problem with aromatic hydrocarbons is that the locker does not seal tightly and any fumes leaking from fuel will escape into the living space. The seals that protect the locker and the living space from outside contamination are tight and will hold fumes in the living area where the fumes will concentrate to dangerous levels. Aromatic hydrocarbon fumes are carcinogens. In addition, some aromatic hydrocarbons cause dizziness, brain damage, and death in high enough concentrations. Finally, the fumes of most aromatic hydrocarbons will explode with a spark in the air, causing flash fire. Fuel oil, jet fuel, and truck diesel fuel are safe liquid hydrocarbons and can be stored in sealed containers in the fuel bin. Precautions should also be taken to limit accumulation of fine dust from coal storage in the bin. This dust is damaging to lungs, potentially explosive, and does not clean easily out of carpets.

Metal in various forms should be stored in the metal storage bin. This locker operates like the pantry and should be maintained similarly. On completion of the EZFISH, you should put all remaining lead sheet into storage in the metal bin for future repairs to the shell. The

bin is also excellent for storing all metals containing iron. The very low humidity prevents rust without further special protection. Two tons of metal can be stored in the metal storage bin.

A special nitrates locker has been provided for the storage of explosives. We do not encourage that firearms, gunpowder, dynamite, blasting gel, blasting caps, potassium, sodium or ammonium nitrates, mercury fulminate, mercury iodide, tri-nitro-toluene, nitrocellulose or glycerine, or any other unstable compounds that decompose explosively be kept within the shelter. We have made a small storage locker available for the storage of potassium nitrate high yield fertilizer. Because this compound is potentially explosive, care should be taken to avoid exposure of dry nitrate powder to spark, high temperature or open flame. Nitrate fertilizer is dangerous dry and difficult, to USC damp, therefore, we recommend that if it is stored for use, it should be stored dissolved in water. The nitrates locker will hold about 200 pounds of sensitive, potentially explosive, materials.

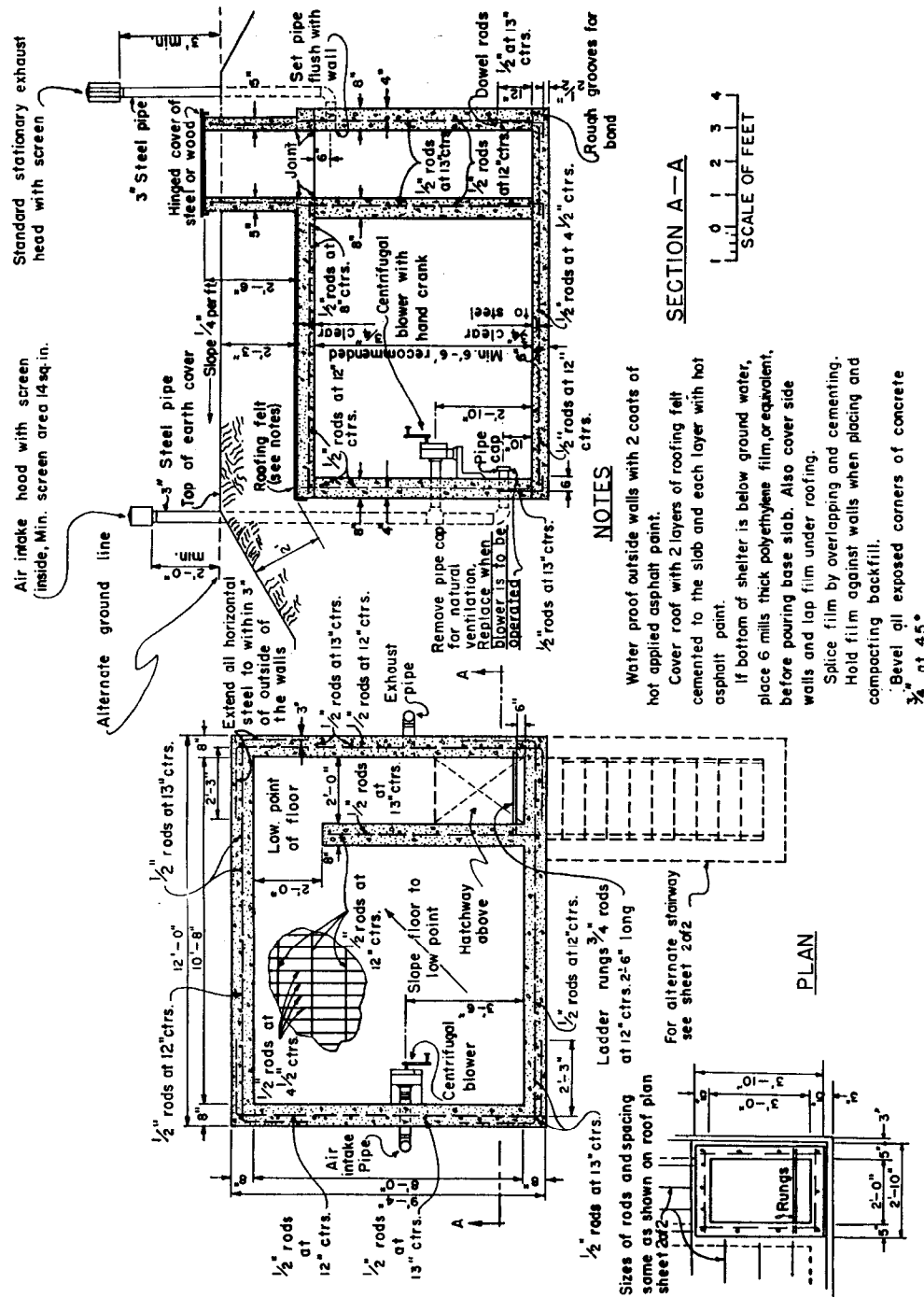
A lumber storage rack is suggested to store wood that can be used for any variety of construction projects. If equipped with the optional garage, your shelter can make a great workshop even before it is called on to protect you. The lumber rack can accommodate lumber to sixteen feet in length and will store about a ton of wood. If you prefer, the lumber storage area can be used to store uncut firewood. The EZFISH steam generator burns lumber as easily as it burns cord wood.

Remember that we have discouraged the use of firearms and the storage of explosives in your sealed system home. The circumstances for which the EZFISH is designed may create the need, however, to defend your home. To assist with defense of home, we strongly suggest that you lay up a store of arrows and a sturdy bow. Archery can provide an interesting and healthy hobby in addition to honing your skills should they ever be needed. No special provisions have been made for storage of bow and arrows, but you should have no trouble finding space in odd places for many dozen arrows and a bow or two.

At some point, we should point out the importance of a well-stocked first aid kit. The average family in this country maintains such a kit, however, studies show that the average kit is not kept well stocked for any real emergency. In the event of a global disaster of any kind, medicine can be expected to be made available to health institutions preferentially. To you, the individual, this means that you must adequately prepare your medicine chest before such a disaster occurs. If you fail to prepare properly, you will be stuck with whatever help nature can provide to you for pain relief, antibiotic aid, diet enhancement, and general medicinal care. This is a bleak prospect for all but the most ardent nature buff. Since most first aid kit owners depend on an old fishing tackle box to hold their first aid supplies, WE HAVE MADE NO SPECIAL PROVISIONS TO INCLUDE FIRST AID MATERIALS WITH THE EZFISH KIT. We trust our customers to take the wise approach to medical needs and provide a well-stocked first aid station in the shelter. In the event that this for any reason does not happen, we have

Chapter 5

What to Expect from the World



This is not a survival manual. During research for your shelter, we at E-Z-Form discovered a number of in-depth treatments of the problems of survival in hostile environments. A complete list of the available books on primitive hunting alone would require a list longer **than this** manual. We expect that you will want to purchase a number of the available texts.

No one can really tell you what to expect after any unprecedented occurrence, but there are a number of things that you should not expect. First, you are unlikely to open your shelter door and see an airless, lifeless, desolate plain. If the local damage in your area is this severe, you will die of suffocation even in a well-built shelter. It is also unlikely that all previously existing buildings will be leveled. In areas where the blast is great enough to level everything, fire storms starts fires that create intense heat and high vacuum in the effected area. Such 'chimney effect' burns can create more calories of heat than the primary blast that started them. They may be expected to turn soil and brick into glass, making even a shelter uninhabitable.

You shouldn't expect to see vastly-mutated monsters roaming your area, or even strange varieties of plant life. The most frequent effect of high-dosage radiation on living tissue is death. The most frequent effect in survivors is sterilization. Mutation is only possible in cases where radiation is low enough for the victim to survive the more dramatic possibilities and, even in these cases most mutations are non-viable. They die because they are not a random improvement over what already exists. It is probably true that many new genetic variations will arise after a major nuclear exchange, but discovery of these variations will require years of research by trained professionals. Most living things, when exposed to radiation, simply die.

This brings up two things that you should expect. First, the residual radiation levels will be too high to be healthy. Some of the energy of nuclear weapon blast spends itself by exciting normal matter to become radioactive. Some of the radioisotopes created by energy and particle emission are themselves fast radiators and will release the energy they have borrowed quickly. This matter usually begins its life as vapor or plasma. Very hot material which heat carries upwards at the blast sight. As this matter cools, it becomes 'hot fallout'-a dust that is dangerous and insidious. Because it can be very fine, this dust is capable of blowing through most filters, and, because it is radioactive, it can carry radiation around heavy shielding and emit it inside a shelter. In its worst case, fine fallout can lodge in lung tissue and reradiate energy and subatomic particles directly into the lung.

Secondly, there are the less immediately dangerous but potentially more lethal types of fallout. These particles radiate less intensely than their 'hot' cousins, but they radiate for much longer periods of time. In natural distribution, slow radiators will do little more than raise the background radiation level. This is not a healthy situation but will probably not be life threatening. The more likely problem is that certain plants and animals will concentrate on one or another of these 'newly common' isotopes because they are like some less dangerous version that the plant or animal needs. Some plants are known to prefer radioactive versions of iodine today. There is no way to predict the effects of dramatic changes in the balance of elemental isotopes but some species of plant and animal are likely to become dangerous for human consumption. The only safety from radiation is detection and avoidance. If you do not own a good Geiger counter, buy one and learn how to use it.

So, material, mostly dust, that radiates harmful stuff is your most dangerous threat. Your shelter will block radiation and dust. Your (optional) environment suit will provide the same service outdoors. It is important, though, to wash the outside of the suit immediately when it is brought into the shelter and to flush the shelter filters frequently. With time, the level of radiation outside the shelter will decrease. In any area that is inhabitable within the lifespan of the foodstuff in your shelter, reduction of radiation to reasonable levels can normally be expected within a number of months to a few years. Remember, though, that the amount of radiation from fallout depends on the accumulation of radioactive dust, and certain areas may concentrate the dust due to weather conditions.

After radiation, the next most likely threat is illness. Native plant and animal life (including human) is likely to be initially reduced due to direct exposure to primary radiation (bomb blast), heat damage, concussive shock, etc. Many plants and animals so affected are likely to sicken but not die. This condition of mass illness reduces resistance to natural environmental pressures. This means that normal illnesses are likely to be greatly increased due to weakening by bomb effects on the population. The most dramatic effect of a nuclear exchange and probably the most difficult to accept will be carnage and disease. The condition of high illness rate is likely to continue for many years beyond the exchange. You should mentally prepare now for a permanently changed world where sickness is normal.

So far we have looked mostly at what won't happen and what will be new. Now let's look at what will cease to exist. You can probably forget about central water distribution, central electricity distribution, central waste disposal, effective transportation, and meaningful government for at least a year or so—possibly indefinitely. A primary purpose of the EZFISH shelter is to leave the immediate effects of food, water, power, and guidance shortage to others while you enjoy the benefits of having planned well. Ground level and low altitude detonation of hydrogen weapons create enough brute physical shock to

disrupt everything that has been buried. This effect is much like what is caused by earthquake. Elevated temperatures caused by thermal radiation together with ground shock may destroy or severely damage pavement, but there is possibly an even greater threat to transportation.

Among the effects of atomic blast is something called magnetic pulse effect. This phenomenon is not clearly understood and the magnitude of magnetic pulse in a major exchange is unpredictable. The potential destructiveness of the magnetic pulse, especially from high altitude detonation, is substantial enough to suggest that a full exchange should start with some commitment to an initial blanket air burst. The idea of such a beginning is that if magnetic pulse proves to be a calculable damage factor, communication equipment would be severely damaged by the effect of the strong magnetic pulse. It is thought that perhaps five to twelve single warheads exploded at high altitude over North America could completely disable communications in the United States. If the magnetic pulse effect is at or near the predicted maximums, the effect could melt all coiled copper wire in the country. This means that all motors, generators, power transformers, ignition coils, telephones, televisions, radios, and transmitters of all types would melt or explode. Large iron masses might react to the pulse by suddenly lurching, perhaps not. There is no way to know exactly how to protect against the effect of magnetic pulse but ferric mass is a good start. The important thing about magnetic pulse is that, at its worst, it could completely destroy communication, transportation, and power generation/transmission nationally or even globally. This destruction would create a knot of zero capability the enormity of which might mean many years before cultural normalcy was restored.

Climate can be expected to be at least temporarily different than what could be called normal. There is some disagreement about what to expect the climatic change to be. One theory expects the minute particles of dust to obscure sunlight and cause surface temperatures on the planet to be lowered. This effect is called 'Nuclear Winter' and would result in bleak, dim conditions the world over for from several months to perhaps several centuries. The most obvious effect of Nuclear Winter would be to cause greater need for heating fuel. No so obvious is the effect on growing seasons. Some plants require a long minimum sunny season to grow properly. Others require year-round above freezing temperatures. Vegetation can be expected to migrate southward and some plant species will probably not adapt. These are doomed. Total food production will be reduced significantly. Even without the consideration of radiation sickness in plant life, there will be a food scarcity. If Nuclear Winter conditions continue for an extended period, changes will be seen in coastlines and snow cover expectations as water is held distributed on land for longer periods and in greater amounts.

It is possible that nuclear detonation will cause an altogether different effect. If the particles thrown into the air do not reflect sunlight but simply absorb it and reradiate heat, the effect might be to trap the

heat below the blanket and raise surface temperatures. This condition might then lead to a greater water evaporation rate which in turn would create a heavier cloud layer which might perpetuate **the** effect. All of this is called the 'Greenhouse Effect' and might raise surface temperatures twenty to two hundred degrees Fahrenheit. The warmer, moister climate might be compared to the primordial jungle or equatorial rain forest conditions. Depending on the amount of elevation in temperature, plant life could flourish or perish.

If the temperature increase due to Greenhouse Effect is great, conditions will probably destroy most of the life on the planet. There are only a few living things that can tolerate environmental temperatures above 212 degrees Fahrenheit and the energy cost to protect human life from elevated temperature would be prohibitive. We are aware of no organized preparation for such an event. If Greenhouse Effect is to be survivable, it must be minor-causing a less than fifty degree temperature elevation.

The EZFISH has been designed to consider everything we have shown you about the possibilities of social, cultural, and climactic change. In **the event that** bombs strike near your site, there will probably be little need for a shelter. The air will become impossible to filter, to cool, in short, to survive. If there is no local nuclear activity, you will face mostly a dramatic change in availability of goods, communication, transportation, and possible hostile climate. In this circumstance, you will need a secure, radiation resistant, isolating home. You will also need to begin meeting basic requirements for your continued personal well being.

Water falling from the sky should be considered unusable. Rain rinses particle fallout from the sky and can be expected to concentrate radiating particles. Fast flowing water is safer but only clear water should be considered and it should be tested before use. Running water has the advantage of having silted out some of the contained fallout but it should be remembered that rivers and streams are fed by snow and rain. Wells are by far the best source of water if they are available. Well water should still be tested but is likely to be free of contamination. Wells pose two problems. The first is **that** considerable power is normally required to pump the water to the surface and this power may not be available. Shallow wells will be of questionable value. Very deep artesian wells are by far the best conceivable water source. The second problem is the possibility that existing wells will be severely damaged by direct shock or extreme hydrostatic pressure at the well point. Damage to existing wells may render them useless. If you plan a well, be sure to use well casing of **the** heaviest variety locally available.

Food is the next priority, following air and water. This subject is too ambitious for a manual of this type and so we refer you to any of the now available survival guides. We can offer a few quick pointers, Wild vegetation is likely to be less affected by radiation than domestic crops that existed before the blast. Some seed should be saved for replanting.

Fish and game that are easy to catch and kill should be considered to be of questionable health. The best advice that we can offer is a simple solution to poor diet balance. Most of the survival manuals that we have seen attempt to balance diet from available foodstuffs. Actually, the most important need will be food energy and the next will be protein building blocks. The best insurance that the post-nuclear diet is well rounded is a large supply of vitamins. The vitamin store should be rotated on a regular basis. By the time a five year supply of vitamins is exhausted, transportation should be restored.

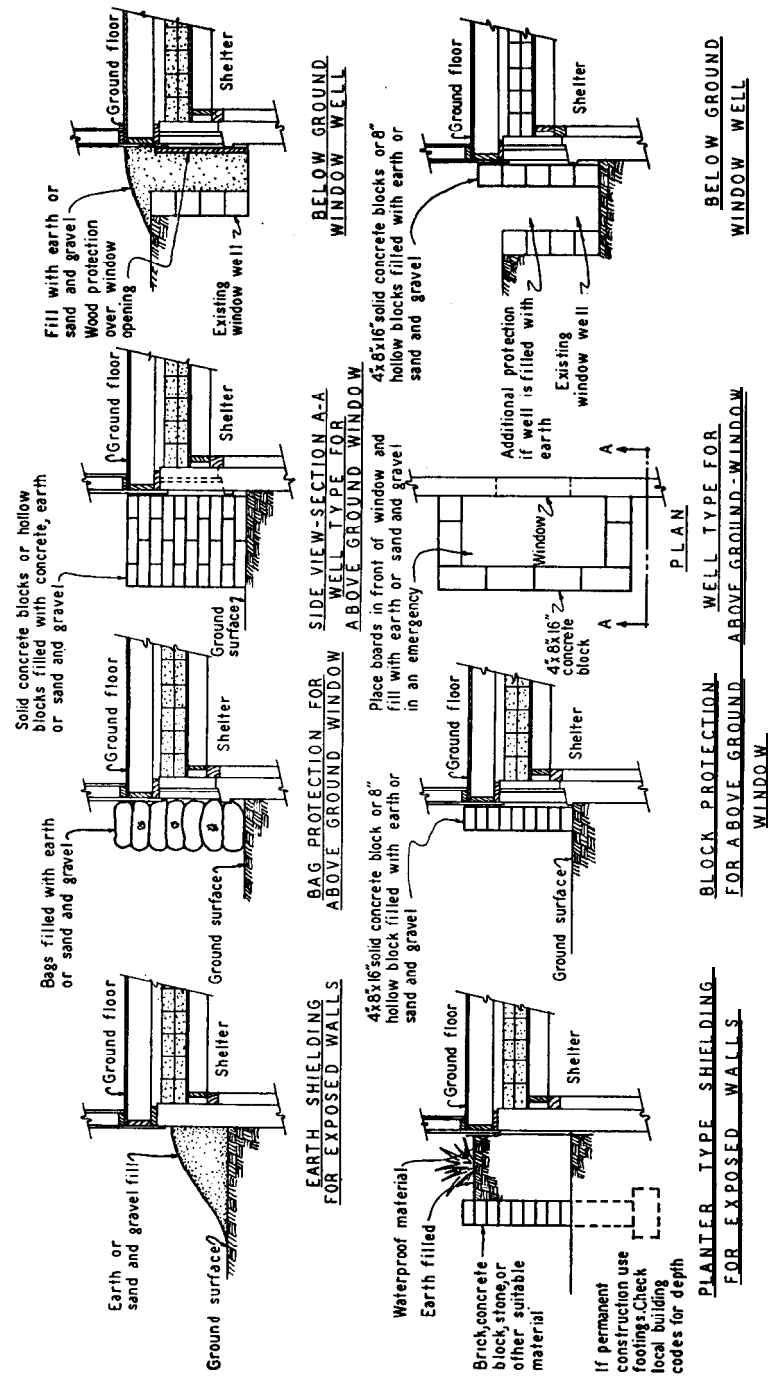
Remember that the major killing power of nuclear weapons does not lie in simple concussion. Whether directly or indirectly, most of the casualties of a full scale exchange will be radiation victims. To minimize the effects of radiation: wear an environmental suit, keep its outside clean, keep radioactive material out of your living environment, and stay indoors when practical. Sleep in a cave if you must but never sleep outdoors.

Chapter 6

Specifications

The EZFISH kit comes with the following component units:

15 tons shell hardcoat, dry mix for 5 tons perforated lead sheet, 500 sq. ft. 4-4-8-S remesh, 2000 lin. ft. #8 rebar, 1 shell evacuation fitting, 2 steel hatch kits, sealable, 1 steel blast resistant main door, 1 air inlet filter unit, sealable, 1 inlet filter blast resistant head, 1 air recirculator fitting, 1 water supply R/O filter system, 1 polyethylene cistern liner, 1 hot/cold insulation kit, styrene, 1 insulated locker door kit, 1 heat pump drive fitting, 3 heat pump evaporator units, 3 heat pump condenser units, 1 styrene wash-down chamber, 1 plumbing kit, wash-down chamber, 3 pressure/vacuum pump units, brick trowel, pointing trowel, hammer pipe wrench, large pipe wrench, small chalk line, measuring tape, 5 gal. grey enamel paint, 1 4-inch paint brush, 1 kit instructions, and plans.



Note, Materials and methods shown for shielding aboveground windows can also be used for shielding exposed walls

Appendix A

Opt. All Terrain Vehicle

Because no one can guarantee the condition of the highways, you should consider the importance of an All Terrain Vehicle. At E-Z-Form, we try to anticipate all your post-nuclear needs and so we have developed the best in dependable, durable transportation-the E-Z-Form All Terrain Vehicle, (EZFAT). The EZFAT uses electricity for versatility which is generated by steam power. The steam is generated in a low pressure boiler which can be fired by wood, coal, oil, gasoline, kerosene, butane, or buffalo chips. In fact if it will burn, EZFAT can burn it. The boiler is simple enough to be repaired in a home workshop and the electric drive motors are the same universal type used in the EZFISH shelter.

EZFAT is a hearty spirit and is game to take any terrain that you would travel on foot. Broken ground is no problem. Shallow water is traversable. (Deep water will wet the firebox of the vehicle's boiler and should be avoided.) In short, even the most forbidding ground can be mastered with the help of your EZFAT vehicle.

In addition your EZFAT can also run on "People-Power? If the need should arise you can "walk" the EZFAT via a complex pedal mechanism. Leaving the comfort and security of the EZFAT is highly discouraged, and not all too safe. If you are unfortunate enough to run out of fuel, the EZFAT will automatically switch itself into "walking" mode until you can once again refuel. We strongly suggest that this mode of operation only be used under extreme emergencies. Although the EZFAT is constructed of ultra-light, space-age polymers and spun steel, it is quite heavy Travel under pedal power is likely to be very hard going.

The EZFAT is equipped with all of the required fittings to work properly in conjunction with the local data computer and the RADAR unit.

Appendix B

Opt. Data Computer w/RADAR

Without the optional data computer, your EZFISH is simply a safe place to spend the night. With the computer, you can command the world you survey. This handy gadget will allow you to accomplish tasks easily that would seem impossible without intelligent help. Best of all, the E-Z-Form data computer is easy and fun to use.

The secret of the flexibility and power of our computer rests in the way that we have made it available to you. With the E-Z-Form computer, you supply the machine and we furnish you with the program to turn it into a complete data acquisition tool, RADAR analysis tool, skill log, executive decision maker, and friend. With our software and your machine, you can direct the achievements of your active new life from the convenience and comfort of your favorite armchair.

The Data Display can be powered by the EZFISH power system, the EZFAT system, or sunlight. It provides useful information about the things that will be important to you in the absence of professional services.

At the top of the display there are three clear indicators which help you to pace yourself. It is very important to sleep indoors and exhaustion can keep you from getting home. To prevent exhaustion collapse, we have provided an exhaustion indicator. This measures your month and warns you **when** it is time to seek shelter. When the indicator turns yellow, you should be to the halfway point in your monthly responsibilities. When the gauge turns red, you should be nine tenths of the way to completing the tasks you have selected.

Below **the** exhaustion gauge is a radiation level indicator. Like the exhaustion gauge, it helps you pace yourself. Radiation damage accumulation **can** be lowered by staying indoors, wearing an environmental suit, and avoiding high radiation areas. As with exhaustion, you should seek shelter as you near your maximum rad level.

The third gauge is a general health meter. It analyzes heart rate, respiration, and other vital signs to decide your overall health. This handy indicator should be used to decide whether dangerous activities should be undertaken and to determine when medical attention should be sought. Venturing outdoors in poor health can cause you to stumble over everything in your path.

Below your condition gauges there are three data areas. The left area shows different things, depending on your need. At its top, it usually shows you where you are. When you are outdoors it displays the terrain type of the surrounding 20 square miles or so. If this indication is shown in red, there is imminent danger of radiation poison from the area. When indoors, this area shows the number of the EZFISH you are in.

Below the terrain display is the options display. When indoors or when you ask for your options, the data display analyzes your skills, resources, and environment to provide a list of activities in which you might be interested. Often the display will suggest an option which is obviously available to you but which you have never considered.

The storage display replaces both the terrain and option displays. It is normally seen only indoors and normally shows **what** is stored in your EZFISH shelter. From time to time you may encounter something interesting outdoors which will be analyzed and displayed in the storage display.

The center of the data display is divided vertically into three parts. These are the area display, the homefinder, and the date display. The area display may show local radar, long range radar map, social standings, or the view from indoors. Below the local display is a special direction finder that provides direction to home. This area shows arrows that point toward the place where you began the month. If you did not begin the month in a shelter, the homefinder will not point to a home. The type of terrain on which you began the month will be shown by the homefinder to remind you of this feature. Below the homefinder is a display of the date and your name.

To the right of the data display is the carriage display. This area will nearly always show what you are carrying on your person or on the optional EZFAT vehicle. When you use the optional cargo robot, this display will show what is loaded onto the robot.

At the bottom of the data display is the prompt display. This area is the most likely place to find suggestions about what you might want to do next. Often the area shows you how to use the data display and sometimes it informs you of events you might otherwise have not noticed. For instance, the prompt display will inform you if you are thirsty or are burning your lumber in lieu of fuel. It also tells you why an action that was offered by the option display can't actually be done. The problem will almost always be that there is too little time left in the month for the desired activity. The data computer interface allows you to control everything you do. It uses a normal keyboard. A list of the useful keys follows.

F1 Record of transactions with wandering neighbors.

F2 Change progress displays between graphic and numeric depiction.

F3 Turn on and off the little noises that your computer uses to remind you that something is interesting or important.

F4 Turn on and off the radio in the EZFISH or EZFAT

F5 Send 'aloha' to a new neighbor who is equipped with the same computer:

F6 Say 'aloha' to a neighbor who is leaving on a long voyage to some distant place, perhaps never to return.

F7 List the skills acquired since enabling the computer:

F8 Turn your attention to personal matters at the end of the current month, leaving further conquest for some future time.

F9 Display the map provided by the local RADAR unit. This map displays an area of over 16,000 square miles. It has been computer enhanced to show your position and, in some cases, the positions of others.

F10 Pause momentarily. Pressing any key on the computer console will continue you on your way.

"ESC" or **Q** Turn your attention to *personal* matters, leaving the quest for conquest of your world to some future point in time.

Space Bar When options are being presented by your computer, select the indicated option. When options are not being presented, request that the computer present options. Exit any transfer process. Note: **When** outside you must specifically request that the computer stop presenting options by selecting the 'Move Again' option. At home, you are always presented with your options. If you go outside from your home, use the 'Go Outside' option. Even when options are being presented, the world continues around you.

The E-Z-Form data computer presents options by analyzing your skills, the immediate terrain, the adjacent terrain, and the materials that are immediately available, whether in your vehicle or, if at home, both in your vehicle and in storage. As a notable exception, you will never be presented the option to 'Eat Herbs' unless you are carrying two, herbs, even if you have two or more in store.

If you have a joystick, either button may be used as the Space Bar.

A-Z Are used when typing names. In this case only the ENTER key is used to terminate the input. In other words, when a name is needed, type the name and press ENTER.

ENTER See A-Z.

Y and N Have the special use of allowing you to say "Yes" or "No" to a specific question presented by the computer.

Arrow keys, Number Pad keys The eight keys surrounding the '5' key on your number pad are used to move the EZFAT vehicle. In addition, the up and down arrows are used when options are presented to select, between options. Remember, to pick an option, use the Space Bar. The left and right arrows are used to move goods back and forth during transactions. Remember that transaction of goods takes time and work. If you have a joystick, it can be used in place of the number pad keys. Any key may be used as your shelter key. The EZFISH system allows anyone to enter an unoccupied shelter by simply using their computer to select the enter option. Once the shelter is entered, it records the shelter key stroke of the occupant and requires that any other computer holder must know the key of the occupant. In this way, the EZFISH

shelter will never deny you access to your shelter simply because you have forgotten your key. On the other hand, if you forget your key, it may deny access to others while you are inside. This system guarantees both access and security to the shelter user.

Appendix C

Opt. Cargo Robot

To ease communication between you and others who may own E-Z-Form products in your area, we have included an optional cargo robot kit. This kit uses signals from your occupied shelter to guide it to another shelter. The destination shelter must have an E-Z-Form shelter number registered to your local area. These shelters are usually numbered beginning with 0. Numbers increase by one to whatever is required to give each shelter a unique number. Following delivery of the loaded cargo, the robot will immediately return unaided.

If you attempt to use the 'Send Cargo' option and receive the response: "No One is Home:" you have tried to send cargo to a shelter which may have been abandoned or is simply not occupied at the moment. You may be allowed to send cargo to an unoccupied shelter if you are the only inhabitant for some distance.

The cargo robot provides a convenient way to trade goods with other E-Z-Form home owners. The robot, is capable of traversing any terrain and is self-fueled. We suggest that you make the most of your robot by sharing the fruits of your efforts with other inhabitants of your area. In the unhappy event that you find yourself alone in your area, you can use the robot to gather goods together in one convenient place.

The robot must be able to off-load goods without assistance. This need causes the robot to honor the expected limitations in EZFISH storage capabilities which have been published here. If what you place on the robot, combined with the storage of the destination shelter exceeds the destination shelter's storage limit, some goods will be lost. The robot will return but the excess materials will not.

Our tests with the optional cargo robot, have proved it to be durable, dependable, easy to use. We heartily recommend its purchase to anyone who is serious about comfort following a nuclear exchange.