

## THE FIRST STEP

### Chapter 2

## SOMETHING NEW.....INNOVATION

## THE FIRST STEP

The first step in a survival situation, the very first step, is to use the most powerful survival tool available to us, The mind. When we stop and think, if even for a moment, we have begun to program ourselves for success. By giving in to mindless activity we hasten the end. Luck may intervene but it's chancy. If you Stop to Think. Panic, fear, all of those counter productive irrational states can be held at bay. If you dig into your mind, grit your teeth, and shout "I'm gonna make it;" you will.

Some people have suggested various methods for achieving emotional peace and intellectual and spiritual clarity. Meditation, prayer, exercise, primal screams even...,well.....taking a dump. It has been my experience that fear mitigates focus and enhances the need to .....dump.....

No bathroom? That's OK, the act, right out there in the midst of all that stress, will seem oddly humorous. Humor will assist your attempts to relax the icy fingers of fear that are sure to grip your spirit. You may find prayer and/or meditation a bit easier to utilize while you perform your enlightening. The main point should be clear. The very first act you should undertake is to THINK. Use the rule of threes to assist you with your priorities and to help direct your thoughts. When you begin to focus your

mind muscles on your predicament your chances for success skyrocket.

SOME THOUGHTS FOR THOUGHT

While you are thinking about the situation you may actually be threatened by inactivity. In so many words, if you discover that one of the rules of three is already affecting your thoughts, you'd better be doing your heavy thinking a little later. I'm certain that you can imagine some conditions when it would be foolish to sit on a log, chin in hand, just thinking.... a cold wet wind blowing, ...you get the idea.

When you do &quot;think&quot; what sort of ideas should you toy with? I'm certain you'll have many thoughts that will serve no good survival purpose, i.e. The date you will be missing that night..... who might come to your funeral after they discover your body..... the strange and malevolent animals lurking in the dark. You will be full of useless and possible undermining memories, thoughts and ideas. Try to stop yourself when you feel them coming and refocus your thoughts on the problems at hand.

Of course all of this assumes that you are alone. Companionship is no guarantee that the same thoughts and feelings will avoid you. Indeed it is possible that you will need to deal with the fears of a companion (s) as well as yourself. Individual idiosyncrasies, being what they are, offer no tried and true formula for response to a threat other than that the person with the acknowledged survival knowledge and skills often becomes the leader. Good luck!

A Few Suggestions

There you sit, benighted. Take the time to get a good look at yourself. Examine closely the clothing that you are wearing. The clothing can serve as a focus for your thoughts. For instance,

if the temperatures are high you might be better off loosening some of the garments in order to use them as insulation from the hot atmosphere or sun. If the air temperatures are low there are steps you can take to increase the insulating value of your clothes. There will be more about this later.

Do you have a belt? If so you might be able to use it as part of a tool. Can you start a fire? People have been found dead of exposure in forests full of dry tinder and fuel, with matches in their pockets. Examine the contents of your pockets. Loosen your boots if they feel tight, tighten them if they feel too loose. House keeping chores of that sort will give your productive sub conscience a chance to do it's job.

Is signaling practical? Some years ago, so the story goes, a hiker in Southern California got lost in the dry foothills near Los Angeles. Not wanting to waste any time he decided to build a small signal fire. His body was later found in the center of a brush fire caused by his signal fire. Think.....

The walk to survival begins with these steps:

Think a little

React

Think a lot

Act

Sleep

Sleep? Of course. You don't feel well if you don't sleep under normal conditions. You need rest even more during a survival emergency.

Provided of course that your last &quot;act&quot; will allow you the time. Make the time.

INNOVATION, A NEW IDEA

Just a few words about an idea. Not my idea, your idea. It tickles me when I see the expression of pleasure on the face of students of mine after they have made something, to do something, from something, that does something else, Is that clear? What I'm trying to say is that one of the most useful and rewarding skills a survivalist can learn is the ability to make things from other things. Take a belt for instance; it can be sliced (With some effort and a little jig to hold the leather) into long thin strips. These can in turn be double twisted (more about that later) into rope. Once the rope is available, all manner of permutations are possible. You can make a sling to take small game, a cord for a fire bow to make fire, a bow string, and if things are really hopeless, you can hang yourself!

Other parts of the belt may be useful. The buckle may work to remove tops from soda or beer bottles. The sharpened buckle post may work as an awl for drilling leather. It may even be possible to break the buckle into parts for fishing gear. The buckle can be used as a trigger mechanism for traps and crossbows or..... See what I mean? Take a good look at what you are wearing and start practicing innovation.

What uses can you put your shoe laces to, list them and try them. Next time you load your backpack take a close look at the items you plan to carry into the wilderness. How can each item be used in a different manner so that perhaps some other item can be left behind. The weight you save can be carried in another more interesting form or maybe you can just cut your pack weight. A lighter pack may allow you to lift your head to see the wilderness through

eyes unclouded with fatigue.

Take a close look at the pack itself. You can empty the pack bag and use it to cover some portion of your body should the need ever arise. Sleep in your pack? Sure why not, mice do it.

Look at the frame of the pack, a heavy rock can crush the tubing flat. MY GOD! why would you do a thing like that? It's sacrilege. Consider, If conventions and conservatism stop your innovations, you may seriously hinder your chances at a long full life.

Back to that frame tubing. I know a fellow who lost his pack into a mountain torrent. The pack was washed down stream through a rapids and finally over a rather evil water fall. It was seriously modified by it's encounter with the rocks at the bottom. The contents of the pack and the pack bag were scattered and lost but somehow the battered frame, still attached to the sleeping bag, floated to shore. Hours later my friend retrieved the now modified frame and soggy sleeping bag. He decided that his journey into the woods was over. Three days from the road head, no matches, night coming, his food feeding fish at the bottom of the torrent, He had a problem. What to-do?

First step, think. He did. He took the frame, which by that time looked much like metallic spaghetti, and smashed a part of it flat. He worried that part free, converted his shoe laces into a short rope, cut a few pieces of the appropriate kinds of wood, punched a dimple into the aluminum with a rock and presto! a fire bow set. He had used the aluminum as a bearing surface for the fire drill, the shoe laces as a cord for the bow, he made fire and started his survival odyssey. Because of his innovations and his skills he managed to turn a possible disaster into a fine adventure. A story incidentally, he loves to tell, again and again and again....I sometimes wish that he had another story to tell,

just for variety.

It is clear that there may have been other things he could've done and perhaps come away with a little more story. The significant part remains, he survived, and he did it through innovation and imagination. Now maybe if he had taken the aluminum of his pack, combined it with the nylon from his sleeping bag, made a hang glider and .....Innovation has it's practical limit. Remember too that there are always those "could ofs and "should ofs" they are easy to imagine after the fact.

Incidentally, could ofs and should ofs are fine. They demonstrate the exercise of the innovative process. Usually they represent alternative answers to a problem. As I have said before, you are trying to develop a solution to your situation. If you survive you succeeded. Anything else is only a matter of degree, of class, or of comfort.

Remember too a rule called "Occam's Razor". Basically Occam's Razor states "The simplest effective solution is the best solution"; Effective and simple.... keywords for innovation.

Later, when we begin to explore survival kits you'll see some of the many ways things can be modified. There will be few hard and fast rules. The contents suggested for survival kits can be changed to suit your personal needs. The kits will give you a handle on survival that can help carry you through your situation. Funny thing though, after we've decided just what items are useful in your survival kit we'll see how similar items can be made, and functions performed, by materials found in nature.

Incidentally, if the suggestion of an alternate use for some item didn't occur to you, relax. Many ideas are so obvious that they

are difficult to recognize at first. Anything that has already been done resides in the vast unconscious. By opening yourself to innovation these concepts will "leak in" to you and you will have an "idea". Survival originality is self-enhancing, once you try innovation you'll probably start using it.

Occasionally I hear someone mumble phrases like "I can't do things like that" or, "I can't do that kind of thinking" "Can't" is bad news, and a bad word. "Can't" must be dropped from your vocabulary. "Can't" implies external control. Self-control and choices are what a competent survivalist is looking for. "Didn't" or "won't" seem to be a closer description of the kind of concept you need to exercise when you begin to feel powerless. While these words are still negative they carry with them the germ of control we need. "I can't do that kind of thinking" becomes "I won't do that kind of thinking". Then you can ask yourself "why not?" Why not indeed!

Everyone can innovate, many don't innovate. You have to start trying. Start by opening bottles with something other than a bottle opener. Try eating with something other than a knife, spoon and fork. Try chopsticks, sucking, slurping and picking with your fingers. Try walking on your knees to change your horizon or to pretend that your leg is broken. Make an effort to modify the use of things you normally use.....Innovate, modify, originate.  
PRACTICING INNOVATION

I've been pushing this idea of innovation. Maybe you've already been innovating. Perhaps you can make strange and wondrous things out of dirt, rocks and bats eyes. Good for you. But then too, at least for the moment, maybe you can't. You may not know how to get started.

The starting point, or at least a starting point, might be to decide what items you need to assist your survival. One way to start that process is to think about the most elementary actions you will be required to perform. Once you have chosen some basic actions you can look about you for ways to do these things. Look at the following six jobs and try to think of a way to do these things with the items you have with you right now.

Six things that need doing

Cutting

Crushing

Lifting

Poking

Holding

Throwing

Let's try the first one, cutting, and play with it for just a moment. Lets also assume that you don't have a knife with you.

Suppose you have a metal belt buckle. You should be able to grind it flat along one side to give you a knife edge. The grinding can be done with a smooth stream stone. You may also be able to take the stone itself and hit it with another stone to create a sharp flake suitable for cutting. Is there a piece of trash nearby, perhaps a tin can? The lid is quite sharp (I'm certain that you have personal experience with that fact!) if it can cut your finger it can skin a small animal or cut apart edible plants.



Do your boots have an accessible and removable steel shank like the one found in Vietnam jungle boots? To find out, peel back the inner lining on the bottom of the boot (Don't do this to expensive boots!). On a jungle boot the shank is visible as a dark plate of steel about 1 inch by four inches and easily removable with the fingers.

If you go into the wilderness frequently you've probably noticed the carcasses of dead animals. Mostly these gross manifestations of once living things, are to be avoided. For the survivalist however the bones are a treasure throve of smelly delight. They can be removed, scored, split with a stone and ground to sharp edges for knives and arrowheads. Things like the hooves and skin can be converted to glue through repetitive boiling. Rotten leathery skin can be treated to make a sort of stinky but serviceable leather, good for tools, shoes and cordage. Even if your situation is short term, knowing that you know HOW to do these things will contribute to your self-confidence and sense of well being.

By now you've gotten the idea. Work with the words I listed first. Make a catalogue of the possible uses for items that might be able to do the jobs listed and don't hesitate to get a little far fetched. In a real survival situation you'll likely avoid doing involved tasks but the practice will help you to find easier ways to do simple jobs. After you are familiar with the strategy, try figuring out a few jobs you know need doing and follow the same patterns with them. If you can think of a job, it is usually possible to do it,....eventually.

Remember too that though some of your tasks can be done using the more or less conventional primitive technology, they may be impossible for you until you have the necessary skills. That rock I mentioned earlier for instance. The primitive peoples were able to make excellent stone tools from rocks found here and there.

They also had as many hours doing it as you have had reading or watching TV. They could recognize the best types and textures of stones suitable for cutting chores. They knew how to hit the material just right. They were able to manufacture the length, thickness and shape they needed. Of course you should still try making stone cutting tools. You will learn what they learned. In the meantime you can cut a material with stone by smashing it into its component molecules until it can be pulled apart. This act is called crushing. You can crush hard as in sundering, you can crush soft to crack nuts. Think.  
SEX AND SURVIVAL

There it is, that word again. Only this really isn't about sex it's about the sexes. Somehow, and very incorrectly, the word got out that survival experiences are too rugged for most women. I know that some women readers will bristle with incipient indignation. Don't, I will attempt to explain.

Survival skills are not limited to the male. It seems obvious that it took two sexes to make the species work. There remains the image of some hairy brute, club in hand, heading out into the primordial jungle to do battle with some loathsome creature. Meanwhile his woman sits home grinding flour in a stone bowl held firmly by grimy thighs. Lets stop right there. Who is keeping the family alive? It should be clear that it takes both of them, with a careful and appropriate distribution of labor, to stay alive.

The man may see himself as the hunter. So be it. Who gathers the firewood, the edible plants, who makes pots and starts fires? Who makes shelters and sets small traps, who brings water back to camp and cleans skins? The answer is as simple as the system. They both do. About the only truly exclusive jobs are related

to procreation. Women make babies, men make it possible for them to do so.

Of course there are certain jobs that seem to be easier for the male to do. Whatever programming is responsible for this is most probably there as the result of structural differences. As a rule, men can lift greater weights. They have an inclination to do the heavy manual labor type chores. Women generally enjoy allowing them the option to do this sort of heavy sweaty work. It is true too that I've seen many women happily assume the heavy chores and as happily discard them once they have help with the work. Countless times I've seen guys performing mildly incredible feats. Lifting trees, crushing boulders, and biting bears on the bottom. It fascinates me because so many of these Herculean feats are unnecessary. The lifted tree can stay and become a seat. The boulders might metamorphose into fireplaces and the bears are best left alone. Women and men are instinctive survival companions as soon as they know that they can do it together. A lot of guys and gals already know this.

One day, during a three day survival experience with some University students, I came upon a male student breaking wood into arm sized pieces. Sweat stood out on his back as he labored to produce his load. Finally he looked up in triumph, gathered his wood and led me uphill to his camp. He and another fellow were sharing the camp with two women and both of the guys had decided to gather wood. When we arrived he tossed down his burden, sat on a rock and tried to catch his breath. I looked around and saw no one else. He seemed disappointed that neither of the ladies was present to witness his feat. Just then I heard a crash up the hill from the camp. We both looked up just in time to see half of a dead tree, slowly thump its way down the hill toward camp. It stopped ten feet from us. As I looked at half a thousand pounds of broken wood I heard the euphonious tones of the male slave's camp mate.

She had gone UP the hill to KICK DOWN the wood. Never broke a sweat. Think!

One other thought related to this sex thing. Women as a rule can survive lower temperatures than men. The differences probably relate to the physiology required for child bearing. According to studies the woman's body will begin to react to reduced temperatures sooner than a man's. This reaction begins as a constriction of the blood vessels in the surface of the body and is perceived by the woman as cold. The constriction reduces heat loss and in this manner saves the energy to be released to the body core later. The energy saving reaction is a defense presumed to assist the survival of, as yet unborn, fetus. It is not necessary for the woman to be pregnant to achieve this heat loss protection, it is a part of the physiological programming.

Of course there are many variables such as conditioning, fat accretions, energy reserves etc. that can effect this presumed advantage. There is also a minor drawback. When blood flow to the skin is reduced to stop heat loss, the skin cools . Next the brain receives signals from the cooling skin telling it that things are cold. The brain makes this information available to the conscious mind and the woman feels cold even though a man in the same conditions might not even sense the temperature drop. She will continue to feel cold while males around her remain warm and feel warm to her. Later, when their warmth is gone and they are dead, she will still feel cold.

Most often survival emergencies can be met with skill and technique long before the final fatal calorie is withdrawn from the body. In the mean time the ladies tend to feel colder than the guys.  
A SUM THING

Looking back on what we've discussed you can see that from my point of view the most important thing you need to do in a survival situation is to think about what you are doing. You need some things to think about so that the thoughts will be more than just the idle chatter of your memories. You have to start considering the idea of survival not as something you study, it is something you do. If you do it you become a survivalist and a survivor. If you ever become a participant in a survival emergency you will probably notice a comforting and at the same time, disconcerting phenomenon. The intensity of your participation in the emergency will increase to give you the concentration and strength to do whatever is necessary. After the first night or two you might even enjoy it.  
Stay tuned for Chapter 3.... Woods Master.

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Chapter 3

Woods Master

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He's sitting in his office, suit coat on a hanger, tie loose, talking on the phone.

"I'll be back in about five days, I'll fax you a list of where I think I'll be going and some of the alternate routes. If I change my plans before I leave, I'll call you. The numbers

for the forest service will be on the fax.....Thanks buddy.....No, I'm going alone this time, I need some time to think.....Sure, I'll leave the keys to my car in the magnet locker.....You know where I hide it. OK, OK I'll be fine. Give my love to the wife and kids.....OK, Bye....&quot;

He's driving along a lonely mountain road, gets out, looks back down the road, takes in the view, climbs back in and drives away.

The most important part of survival training is learning how not to need it. You can't just wait for an emergency and then hope that your survival &quot;instinct&quot; will bring you through. There's no such thing as an uneducated instinct. Instincts are made of correct choices based on knowledge of potential threats. The boy scouts had it right when they chose &quot;be prepared&quot; as a motto.

Some people think that preparing for an emergency is a gloomy process motivated by fear and insecurity, nothing can be farther from the truth. Preparation is an enlightening process filled with discovery and freedom. Preparation is when you know the mechanics of nature, when you see the grand architecture of the skies and the land and it is when you learn to respect this architecture. Learning wilderness survival skills is much like learning the meaning of stop lights in the city. The skills tell you when to stop and to go, when you should turn and when you should just continue on your way.

Off in the distance the man can see the glint of a car windshield almost hidden in the trees. He turns away from the reflection and continues walking down a wooded trail. He stops, bends down and picks up an old, rusty soup can. He puts it into his shoulder bag. A little further down the trail he spots a piece of glass on the

trail. It's a nice view here. He picks up the glass, walks to a small bolder by the side of the trail, sits down and begins to make a glass knife. He pulls a piece of leather and an old horn from his shoulder bag and begins to press off pieces of glass. After a few minutes a crude but recognizable cutting instrument is in his hands.

In ancient times humans would search for natural materials from which to make their implements. Today many discarded bits of human flotsam litter the wilderness. These bits can make fine tools for the woodsman. Using them achieves two purposes. They provide tools and artifacts and using them helps to clean the wilderness. Glass can be used where Flint and obsidian were used for cutting and hunting tools. Tin cans and old canvas can easily replace clay pots and boiling skins.

Finished with the glass, he puts it in his kit and he moves on.

The sun is starting to get lower in the sky. He lifts his hand to the edge of the sun, and counts the number of hand spans to the western horizon, where the sun will set.

Ancient folks knew that they could estimate how much time was left in their day by simply counting how many hand spans it is to the spot the sun will set. Oddly, the hand, extended at arms length, will bisect about 15 degrees of arc. There are 24 of these 15 degree segments in a circle. That means that the sun will move about 1 hour for every hand span, approximately. Hell, in the wilderness about is as good as it gets, or as good as you need for it to get. Put yourself on a timetable here and you may as well be back in the city. Still there are times when it's nice to have some idea of the passage of time.

As he walks he punches his walking stick into the ground occasionally. Periodically he stops to look back. A bush catches his eye, He walks over to it, gathers some and suddenly with a quick motion, snatches a lizard from a rock. The lizard wriggles in his hand, he strokes it's belly and it stops struggling and lies still. He brings it to his mouth, opens his lips just a bit, blows on the lizard and then releases it back to the wilderness.

Lots of folks come up here to get lost, at least it seems that way. They get caught up in the joy of nature and forget that eventually they need to go home. When they turn around to go back, they don't recognize the landscape, get panicky and then they really become lost. One of the keys to not "getting lost" is to learn what is behind you by looking back occasionally. It's also a good idea to use a walking stick. The marks it makes in the trail are easily recognizable, if you can't follow your own tracks you should be able to follow your stick marks. Even light rains will leave behind the small pits left by a stick. (Other benefits of walking sticks include the fact that they change you from a relatively unstable biped to a much more stable tripod. They distribute the effort of walking to other parts of your body, they can be used for digging, investigating snaky places, pushing brush out of the way and a myriad of other things. Learn to use a walking stick. We'll discuss the selection of a good walking stick later.)

Lizards are pretty good food. They taste like chicken. Actually everything tastes like chicken when you're hungry. The problem is that most lizards are small and it takes a lot of them to make a difference in your survival chances. Usually it takes more energy to catch them than they are worth. If you decide that lizards are worth the effort, the best time to catch them is in the early morning when the night chill makes them slow and the sun hasn't had a chance to warm them. I just like to feel their bellies and wonder what they think of the giant carnivore that's holding them.



(They're probably pretty dim in the wondering department.)

He finds himself in a canyon at an open sandy area near a stream. There's a nice tree nearby and some rocks. He walks to the sandy spot. Drives his walking stick into the ground, and checks to be certain that it is secure. He bends down in the sand. His finger traces the shadow in the sand. At it's tip he places a smaller stick, point down, into the sand. He moves away. By the rock he finds a piece of wire. He removes his knife from it's case on his belt and using the knife, makes two small holes near the top of the can, on opposite sides. He threads the wire through the holes and using a small stick as a tool, wraps the wire around itself to form a hook. The can will now hang from a stick. At this point he gets up, walks over to the stick. The shadow has moved. He marks the new location of the shadow tip with another small stick. There is a distance between the two points marked by the sticks. He connects these points with a third, longer straight stick. He draws a line perpendicular to this longer stick, in the sand. At the tip of the drawn line, farthest from the base of the walking stick, he writes a big "N"; This is north. He really doesn't care. It is important to stay oriented. On other occasions he has used the shadow cast by the tip of a tree, and that of a telephone pole, to identify directions using this technique.

There are a number of methods one can use to tell directions from the sun. Things like moss on a tree, the bending of the top of a tree etc. Are inconsistent and inaccurate. Sure there may be places where these techniques seem to be accurate most of the time but don't count on them. There are better and more reliable ways..... the sun compass for one. Even the sun compass has it's drawbacks, far north and far south on this planet, the technique can force circling. There are other ways to tell directions up and down there.....

He looks back up at the sun and decides that he has just enough time to find a shelter site. He looks longingly at the place he just used for his shadow tip direction finding technique. If he were backpacking this would be a good site, water close at hand, wood and rocks nearby. He knows however that capable backpackers, deprived of their equipment, have died because they selected the same sorts of camping sites they did when they had all of their equipment for protection. Backpacking is gear oriented, the gear protects you from the wilderness and your mistakes. Survival is knowledge oriented, knowledge protects you from mistakes.

He begins to climb the side of the canyon. When he is higher than the canyon floor by the height of the highest tree in the canyon, he goes a little higher and starts to search for a spot to make his shelter.

Cold air goes down, warm air rises. This basic information forms the basis of a number of survival oriented decisions. At night, cold air settles into a valley. In a canyon it settles to the bottom and then moves down, following the drainage. The movement of air is called wind. If you were in the bottom of a canyon you would be in the coldest air as well as in a wind caused by the movement of that cold air. You would feel a wind chill.

Canyons are subject to an effect called the diurnal wind. That means that the wind moves down the canyon at night and up the canyon during the daytime's, count on it. How much colder is the bottom of a canyon? It varies but we commonly measure an 8f - 10f degree difference between the bottom of a canyon and a point 50 - 75 feet up the side of a canyon. Diurnal winds commonly move at @ 4 mph giving about 5f to 7f of wind chill. This works out to a 13f to 17f degree difference between a camp

site in the bottom of a canyon and a shelter site up the side of a canyon!

As he searches for an adequate shelter site he notices that the sun is hitting some rocks nearby. At the rocks he realizes that this part of the canyon is facing South, good. The rocks are as large as small cars and there is a pine tree struggling up through them. Captured between two large rocks beneath the tree is a flat space covered by a thick layer of pine needles. This is home for tonight.

He sits on one of the rocks to enjoy the view and feel the heat of the last rays of the setting sun. He knows that it will be cold tonight but probably above freezing. At the bottom of the canyon it will freeze tonight.

If you want to stay warm in the northern hemisphere, pick a site on a south facing slope. The sun will have heated the ground and the rocks. The earth will give up this heat during the night creating a microclimate. You have probably noticed microclimates before. You may have been riding a motorcycle or bicycle at night and noticed that the air is suddenly warmer or cooler than moments before. The next time this happens, look at the ground you are traveling over. If it got suddenly warmer you are probably traveling over asphalt. The darker surface traps the daytime heat and releases it at night. If it is cooler, it may be concrete you are over. Concrete won't hold as much heat and therefore cannot give it up at night.

Solar radiation also effects the character of the land it hits. Sunlight dries out the topsoil faster and tends to influence the growth of different types of vegetation on the south facing slope. Less moisture also leads to less complete control of erosion and therefore south facing slopes tend to have more exposed rocks

and less grass. Trees tend to produce thick blankets of insulation to protect their roots. All of these effects are good for the survivalist.

He moves back from the rock to the thick mat of needles covering the ground below the tree. Carefully he removes the sticks and pine cones that might make his sleep less comfortable. Moving as little as possible of the material, he flattens the sleeping area and creates a depression about 1 1/2 inches deep where his shoulders and hips should go. Then he lays down on his bed. It is comfortable.....gotta test the bed. It is comfortable and warm too.....

Heat passes from the body by five heat loss mechanisms;

Conduction, Convection, Radiation, Respiration and Perspiration (or wetness).

First a law: Heat must pass from the warmer body to the colder body.

You are the warmer body. If you want to stop heat loss to the ground (conduction), use insulation below you. Pine needles are good. They are found under pine trees.

If the wind is blowing (or you are moving through the air) Convection will occur. Move out of the wind. Rocks and trees help block the wind. Moving up the side of a canyon out of the wind also helps.

Radiation is heat loss to space. Cover your head and neck. A hat and a scarf help a lot. A roof over you head also helps a lot. The spread of a tree over you offers protection too.

If your feet are cold, cover your head. The brain automatically

cuts off blood flow to the extremities when you lose heat. Reduce the heat loss and the surplus heat will be returned to the extremities. Your socks are more valuable on your head and neck than they are on your feet. Just be certain to keep your shoes on and have them laced very loosely.

Respiration; breathe in cold air breathe out warm air. You are losing heat each time you breathe. Don't do unnecessary exercise as it will increase heat loss along with your increased respiration rate. If you need to do exercises to warm up, do isometrics in place. They are much more efficient in creating heat and they have a minimal effect on your respiration.

Perspiration..... Don't sweat. Don't work so hard that you will wet yourself with perspiration. Try to stay dry. Water increases heat loss by a tremendous amount (but nothing like the 640 times claimed in some manuals.....)

If you take steps to control these five heat loss mechanisms you have a good chance at survival. Under ideal circumstances you can do a lot to control the mechanisms. If conditions are rotten sometimes there is very little you can do.

When you make your bed, try for comfort as well as efficiency. A few minutes making the bed just right may pay off in hours of much needed and beneficial sleep.

He dozes and as he does he sees himself selecting his shelter.....Part way up from the valley floor, on a south facing slope, in a microclimate formed by large rocks, beneath a pine tree and on top of a layer of insulating pine needles.

Protected from the winds and holding in his heat he is happy and warm. Sometimes survival is so simple.

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Next: Chapter 4 Exposure..... The cold facts

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