

THE MOUNTAIN MAN



PIONEER ENCAMPMENT



RESOURCE GUIDE

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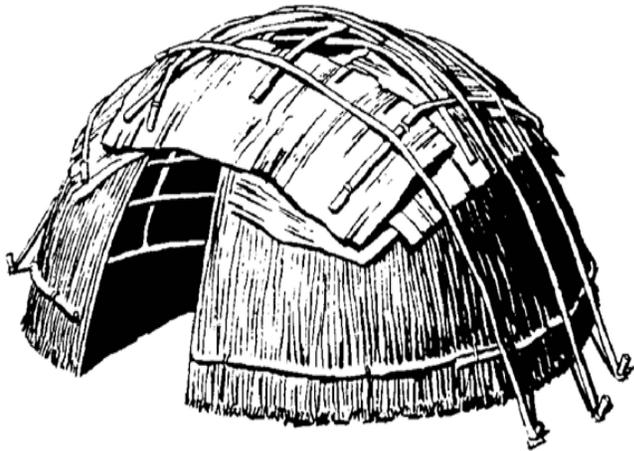
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For use by Ward Young Men Presidencies and Scout Leaders in preparing for the Annual Independence Stake Young Men Mountain Man Pioneer Encampment held in November.

There are many ways to provide yourself shelter without using a tent. This month we will discuss shelters of the various primitive indian tribes. Although we'll touch on tipis briefly this month, we will look into them in a more in-depth discussion next month.

Woodland tribes

Because most woodland tribes were wanderers, moving with the seasons to follow game, they needed portable houses. The **wigwam** was perfect for their way of life. Its frame consisted of four saplings bent toward the center. They covered this with long strips of bark sewn together and lined the inside with grass for insulation. Animal skins hung at the entrance. Fir branches covered with moose skins lines the floor.



A wigwam made of grass mats tied to saplings and covered with slabs of bark.

Plains tribes

The **tipi** was more than a shelter or home: It was a sacred place. The floor symbolized the earth, and the walls the sky. The tipi's base was a circle, a sacred shape that symbolized how all life is interconnected. Sacred objects lines the walls, along with family possessions and the necessities of life. The inner walls were painted with brightly colored figures and shapes that referred to family histories, spirit beings, ancestors and battle honors. A small altar was also a part of every tipi.



Plains buffalo-hide tipi.

Southwestern tribes

The Apache lived in small encampments. Home was the **wickiup**, a domed hut made of a pole framework covered with brush, grass, or reed mats. It could quickly be erected. There was no central tribal government. Bands had headmen or informal leaders but warriors often launched raids on their own. Each band was made up of several extended families.



Twenty to thirty poles, about a foot apart, and bundles of grass were used to build this wickiup.

Great Basin tribes

The Navajo lived much like their kinsfolk, the Apache. In traditional Navajo society, there were no villages, only solitary family encampments. Home was a **hogan**, a simple cone-shaped house built of timbers and poles and covered with bark and earth. The hogan entrance faced east, to honor the sun. Daughters inherited the hogans, sheep, and other property of their mothers. Husbands fathered the children, but were responsible to their sisters and their sister's offspring. Many Navajo families today still live in hogans and live by centuries-old traditions.



A Navajo hogan made of logs, small branches, brush, cedar bark, and earth.

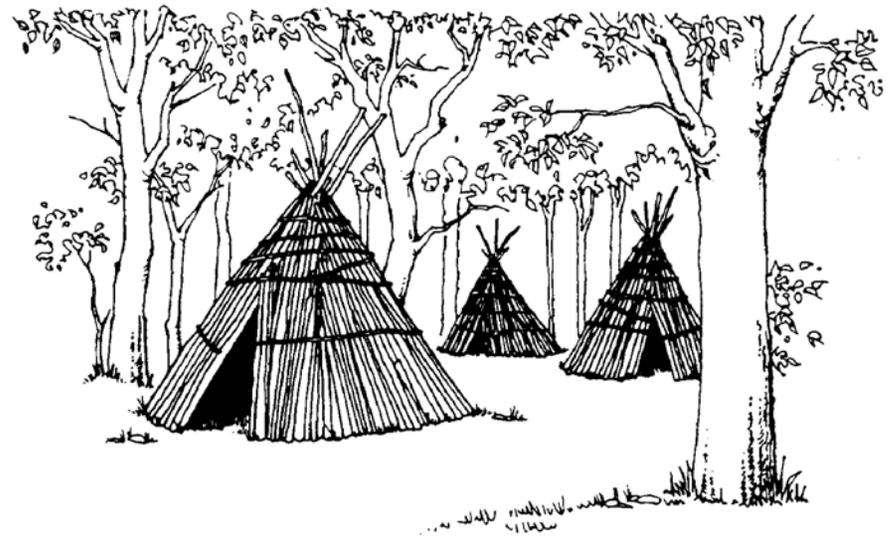
California tribes

Basin Indians lived by foraging. They spent their lives wandering from place to place in a never-ending search for water, firewood and food. Small search parties—usually no more than a few families—wandered together looking for food. There were no villages—barely camps. Rough shelters of willow boughs, brush, and reeds served to ward off the chilly night air. When they broke camp, they left the flimsy shelters behind.



A Paiute encampment on a desert plateau in northern Arizona. The shelters were made of brush placed over a frame of willow poles.

California tribes lived in many different types of houses. A typical house was cone-shaped like a tipi and built of poles covered with brush, grass, or reeds. Some groups had lean-tos made of redwood bark slabs. In summer, the desert-dwelling Yumans lived in open-sided, flat-roofed shelters that were little more than protection from the sun. Some tribes in central California built big, solid homes—dome-shaped structures that housed as many as forty to fifty people. The Maidu built partly underground houses twenty to forty feet in diameter. A single hole in the roof through which people entered the house also allowed smoke to escape. In the northern part of the area, tribes built wooden plank houses.



These tipi-shaped dwellings of the Miwoks had a framework of poles tied with vines, then covered with brush, grass, or reeds.

Northwest Coast tribes

Without nails or saws, Northwest Coast Indians built imposing houses. The walls and roofs were made of wood planks that were precisely fitted and tied to a framework of thick beams, poles, and plates. All homes of this region were built for multifamily use. An average lodge was about thirty by forty-five feet. In the north, the Tlingit, Haida and Tsimshian built rectangular gable-roofed houses, often larger than houses today. There is evidence that some homes were as long as a thousand feet, built to house an entire village. The coastal Salish, the Makah and others lived in plank houses with roofs that sloped from front to back.



A plank house built entirely without nails. The parts were grooved and fitted together to support one another.

This newsletter is issued on a monthly basis to provide your young men and leaders with resource information to help prepare them for the Mountain Man Pioneering Encampment in November, 2000.

If you have any questions please contact me at 796-8081.

Gary Stivers
Stake Young
Men's Presidency

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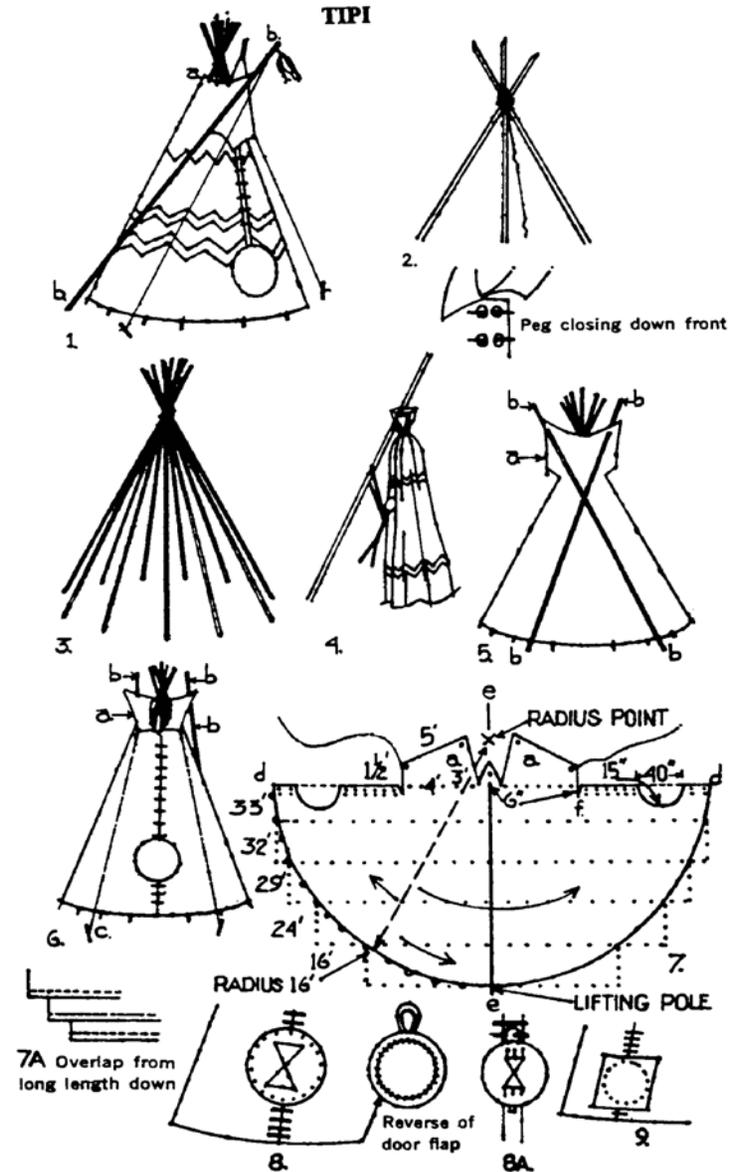
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While the Plains tribes had different types of dwellings, the tipi or teepee is the one most associated with this group. The tipi made an ideal dwelling for nomads. A simple structure, it could be put up and taken down quickly and was lightweight and easily transported for a life of following the great herds of buffalo.

The home of most of the Plains Indians was a conical tent called a tipi. This is a Sioux word, *ti* meaning "dwelling" and *pi* meaning "used for." It is also spelled tepee, as it is pronounced. These beautiful serviceable lodges were especially suitable for the area in which they were used. Actually the tipi is not a true cone, as the back or west side is much steeper than the front. In the Plains country the wind is almost always from the West, therefore the door and smoke hole face the east, and many of the lodge poles slope from east to west, bracing against the pressure of the wind on the steep west side. Because of this prairie wind which even today can blow smoke back down a chimney, the smoke hole of the tipi is a piece of engineering genius, albeit extremely simple. An opening is left at the top of the tipi to allow the smoke to escape, and the wind is kept from blowing down this opening by two flaps or extensions of the tipi which rise on either side of the smoke hole. These can be adjusted to the direction of the wind by means of two poles reaching up to them from the round outside the tipi-see Diagram 5 and 6 b-b, the poles 9, which adjust the smoke hole flaps (a). Diagram 5 is the back of the tipi showing the poles holding the smoke flaps wide open; Diagram 6 is the front of the same tipi, showing the smoke flaps from the front as they are held open. Note c which is the rope holding the bottom of the smoke flap staked to the ground. Diagram I shows the pole b-b holding the smoke flap (a) partially closed toward the front of the tipi.



The tipi is entered through an opening which is closed with a piece of hide stretched over a light round frame of wood, much in the shape of a shield. This opening was usually decorated with the symbols of the owner. The opening could also be closed with just a hide or blanket hanging over it.

New lodges were made in the spring when the buffalo had shed their hair and their skins were thin. A tipi with a radius of 18 to 20 feet took about 10 to 12 skins to make and when finished weighed about 125 pounds. A large council lodge of up to 40 feet might take over 50 skins to make. Later, when there were not enough buffalo left on the prairie, canvas was used, or cowhide.

After the skins were tanned, the woman called her friends and neighbors to a feast, and after it was over they all helped in sewing and cutting the tipi. The most skilled was trusted with cutting the tipi, or the old tipi was used as a pattern. Usually, though, the woman who cut the skins could do so entirely without a pattern. Care was taken not to waste skins in cutting or sewing, and the work was usually done in a day. The cover is a rough half circle (see Diagram 7) with two flaps projecting from the straight side (see 7a); between these is a tongue. This is where the lifting pole is placed (7 e-e).

Old poles are used, or if new ones are needed they are made of pine, cedar, spruce, or any straight slim tree. Flexible wood is not used for poles. The trees are cut down, peeled, and dressed down. The women did most of the work, although the men sometimes helped. The poles were from 10 to 40 feet long, but usually the average length was 25 feet. They tapered from a diameter of about 2 inches at the top to 6 inches at the ground end, which was sharpened. Poles were kept as long as possible and became dark and polished from handling and smoke. New tipis were nearly white, but became darkened with smoke and were almost black around the smoke hole.

Pins (for holding the cover together above and below the opening) and stakes were cut from slender, strong pieces of wood. These were usually a foot or two long and half an inch thick. In winter, stones and earth were piled against the bottom of the tipi to help anchor the stakes tightly, and to keep out drafts and moisture. If the tipi was to be left in one place for very long, the dirt floor inside was then excavated to a depth of two feet or so.

It is said that a tipi can be put up in a matter of minutes by Indian women, but it takes practice. Every little Indian girl had a tipi for her dolls, in the manner of a dollhouse, so she started early learning how to put them up and take them down. There were even small doghouse tipis for the family pet which were moved when the family did.

In putting up the tipi, the cover is spread flat on the ground, and the foundation poles are laid on it in order to measure at what height they are to be tied together (see Diagram 2). The poles are marked so that the next time they will not have to be measured. They are tied together with a rawhide band or rope. The long end of the rope is left hanging so that in windy weather it is fastened to stakes driven near the center of the lodge. The three tied foundation poles are placed on end (some tribes use four foundation poles, which is said to make a more beautiful tipi but not as sturdy). One pole faces east and forms the south door post. The other two are placed behind the door pole and are closer to each other than to the door. When the foundation is firmly fixed, the other poles are put in place. The first pole makes the other door post and the next four to six are set up to the north of it. The next group are placed south of the foundation door pole. The remaining poles go between the two back foundation poles. All but the last group rest in the front, or east crotch of the original poles. There is usually about one pole every 30 inches around the circle.

The last pole, or lifting pole, is next laid across the tipi cover on the ground, along the center, from the bottom to the small tongue between the smoke flaps (Diagram 7 e-e). Tie this pole at the tongue and place this pole, with the cover attached, to the west or back of the poles, in the west crotch (Diagram 4). The two sides of the cover are pulled around the poles until they meet in front. The left or south side is placed over the other and the two are pinned together with wooden pegs put in from right to left. These are placed about 6 inches apart and extend from the bottom of the smoke hole, which goes partway down the east or front of the tipi, to the top of the door opening. If the opening is placed a bit above ground level, pins are placed below the opening as well.

When the pins are in place, the women enter the tipi and push the poles out against the cover until there is no sagging. When the cover is tight against the poles, the bottom edge is staked to the ground.

The smoke flap poles are now put in place, the ties staked down either on separate stakes, or the two flap ropes tied to one taller stake or half pole set a bit to one side and in front of the door. To keep the smoke poles

from going too far through the hole, tie a small crossbar about 18 inches or two feet from the top end. By moving the smoke flap poles, the smoke flaps can be moved according to the direction of the wind, and in bad weather they can be completely overlapped.

If you want to make a tipi, make a small-scale model first and then you'll be completely familiar with the method. Today tipis are made of canvas or waterproofed muslin which is lightweight. A 16-foot tipi takes at least 50 yards of 36-inch wide material. Cut the material into five lengths as shown in Diagram 7 (the dotted line). The longest length, along the straight edge, is cut at 33 feet, the next is 32 feet, then 29 feet, 24 feet, and 16 feet. Place the lengths as shown, overlapping from the long one down (see Diagram 7A). If you sew the lengths in a flat seam overlapping in this manner, water will run off the tipi rather than into it. From the radius point marked X on Diagram 7, just above the center tongue of the cover, measure 16 feet. With a long 16-foot tape measure or a string and marker, hold the end at XI the pivot point, and mark an arc or half circle. The radius point is usually about 30 inches above the center of the top or long length. This half circle is shown as d-e-d on Diagram 7. (If you have a tarp large enough to mark off a radius of 16 feet you won't have to sew the strips together, or perhaps only two of them.)

Cut two smoke flaps 11/2 by 3 feet and 4 by 5 feet. The 5-length on the slant as in Diagram 7. From the center point on the long straight length measure 6 inches to each side. This is where the tongue will be sewn. This is a 12-by-12-inch square, rounded off on the one side. After this is in place, sew the smoke flaps to each side as shown. At the narrow end of the smoke flap make a 6-inch slit at f (Diagram 7), to allow for overlap down the front, above and below the door opening. On all cloth, reinforce the slits with extra stitching or binding. If you have enough material it is advisable to double the smoke flaps, and tongue, and sew them down along the seam, joining it to the main cover, or at least reinforce the material around the holes on the smoke flaps for the poles, and on the tongue where the lifting pole is placed.

Cut door openings on each side, an oval approximately 15 by 40 inches. This leaves a total door width of about 18 inches when the front is lapped over above and below the opening. You can cut the door wider if you wish, but remember to allow for the 6-inch overlap.

When sewing the strips together it is easier and turns out more even to start at the center of each piece and work out to one side, then back to the center and sew out to the other side. Double-stitched flat seams are best.

Sixteen to eighteen poles about 18 to 20 feet tall will be needed. Pick out the best three poles for the tripod, two slender poles for the smoke flaps, and a good solid one for the lifting pole.

The tipi can be decorated with symbols, animals, geometric designs, lines, stars, or just dots. The best time to decorate the tipi is after it has been sewn and is laid flat. Draw your design on a small scale so you have an idea how the total design will look. Fold your small-scale model into a cone shape to be sure your design looks right when the tipi is standing. With chalk or marking pencil draw the design, then paint it. Textile paints can be used, or if the material is waterproofed, ordinary paint can be used. Spray the waterproofing material on the tipi while it is flat, and let it dry before painting.

The door opening is closed by a skin or material pulled over a hoop which hangs over the closing peg just above the door and swings easily to one side or the other (Diagram 8 and 8A). Another type is a square of skin or material stretched from a pole hung to a closing peg above the door (Diagram 9). This is more of a flap-type closing. Either kind are usually decorated with some symbol of the owner, sometimes a figure from the owner's dream vision. The smoke-flap poles and lifting pole are decorated with streamers attached to the top of the pole, where they can fly in the breeze.

TIPI LINING OR DEW CLOTH

The tipi cover and poles do not make a tipi, or at least not a cozy one. The cover cannot be staked exactly to the ground all the way around, leaving an inch or two here and there for drafts. If it rains, water runs down the poles and leaves everything damp around the edges. A tipi lining is the answer. It keeps out drafts and dampness, keeps rain from running down to the floor from the poles, creates insulation, helps to keep the inside air in the tipi clear of smoke, and adds color to the interior. The lining keeps dew from condensing inside, so it is often called a dew cloth. After long use, hide tipis became almost transparent and the lining was a sort of curtain. The journals of early travelers often described the beauty of the glowing tipis at night. With a fire burning brightly in the center firepit at night, the tipis were lighted up like giant lanterns, and those inside cast shadows on the walls for all on the outside to see. But if the lining was in place, no lurking enemy could shoot an arrow at a shadow inside the lodge.

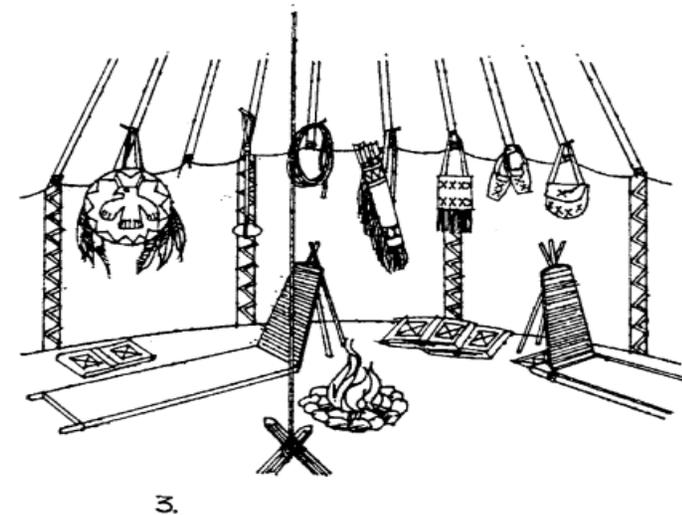
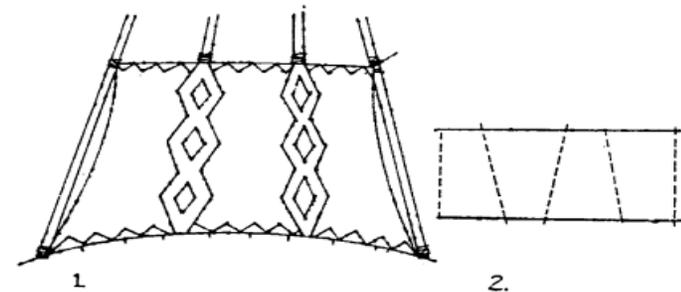
The lining should be of a lightweight waterproofed material, about 5 to 6 feet wide and long enough to go all around the inside of the tipi. This can be made in sections of several pole lengths, as in Diagram 1, or cut to fit each pole length and sewed together. In the latter case, cut the material as in Diagram 2, then turn every other piece right side up, so the top of the lining is smaller than the bottom. This is more work but there will be less sag in the lining. A rope can be run all around the tipi poles, and the lining hung to this, or the lining can be attached directly to the poles. Turn the bottom under, and with the floor robes down, cold air will be kept away from the lower part of the tipi, where the beds are, and where the children play. In fact, the lining turns the cold air, which enters under the lower edge of the tipi cover, up along the sides to the top of the smoke hole. In extremely cold weather, dried grass can be stuffed between the outer cover and the lining for extra warmth. If the lining is pegged down tightly all around the inside of the tipi, it will keep the inside of the tipi almost draft-free.

Linings were decorated with symbols of the owner, with figures that told of his exploits. Some had a striped pattern at each pole, others, a geometric design all around the bottom and the top. Decorations were painted on every other pole, or every two poles, depending upon how big the tipi was. Scenes of hunting, of horse races, and of games were sometimes painted on the lining. Linings were also decorated with beaded stripes and dangles of feathers and claws. These tipi decorations were hung by the woman of the tipi, much as we hang pictures in our houses to make them more appealing to us. Certain decorations having to do with the buffalo were considered "good medicine" by the Plains tribes, and only women of good character and ability as craft workers and housekeepers were allowed to display them on or in their tipis. These women belonged to a special society to which they were elected because of these qualities.

Diagram 3 shows the interior of a tipi with the lining in place. It shows how the equipment of the family was hung around from the poles, adding their color to the interior. War shields, war clubs, horsehair lariat, quiver, pipe bag, extra moccasins, and pouches were all tied to the tipi poles. Parfleche bags, the storage boxes and suitcases of the Plains Indians, are stacked at the back of the tipi and sometimes beside the beds. The rope from the tripod poles is anchored to pegs just in front of the fire. This holds the tipi steady in a strong prairie wind.

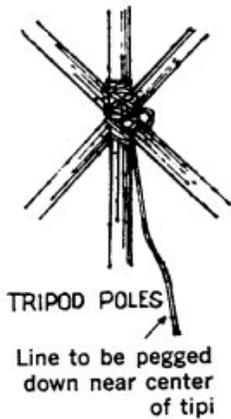
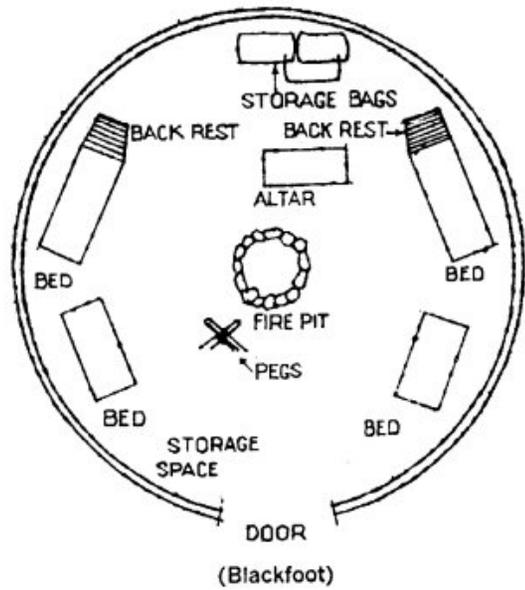
When the buffalo were plentiful and there were many robes in each tipi, they were used on the floor and kept the tipi snug even in the worst weather.

TIPI LINING OR DEW CLOTH

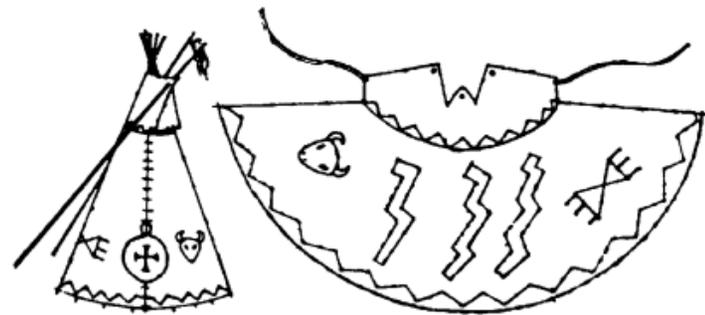
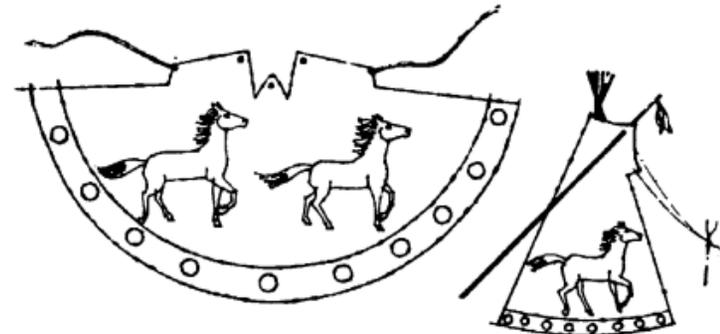


Beds with backrests for sitting or sleeping were usually placed around the sides of the tipi, with storage spaces just inside the door and to the back, where the parfleche bags could be stored. The fire pit was to the back, past the center and under the smoke hole. In front of this were the anchor pegs. Equipment and things not packed in the bags were hung around the poles of the tipi. The altar space is just back of the fire pit. Not all tipis had an altar, but if they did, here were kept the sacred objects of the family. Sometimes a sacred medicine bundle would be tied near the door, or attached to the lifting pole, so the tipi would always be blessed as it was put into place.

**DIAGRAM OF INSIDE AND OUTSIDE ARRANGEMENT
OF A PLAINS INDIAN TIPI**



TIPI DECORATIONS



When you are tracing your decorations on the tipi as it is laid flat, take into consideration that it will be in a conical upright position when finished. If you do not remember this you could have an animal sideways when the tipi is put up.

For example: the left horse on the first pattern would be climbing up the tipi when the tipi is upright in a conical position.



The Lodge

(Tipi, lean-to's and shelters)

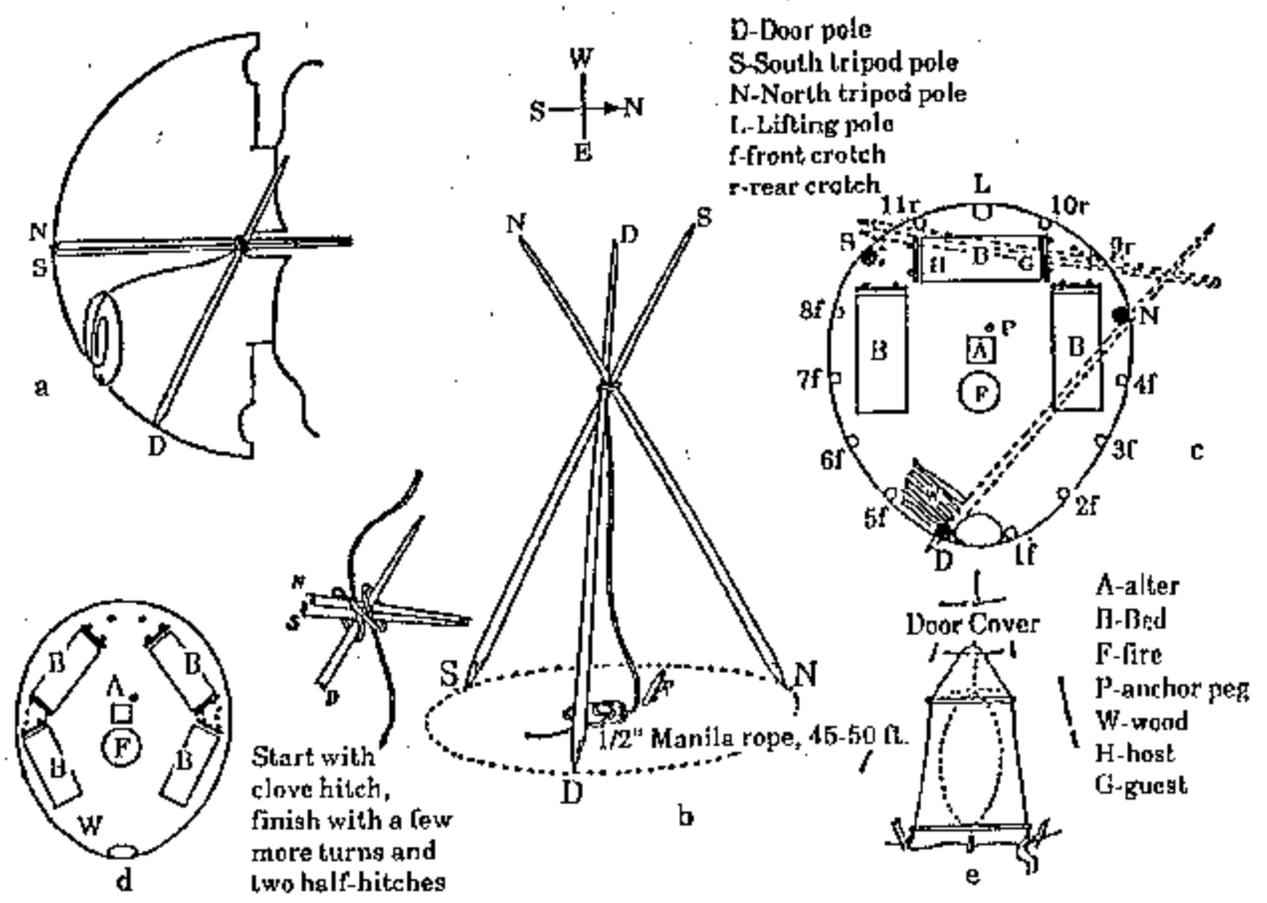
The mountain men had need of shelters just as modern day campers need a portable shelter to take with them on the road. He was concerned with the portability, stability, comfort, and style. But unlike modern day campers we are concerned with re-enacting a period of history or the past.

The mountain men borrowed and adapted much of the way of life of the American Indians. Over the years the Tipi or Teepee (means to dwell or live in Sioux) commonly referred to as a 'Lodge' came to be the home of the modern day mountain men or buckskinners as they are called. There were some who did live in lodges, the names of Kit Carson, Jim Bridger, Joe Meek, and William Bent sound familiar. It is doubtful if many of the old time mountain men owned one of their own or lived in one for any length of time. They usually did spend some winters in lodges of the Indian tribes they spent the winters with. Unless they had an Indian wife, and she had a lodge of her own. Indian women were the ones who own and set up the lodges, they were never owned by the men until recent years. The mountain men spent most of their nights under the stars, or he may have owned or used other types of shelters of the period: the wall tent, or the lean-to sometimes known as a baker tent. There were other varieties see *Buckskinning Book III*. He most likely only had a buffalo robe and a blanket to keep warm.

The lodge or tipi is a conical tent, supported by a dozen or more long thin poles (lodge pole pine) tied together near the top. There is a single opening in an oval shape which has a flap as a door. The cover or (skin) is wrapped around the poles and pinned together in the front with wooden lacing pins, and staked down around the base. Inside the lodge there is a piece of material that is tied to the poles about five feet up from the ground this is called a liner or (dew cloth). The tipi is open at the top near the apex of the cone. There are the smoke flaps which are held up by the smoke flap poles. The flaps can be adjusted just like lapels of a coat to let the smoke rise depending on the direction of the wind or closed in the event of severe weather conditions. The Indians made their tipis out of buffalo hide. They rarely were much over a 12 foot radius across at the base. During the latter portion of the 1800s (during the reservation period) they received the use of canvas which made them lighter they could be built much larger. Most modern tipis are made out of canvas. It may sound very complicated but the tipi is one of the most beautiful and efficient dwellings in the world. It is more than just a tent, it is a home which you can pull up and take with you. It has a rich history and will tell much about the true feelings of the plain Indian tribes. They are as much a part of the setting of the west as the covered wagon, cowboys and Indians. There will be illustrations and diagrams on the next pages of how to set up a tipi. I recommend that you read a book which is a must for anyone considering a Lodge or tipi. "*The Indian Tipi, Its History Construction, and Use*" by Reginald and Gladys Laubin. It comes in hard or paper back books.

A lodge is the perfect way to house a Varsity Scout Team on campouts and rendezvous. Many Teams in the Council have found them popular for the boys. It can sleep 10 to 15 depending on the size, it has plenty of head room, plenty of room to put your pants on without bending over, storage, privacy, air conditioning, and warmth with a fire built in the center. The best part is the fire that can be built in the center which can make for fun times talking around the campfire at night, roasting marshmallows or heating a cup of hot chocolate. The fire will allow for cooking right inside if there is bad weather. The graceful beauty of the tipi fits well into any wilderness setting. Nothing beats the sight of a group of tipis set against the sky with a beautiful backdrop of scenery. A primitive camp offers the opportunity to feel the atmosphere of what it may have felt like back many moons ago. I feel that there is nothing more peaceful and beautiful, than lodges set up in the old ways in the traditions of the Native American Indians.

For those who may not be able to obtain a lodges at first but still want to feel involved in the rendezvous the Lean-to or Bakers Tent will be less expensive and easier for Varsity Scouts to get a fast start. It takes less canvas and poles and will fit into a small budget and transportation is not quite a problem. The lean-to is ideal for one or two in each but impractical for more than two. We will now look at the illustrations.



a-setting the proper tie point for tripod poles
 b-setup of the tripod poles
 c-typical set-up of interior of lodge three beds

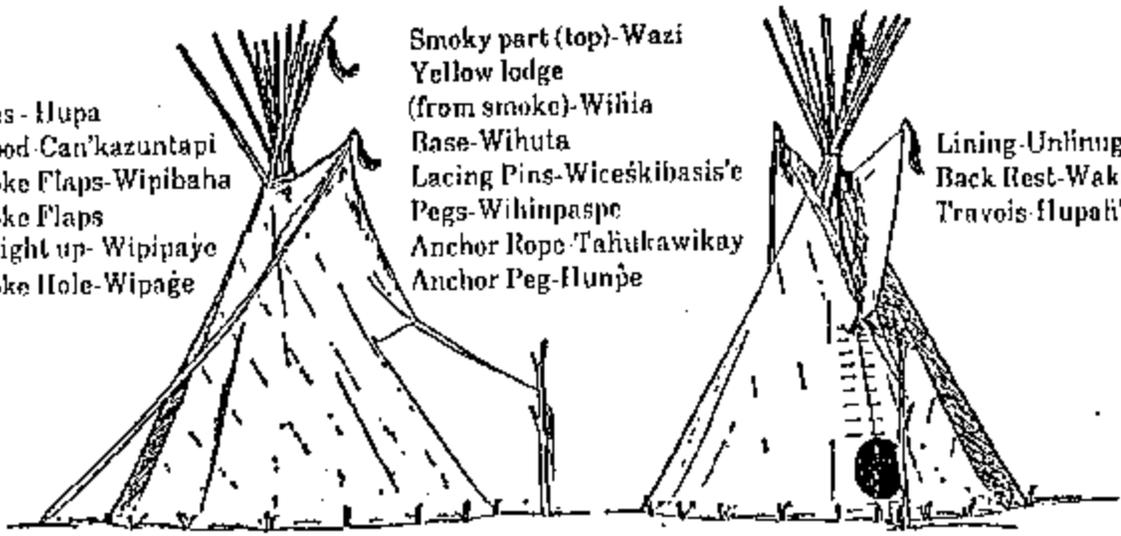
d-set-up of interior for four beds
 e-door cover

Erecting the Sioux Tipi

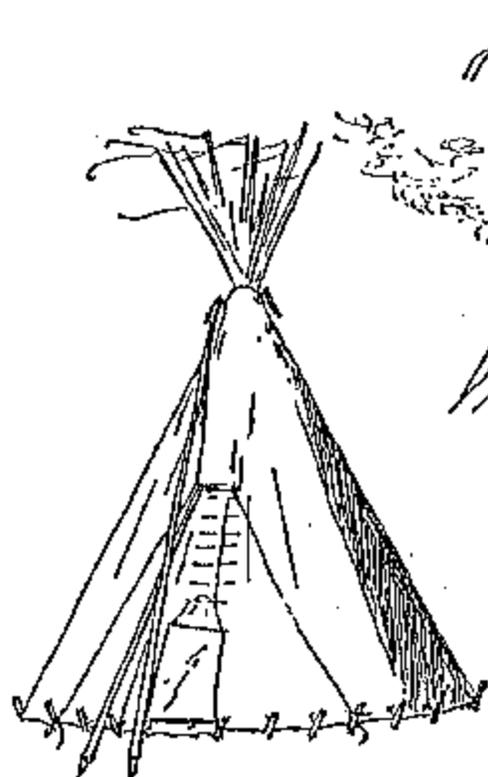
Poles - Hupa
 Tripod - Can'kazuntapi
 Smoke Flaps - Wipibaha
 Smoke Flaps
 straight up - Wipipaye
 Smoke Hole - Wipage

Smoky part (top) - Wazi
 Yellow lodge
 (from smoke) - Wihia
 Base - Wihuta
 Lacing Pins - Wiceskibasis'e
 Pegs - Wihinpaspe
 Anchor Rope - Tahukawikay
 Anchor Peg - Hunpe

Lining - Unlinugaika
 Back Rest - Wakazuntapi
 Travois - Hupaki'an



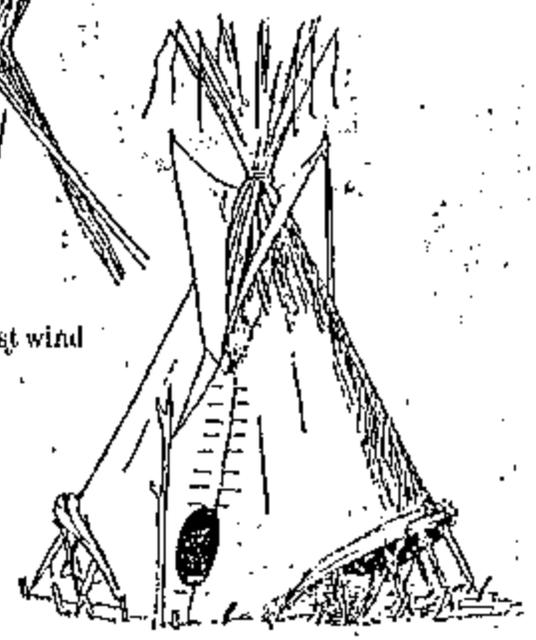
Parts of the Sioux Tipi



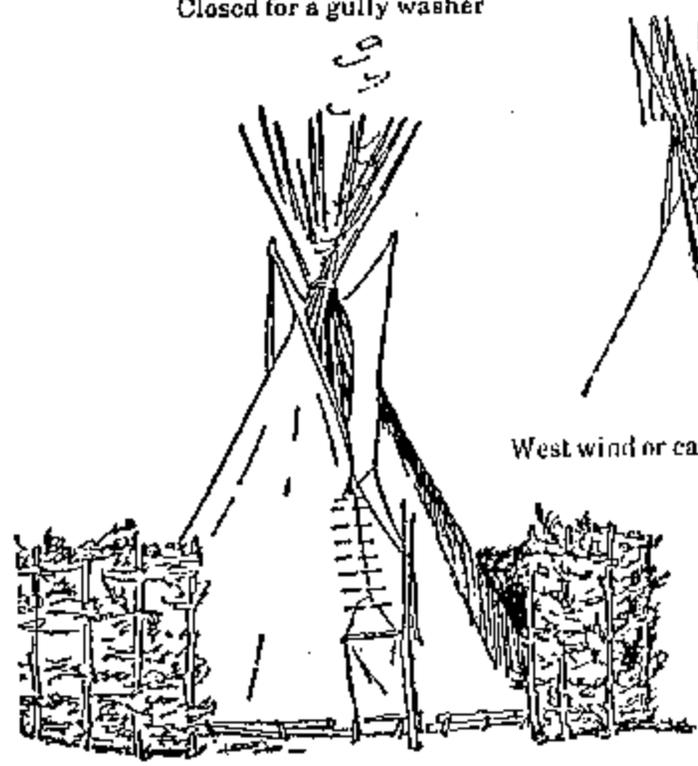
Closed for a gully washer



Northeast wind



40 above sweltering



40 below

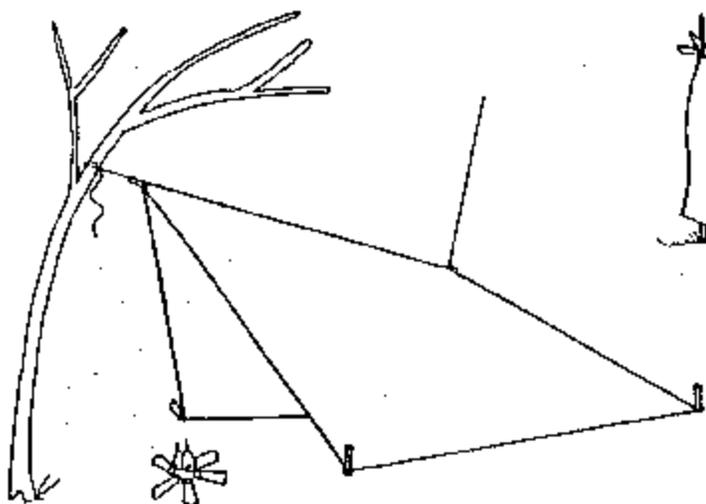


West wind or calm

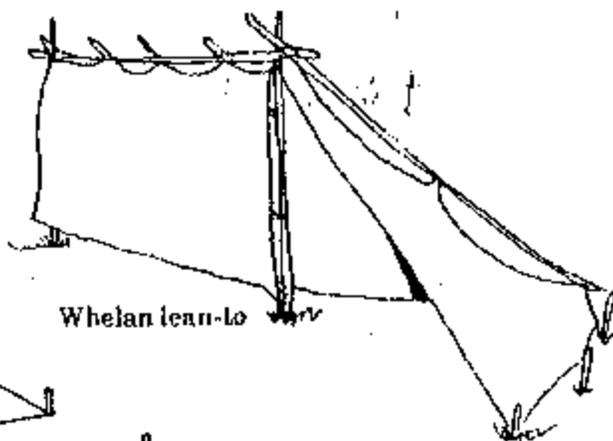


Southwest wind

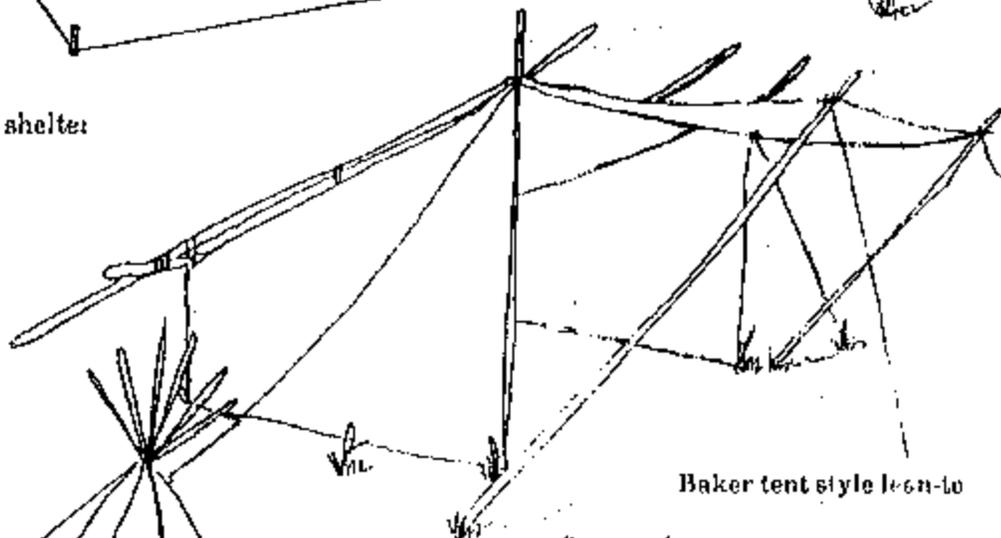
Handling Smoke Flaps



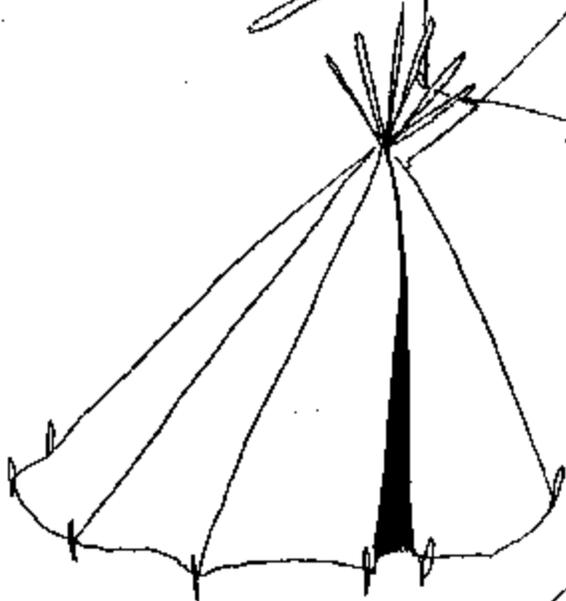
Diamond lean-to shelter



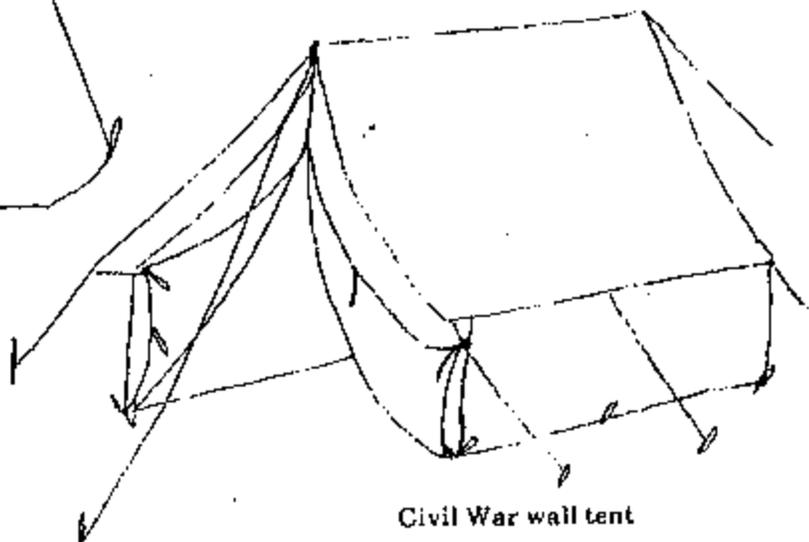
Wheelbarrow lean-to



Baker tent style lean-to



Multi pole lean-to or ti-to



Civil War wall tent

Period Shelters (white man)

This newsletter is issued on a monthly basis to provide your young men and leaders with resource information to help prepare them for the Mountain Man Pioneering Encampment in November 2000.

If you have any questions please contact me at 796-8081.

Gary Stivers
Stake Young
Men's Presidency

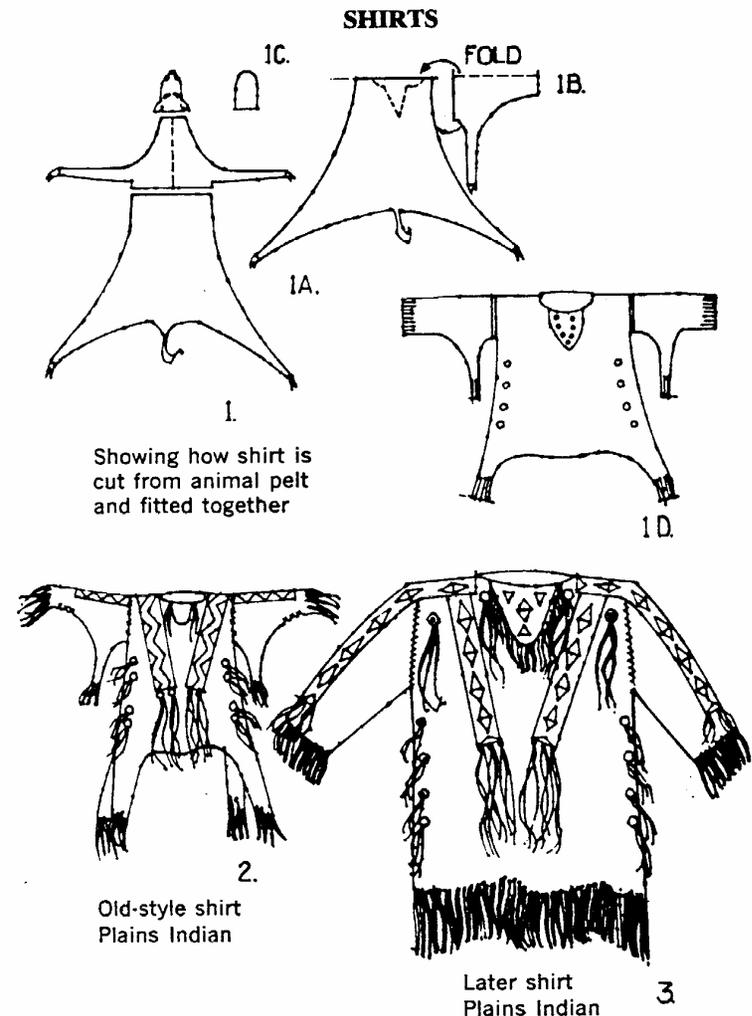
American Indian Shirts

Almost all Indian tribes wore some type of shirt. What was called the war shirt was actually a ceremonial shirt worn after the war party had returned to camp. Most of the shirts were similar to the Plains type shirt. Originally made of soft buckskin, a shirt could be made from two skins (see Diagram 1). The skin is cut so that the middle portion and hind legs make the shirtfront and the other skin, the back. The forepart of the skin and the front legs are folded along the dotted line and make a sleeve; this part from the other skin makes the other sleeve. The skin of the underhead makes a neck tab (Diagram 1C). Attach sleeve portion (Diagram 1B) to the body portion (Diagram 1A) as shown in Diagram 1. Cut the neck lower as shown by the dotted line, large enough to pull over the head. A slit can be made a few inches down the front, which will be covered by the neck tab. The sides under the sleeves are caught by thongs in two or three places, and the sleeves are caught together near the wrist. See Diagram 1D; the dark lines are where the skins are caught together, the dots along the side are for the thong lacing to hold the sides together. Fringe the leg portions which hang down, then add bands of beading and strands of horsehair as shown in Diagram 2.

Later, the shirts were given more form in that the long leg portions were trimmed off, and they were more carefully fitted. This shirt is simple to copy. Use your own shirt for

size, but cut it a little larger, as the shirt should fit loosely.

You can use the basic pattern of the Navajo shirt as described previously. To make this shirt, use buckskin, wool, flannel, suede-look cloth, or heavy cotton. For Plains Indian type use a pale shade of gray, beige or gold.



Chamois fringe can be cut and added at the bottom and at the sleeves and neck tab. Sew bead bands or embroidered bands, as shown, with horsehair or yarn strands sewn at the ends of the bands (see Diagram 3). Tie under the arms with leather thongs as was done in the older type shirt. Tin cone jinglers can be tied on with the horsehair or yarn at the end of the bands and at the shoulder. (See Part V for description of how to make the tin jinglers.)

Diagram 4 shows another type of shirt, made from the basic pattern but with less decoration. The shirts should reach somewhere between the hip and knee, so make your shirt the length that suits you. Use decorations from Part V, or make up your own.

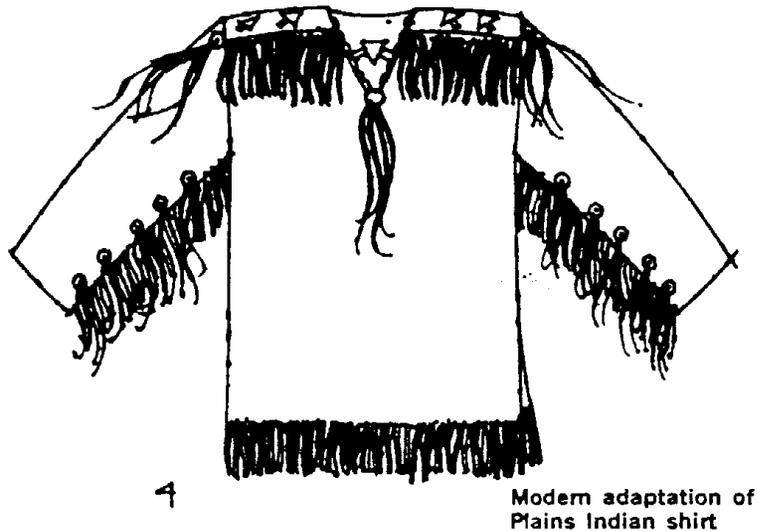
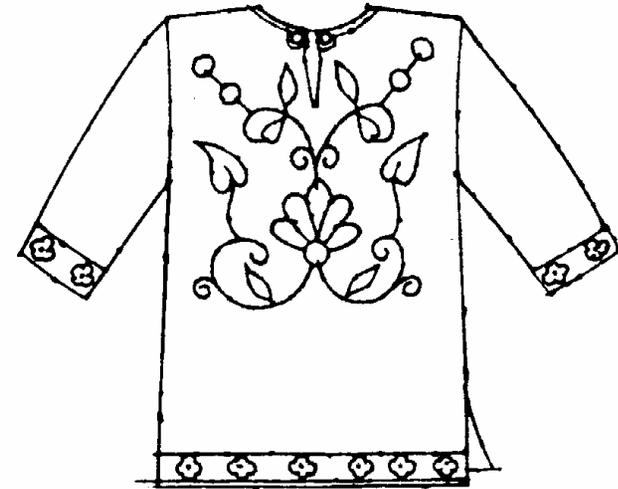
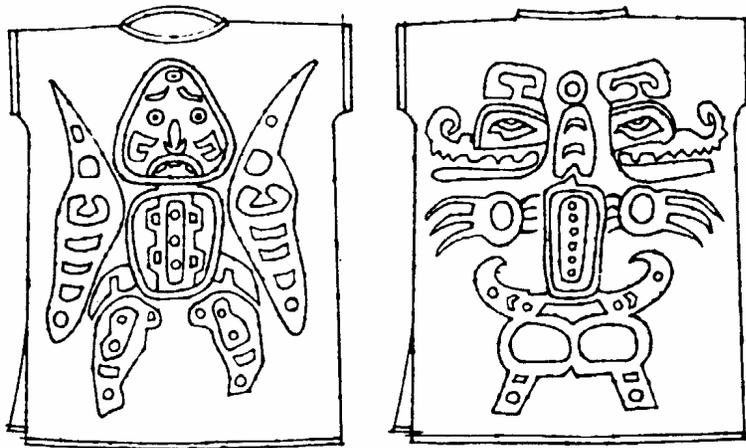


Diagram 5 is an example of a Woodland Indian shirt. This is made on the basic pattern, of black, dark blue, or wine colored velveteen or some other heavy dark material, and then embroidered in the floral designs of the Woodland tribes. Bind the neck, sleeves, and bottom with red, and a floral border, as shown.



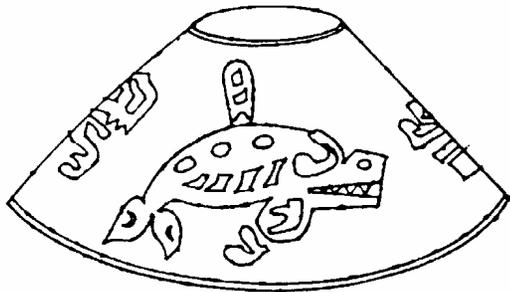
The Northwest Coast shirts are made of dark woven material with the designs appliqued on. Diagram 6 shows the front and Diagram 6A is the back of the same shirt. This is the basic pattern without sleeves. The armholes, neck, and bottom of the shirt are bound in contrasting material. These can be made of cotton cloth with the designs painted on instead of being appliqued, which is time-consuming.

Northwest Coast: Chilkat Indians,
branch of the Tlingits



6. Totem motif originally
painted on skin,
later, as here, appliquéed
on woven fabric

6A.



7.

Cape

Diagram 7 is a cape made of woven material cut in a circle and pulled on over the head. It is about 24 inches in length, and trimmed around the neck and bottom with an appliqué design.

INDIAN LEGGINGS

Leggings were worn by both men and women. Men's leggings reached from ankle to crotch and were attached to a waist belt, or tied about the upper leg, while the women's leggings came only to the knee and were tied above the calf with thong or beaded garter bands. Those of the women usually were beaded to match their dress and were close fitting, being either wrapped, buttoned, or made so that the foot could barely slip through, and the legging was almost as close-fitting as a stocking. Some women's leggings were fastened to the moccasins and became a part of them, like boots.

The leggings of the men were loose, much like the cowboy "chaps." Men's leggings were open both in front and back and were fastened by thongs to a belt, which held the breechcloth, which was always worn with leggings. The leggings of western tribes, whether made of cloth or skin, extended beyond the outer side seam and were cut into a triangle flap or fringed. The leggings of the eastern tribes usually had the seam up the front and had no flap or fringe, being more like tight-fitting trouser legs. These were decorated up the front, while the western tribes decorated their leggings up the outer side.

Generally 2 yards of material, 24 to 26 inches wide, will be more than enough material to make a pair of leggings. If you are using leather or some other expensive material, it would be best to make a paper or muslin pattern; then when you have fitted it to your satisfaction, use this to cut your leggings and there will be no waste of expensive fabric or leather. Fold the material in the middle lengthwise as shown in Diagram 1. Measure from the crotch to the ankle for inside length, and from the waist to the ankle along the outside of the leg, where the belt loop is cut. Measure the belt loop about 2 or 3 inches and then angle the material toward the front or fold of the

material (see c in Diagram 1). Do the same at a. The dotted line shows the outline of the material when it is folded. To save material, you can use material in length from the ankle to d of Diagram 1. Then the belt loop can be cut from the fabric left above the crotch line, or thongs can be sewn on to loop over the belt as shown in Diagram 3.

Stitch a diagonal line from a to b (see Diagram 1), leaving just enough room at the bottom for the foot to slip through. The material at the back can then be fringed or left loose. Decorate over the diagonal sewing with beading, shells, or loops of thong, as in Diagrams 2 and 3, Plains Indian leggings.

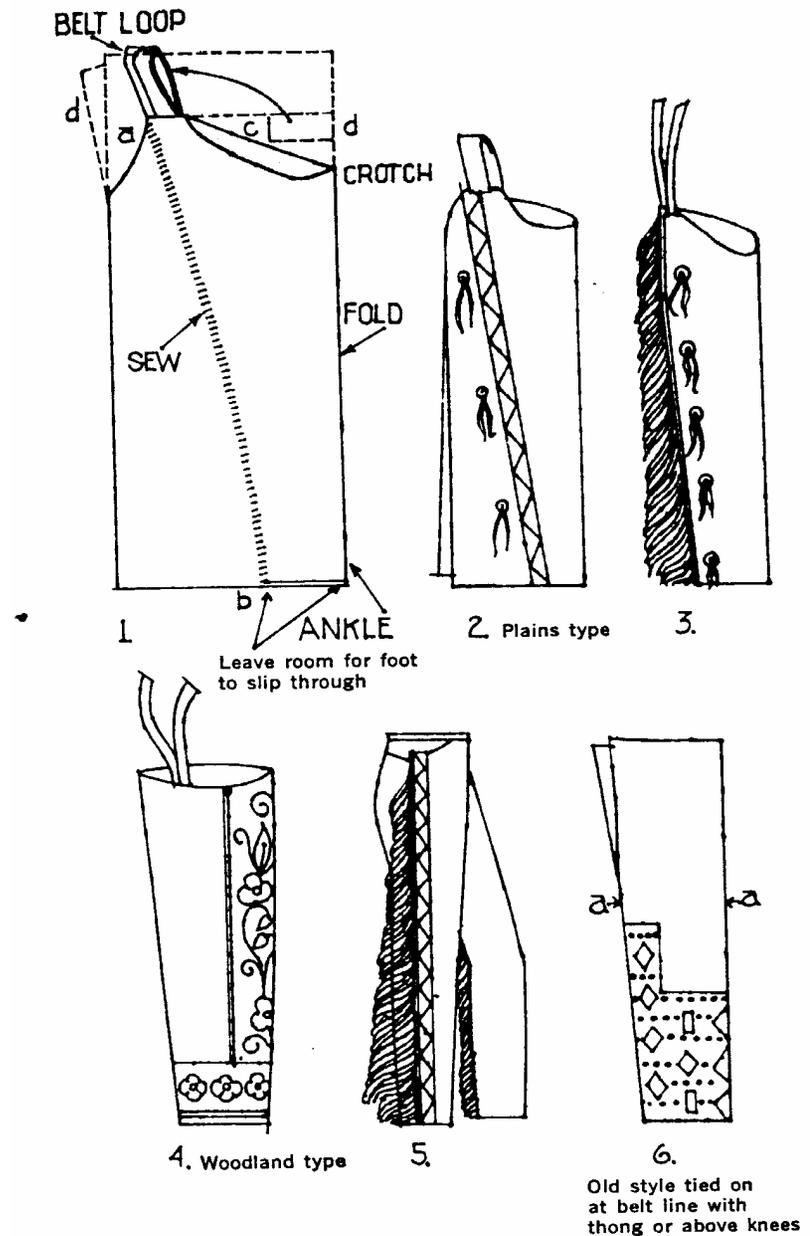
Diagram 4 is a Woodland legging, which is made straight, more like a trouser leg, with the decoration up the front and around the bottom. Belt loops or ties are placed at the side as in the Plains legging.

A very modern adaptation of leggings can be made by sewing braid or beading along the outer leg seam of tight leg slacks to cover wide fringe which is cut wider at the bottom to give the look of the triangle flap of the Plains Indian legging (Diagram 5).

Diagram 6 shows the old-style leggings, which were tied at the waist or around the upper leg with thongs.

Women's leggings are made like those in Diagram 6 but are cut off at a-a just below the knee and tied with thong or a beaded band. The women's leggings were usually heavily beaded to match their dress.

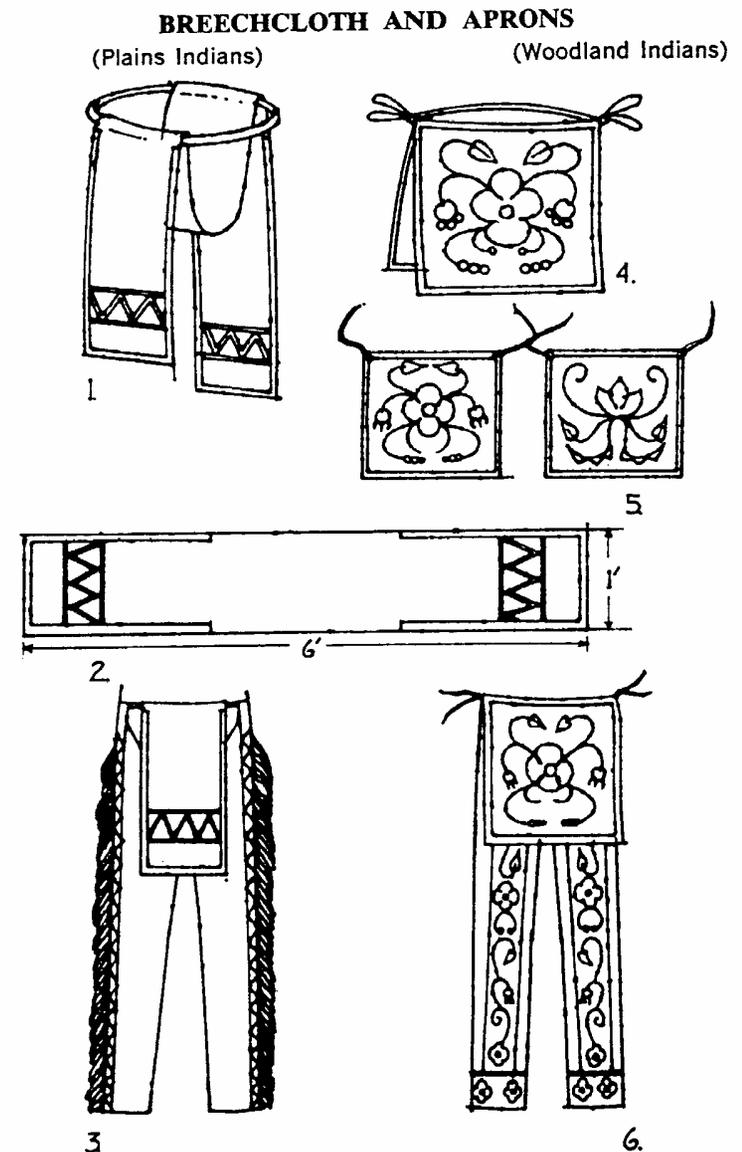
INDIAN LEGGINGS



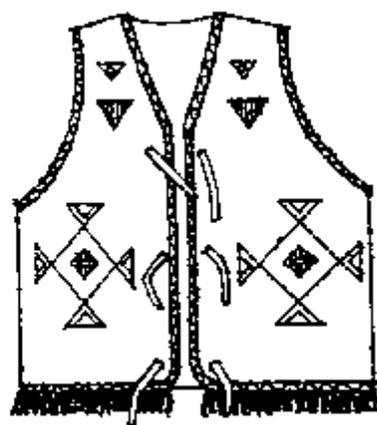
BREECHCLOTH AND APRONS

With Indian leggings, a breechcloth or apron is always worn. The breechcloth is simply a piece of cloth or soft buckskin about 1 foot wide and 6 feet long, depending upon how the wearer wanted the breechcloth to hang. Generally they were a little longer in the back. The ends are drawn between the legs and over the belt in front and behind. The ends, and sometimes the edges, are decorated with beading, or strips of contrasting color. The breechcloth, leggings, and moccasins were often decorated to match. In cold weather, or for ceremony, a decorated shirt was added to the outfit. For breechcloth measurements and directions, see Diagrams 1, 2, and 3.

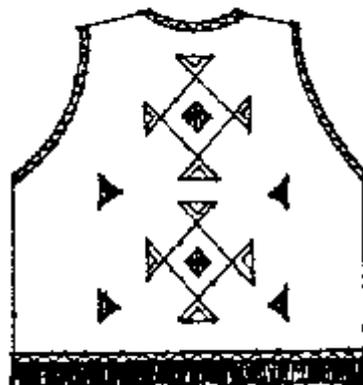
See Diagrams 4, 5, and 6 for apron patterns. These are worn instead of breechcloths, by Woodland Indians. The aprons are generally made of dark cloth, blue, black or wine velveteen, embroidered or beaded in the floral Woodland patterns. The aprons are square and about 18 or 20 inches, depending upon the size of the wearer. The back apron and the front apron are usually decorated with different patterns, and each is bound in narrow contrasting color and is tied at the hips. Aprons, leggings, and moccasins usually match.



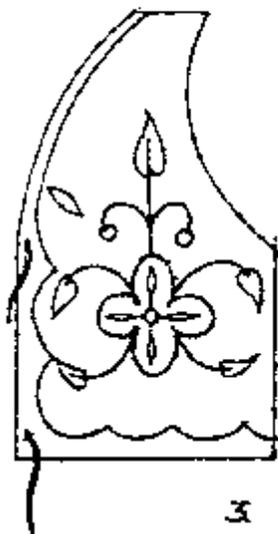
VESTS



1



2



3

VESTS

The vest as worn by the Indians appeared early in Colonial times and was worn both as an ornamental piece of clothing and as a windbreaker. It was especially worn by the northern Blackfoot, the Chippewas, Sioux, and Crow Indians. This garment was borrowed from the Europeans; a completely beaded Indian vest was a work of art, and highly prized even in early times.

The vest can be made rounded, square, or even pointed in front. Vests of the Plain Indians were originally made of deer or elk skin; however, some vests of the Woodlands Indians were made of dark velvet, blue, black, or wine color, lined and embroidered with their typical floral designs.

You can use a commercial vest pattern, or make a paper pattern from one of your old vests. Make it at least an inch larger though, as the vest should fit loosely. They can be made of leather, wool, felt, denim, canvas, flannel, suede, or vinyl-leather. You could even take the lining from an old vest and decorate it and no one would ever guess its origin. Trace your pattern on some inexpensive material first, especially if you're going to make a suede vest. Sew the shoulders and sides together so your completed vest will look similar to the outline of Diagram 1. The vest can be bound in braid to look like beading, or rows of beads can be put around the armholes and bottom. Fringe can be cut or added to the bottom, or even to the armholes and front. For the pattern on your vest, bits of felt can be sewn or glued onto it, beads or braid can be added. If you make a canvas vest, you can make the decoration by using wax crayon. Be sure to press the canvas on the wrong side with a hot iron. Place a plain piece of material against the front design so the wax crayon will melt and set, staining the cloth rather than the ironing board. Diagrams 1 and 2 show the front and back of a Plains Indian vest with typical designs. Diagram 3 is a Woodland Indian vest of dark velvet embroidered in a floral design. Both are tied at the front with a thong.

MOUNTAIN MAN PIONEERING ENCAMPMENT 2000

Newsletter #4 - February 2000

Period Clothing

Remember that the mountain men could be a variety of things: explorer, adventurer, hunter, trapper, trader, soldier, scout, businessman, a rugged individualist and more. He was a product of his environment and the society in which he lived before he came out west. The influence of the American Indian upon him was also felt. One of the best compliments you could give him was 'I thought you were an Indian', because survival depended on his ability to keep alive in Indian territory. His clothing reflected all of these influences, and yet it was unique to each individual.

Before you begin to make period clothing, you should determine which specific period you desire to model after. A good place to start is to research out some good books. Check your local library or craft store who sells mountain man books. Find some pictures of period clothing, or visit museums which have preserved the clothing of the period. Check with the local historical society and see what you can come up with. The loose constraint of anything before the year 1840 does not help give you a costume that will look authentic. You may want to pinpoint a specific decade or period of struggle such as the Rocky Mountain Fur Company 1830's; research a specific person, specific year, location (the town you live or historical site), Indian tribe, or character to model your costume after. You must consider the period of time and the region of the country. They wore different things in different parts of the country, like the eastern long hunters, the French or Canadian fur traders, soldiers, western trappers, or the Indians.

For Varsity Scout Teams the beginning point would be to make a mountain man cotton shirt (calico print). A mountain man shirt if made of cloth, would have been cotton, linen, or wool. Probably of solid colors such as: unbleached off white, blue, or red. large print and striped calico cottons were popular but hard to come by during the period. The few basic styles of shirts will be given in the illustrations.

Trousers of this period were high waisted, full to the hips and seat with fall front. There were three different leg types: stove pipe cut, tapered cut "Ivy league", or cut to fit close to the leg and flaring from just above the knee to give room for boots. Belt loops were not known of at this time. Suspenders or (galluses as they were called) were the fashion. They were not adjustable but fasten on with buttons. adjustable ones were popular after 1830. An adjustable 1/2 belt or a gusset and ties was also used.

Belts were basically used as weapon belts. They had to be heavy enough for a large knife, tomahawk, pistol that was trust through. Remember you didn't keep your pants up with a belt.

The Indian influence had its effect on all mountain men. After a while they adopted much of the Indian clothing like: breachclout and leggings, which will also be illustrated.

Indians wore a leather "War Shirt" in time of winter. It was one of the most striking articles of clothing developed and worn by some of the plains Indians. This leather shirt was made of deer or elk hide and was richly decorated. Anyone who owned one was known as having "Medicine", a "Shirt Wearer", respected as a "Big Man", or known as "Chief".

It is amazing what things can be found at Deseret Industries and Thrift Stores. Many things can be found at bargain prices. For example I found a pair of leather colored pants made out of a canvas type of material on sale for 88¢, they are great mountain man pants until the real leather can be obtained. There are many Hunters who will be willing to give you deer or elk hides during the hunting season. These skins can be tanned and made into clothing (see section on tanning). Fabrics can be obtained cheaper if bought in the bolt instead of by the yard. Check out the bargain and discount fabric stores. Keep your eyes open, there are many different and inexpensive ways for getting supplies to make your costumes.

We hope that these few references and ideas will get you started. Remember leather clothing is very expensive and boys grow out of things too fast. It is best to stay with cloth items for most of the clothing and if a boy desires to work with leather it should be left up to the individual boy to come up with his own leather. But do make sure they get leather moccasins and leather bags and accessories (please refer to the sections on each of these subjects).

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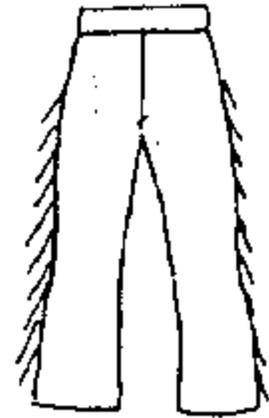
Gary Stivers
Stake Young
Men's Presidency



Caped Woodsman's Frock



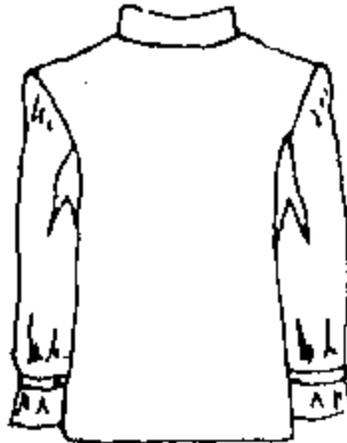
Broadfall Drop Front Breeches



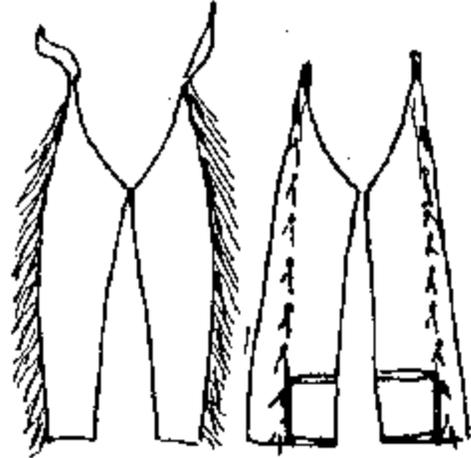
Early Frontierman's Leather Pants



Early Drop Sleeve Shirt



Authentic American Shirt



Leggings



Early Frontiersman's Shirt



Indian War Shirt



Frontiersman's Shirt



Breechelout

Period Clothing

Period Hats and Head Gear

Head gear was functional and decorative and showed the style of the times in which they were worn. Hats run the gamut of styles that were worn during this period and show the individual personality of the owner. The main styles of headgear worn by the mountain men include: Balmoral Bonnet, Tricorn hat, knitted Voyageur or Liberty cap, Fur hat (muskrat, fox, coyote, skunk, coon and rabbit), Beau Brummell or Top hat, and Bridger hat (wide brimmed flat crowned beaver hat). They were all used and seen during the trapping era. Before you go out and spend money on headgear, decide which style you like. Some merely wear a bandana head band, or a bare head to start with. I have decided that I like all of the hat styles, and will wear different hats depending on the atmosphere or my mood at the moment.

The following illustrations will give you an idea of the basic styles. Remember the fur hat is probably the most varied in style. It was made out of many different animal furs and was customized by the individual. There are many different ways of decorating them most of which is personal and different depending on the material you have to work with. The hat you wear will tell something about yourself. It is best to do some looking around before you make your decision. Hats that are ready made to wear, or kits to make personalized hats can be obtained through catalog order from 'Craft Suppliers'. Their addresses can be found in Appendix A.



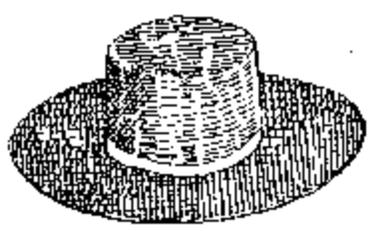
Crooked hat



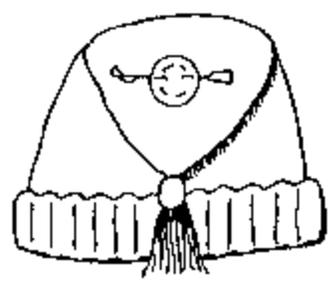
Tricorn hat



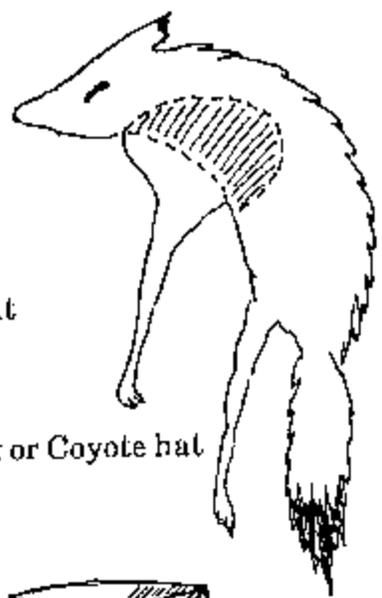
Beau Brummell or Top hat (made from beaver)



Broad Brimmed Beaver hat (known as the Bridger)



French Trappers or Voyager hat (knited wool yarn)



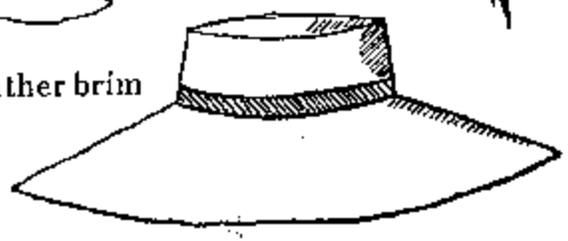
Fox or Coyote hat



Coon Skin cap



Fur Hat with leather brim



Regular Felt hat

Pouches and Bags or Possibles Pouch

Traditionally mountain men did not have pockets in their buckskins, thus the need to have some way to carry and hold items that would usually be in the pockets of their pants. In short the possibles pouch is for everything and anything you think you might need to carry with you, and have immediately at hand. Because these bags can contain anything, that is why they were called possible pouches. Today for example these items might be kept in a possibles pouch: keys, cash, wallet, paper and pencil or pen. All of these come in handy, you'll have your own list of things to include. Traditionally the mountain men carried in them all the things necessary to survive.

As you get involved in black powder shooting you will have a possibles pouch just to carry the items needed to keep your rifle clean and re-loading supplies. So you can see that there may be more than one bag or pouch needed.

These pouches come in many sizes and shapes. They are made of tanned buckskin or other appropriate leather. They can be designed for different purposes. Some hang from a strap over the shoulder, or they might be designed to be placed on a belt. Some are decorated with bead work and long fringe and others are just simple and plain with a fold over flap.

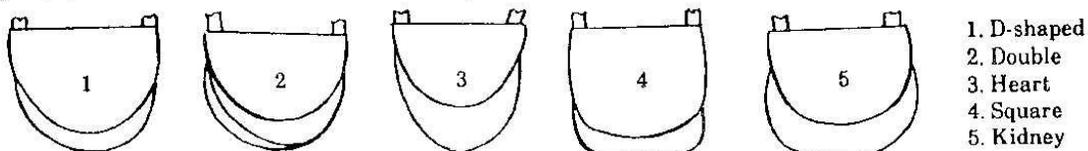
Types of Bags or Pouches are:

- Strike a light pouch (used for fire starting equipment)
- Long bag carried on a belt (known as *Pipe Bag*)*
- Possibles pouch used to carry anything needed that pockets would (known as *Tobacco Pouch*)*
- Shooting bag (used to carry black powder supplies and tools)
- *Medicine pouch** (small pouch carried by Indians around the neck to carry personal spiritual items in)

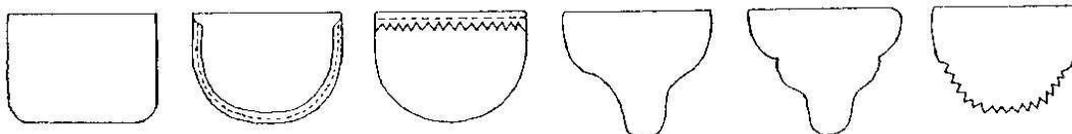
*(These are names used during this period we do not condone or teach boys to use tobacco or to smoke).

I will give some simple ideas on how to start making possible pouches. Leather can be obtained at Fox Valley Tanning Co. in North Salt Lake on the west side. There you can obtain Leather at reasonable rates they often have a section of scrape leather which works great for leather pouches and bags.

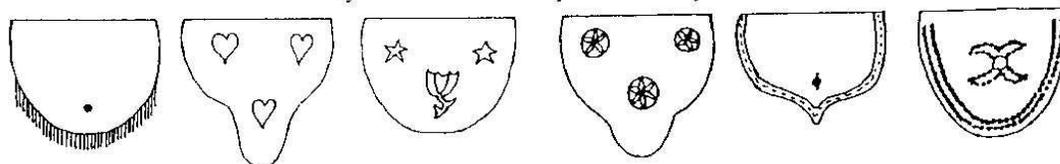
A great resource for you is by going to Deseret Industries and looking through their used purse section. Leather purses make a great first time possibles pouch with a little work they can be converted into a nice pouch. Some teams make a nice project to cover old purses to make them look old and antique.



1. D-shaped
2. Double
3. Heart
4. Square
5. Kidney



Different ways to decorate the flaps on leather pouches and bags



Leather Bags and Pouches come in all sizes, shapes and decorated differently

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 If you have any questions please contact me at 796-8081.
 Gary Stivers
 Stake Young
 Men's Presidency

INDIAN BAGS AND POUCHES

Every Indian tribe used bags and pouches; in fact, they were necessary in almost every phase of their life. They held many items of daily life as well as ceremonial things. They were made of soft skin and decorated according to tribe, individual taste and use. The Plains tribes used geometric designs while the Woodland Indians favored floral motifs.

Diagrams 1, 2 and 3 are designs of the Plains Indians. The first is a pipe bag, one of the most prized of Indian items as it held the special ceremonial pipe and tobacco. These were usually beautifully decorated and fringed. The overall length of Diagram 1 is 25 inches by 6 inches. These can be made in one length, with the fringe cut at the bottom, or the fringe can be sewn on; or they can be made in three parts, the upper portion lightly decorated so the bag can be closed with a drawstring. The middle portion is heavily beaded or decorated in some way, and the lower part is fringed. Diagram 6 shows a pipe bag decorated in the floral design of the Woodland Indians; the overall dimensions of this one are 20 inches by 5 inches.

Smaller bags or pouches are used to hold personal items such as body paint, small trinkets, and sewing materials. These are usually decorated with favorite symbols and only short fringed, if fringed at all.

The belt pouch is designed to wear on a belt as in Diagram 3; Diagram 3A shows how it is attached to a belt. Diagram 4 shows a small pouch with the pendant bottom decorated with a tuft of feathers. Diagram 5 shows a Woodland type pouch.

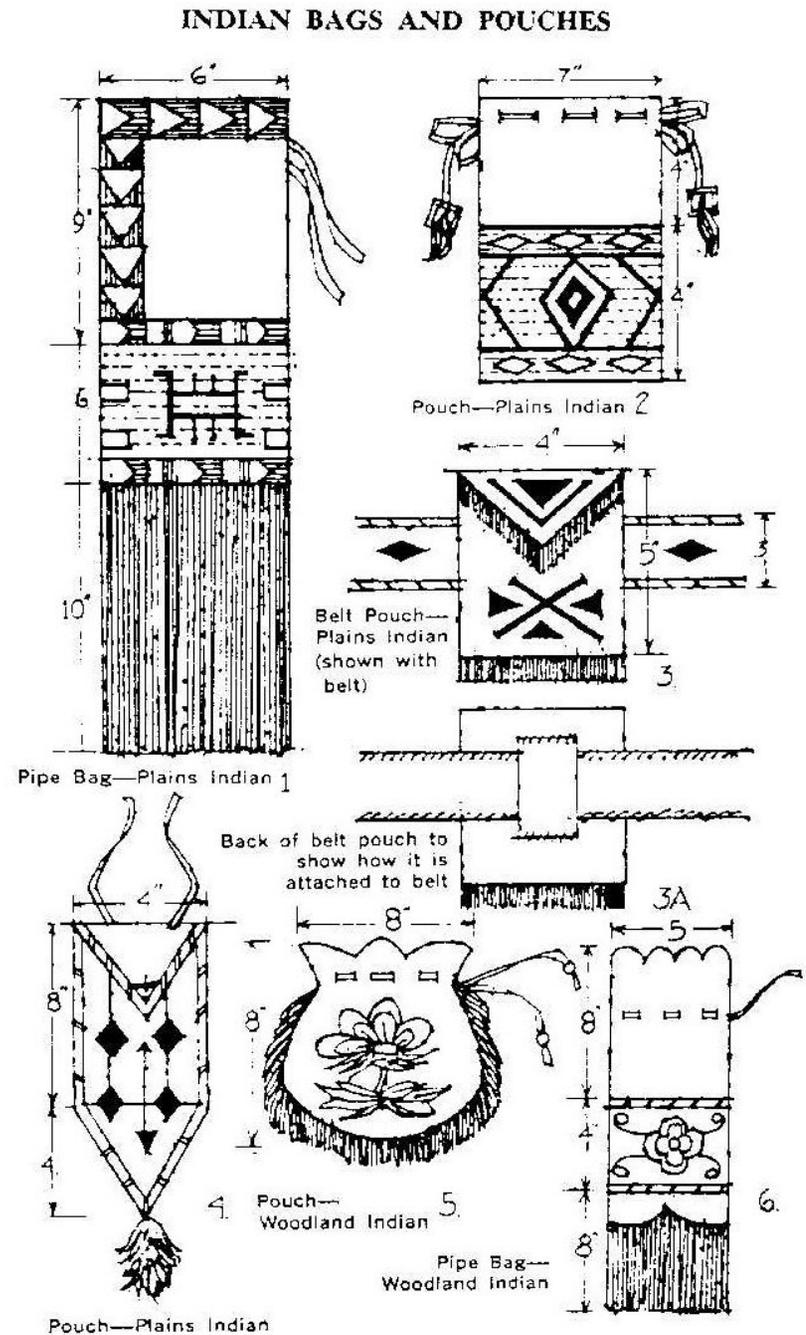
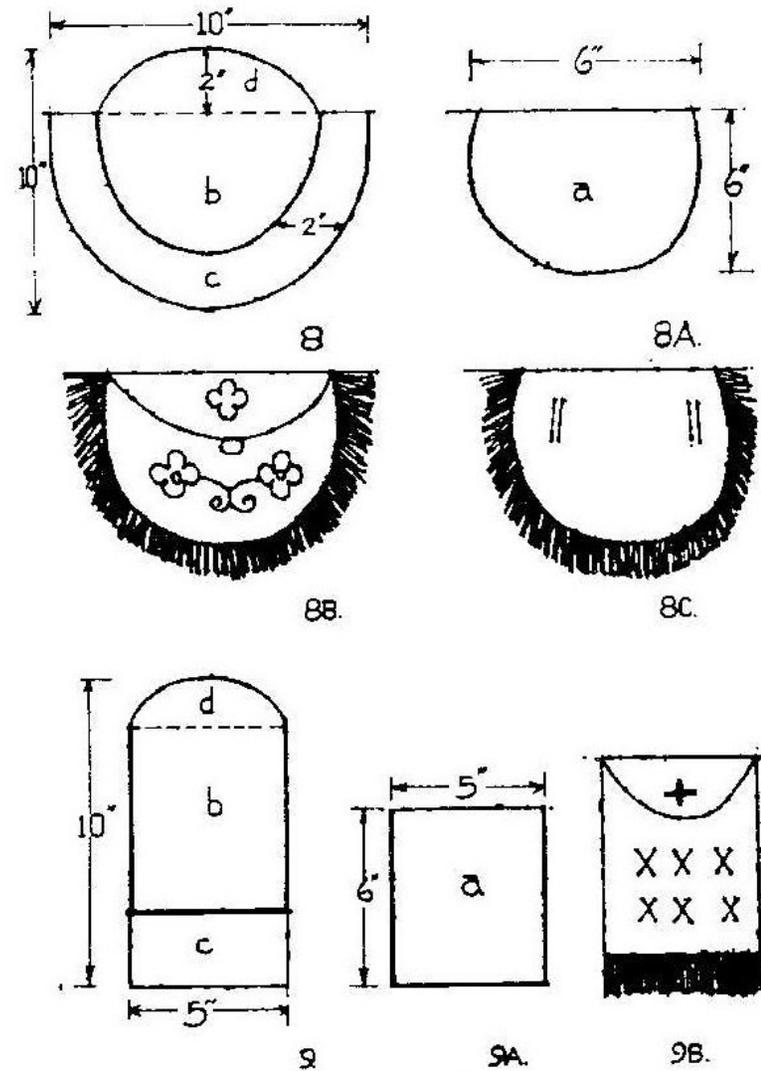


Diagram 8 shows how to make the rounded style pouch; *a* (see Diagram 8A) is to be sewn over *b* along the heavy line, *d* is the flap, and *c* will be cut as the fringe. Diagram 8B shows the decoration and Diagram 8C illustrates the slits in the back side of the pouch where it is slipped onto the belt.

Diagram 9 shows a rectangular pouch: *a* is to be sewn over *b* along the heavy line. The back side with flap *d* is 10 by 5 inches. The front part to be sewn on is 5 by 6 inches. Diagram 9B shows the completed pouch with the lower or *c* portion cut as fringe.

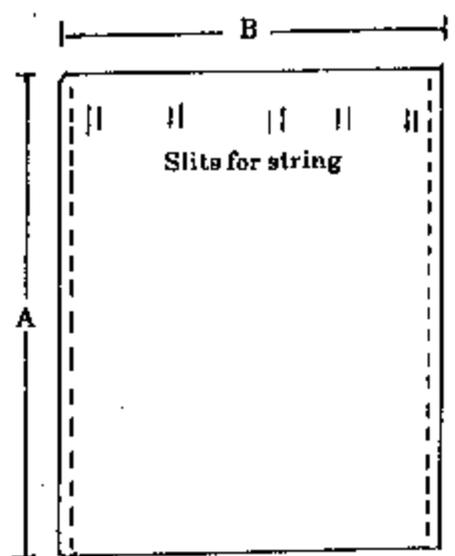
Another type of pouch, made like any of these, is called the strike-a-light pouch. It is smaller, usually 3 or 4 by 5 or 6 inches and was used for carrying flint for making fire; every household had one.

These are generally made of buckskin and later of buckskin and canvas. Today you can use leather, suede, chamois, canvas, felt, leather-look material or flannel. These bags can be decorated with beads, embroidery, bits of felt glued or sewed on, and on canvas you can use wax crayon, pressed with a hot iron to set the pattern. Use a favorite motif of your own, or copy an Indian design. Commercial fringe and braid can also be used for a simple and quick decoration.



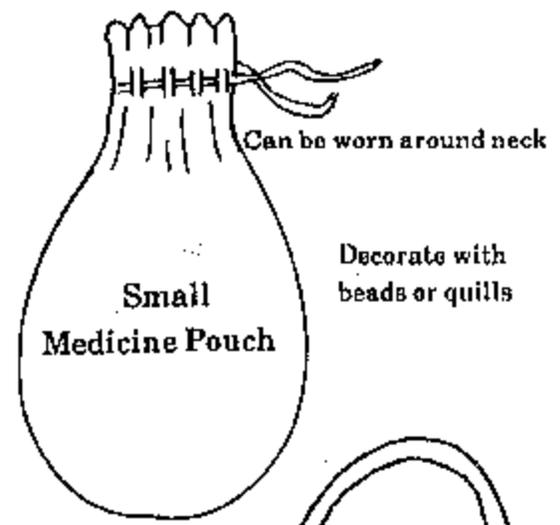
Strike-a-Light Pouches and Personal Pouches

One piece folded and stitched or Two pieces stitched together

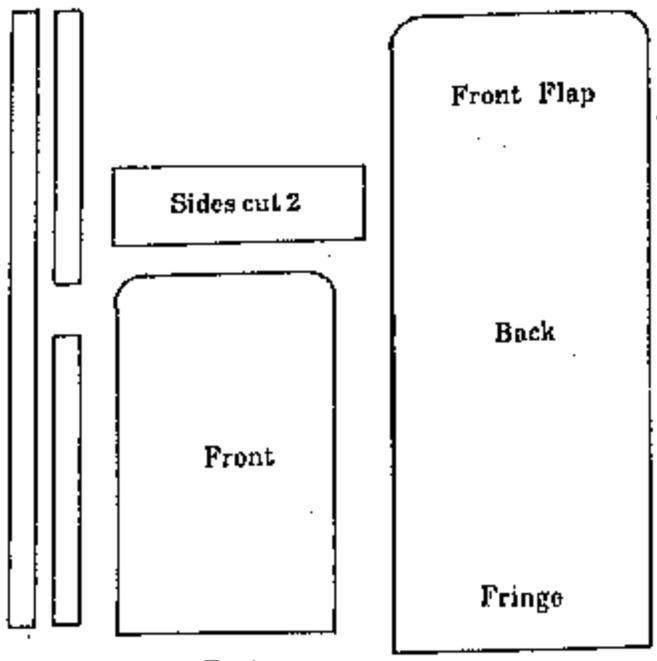


Stitch inside out

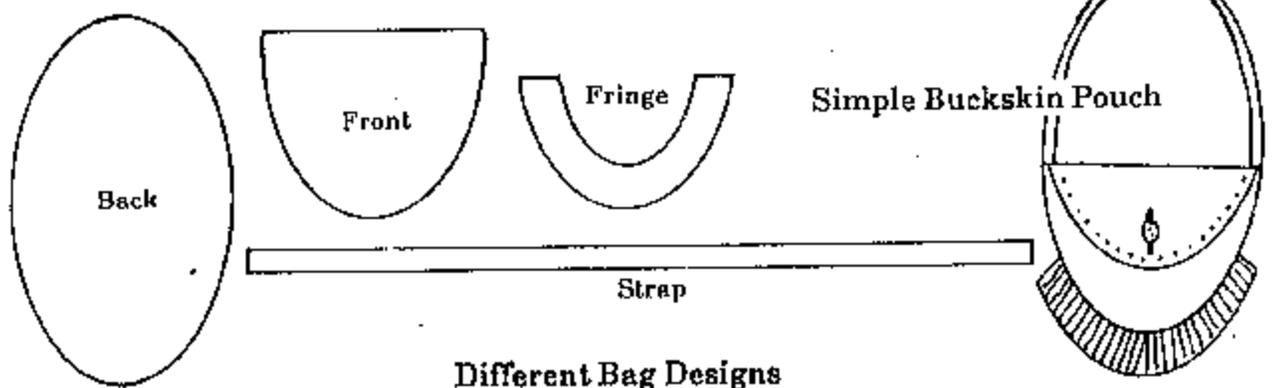
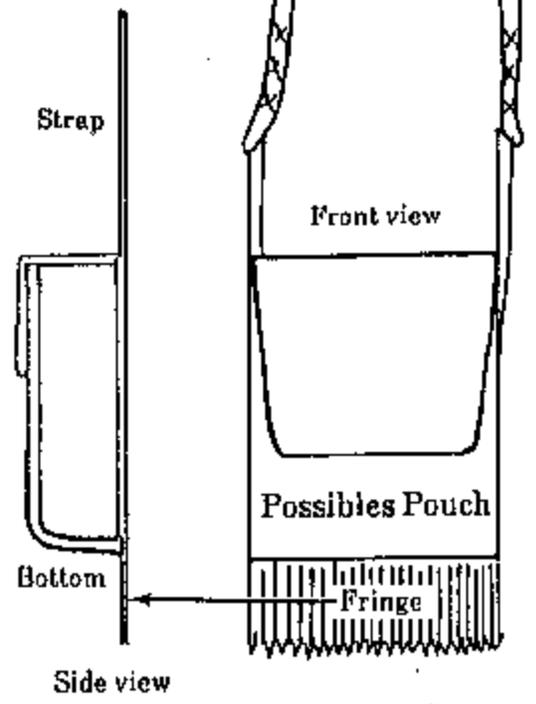
A = Short - 2-4 inches
B = Narrow - 1/2 of A or less



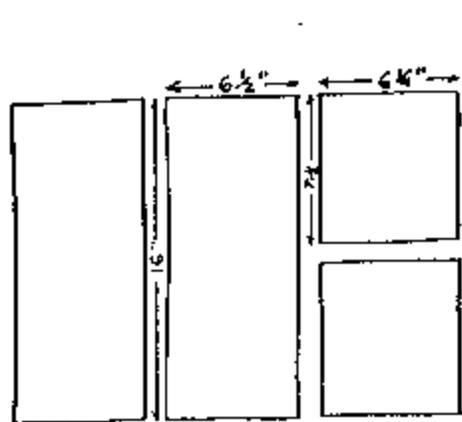
Straps



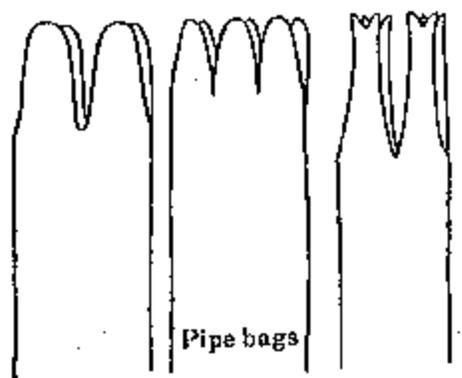
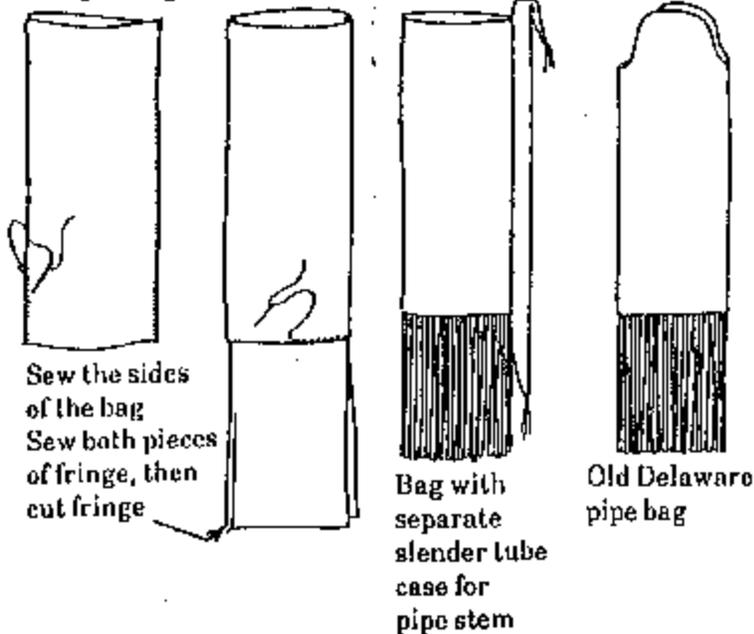
Parts



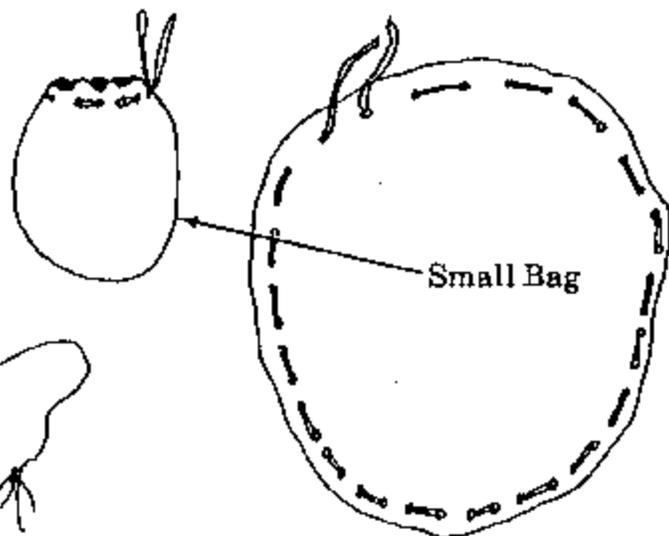
Different Bag Designs



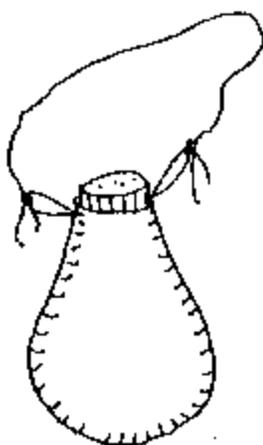
Pipe Bag



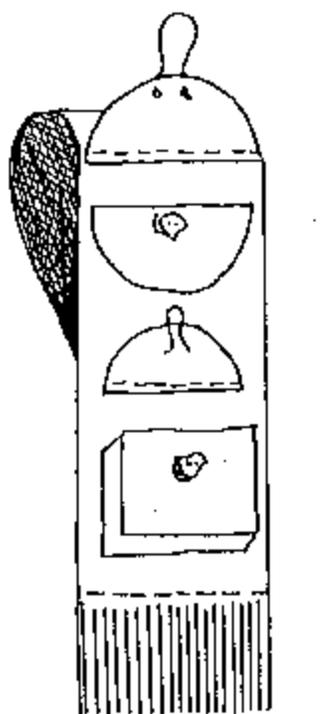
Some different openings



Simple one piece bag with draw string
Good for holding beads and other small objects



Bags can be decorated with beads tin cones, fringe, bones, feathers and many different things.



Pockets can be added to the design of the inside to hold special items.

Different Bag Designs (cont)

MOUNTAIN MAN PIONEERING ENCAMPMENT 2000

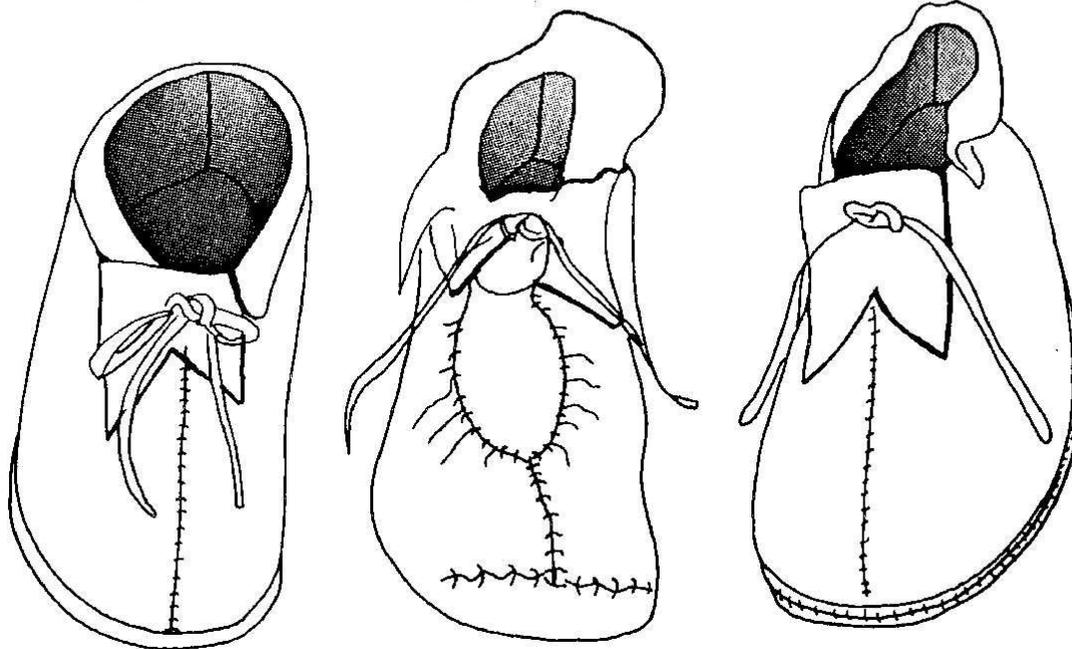
Newsletter #6 - April 2000

Moccasins

The standard footwear for the American Indian and the Mountain Men was Moccasins. Many of the mountain men who came west with boots soon learned how much more convenient it was to have and wear moccasins like the Indians, they were more practical and easy to make to replace worn out boots. You could not just go into your local shoe store and find numerous brands and styles ready to wear.

Each Indian tribe had their own style and way to make moccasins. The patterns were so representative that a man could tell what tribe of Indians he was looking at by the shoe they wore. There are many styles of moccasins and many different books and methods of construction. The Plains type was a one piece. The Woodland was made with a 'vamp'. The Apache even had a hardsole type and one which went up to the knee. Indians decorated their moccasins with beadwork, porcupine quills and paint.

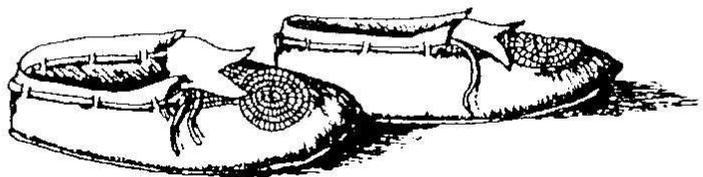
Moccasins are fun to make and comfortable to wear. This is excellent footwear suited for camping, and stalking deer or other game. Each of these types are suited for different types of terrain. Decide which style you prefer to make before you cut the leather. It is best to make your pattern from butcher paper, or out of a brown paper sack. This pattern will first make sure it will fit. Each persons' feet are different and moccasin making is great because it is custom fitted by each individual making his own footwear. We will include illustrations next that will show you the types and styles which will get you started on a project. There are several kits available for those who prefer to start that way. They are available from trading post their addresses are included in Appendix A.



Plains Type

Woodland Type

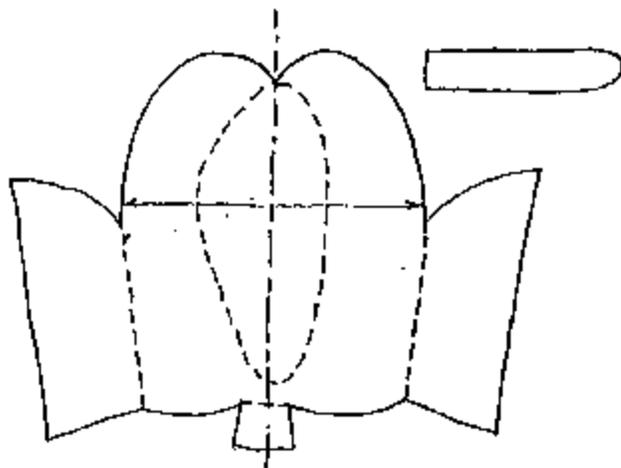
Hardsole Type



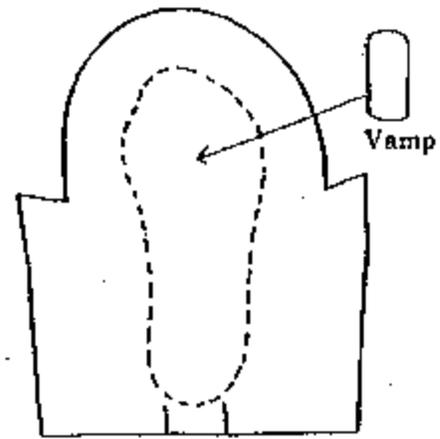
This newsletter is issued on a monthly basis to provide your young men and leaders with resource information to help prepare them for the Mountain Man Pioneering Encampment in November, 2000.

If you have any questions please contact me at 796-8081.

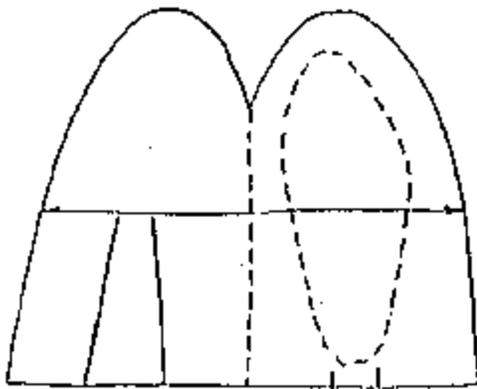
Gary Stivers
Stake Young
Men's Presidency



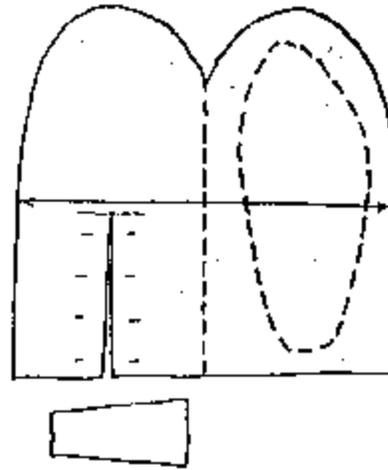
Woodland one-piece soft-soled



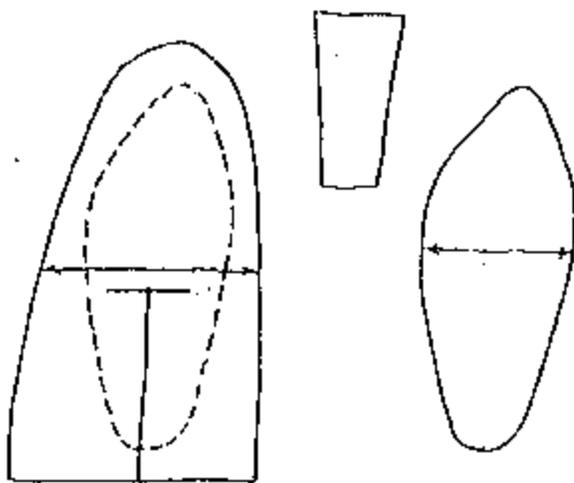
Woodland pucker toe



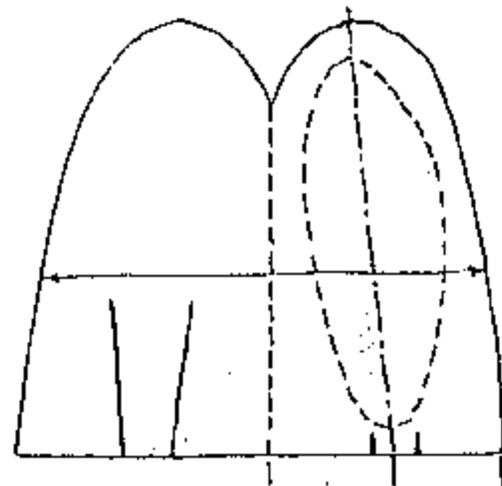
Plains one-piece with long tongue



Plains one piece with separate tongue



Plains two piece hard-soled



Plains one-piece soft-soled

Moccasins

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If you have any questions please contact me at 796-8081.

Gary Stivers
Stake Young
Men's Presidency

BASIC FOODS AND RECIPES

As with all people, some tribes were famous for one type of food while others cooked something different. But one food, or a form of it, was basic among most Indians, and the Plains people depended upon it to take them through a hard winter. This food was called pemmican. In the old days this was made with dried buffalo meat and berries mixed with melted marrow fat, but today it can be made with dried beef.

RECIPE FOR INDIAN PEMMICAN

1. Run dried beef through a food blender.
2. For each pound of dried beef add 1/2 cup of raisins.
3. Put the beef and raisins in a shallow pan and pour melted suet over it. Be careful in pouring, use only enough suet to hold the beef and raisins together and no more, as it will be too fat for modern taste.
4. Mix thoroughly, then allow it to cool.
5. After cooling it can be cut into squares, strips, or however you want it stored. This will keep for some time.

You can vary this by adding other dried fruits with the raisins or in place of raisins. You might want to add more fruit per pound of dried beef. You can experiment, as every Indian woman seemed to have her own personal recipe for pemmican, which made it just a little different from her neighbors. If the recipe was a tribal one, then each tribe secretly guarded their special recipe.

BROTH AND POTATOES

2 pounds new (or small) potatoes, well washed
6 cups water
Beef broth (follow directions on package for amount to use; usually one cube or teaspoon per cup of water)

Place potatoes in broth and simmer for about 45 minutes, or until potatoes are tender. Serve as soup, with a potato.

Makes about 6 servings.

SWEET POTATO PANCAKES

4 large sweet potatoes
3 eggs
1 cup flour
1 1/2 teaspoons salt
1/8 teaspoon pepper
2 tablespoons cooking oil

Parboil potatoes until tender; peel and mash. Mix eggs, flour, salt, and pepper. Heat oil on griddle until a drop of water sizzles. Drop potato batter from a large spoon, and brown on both sides. Flatten pancakes as you turn them. If needed, add more oil to griddle. They can be served with honey. Makes about 15 pancakes.

FRIED MEAT PIES

1 1/2 pounds ground beef
Dash of salt
Dash of pepper
2 tablespoons green pepper
2 tablespoons onion
Make meat balls about the size of a walnut.

Batter for meat balls:
2 cups flour
3 teaspoons baking powder
1 teaspoon salt
Enough warm water to make a very thick batter.

Roll meat balls in batter and drop in very hot oil or fat. Brown on all sides.

BAKED MEAT PIES

1 1/2 pounds ground meat
Salt and pepper to taste
2 tablespoons water

Make dough of:

2 cups flour
1 teaspoon salt
2 teaspoons baking powder
1 level tablespoon shortening
1 cup milk

Roll mixture in small rounds and place a bit of meat in one half of round, then fold over and crimp edges together. Place in well-greased pan and bake in moderate oven until brown.

MAPLE CRANBERRY SAUCE

1 cup maple sugar
1 pound fresh washed cranberries
1 cup white sugar
1 1/4 cups water

Put maple sugar, white sugar, water, and cranberries in a large saucepan. Bring to a boil, then reduce heat and simmer for 25 minutes, or until skin of cranberries pops.

Cool and serve at room temperature or chilled.

SUNFLOWER CAKE

3 cups sunflower seeds, shelled
3 cups water
1/8 teaspoon salt
6 tablespoons cornmeal
1/2 cup oil or shortening

Put sunflower seed, salt, and water in a large saucepan, cover, and simmer for about an hour, stirring occasionally. Put this in a blender and puree.

Mix in the cornmeal, a tablespoon at a time, until the dough is stiff enough to be shaped by hand. Cool.

After dough is cool, shape into firm, flat cakes about 3 inches in diameter.

Heat oil in large skillet. When a drop of water sizzles, the skillet is hot enough. Brown cakes well on both sides and drain. You may need to add more oil as the cakes are cooking.

Makes about 15 cakes.

TOMATO SOUP

4 pounds tomatoes, washed and halved
2 yellow onions, peeled and sliced
2 sprigs mint
1 cooking apple, peeled and sliced
6 sprigs dill
2 bay leaves
1 teaspoon salt
2 quarts water
2 packages chicken broth or 2 cubes chicken broth (beef cubes or packages may be used if wished)

Place all ingredients in large kettle, simmer for about 3 hours, stirring occasionally. Remove bay leaves and serve hot or cold.

This was an important winter food of the plains tribes. They spent much of the late summer and fall making it to survive for the long winter months ahead. It became to be very important to the mountain men as they learned how to do it from the Indians. It was nourishing, easily portable and good. Recipe: chop dried beef or venison into a blender or grind it between stones if you want to be primitive. Add $\frac{1}{2}$ cup of raisins or other dried fruit per pound of meat and blend them together. Spread this out in a shallow pan and pour melted suet over it, mixing it in. Cool and let it set. Cut into small section squares. It can be stored for quite a long time.

Hardtack

Gail E. Johnson passes along her time tested recipes for hearty Hardtack and with some variations on the theme! "A childhood ration of seafaring tales, many of which described long voyages endured on a diet of hardtack - left me with ambivalent feelings about the long time staple food. It was a pleasant surprise, then to discover an old Swedish recipe that's both fast and easy...and produces delicious hardtack as well. What's more one batch will make eight 12-inch-diameter disc which are great served "hot from the pan" with butter and make very convenient snacks to enjoy while camping or backpacking, too.

Plain Ol' Hardtack

To make a basic hardtack, mix $2\frac{1}{2}$ cups of old-fashioned oatmeal, 3 cups of unbleached flour, 1 $\frac{1}{2}$ tps of salt, and 1 tsp of baking soda in a large bowl. Then, in a separate container, add $1\frac{1}{2}$ cups of buttermilk (or soured powdered milk mix) and 3 tbsps of honey to $\frac{1}{2}$ cup plus 2 tbsps of melted bacon or sausage drippings...and combine this mixture with the dry ingredients. When the dough is thoroughly mixed, form it into eight balls of equal size and roll each one out on a floured board (the thickness will depend on the size of your pans). Use a pegged rolling pin if such a tool is available.. if not use a regular rolling pin, jar, or large drinking glass will do.

Transfer each circle to a lightly greased pizza pan, and pat and smooth the dough to fit. A meat tenderizing tool can be used to stipple - or - dent - a pattern in the surface at this point if a pegged rolling pin wasn't used...and you can mark the "pie" into squares, diamonds, or triangles with a pizza cutter, if desired.

Put the pans in the oven for 5 $\frac{1}{2}$ minutes at 450°F. Timing is crucial: The resulting "waybread" should be dry, but browned only around the edges.

When you remove your finished hardtack from the oven, let it stand for a moment...then use a pancake turner to place the disc on wire racks to cool, and put your next batch on the pans. (The pizza sheets will not need to be re-greased to bake subsequent disc of dough.)

Finally, store the hardtack in tightly covered containers to keep them crisp.

Rye or Whole Wheat Hardtack

Substitute 2 cups of rye flour or 2 cups of whole wheat flour for 1 cup of the oatmeal and 1 cup of the unbleached flour, that was called for in the basic recipe. You can please your taste buds with a variety of spices. Perhaps $\frac{1}{2}$ teaspoon of garlic salt in the rye mixture or $\frac{1}{4}$ teaspoon of caraway seeds and $\frac{1}{4}$ teaspoon of sesame seeds in the whole wheat mix might produce a hardtack that your palate finds particularly appealing.

Buckwheat-Millet Hardtack

You might want to experiment by substituting 1 cup of buckwheat groats (kasha) for 1 cup of oats, and 1 cup of millet (un-cooked) for 1 cup of the unbleached flour. Then adding $\frac{1}{2}$ teaspoon more salt and spices as desired. The result will be a bit moist, as millet doesn't absorb liquid. (If you'd like a drier bread, compensate by mixing in an additional $\frac{1}{2}$ cup of unbleached flour).

Sunflower Nut Hardtack

For extra-crunchy hardtack, try using 1 cup of sunflower seeds (chopped) instead of the 1 cup of oatmeal. (You can make the same substitution of an additional $\frac{1}{2}$ cup of unbleached flour).

Cornmeal Hardtack

Replace 1 cup of the unbleached flour and 1 cup of the oatmeal included in the basic recipe with a total of 2 cups of cornmeal.

Any way you mix it, you'll find hardtack which was once the traditional army/navy ration to be a handy, hearty treat that's always nice to have around.

Jerky

Any Dried Meat. Now days your best source is beef. The very leanest possible, with no fat, or marbling. Best cuts are top round or flank steak. Early Indians just sun dried the meat. Pioneers added salt and pepper and often smoked it. The following recipe are for the marinated variety.

• Cut the meat into 3/4 X 1-1/2 X 8 inches. Trim off all fat. Marinate or soak the meat for approximately 18 hours (see recipe 1 - 4). Less than 12 will be weak, more than 24 is wasting your time. Dry it in an oven set at the lowest heat, less than 150°. Leave oven door open about 4 inches to let out moisture, and keep the heat from building up. Place a large cookie sheet or tin foil on the rack below the rack on which you've laid the meat. This catches the drippings from the marinate solution and saves mothers kitchen. Remember the Sun is hot enough in the summer to do it in a food dryer. Dry the meat until it is black on the outside, very stiff but not black all the way through. It will dry much more later in the paper sack you store it in. If you care to store it for any Length of time, put it in an air tight container.

RECIPE # 1

Will do up to 5 pounds of meat:

- 1 quart water
- 1 cup cider vinegar (brown)
- 1/2 cup of salt
- 2 tablespoons pepper
- 2 tablespoons liquid smoke

Bring to boil, pour into container and drop meat in.

RECIPE # 3

Will do up to 3 pounds of meat:

- 1/2 tsp garlic powder
- 1/2 tsp seasoned salt
- 1 tsp Accent or MSG
- 2 tbsp liquid smoke
- 1/2 cup soy sauce
- 1/2 cup Worcestershire sauce
- 1 tsp onion powder
- 1/2 tsp pepper

Mix this together in a flat dish and lay the meat strips in it. You'll have to press the meat fairly hard to get the moisture over the top layer of meat.

RECIPE # 2

Will do up to 2 pounds of meat:

- 2 ounces soy sauce .
- 1 tablespoons lemon juice
- 1 tablespoons salt
- 1/2 tablespoon pepper
- Several shakes garlic salt

Mix this together in a flat dish and lay the meat strips in it. You'll have to press the meat fairly hard to get the moisture over the top layer of meat.

RECIPE # 4

Will do up to 5 pounds of meat:

Cut meat into six inch strips about one-half inch wide and one-quarter inch thick. Be sure to cut the strips lengthwise with the grain of the meat. Trim away all the fat. Soak the meat in garlic, salt, pepper Worcestershire sauce, and a little honey for a day before drying. Some folks like a little soy sauce. Thread wood skewers through one end of the strips and let hang. Fix a rack to hang skewers in the hot sun. Let dry for two or three days don't let any two pieces touch and watch out for Rover. If flies seem to be a problem, cover with cheesecloth. The Indians had a smoky fire to keep away flies.

Some claim you can jerk turkey as easily as anything else. The most popular meats are beef, deer, elk, moose, sheep, antelope, and buffalo for jerky. You can make jerky out of everything but pork and Englishmen. If you have access to a smokehouse, hang your meat in there for two or three days to jerk.

MOUNTAIN MAN PIONEERING ENCAMPMENT 2000

Newsletter #8 – June 2000

Beadwork

The American Indian took great pleasure in decorating his world. Indians especially the plains tribes, valued fine beadwork. Just as with quillwork the women belonged to beading guilds. They decorated almost every item of personal ownership; pipebags, moccasins, cradleboards, the tipi, dew cloth, inner partitions and bed articles. Beads were traded to the Indians for prime beaver pelts, horses, and provisions. Beadwork was primarily a women's art. In a short time span it flourished and peaked and almost disappeared at the turn of the century.

It has been revived and many enjoy reproducing the beautiful and fine patterns and colors used by the early craft. Beadwork is a craft that is beginning once again to flourish in our modern society as many are beginning to enjoy reproducing fine beadwork in the tradition of the Native Americans.

There were several different types, sizes and manufactures of beads used today. I will describe the common ones. The "Pony" bead was given the name by the method of transportation to the tribes by pony pack and thus the name. They are about the size of a corn kernel or one-eighth inch in diameter. These beads were twice the size of beads used in decoration used later. The common colors were white, medium sky blue, some black, red, and dark blue.

Another bead was the "Crow" bead that was twice the size of Pony beads or one-fourth of an inch in diameter. These beads were too large to weave or sew onto leather, but were used in necklaces and other colorful accents.

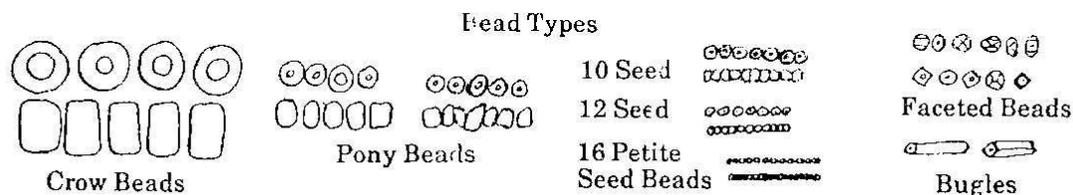
The "Seed" bead came in different sizes from Italian 4/0 and 5/0 to the seed beads of size 10/0 to 15/0 or 16/0. The smaller the bead the closer and more even the beadwork. The seed bead first appeared with the French in the eastern United States in the late 1600's to the early 1700's. It was not until the early 1800's that the bead saw any use in the western states.

As the use of seed beads began to flourish the traditional quill work began to disappear. Unlike quills that had to be dried and dyed, the beads came already brightly colored and much easier to work with. The earliest colors were white and medium blue. These were used as background colors because they were available in quantity. Red was greatly prized because of its rarity. They were all hand made which made them irregular in shape. Not only was the shape of different sizes, the colors as well were different depending on the trader, area, and availability.

Differences can be noted within tribal designs. But it is difficult because the individuals had their own methods and designs. The method of decoration and there application can fall into several techniques. The two basic methods were the bead weaving and the embroidery method. These are broadened to include these different techniques: Bead Weaving, Overlaid, Lazy Stitch, Peyote, Applique, Edging, and Oblique. Each of these styles will be illustrated to give you an idea on the basic stitches and techniques that were used during this period.

Beadwork takes patience and practice. Once learned it can be very enjoyable and rewarding to be able to decorate and spruce up your costume. There is commercially produced beadwork done on machines, that can be purchased in several styles and designs, but the best and most beautiful are the works done by hand. Once this skill is learned it will bring pride to the owner of the beadwork.

Supplies, kits and patterns are available at the local trading post. A good book that will give more details on how to do beadwork, "American Indian Beadwork" by Ben Hunt and Buck Burshers,

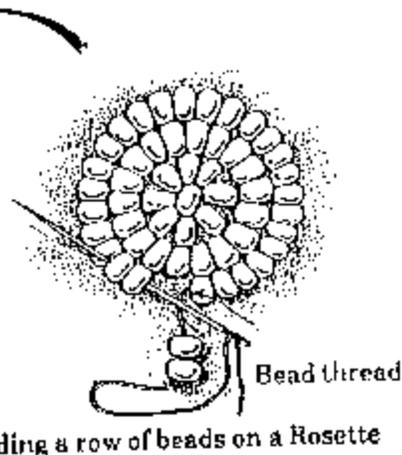
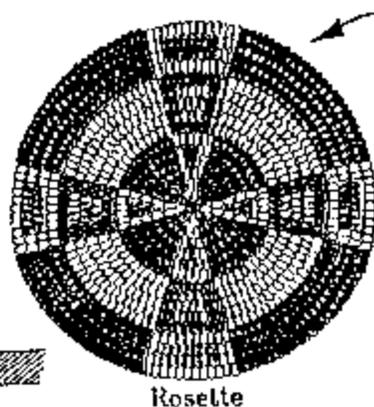
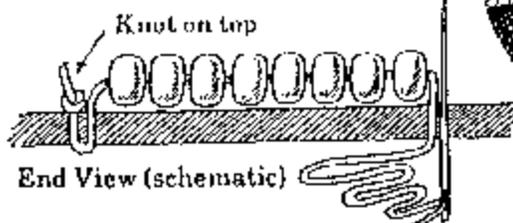
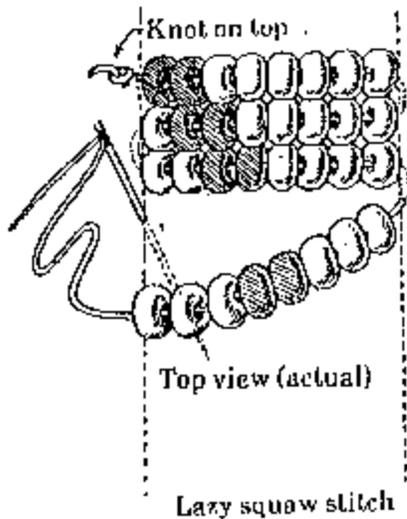
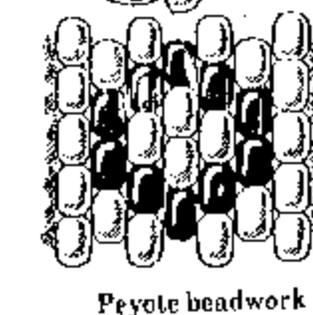
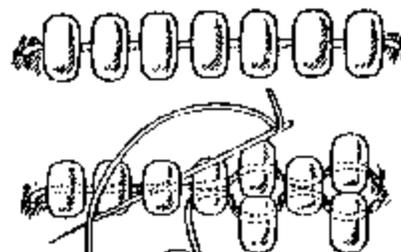
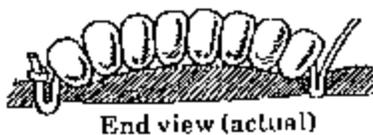
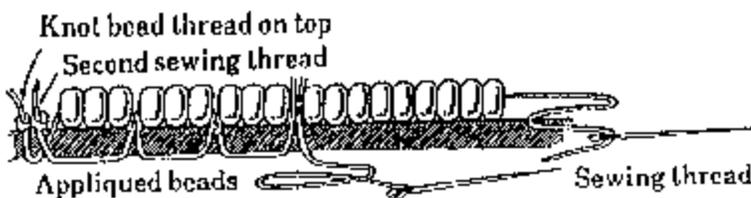
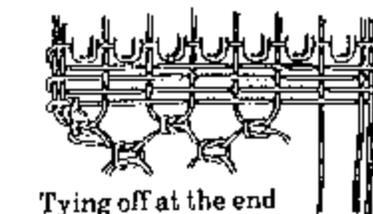
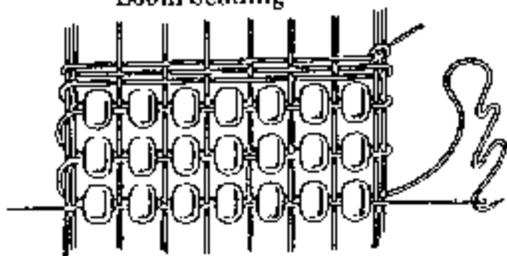
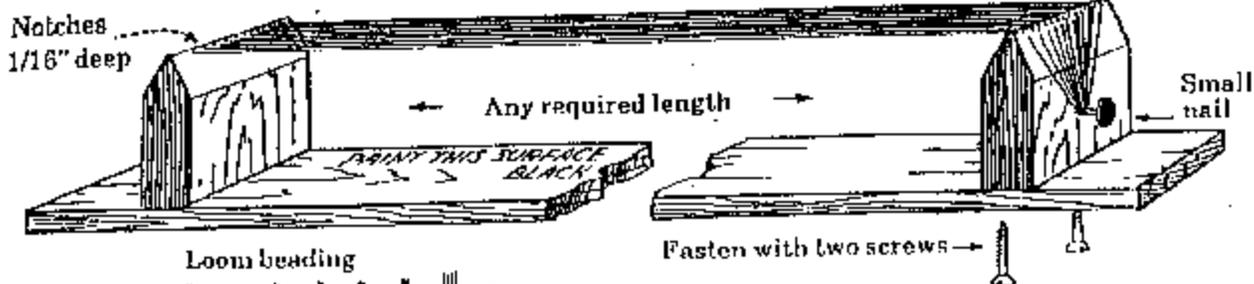


This newsletter is issued on a monthly basis to provide your young men and leaders with resource information to help prepare them for the Mountain Man Pioneering Encampment in November 10 & 11, 2000.

If you have any questions please contact me at 796-8081 or email me at ymscout@go.com

Stake Young
Men's Presidency

Loom for beading



MOUNTAIN MAN PIONEERING ENCAMPMENT 2000

Newsletter #9 - July 2000

Firemaking

When considering how the mountain men made fire one must be willing to leave the modern ways behind and learn some new tricks. This means no matches or lighters. The early explorers, frontiersmen, and trappers were not as lucky or privileged to have matches. They were very proficient at the use of flint and steel, and bow and drill. Why learn these old ways of making fire? Maybe you would like to get the feel of history, or you may wonder weather you can make a fire like your ancestors did. These skills will help anyone in survival, because somewhere a combination of circumstances may arise where this skill will save your life or possibly the lives of others. At the very least you will become more comfortable without matches, and in an emergency could make a fire without the use of modern conveniences.

Fire making is a skill that is learned with practice and it makes for fun competition to see which boy can make his fire the quickest with the use of flint and steel or bow and drill. There is an award called the 'Broken Match Award' where you have to be proficient in each of the two methods. of starting fires in a limited amount of time.

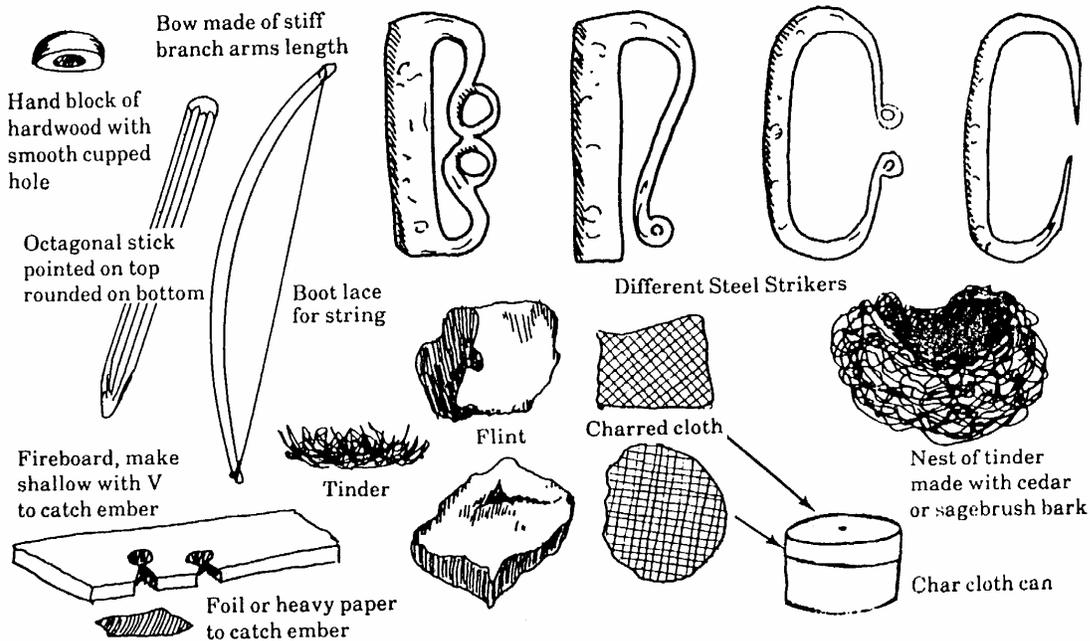
The basic elements that are needed to make a flint and steel fire are:

1. Good spark making flint
2. a steel striker
3. good tinder (cedar or sage bark)
4. char cloth made of 100% cotton

The Bow and Drill parts are:

1. a spindle rounded on one end and pointed on the other
2. a hard block of hardwood with smooth cupped top and hole on the underside to fit the spindle stick
3. a bow made of a stiff branch of a tree about arms length
4. a leather thong to be used on the bow
5. a fireboard with a shallow hole with a V to catch embers
6. and tinder or nest of cedar or sage bark to catch the spark

Each of these will be illustrated and described to give you a basic understanding of the important parts.



Ward Young Men Presidents,

One of the things I find fascinating about Mountain Men and other pioneers are their colorful names. Many Mountain Men took, or were given by each other, names that expressed some particular skill or physical trait. These names described their use of firearms or other weapons, tracking or trapping ability, or physical appearances.

If a man was deadly accurate with a rifle he might be named "SURE SHOT", or "DEAD-EYE" or "HAWKEYE" or "EAGLE EYE". If he was good at throwing a tomahawk he might be nicknamed "TOMAHAWK". If he was good at climbing rocky trails, he might be given the name "SURE FOOT". If he carried a particularly large rifle he might be known as "LONG RIFLE".

If a man seldom bathed he might be known as "DIRTY" or "RANK". If a man had lost a finger or toe he might be called "FOUR FINGER" or "THREE-TOED". If a man never shaved or cut his hair he could be called "SHAGGY" or "BUSHY".

You get the idea. What I am proposing is that your young men leaders give their young men names that fit their personality, stature, talent, inclination or past-time. I hope this will add to the adventure and mystique for the camporee. These will be the names we will use during this annual event. Names should be chosen with care and thought, unique so as to give the young men something to stand for. I also ask that the Young Men President would choose names for himself and his counselors and Scout Leaders. I hope this will provide an incentive to get to know your young men better if you have not already done so. The name I have chosen for myself is "WALKS OWN WAY". As you may have noticed I walk with a predominant limp, but also I have never been one to go with the crowd - insisting to do things I like whether others liked it or not. Thus "WALKS OWN WAY" was born.

If you have any questions or need some advise or suggestions for names please call me at 796-8081 or send an email to me at ymscout@go.com.

Gary Stivers
Stake Young Men President

This newsletter is issued on a monthly basis to provide your young men and leaders with resource information to help prepare them for the Mountain Man Pioneering Encampment in November, 2000.

If you have any questions please contact me at 796-8081.

Gary Stivers
Stake Young
Men's Presidency

Lashing - Part One

Lashing

We could imagine that the first lashing made by man was wrapping a few strips of bark around a stone to hold it to a tree branch to make an ax to hunt and build with. Even today with all our modern ways to hold things together, it is still fascinating to lash sticks or spars together to make a camp gadget or useful structure.

There are still areas in the world where lashing spars (or bamboo poles) is the basic means of building structures. In Scouting, we use the same methods but have replaced strips of bark and vines with natural and synthetic fiber ropes.

The best choice of rope to use for lashing the type of pioneering projects shown in this pamphlet is pure manila rope. Therefore, all references to rope used for lashing in this section refer to manila rope.

Yet, sometimes we are faced with a problem—we have to use what is available and economical to get the job done. When making camp gadgets for temporary use, for example, you could use lesser quality, less expensive rope or even binder twine for small projects.

Square Lashings

The basic type of lashing for most projects is some form of a square lashing. This lashing is used to join two spars together, usually at a right angle, but not always. For example, square lashings are used when building a trestle to join the ledger and header to the legs at right angles. But it is also used to hold the ends of the X bracing to the legs at an angle. (Refer to the "Making a Trestle" section, page 73.)

In this section, three different square lashings are shown: (1) the traditional square lashing, (2) the modified square lashing, and (3) the Japanese Mark II. All three types of square lashings accomplish the same thing by making three wraps and two frapping turns around the spars being held together.

The only difference between these three different square lashings is the type of knot that is used to start and complete the lashing.

You may learn that one of these knots is easier to tie; if so, you can stick with the one you are most comfortable with.

In addition to square lashings, you will most likely need to know how to make diagonal and shear lashings. Some methods of making these types of lashings are also shown later in this section.

Terms

No matter what type of lashing you're making, there are two basic terms you should be familiar with: wraps and fraps. The basic difference between the two terms is that a wrap is made around the spars, while a frap is made around the rope itself.

Wrap. A *wrap* is a turn made around the two spars to hold the spars tightly together. Usually, three wraps are made to form a square lashing. Some other lashings require more wraps.

Frap. A *frap* is a turn made between the spars. It goes around the wraps to pull the wraps tighter. Usually two frapping turns are made on a lashing.

Good lashings are not made in a hurry. Each wrap must be made with a strain on the rope. Frapping turns should be pulled up as tightly as possible before the final knot is tied.

Rope Length

When you set out to make a lashing, the size and length of the rope you need are among the first questions you have to answer. To determine the length of rope needed for a lashing, add the diameters (in inches) of the two spars at the point where the lashing is being made. If one spar is 2½" in diameter and the other is 3½" in diameter, the total equals 6". Multiply by 3' to get the length of the rope needed for the lashing.

If you use a rope that is too short to make the three wraps and two fraps needed for a lashing, you should add (splice or join with a square knot) a length of rope to complete the lashing with three full wraps and two fraps. For safety, don't leave the lashing short.

If you find you have extra rope, make more wraps or fraps to use up the rope to avoid cutting the rope or leaving long loose ends hanging out.

Rope Diameter

In most cases $\frac{3}{4}$ "-diameter manila rope should take care of lashing two spars together as long as the combined diameter of both spars is 6" or less. When the combined diameter is over 6", use $\frac{1}{2}$ "-diameter rope.

Pioneering Kit

Later in this pamphlet, we refer to a pioneering kit. If your troop or camp puts together a pioneering kit, it should contain lashing ropes that are cut to standard lengths: 10', 15', 20', 30', and 50'.

Both ends of these lashing ropes should be properly whipped. It also helps to color-code the ends of all ropes with a bit of paint to denote each length. When storing ropes, make sure they are dry and properly coiled. Never "hank" ropes for storage. That is, don't wrap them around your hand and elbow to form a coil. Tie each coil with a short piece of cord and store the coiled rope on pegs or in a ventilated storage box.

Traditional Square Lashings

In Scout pioneering in the United States we most often see the square lashing started with a clove hitch. The clove hitch is tied on the vertical spar, just below where you want to join the crossing horizontal spar (see figure 101).

Using a clove hitch to start this lashing allows for two things. First, you can rest the crossing spar on the clove hitch to help support it as you begin the lashing while building your structure. Second, the clove hitch helps keep the structure from racking (twisting out of



Figure 101

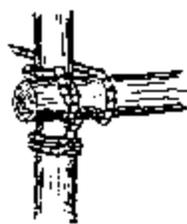


Figure 102

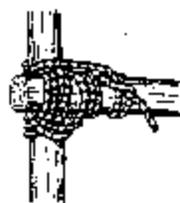


Figure 103

shape), causing the lashing to loosen as it is moved or hoisted into position.

After the clove hitch is tied, wrap the excess short end of the rope around the standing part of the rope (see figure 1). Hold the crossing spar up to the vertical spar and make three wraps around the spars using the long end (see figure 102). Pull each wrap tight to hold the spars together. Make two frapping turns around the wraps (between the spars) to pull the wraps tight and finish with another clove hitch on the horizontal spar (see figure 103).

The square lashing is a good strong lashing. Its only disadvantage is that you must work with the full length of the rope as you lash.

One other point to make about the square lashing is that you shouldn't be fooled by or limited by its name. Although two spars can be lashed together at 90° using a square lashing, it can also be used to lash two spars together at any angle. For example, a square lashing is used to lash the ends of two light spars to the uprights of a trestle to form the X bracing. A diagonal lashing is used at the center of the X to hold the crossed spars together.

Modified Square Lashing

The modified square lashing was developed because of the difficulty usually experienced when tying a clove hitch to complete the traditional square lashing. The clove hitch that starts the lashing is easy enough to make, but tying a clove hitch at the end of the lashing is a different matter.

As shown in figure 104, the modified square lashing starts with a clove hitch. When tying the clove hitch, let the running end of the clove hitch extend about 12". Also, do not twist the short end around the standing part of the rope as on the traditional square lashing.

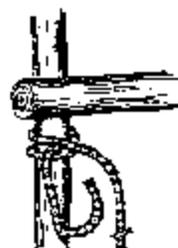


Figure 104



Figure 105



Figure 106

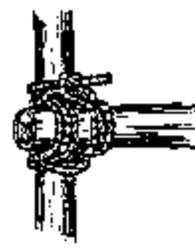


Figure 107

After tying the starting clove hitch, proceed as usual using the long end of the rope to make three wraps (see figure 105). Then make two frapping turns (see figure 106).

To complete the lashing, bring up the short end of the rope that extends from the clove hitch and tie a square knot (see figure 107). Bring the short end up in the opposite direction of the frapping turns.

As in the traditional square lashing, there is some disadvantage in having to make the complete lashing using the one end of the rope.

Japanese Mark II Square Lashing

The Japanese Mark II square lashing has found its way into Scouting in the United States through Wood Badge training in England, and because of the work of John Thurman, camp chief of Gilwell. He observed it on one of his many world trips related to Wood Badge training.

This lashing is a straightforward approach to the task of lashing two spars together. Begin by placing the spars in the desired position. Now fold your lashing rope in half.

The midpoint of the rope is placed around the vertical spar and just under the crossing spar (see figure 108). Now work both ends of the rope at the same time to make three wraps around the spars (see figure 109).

After completing the three wraps, bring the two ends up between the spars in opposite directions to make the frapping turns around the wraps (see figure 110). Pull the frapping turns tight, and complete the lashing by tying the two ends with a square knot (see figure 111). It's that simple.

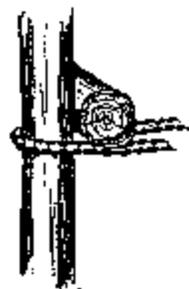


Figure 108

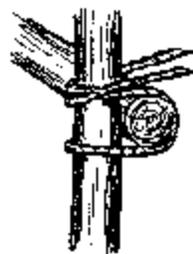


Figure 109

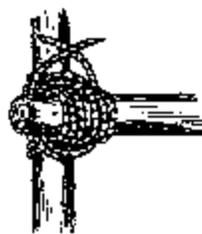


Figure 110

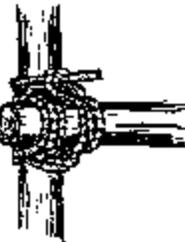


Figure 111

The advantage of this lashing is that you're working both ends of the rope at the same time. This makes it much quicker to tie since each hand has less rope to pull through. This lashing has the same holding effect as both the traditional and modified square lashings.

If more support is needed for the crossing spar, a clove hitch can be tied at the midpoint of the rope. Tie the clove hitch to the vertical spar just below the crossing spar. You can rest the crossing spar on the clove hitch as the lashing is being made. Then use both ends to complete the lashing as described above.

Diagonal Lashing



Figure 112



Figure 113



Figure 114

When putting crossed braces on a structure to keep it from racking (as used when making a trestle), the most important lashing is the diagonal lashing where the spars cross. (Refer to the "Making a Trestle" section, page 73.)

When the cross spars are properly assembled on the trestle, they will be standing apart where they cross. That is, there will be a few inches of space between the spars where they cross at the center of the X. To pull them tightly together, a timber hitch is used to start the lashing (see figure 112). As the timber hitch is pulled tight, the spars are sprung together. Next, three wraps are made in each direction across the X (see figure 113). To complete the lashing, make two frapping turns between the spars, pulling the wrapping turns tightly together and taking up any slack (see figure 114). Finally, tie a clove hitch on one spar to complete the lashing (see figure 114). When this lashing is added to the cross braces, it helps keep the trestle from racking.

West Country Shear Lashing

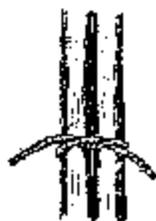


Figure 115



Figure 116



Figure 117

You probably remember the term *West Country* in the section on whipping. The pattern you make with the rope to form this lashing is the same as the one to make the whipping. The only difference is that this lashing is tied around two spars to hold them together.

To make this lashing, tie a series of half-knots (overhand knots) around the two spars (see figure 115). Tie one half-knot in front and the next half-knot in back (see figure 116). Make sure each half-knot is pulled up as tight as possible. After tying six to ten half-knots, finish off the lashing with a square knot (see figure 117). By using six to ten half-knots in this lashing, it makes it very strong and effective, but can be a little difficult to untie.

The West Country shear lashing is usually used to lash two spars together to extend the overall length of the spars. When this is done, you should make two sets of lashings, not just one lashing. Make one lashing at each end of the overlapping spars.

Two-Spar Shear Lashing

There are two applications for the two-spar shear lashing. One is where it is necessary to extend the length of one spar by lashing another spar to it. The second application is when spar legs are to be spread apart to form an A frame.

In the first application (extending a spar), two lashings are made where the spars overlap. The amount of overlap of the two spars should be determined by the diameter and length of the spars being used. The lashings should be placed as far apart as possible to maintain the strength needed.



Figure 118



Figure 119



Figure 120



Figure 121

The two-spar shear lashing starts with a clove hitch on one spar (see figure 118). After making the clove hitch, wrap the excess part of the short running end around the standing part of the rope (see figure 119).

Unlike square lashings, the shear lashing requires eight or ten wraps around the spars before making the frapping turns between the spars to pull the wraps tight (see figure 120). This lashing then ends with a clove hitch on the other spar (see figure 121).

If you're making an A frame, start with the spars side by side and tie a clove hitch on one spar about 1' from the top end of the spars. Then make ten wraps around the spars, making the wraps somewhat loose. The legs are then spread to the required distance. This should put a strain on the wraps.

With the legs apart, make the frapping turns around the wraps to pull them tight. Finally, complete the lashing by tying a clove hitch on the opposite spar.

Strop Lashing

In some pioneering situations all that's needed is a few wraps with a rope, a light cord, or binder twine to hold two small spars or sticks together. Wrap the rope or cord around the spars a few times and finish with a square knot. This is called a strop lashing.

A strop lashing can be drawn down tight, or it can be made as a loose wrap so that it allows movement or acts as a hinge.

The strop lashing can have several simple applications at camp. For example, if you don't want to dig a hole for the staff of your patrol flag, drive a tall stake in the ground. Then use a light cord or binder twine to make two strop lashings about 1' apart to hold the staff to the stake (see figure 122).

If your patrol just completed a signal tower and you want to show who did it, lash your patrol flag to the top of one of the legs with a strop lashing.

When you're adding walkways to a bridge, they need to be joined to the trestle to form a single unit. The way to do that is to lash the two walkways to the transom at the center of the bridge with two or three strop lashings (see figure 123).

The ends of the walkways also need to be held to stakes. Use a strop lashing to hold the ends of the walkway to the stakes (see figure 124).

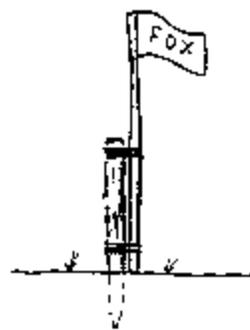


Figure 122



Figure 123

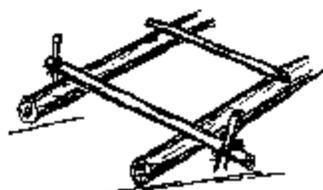


Figure 124

Making a Trestle

A trestle is the basic component for building a bridge in a pioneering project. It is used to support the walkways.

The most basic form of a trestle is an H frame. It consists of two legs, two ledgers, and two cross braces (see figure 125). When building a bridge, the top ledger is also called a transom. This is the part that supports the walkways.

To make an H-frame trestle, the two ledgers are lashed near the top and bottom of the legs and the cross braces are added, lashing them to the legs.

All of the lashing on an H-frame trestle is done with two types of lashings: a square lashing and a diagonal lashing. The ledgers are lashed to the legs with square lashings. Although it might not look like it, the cross braces are also lashed to the legs with square lashings, not a diagonal lashing. A diagonal lashing is used to lash the two cross braces together where they cross in the center.

When setting out to build an H-frame trestle, choose the two spars for legs first. These spars can be almost any length, depending on the type and height of the structure you're building.

To build a basic H frame, lay the two legs on the ground with the two butt ends of the spars at the same end and even with each other. Then add the ledgers.

Ledgers. The ledgers are spars that are typically 2" to 2½" in diameter. They are lashed to the legs with square lashings. Any of the three square lashings shown in this pamphlet can be used. The position of the ledgers on the legs will depend on the structure you're building. There are a couple of general rules to keep in mind.

First, always keep the legs parallel and the butt ends of the legs even with each other as you're lashing on the ledgers. If you don't, the trestle will stand crooked when you stand it up. As you add the ledgers, they should not stick out too far beyond the legs. You must leave enough room at the ends to tie the lashing. Any more will get in the way.

When using a square lashing or a modified square lashing to tie the ledgers to the legs, be sure the starting clove hitch is placed on

the leg so it's beneath the ledger. When the clove hitch is below the ledger it will help support it when the trestle is stood upright. As you tie the lashings, make sure they are all very tight.

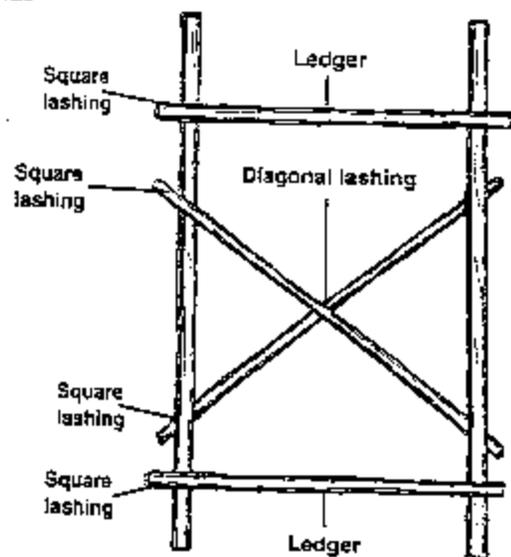
If you use a Japanese Mark II lashing, you can start this lashing with a clove hitch in the middle of the lashing rope to help support the ledger.

Cross braces. Next, the cross braces are added. The cross braces are spars that are usually 2" in diameter. They are lashed to the legs in a particular sequence.

First, flip the trestle over and work on the **opposite** side from the ledgers (see figure 125). Lash one cross brace to the back side of both legs. As mentioned before, use a square lashing (not a diagonal lashing) to attach the ends of the cross braces to the legs.

The second cross brace is added so that the **bottom end** is on the same side as both ends of the first cross brace. The other end is placed on the **front side**, the side with the ledgers (see figure 1). This is done so that the cross braces are standing slightly apart. There will be a gap where they cross at the center.

Figure 125



Diagonal lashing. After the ends of the ledgers and the cross braces are lashed to the legs, stand the trestle up on end. Adjust the trestle so that the legs are parallel. Also check to see that the top ledger is parallel to the ground. If it's not, lower the trestle, untie the lashing, and adjust it.

When the legs are parallel and the top ledger is parallel to the ground, you're ready to tie the diagonal lashing to the cross braces while the trestle is standing upright. This lashing is very important to the strength of the trestle.

The diagonal lashing creates triangles that are important to stiffen the arrangement of the spars and to keep the trestle from racking. Look around at steel towers, bridges, or buildings being erected and you will see the triangle used in many places for the same reasons as we use it to build a trestle.

When the cross braces are lashed to the legs, there is a slight gap between them where they crossed at the center. A diagonal lashing is used here because it starts out with a timber hitch. The timber hitch pulls the cross braces tightly together. This adds strength to the whole trestle. You have to keep a strain on the lashing rope as you complete the diagonal lashing with three wraps in each direction around the X. Then make two frapping turns between the cross braces to pull the wraps tight. Finally, finish by tying another clove hitch on one cross brace.

Once the possibility of racking has been taken care of with the diagonal lashing, the trestle's vertical legs provide support for a large downward load. Since this is a downward force, also known as a shearing force, the legs don't have to be very big. In fact, the overall shape of the trestle is an engineered structure that is able to support quite a bit of weight with rather small-diameter spars for the legs.

This newsletter is issued on a monthly basis to provide your young men and leaders with resource information to help prepare them for the Mountain Man Pioneering Encampment in November, 2000.

If you have any questions please contact me at 796-8081.

Gary Stivers
Stake Young
Men's Presidency

Lashing - Part Two

Walkways

Bridges are very popular pioneering projects. Essentially, a bridge consists of one or more trestles that support some sort of walkway. In the case of a monkey bridge, the walkway is just a rope that you walk on. But for many other bridges, you can build a walkway from spars that's easier to walk on than is a monkey bridge.

Three of the bridges shown in this pamphlet use the same type of walkway. Each walkway is 10' long and consists of two lateral spars and several cross spars. You can also add a 10' length of 2" x 10" construction lumber as the plank to walk on.

The lateral and cross spars are lashed together to form a walkway as a subassembly. Then the walkways and the trestles are taken to the assembly site—the creek or ravine over which you're building your bridge—and lashed together to complete the bridge. In most cases, there are at least two walkways on each bridge.

Making a Walkway

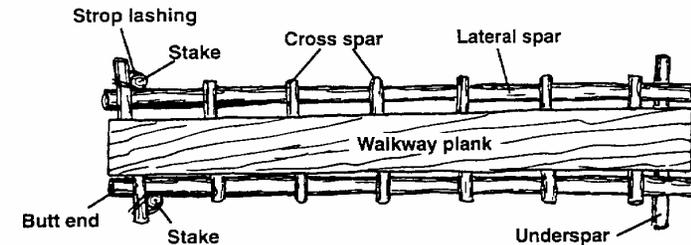
To make a 10' section of walkway, select two spars with a butt diameter of 3½". These spars should be matched in the amount of sag they have when you stand on them with the ends supported above the ground. If one spar sags more than the other, it will make the walkway slant from side to side, making it hard to walk on.

Cross spars. The cross spars for the walkway should be approximately 2" to 2½" in diameter and 3' long. You will need two additional cross spars that are 3½' long for each walkway section. (The longer spars go at each end of the walkway.)

All of the cross spars are lashed to the lateral spars with ¼" rope. Since the lashing is made only to hold the cross spars in position and not support weight, you can use a double strand of binder twine.

If you use binder twine, double it over and twist it a few times before you start the lashing. Make sure you have enough to complete the full lashing with the doubled-over binder twine. Don't finish the lashing with only one strand if you run short. Instead, tie on more binder twine to complete the lashing.

Figure 126



Each of the cross spars is lashed to the lateral spars with a square lashing, making three wraps and two fraps. (Refer to the "Lashing" section, page 63.) You can use any one of the three variations of square lashings mentioned in this pamphlet for the cross spars. The Japanese Mark II is the easiest and quickest to tie.

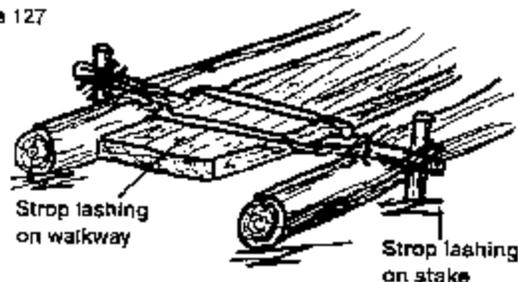
There are two ways to approach lashing on the cross spars. If you are going to add a plank over the top of the cross spars, you will need a total of eight cross spars for each walkway. That is, six 3'-long cross spars, and two 3½'-long cross spars (see figure 126).

Start by lashing one of the 3½'-long cross spars about 6" from the butt end of the lateral spars. Place this spar on top of the lateral spars so that the ends of the cross spar extend 3" to 4" out over both sides of the lateral spars (see figure 126). This additional length hanging out is used to lash the cross spar to the stakes, which anchors the ends of the walkway in place.

After the first cross spar is lashed in place, add six more 3'-long cross spars every 16" to 18" down the length of the lateral spars. The last cross spar should be lashed about 12" from the end of the lateral spars to allow room for the "underspar."

Underspar. An important feature of this type of walkway is to lash one cross spar to the underside of the lateral spars 6" from the end. When the two walkway sections are placed on the trestle to form the bridge, these underspars should contact the transom of the trestle. Then the three spars (two underspars on the two walkways and the

Figure 127



transom spar on the trestle) are lashed together at three points using a strop lashing (see figure 127).

Walkway plank. Before lashing the walkway to the trestle, the walking plank should be lashed to the cross spars in at least three places using a strop lashing.

To make a strop lashing, use a length of doubled-over binder twine. Reach down and wrap the middle of this length of binder twine under one of the cross spars (see figure 127). Then wrap the binder twine over the walkway plank and down around the cross spar at the other side of the plank. Do this two or three times and finish with a square knot.

If you are going to walk directly on the cross spars (with no plank on top), you will need enough cross spars to make a safe walkway, one that your foot cannot slip through. Start making the walkway as described before by lashing a 3½'-long cross spar at the butt end of the lateral spars. Then lash the 3'-long cross spars about 3" apart, using as many cross spars as necessary to go the entire length of the walkway, ending about 1' from the other end. Finally, add the 3½'-long underspar.

Anchoring the walkway. After the walkway is assembled, the butt ends are placed on the bank of the creek or ravine. This end of the walkway is anchored in place by driving stakes in the outside corners formed by the lateral spars and the first cross spar. Lash the cross spars of the walkway to the stakes with a strop lashing.

The small ends of the walkway are attached to the trestle to form the bridge. On most bridges, walkways come from both directions to meet at the trestle. The ends of the walkways rest on a transom spar

of the trestle. Then the two underspars on the walkways are lashed to the transom spar at three points with a strop lashing (see figure 128).

When the walkways are lashed to the stakes and to the trestle, all the walkway sections become joined to form a single unit that is very strong.

If you put together a pioneering kit, take some time to save the matched lateral spars to be used for walkways only.

While the above text describes how to make 10' walkways, you can make 8' or 12' sections the same way. If you use the longer walkways, be sure to test the strength of the spars before lashing them into a walkway that could be unsafe.

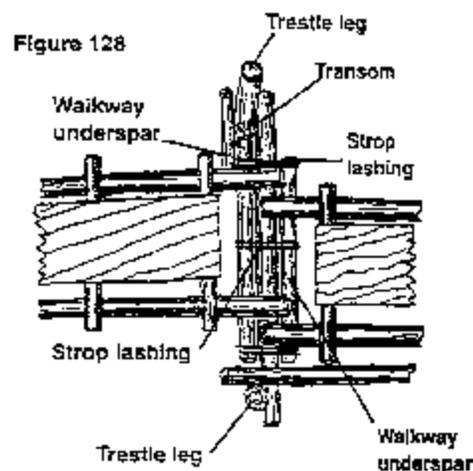


Figure 128

Single Trestle Bridge

This simple crossing bridge uses only a single trestle and two walkways. The legs of the trestle are extended up above the walkway to provide a way to attach a handrail. The length of the spars listed for the walkways and trestle will be enough to build a bridge to span a creek or ravine that's up to 4' deep and 18' wide.

This project can be broken into three subassemblies: the trestle, the two walkways, and the four light spars for handrails.

Trestle. Begin by building the trestle. The legs for the trestle should be spars that are about 3" in diameter and 8' to 10' long. When choosing these spars, take into account the depth of the creek you're crossing.

The distance from the base of the legs to the top ledger (transom) on the trestle should be about 1' higher than the level of the banks of the creek. This will allow the walkways to slant up. Then allow an additional 4' in height on the legs from the top ledger up to the top of the legs for attaching the handrail.

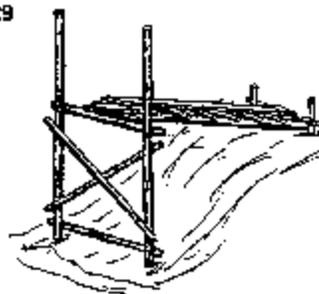
The top ledger of the trestle should be about 3" in diameter since it also acts as the transom and carries all the weight of the walkways and the person using it. The bottom ledger can be smaller; a 2" diameter spar will work here.

The trestle is assembled with square lashings to hold the ledgers and the ends of the cross braces to the legs. The center of the cross braces are lashed together with a diagonal lashing. (Refer to the "Making a Trestle" section, *AUGUST 2000 NEWSLETTER*)

Walkways. The two walkways are assembled as separate subassemblies. (Refer to the "Walkways" section, . Be sure to make the cross spar at the end of the walkway long enough to attach to both the stakes and the handrails without getting in the passageway.

Assembly. To assemble the bridge, set the trestle in the center of the creek. Heel in the bottoms of the trestle legs by setting them in holes approximately 4" to 5" deep (see figure 129). This will prevent the trestle from shifting, and is also a way to level the transom spar as the trestle is set in place so that the walkways are level.

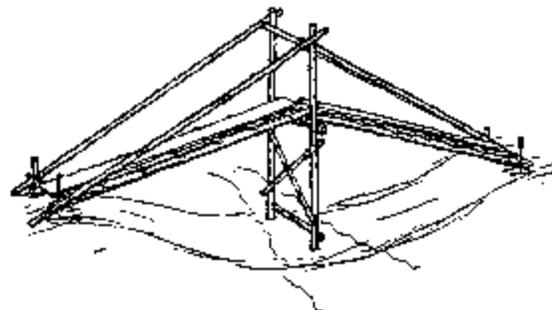
Figure 129



Next, put the walkways in position from both sides and lash the walkways' underspars to the transom (top ledger) of the trestle. Then drive stakes at the other end of the walkways. Lash the ends of the cross spars on the walkways to the stakes.

Handrails. Finally, handrails are provided to help those crossing the bridge and also to add strength to the structure of the bridge. When the handrails are added, they form triangles with the walkway and the trestle leg. These triangles produce a strong structure that prevents the bridge from racking. Lash the handrails to the top of the trestle legs and to the stakes with simple strop lashings (see figure 130).

Figure 130



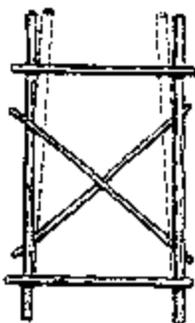
List of Materials for a Single Trestle Bridge

- 2 3" x 8' or 10' trestle legs
- 1 3" x 4' trestle top ledger (transom)
- 1 2" x 4' trestle bottom ledger
- 4 3" x 10' walkway lateral spars
- 12 2" x 3' walkway cross spars
- 4 2" x 3 1/2' walkway cross spars
- 2 2" x 10" x 10' walkway planks
- 4 2 1/2" x 12' handrails
- 4 stakes

Single Lock Bridge

The single lock bridge shown here is a well-established and basic design. The list of spars shown for this project should build a bridge to span a creek or ravine approximately 4' deep and 18' from bank to bank.

Figure 131



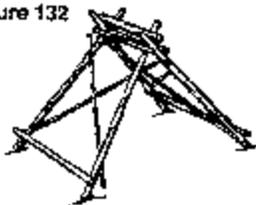
Trestles. The bridge consists of two trestles and two walkways. Begin by building the two trestles as subassemblies. Adjust the length of the spars for the trestles so that when they are placed in the creek, as shown in figure 132, the tops of the ledgers will be about 1' above the level of the banks of the creek. This will give a comfortable slant to the walkways.

When constructing the two trestles, build only one trestle first. Then as the second trestle is being built, make sure

that the legs are narrower at the top and fit between the legs of the first trestle (see figure 131).

Walkways. Next, the two walkways are constructed as subassemblies. Each walkway consists of two lateral spars, six cross spars, and two longer cross spars. One of these two longer cross spars is used as an underspar at the end of the walkway that attaches to the transom. The other longer cross spar is used to attach to the stakes. (Refer to the "Walkways" section,

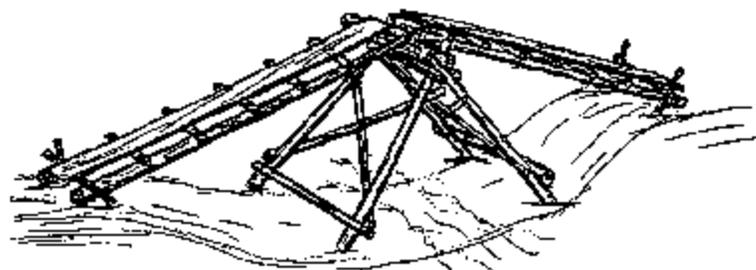
Figure 132



Assembly. After building the trestles and walkways, take them to the assembly site (the creek or ravine). Place the trestles in the center of the creek so that the tops of the trestles are interlocked (see figure 132). Then lift a 3"-diameter transom spar to fit on top of the interlocked trestle legs. Now, heel in the bases of the

legs in holes 4" to 6" deep. As you're heeling in the legs, level the transom spar so that the walkways don't slant when they're added.

Figure 133



Next, the two walkways are put into position (see figure 133). Lash the underspars on the walkways to the transom spar with strop lashings at three points. Finally, the cross spars at the ends of the walkways are lashed to the stakes.

By lashing the walkways to the transom spar and lashing the ends of the walkways to the stakes, you make a complete walkway unit that will prevent movement and provide a sturdy bridge deck.

List of Materials for a Single Lock Bridge

- 4 3" x 6' trestle legs
- 4 2 1/2" x 4' trestle ledgers
- 1 3" x 4' trestle transom
- 4 2" x 6' cross braces
- 4 3" x 10' walkway lateral spars
- 12 2" x 3' walkway cross spars
- 4 2" x 3 1/2' walkway cross spars
- 2 2" x 10" x 10' walkway planks
- 4 stakes

Single A-Frame Bridge

Building this bridge is quite simple because there are very few lashings needed for the center A frame. The A frame is a triangular shape that resists racking and provides strength to the structure.

A frame. Start this project by determining the depth of a creek or ravine to be spanned. You have to add 8' to that measurement to get the total height of the legs for the A frame. For example, to span a creek 4' deep, the legs of the A frame should be about 12' or longer.

This total length allows for the distance from the butt ends of the A-frame legs up to the transom that supports the walkways. The transom should be about 1' higher than the banks of the creek. It also allows for the height of the A frame from the walkways up to the tops of the legs to permit free passage for a person along the walkways.

Lay the A-frame subassembly out on the ground to check if the spars are long enough when lashed together for the two requirements mentioned above.

A-frame legs. When you've determined the length of the spars for the legs of the A frame, lash them together at the top with a shear lashing, not a diagonal lashing. This lashing should be made somewhat loose so that you can spread the spar legs apart to form the A frame. As you spread the spar legs, the shear lashing will tighten. A little practice will show you how loose to make the shear lashing initially in order for it to be tight when the A frame is formed.

Ledger and transom. To complete the A frame, use a square lashing to lash the bottom ledger across the legs about 1' from the bottoms of the legs. Then lash a transom spar to support the walkways at the proper height in relation to the banks of the creek.

Walkways. The two 10' walkway sections are made as separate sub-assemblies. (Refer to the "Walkways" section,)

Assembly. After the walkways are made, take them to the assembly site along with the A frame. Place the A frame in the center of the creek and heel in the legs in holes about 4" to 6" deep. As the legs are being heeled in, level the transom to accept the walkways in a level position.

Figure 134

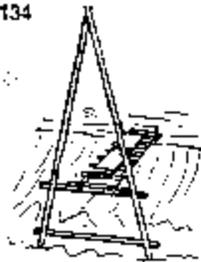


Figure 135

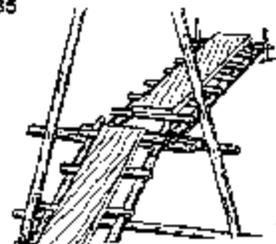
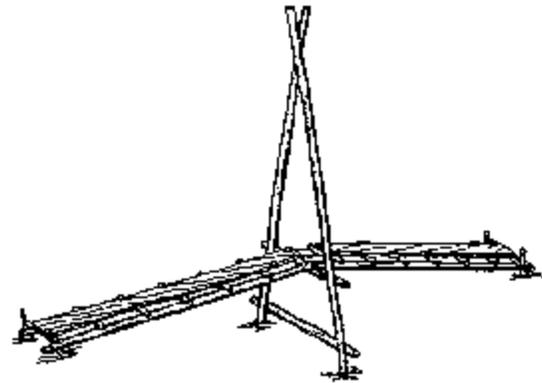


Figure 136



When the A frame is upright and the transom is level, lash both underspars on the walkways to the transom with strop lashings at three points. Finally, lash the cross spars at the ends of the walkways to stakes on the banks of the creek with strop lashings.

For safety, it's best to add a light $\frac{1}{2}$ " guy line from the top of the A frame to both sides of the creek to prevent it from tipping over.

List of Materials for an A-Frame Bridge

- 2 3" x 12' A-frame legs
- 1 2" x 6' bottom ledger
- 1 3" x 6' transom
- 4 3" x 10' walkway lateral spars
- 12 2" x 3' walkway cross spars
- 4 2" x 3 $\frac{1}{2}$ ' walkway cross spars
- 2 2" x 10" x 10' walkway planks
- 4 stakes

Double Ladder Tower

This project solves the old problem of wanting to build a signal tower when there aren't enough big spars to do the job. The double ladder tower requires four 14' spars and several smaller spars, but not nearly the amount needed for a four-leg signal tower. It also cuts down on the number of lashings required.

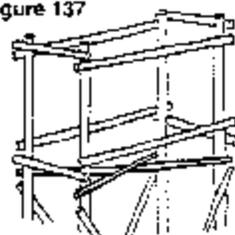
This tower is not free standing. It requires the use of guy lines to hold it steady. Review the sections on anchors and rope tackle if this is your first encounter with guy lines.

Assemble the ladders. This project begins with building two ladders: a climbing ladder and a supporting ladder. Lay out two pairs of spars on the ground for the legs of the ladders. Be sure the butt ends are even at the bottom so that the tower will stand up straight. Before you begin any lashing, mark the positions where the spars that will hold the top platform are to be lashed onto the legs. This is about 4' from the top ends of the legs.

To make the climbing ladder, lash ten rungs on one pair of legs at about 1' intervals. The top rung should be lashed on where you marked the position of the platform, 4' from the top. Also, the top handrail is lashed on to complete the climbing ladder.

To make the supporting ladder, lash three spars on the other set of legs to serve as the bottom, center, and top spreaders. The top spreader should be lashed at the point you marked for the platform, 4' from the top. Then lash on the top handrail, as on the climbing ladder.

Figure 137



Platform X brace

Lash the ladders together. Now you have to join the two ladders to form the tower. Turn the two ladders up on their sides so they're parallel to each other and approximately 6" apart. Check to see that the bottoms are even. Now lash on the base spreader to join the bottoms of the two ladders.

Lash on the platform supporting spar just above the top rung and top spreader on the ladders. Before proceeding, check the measurements from the bottoms of the legs to the platform supporting spar to make sure they're equal on both legs so that the platform will be level.

Continue by lashing on the top long handrail. Then lash on the two side X braces diagonally between the legs using square lashings to lash the ends to the legs, and a diagonal lashing where they cross.

Lash the other side. To make the lashings on the other side, you have to get the whole crew together to roll the tower over 180° so that it's laying on the X braces and the other sides of the ladders are up where they will be easier to get to.

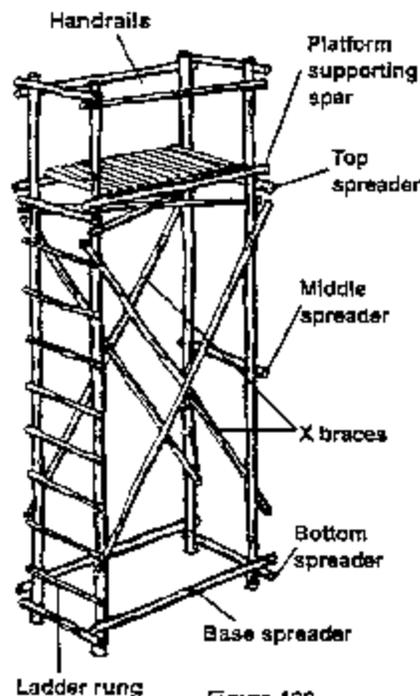


Figure 138

Then proceed as before. Lash on the base spreader spar and the platform supporting spar. Again, measure to make sure there's equal distance from both ends of the platform support spar to the bottoms of both legs. Continue to lash on the top long handrail and finish with the X braces.

Lash two more platform X braces under the platform. These braces go diagonally across the legs just under the platform to help the tower resist racking (see figure 138). Use square lashings to lash them to the legs and a diagonal lashing where they cross.

Before standing the tower upright, lash on the spars to form the platform floor.

Anchors and guy lines. When all the lashings are done, move the tower to where it will be hoisted. Before actually hoisting the tower, lay out the position of the four legs on the ground. Then determine where the four anchors for the guy lines will be placed to steady the legs of the tower. (Refer to the "Anchors" section, page 55, to determine the position of the anchors.)

If the tower is positioned to make use of a natural anchor (such as a tree), prepare anchor strops to attach the guy lines. For any guy lines that won't be using natural anchors, build anchors using pioneering stakes. At a minimum, you will need to build well-constructed 1-1 anchors at all four corners. (Refer to the "Anchors" section, page 55, for more on 1-1 anchors.)

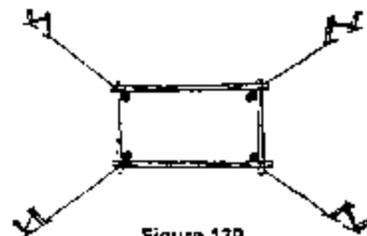


Figure 139

Attach the four guy lines to the legs just above the platform. The guy lines should be $\frac{3}{8}$ "-diameter manila or polypropylene rope. They're attached to the legs of the tower using a roundturn and two half hitches, and securing the running end of the rope.

Note: For safety reasons, never use a taut-line hitch on guy lines, or in any pioneering work for that matter. If the tension is eased, the knot can slip.

Hoisting the tower. Hoisting the tower up into a vertical position is done with separate ropes. Do not use the guy lines. The two lines on the side of the tower being lifted and one line on the opposite side to prevent overpulling and toppling the tower.

You will need a whole crew to do the hoisting. First, there should be a safety officer who observes for all safety considerations and signs of trouble during the hoisting. There should also be a signal caller who tells the crew members when and how fast to pull on the hoisting ropes, and when to stop pulling. Two or more Scouts should be on each of the two hoisting ropes. And one or two Scouts should be on the rope on the other side to prevent overpulling the tower.

When everyone is in position, the signal caller should direct the Scouts on the hoisting ropes to hoist the tower into position. As soon as it's up, temporarily tie the guy lines to the anchors using a roundturn and two half hitches.

Heel in the legs. With the tower upright, heel in the butt ends of the tower legs in holes about 4" to 6" deep. This is done to steady the tower and can also help in leveling the tower to make sure that the platform is level and the tower itself is vertical.

Tighten the guy lines. To hold the tower steady, gradually apply strain to each of the four guy lines at the same time. One of the easiest ways to adjust the strain is to use a rope tackle on the anchor end of the guy lines.

As soon as the tower is in position and the legs are heeled in, go to each of the anchors and untie the roundturn and two half hitches and replace it with a rope tackle.

Do this by tying a butterfly knot in the guy line about 6' to 8' from the anchor. Then, wrap

the running end of the guy line around the forward stake of the anchor and back through the loop in the butterfly knot. When rope tackles are tied at all four anchors, gradually tighten the lines. Apply enough strain to each of the guy lines to hold the tower firm and in a vertical position. Then tie off the rope tackle and secure the running ends with half hitches.

Test the structure. Before the tower can be put into general use, make a test climb while the safety officer and the whole crew observes all lashings and anchors to ensure they are all secure.

Note: Some people are not comfortable climbing up to a high place. They should not be encouraged to climb if they are not sure of themselves. Do not pressure anyone to climb the tower if they don't want to.

List of Materials for Double Ladder Tower

- 4 4" x 14' ladder legs
- 10 2" x 3' climbing ladder rungs
- 3 2" x 3' support ladder spreaders
- 2 2 $\frac{1}{2}$ " x 3' base spreaders
- 2 2 $\frac{1}{2}$ " x 3' platform supporting spars
- 2 2" x 3' platform handrails
- 2 2" x 6' platform long handrails
- 4 2 $\frac{1}{2}$ " x 10' side X braces
- 2 2 $\frac{1}{2}$ " x 8' platform X braces
- 18 2" x 3 $\frac{1}{2}$ ' platform floor slats
- 8 pioneering stakes for four 1-1 anchors

Double A-Frame Monkey Bridge

Using a double A frame to build a monkey bridge is a departure from the usual X frame that supports the foot rope and hand ropes. This new method has two distinct advantages over the X-frame version.

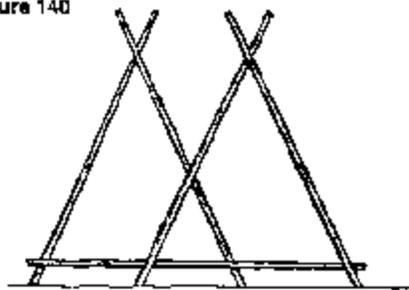
First, the double A frame provides a wider base, making it less likely to tip over. The second advantage is that the positions of the A frames can be adjusted so that the span between the hand ropes can be narrowed for better balance as you make the crossing.

Building the A frames. The first step in building this monkey bridge is to build four A frames using the 8' spars for the two legs, and 6' spars for the ledger.

Lay out the first set of three spars (two legs and one ledger) on the ground in position for lashing. Before lashing, drive three stakes, as follows, to help you to make all four A frames the same size: Drive a stake at the top to mark where the leg spars cross. Then drive stakes to mark the positions of where the bottom ledger crosses the legs. This will also indicate how far the legs are spread apart.

Now you can lash the four A frames together, laying them out one at a time using the stakes. Remember that all three lashings on the A frames are square lashings, even though the spars cross at less than a 90° angle.

Figure 140



Double A frame. When you have four A frames, you can lash two of them together to form a double A frame (see figure 140). Lay one A frame on the ground and then put another on top so that the bottom ledgers overlap one-half their length (approximately 3').

The first step in lashing the A frames together is to go up to where the two legs cross (the X formed by one leg from each A frame). Then with a good tight square lashing, lash the two legs together.

Note: The point where these legs are lashed together is where the foot rope will rest. You can adjust the overlap of the two A frames to adjust how high the foot rope will be off the ground. Also note where the tops of the A frames are because this is where the hand ropes will be.

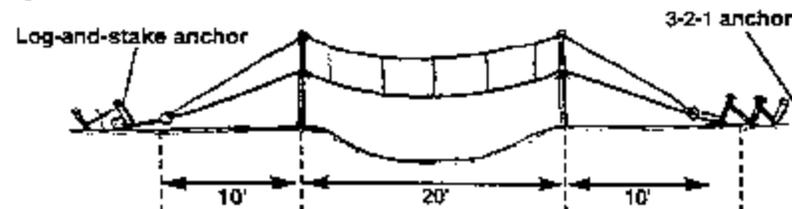
To complete the double A frame, stand it up so that the butt ends of all four legs rest solidly on level ground. Lash the two bottom ledgers together where they overlap with three strop lashings.

Now repeat this entire process to build the second double A frame.

Site preparation. Before you can erect the double A frames, you need to prepare the site. Begin by stretching a length of binder twine along the center line of where the monkey bridge is to be built.

Working from the center, measure out 10' toward each end to mark where the A frames are to be placed. They should be 20' apart. Then mark out another 10' from each A frame to where the anchors are to be built (see figure 141).

Figure 141



Note: These dimensions are for building a bridge with a 20' span. This is the maximum span for a bridge using a 50' rope. The extra 30' of rope is needed to have 15' of rope at each end for the proper distance from the A frames to the anchors (10'), and for the knots at the anchors (5').

Build the anchors. The foot rope will be attached to anchors at both ends. Before erecting the double A frames, build a 3-2-1 anchor, or a log-and-stake anchor 10' from where the double A frames will be erected (see figure 141).

Rope grommet. After the anchors are built, attach a rope grommet with a ring or shackle in it. (You can make the rope grommet with a 10' length of 1/2"-diameter polypropylene rope. Refer to the "Anchors" section, page 55, for more about rope grommets.)

Position the A frames. Prepare to erect the bridge by moving the A frames into position no more than 20' apart. Lay them down on the binder twine that marks the center line of the bridge.

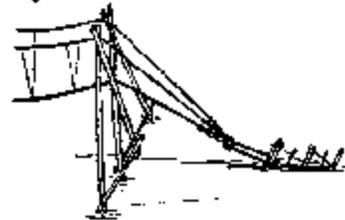
Hand and foot ropes. Now you can prepare the foot and hand ropes for the monkey bridge. Lay the foot rope in a straight line off to the side of where the A frames are laying. Then lay the two hand ropes

on the ground next to each other so they're parallel to the foot rope and 42" away.

Stringer ropes. Now you can add the stringer ropes that will go from the foot rope to the hand ropes. Start by tying the center of an 8'-long stringer rope (use $\frac{1}{2}$ " manila rope) at the center of the foot rope, using a clove hitch. The stringer rope is tied around the foot rope so that both ends are 4' long. Add two more stringer ropes on both sides of the center stringer rope (so there are five stringer ropes in all), tying them about 4' apart.

Tie one end of each stringer rope to one of the hand ropes, again using a clove hitch. Then do the same with the other ends of the stringer ropes, attaching them to the other hand rope.

Figure 142



Assemble the bridge. You're just about ready to assemble the bridge. First place a piece of heavy canvas (called a "saddle") in the V formed by both double A frames. This will protect the foot rope and allow it to slide a little in the V without interfering with the lashing rope.

Now get the crew together to erect the bridge. You will need a safety officer to watch for any problems that might occur, and a signal caller to tell the crew members what to do.

You will need two Scouts to lift and hold each double A frame in place, two more Scouts to lift the foot rope into the V of the double A frames, and two more Scouts to lift the two hand ropes into place at the tops of the A frames.

Lift everything into place. Then while holding the A frames steady, temporarily tie the hand and foot ropes into the rings on the grommets using a roundturn and two half hitches (see figure 142).

Tighten the foot rope. Now you can put a strain on the foot rope. It's not necessary to use block and tackle since this will put too much strain on the lashings, the anchors, and the foot rope itself when there is a load on the bridge.

Whatever strain three or four Scouts can put on the foot rope by pulling it by hand will be enough. As soon as the bridge is used a

few times, there will be a sag in the rope. This is fine because it means that you are working with a reduced strain on the foot rope as a safety measure.

Tighten the hand ropes. Next, tie the hand ropes to the top ends of the A frames. First, loosen one end at a time from the anchors. Then use a clove hitch to tie the hand rope to the top end of the leg of the double A frame. As you're tying these clove hitches, adjust the strain on the sections of the hand ropes between the double A frames to match the sag of the foot rope. Also adjust the length of the stringer ropes so there is even strain between the foot rope and both hand ropes.

After the hand ropes are tied to the tops of the A frames, move down and retie the ends of the hand ropes to the rings in the grommets using a roundturn and two half hitches.

Final testing. With caution, one crew member can get on the bridge as all lashings, anchors, and knots are observed by the safety officer and all other crew members. Make adjustments as required. Then secure the running ends of the hand ropes and foot rope with a piece of cord.

Safe operation calls for only one Scout to be on the foot rope of the monkey bridge at a time.

List of Materials for Double A-Frame Monkey Bridge

- 8 4" x 8' A-frame legs
- 4 3" x 5' ledgers
- 15 $\frac{1}{2}$ " lashing ropes
- 1 $\frac{1}{2}$ " or $\frac{3}{4}$ " x 50' rope
- 2 $\frac{1}{2}$ " x 50' hand ropes
- 5 $\frac{1}{2}$ " x 8' stringer ropes
- 6 pioneering stakes for each 3-2-1 anchor
- 8 pioneering stakes for each log-and-stake anchor
- 1 5" x 4' spar for log-and-stake anchor
- 2 $\frac{1}{2}$ " x 10' polypropylene ropes for anchor straps
- 1 $\frac{1}{2}$ " x 3" welded ring, or $\frac{1}{2}$ " screw pin shackle
- 2 pieces of scrap canvas for foot rope saddle
- binder twine for anchor tieback straps

MOUNTAIN MAN PIONEERING ENCAMPMENT 2000

Newsletter #12 - October 2000

This newsletter is issued on a monthly basis to provide your young men and leaders with resource information to help prepare them for the Mountain Man Pioneering Encampment in November, 2000.

If you have any questions please contact me at 796-8081.

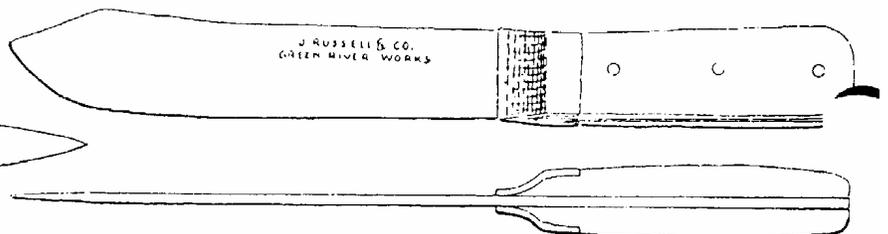
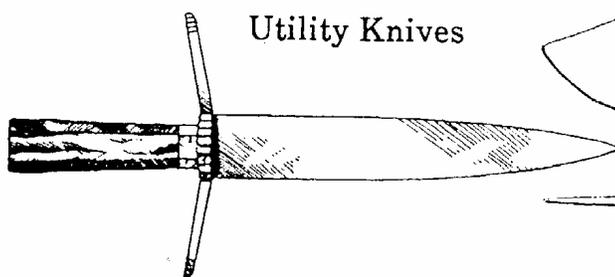
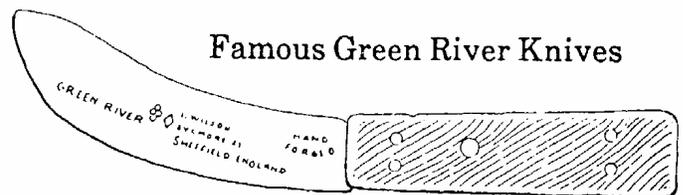
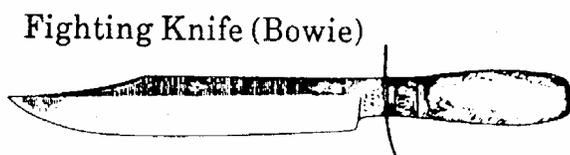
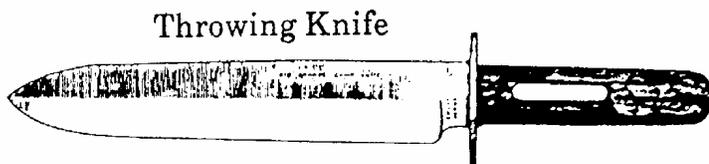
Gary Stivers
Stake Young
Men's Presidency

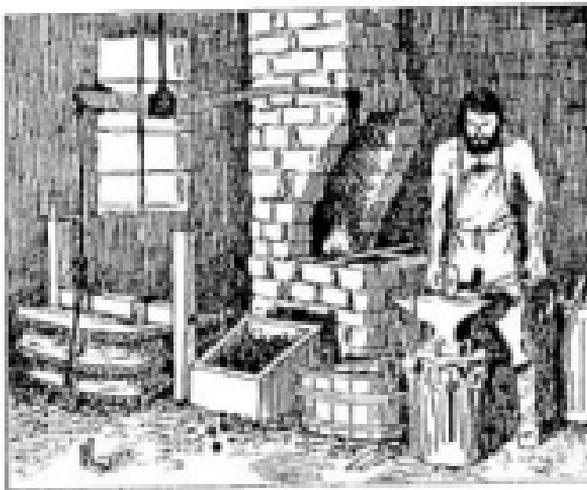
Tomakawks and Knives

One of the most useful tools carried west by the mountain man was a sharp, lightweight tomahawk (hawk). It is useful in cutting wood, poles, and tent pegs, or quartering elk or moose. It is mostly found sunk into a log beside the cooking fire for cutting small pieces of wood. It was carried by the owner thrust through his belt in the middle of his back and covered with a leather blade cover to keep it from cutting the wrong hide. It was sometimes used for competitions called "hawk throwing". Learning the skill of throwing the hawk is a favorite part of Rendezvous. To sink a hawk into a log target several paces back was a necessary skill.

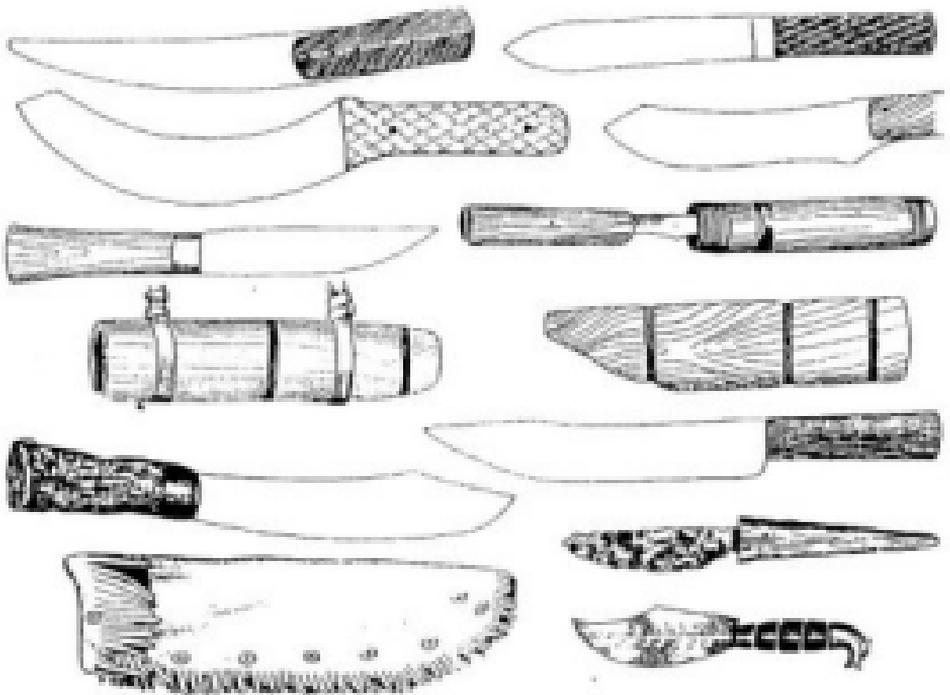
A second useful tool was the knife and the skill of "knife throwing". It is most popular with boys. There are four major groups of knives used during the period:

- The Patch Knife which is a razor sharp small knife used to cut patches for the rifle.
- The Throwing Knife used for competition throwing.
- The Fighting Knife like the one Jim Bowie made famous.
- The Utility Knife - the real workhorse of the knives used most often.

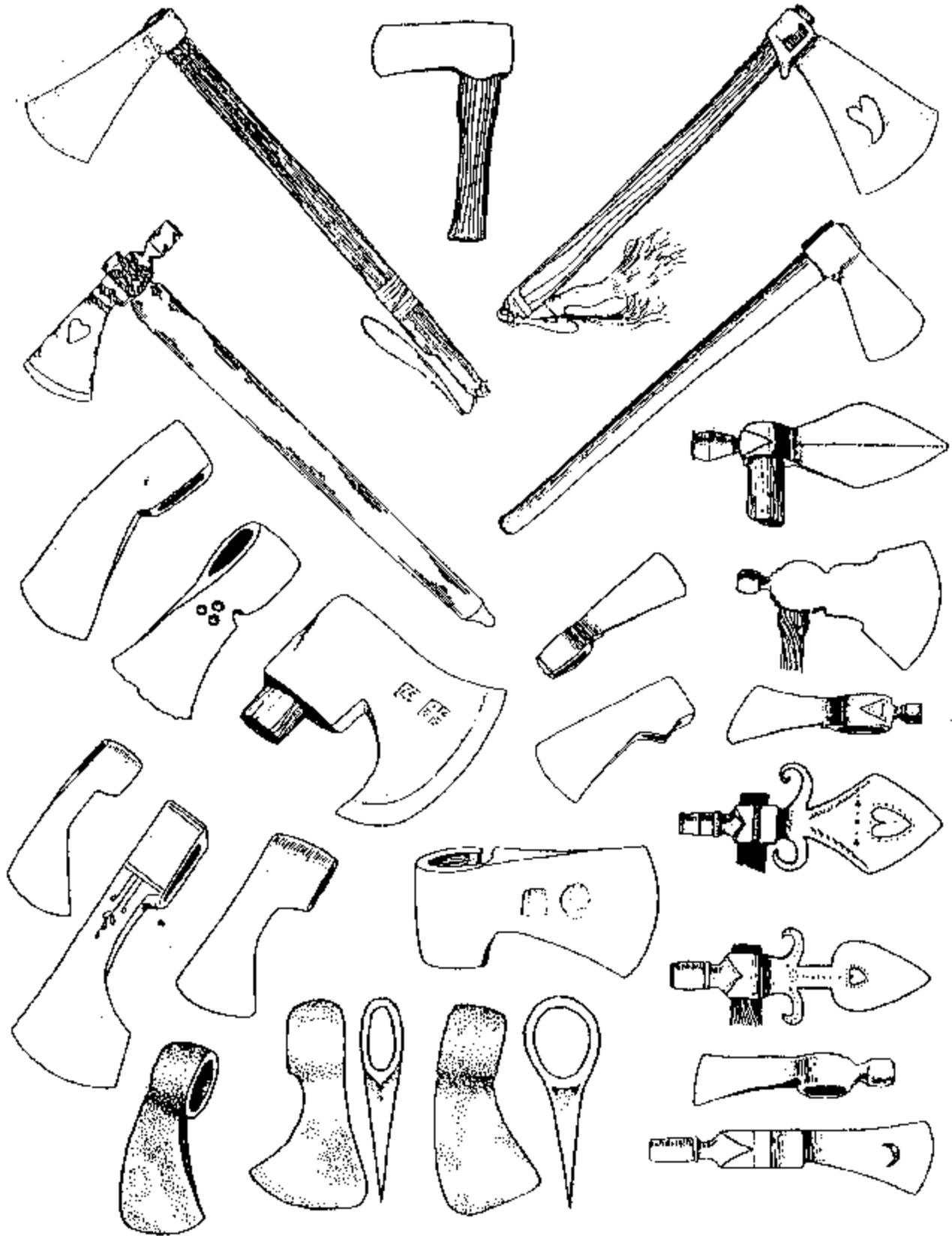




Interior of a Blacksmith Shop at a Trading Post
-Drawing by Glen Dines



Types of Knives Used During the Period



Different Tomohawks of the Period

Tomahawks and Knife Throwing Safety

In all areas of the rendezvous, safety will always be observed. These skills, like many others practiced at the rendezvous, were common place among the mountain men. Today there are a few instructions and rules to keep it safe. Like any skill it will take practice.

Rules:

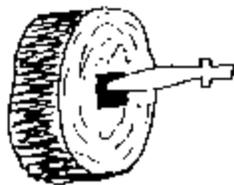
1. All knives and hawks are dangerous.
2. Respect them for they are lethal weapons that can cause bodily injuries or kill.
3. All knives and tomahawks must be cleared by the range officer before use.
4. Always point the weapons down range.
5. Never throw them unless you are cleared to do so.
6. Never try to retrieve them until clearance has been given by range officer.
7. Keep your attention on what you are doing, listen to instructions.
8. Be sure of your target and the backdrop area.
9. Use safe and sturdy logs as targets.
10. Keep the entire throwing area clear of people and obstacles.
11. Never throw a hawk or knife at a live tree.
12. Do not throw a hawk or knife in camp. Only in the designated range. Unless you get approval to set up your own area with the approval of the coach or dog soldiers.
13. Have fun but -Keep The Rules - or you will be ask to leave the range.

How to tips on doing it right:

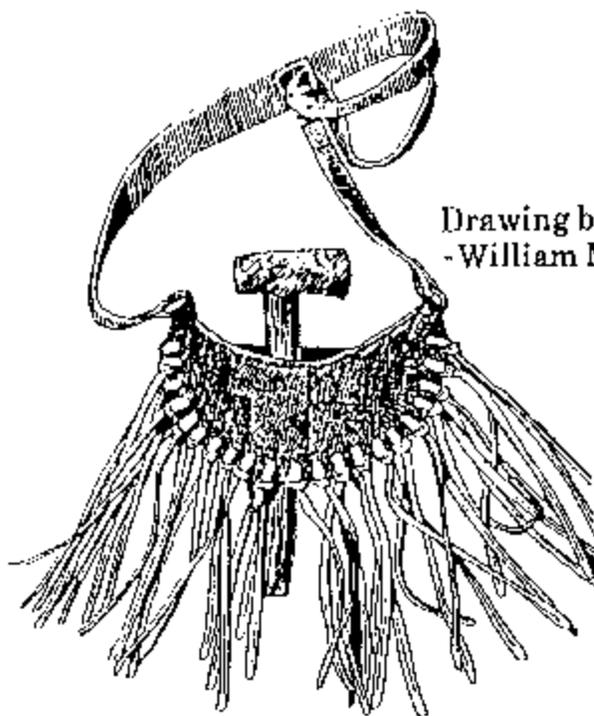
1. The correct throwing distance from you to the target is dependent on the length of your arms and legs, and knife or tomahawk handle.
2. The end-to-end length of the tomahawk handle should be the same as the end-to-end length of the knife.
3. The overall length of the tomahawk and knife should equal the length of your forearm as measured from the knuckles of your clenched fist to the tip of your elbow.
4. Your knife should weigh approximately one ounce for every inch of overall length.
5. Your tomahawk and knife should be of equal weight.
6. The balance point, which is determined by laying the knife flat side down on your index finger or on the edge of a ruler, should be within one-half inch of its center.
7. The knife must be capable of standing up under the rugged use encountered in throwing.



Tomahawk throwing target



Knife throwing target



Drawing by
- William Macy

APPENDIX – BOOK LIST

Biographies about Mountain Men:

- "Pirate Pawnee and Mountain Men the Saga of Hugh Glass" - John Myers
- "Bill Sublette Mountain Man" - John E Sunder
- "Jim Bridger" - Cecil B. Alter
- "Jim Bridger Mountain Man" - S. Vestal
- "Peter Skene Ogden and the Hudson Bay Company" - G. Cline
- "Peter Skene Ogden Fur Trader" - Archie Binns
- "Daniel T. Potts" - Gearld C. Bagley
- "Jim Beckworth" - E. Wilson
- "The Life of James P. Beckworth" - T. D. Bonner
- "Jim Beckworth Nego Mountain Man" - Harold W. Felton
- "Old Bill Williams Mountain Man" - A. Favour
- "Broken Hand, The Life Story of Thomas Fitzpatrick Chief of the Mountain Men" - LeRoy R. Hafen
- "The Southwest Expedition of Jedediah S. Smith" - George R. Brooks
- "Jedediah Smith" (And the Opening of the West) - D. Morgan
- "Joe Meek, Merry Mountain Man" - Stanley Vestal
- "Joe Meek, Man of the West" - Shannon Garst
- "Kit Carson - A Portrait of Courage" - M Estergreen
- "Kit Carson Autobiography" - Kit Carson
- "A Journal of a Trapper 1834-43" - Osborn Russell Journals by Aubrey Haines
- "A Journal of a Mountain Man" - James Clyman

Books about The Fur Trade Era:

- "Westward Expansion" - Ray Allen, Billington
- "This Reckless Breed of Men" - Robert G. Cleland
- "Trails West and the Men Who Made Them" - E. Dorian and W. N. Wilson
- "The Exploration of Western America" (1800-1850) - E. W. Gilbert
- "Rocky Mountain Rendezvous" - Fred R. Gowens
- "The Mountain Men and the Fur Trade of the Far West" - LeRoy R. Hafen
- "The Beaver Men" - Mari Sandoz
- "A Majority of Scoundrels, an Informal History of the Rocky Mountain Fur Co" - Don Berry
- "Life in the Far West" - George Frederick Ruxton
- "Mountain Men: George Fredrick Ruxton's First Hand Accounts" - Glen R. Rounds
- "The Fur Trade of the American West - 1807-1840" - D. Wishart
- "The Fur Trader and the Indian" - Saum
- "Furs to Furrows" - Sydney Greenbie
- "Fur Trade and Exploration" - T. Karamanski
- "The Mountain Men" - Neihardt
- "The Adventures of a Mountain Man" - Zenas Leonard
- "Mountain Men and Fur Traders of the Far West" - LeRoy Hafen
- "The Stories of the Lewis and Clark Expedition" - Conrad Stein
- "Lewis and Clark among the Indians" - J. Ronda
- "Dog Soldiers, Bear Men and Buffalo Women" - Thomas E. Mails
- "Trappers of the West" - Fred Reinfeld

How to Books on Crafts:

- "Buckskinning I, II, III, IV" - From Muzzleloaders Magazine
- "How to make your own Knives" - Percy W. Blandford
- "How to make your own Knives" - Jim Mayes
- "Firearms, Traps, and Tools of the Mountain Men" - Carl P. Russell
- "Foxfire Books Vol. 1-8" - Eliot Wigginton
- "Woodstock Craftsman Manual 2" - Jean Young
- "Mountain Man Crafts and Skills" - D. Montgomery
- "The Best of Woodsmoke" - Richard L. Jamison

APPENDIX – BOOK LIST

How to Books on Crafts:

"Successful Trapping Methods" - Walter S. Chausler
"Trappers, Traps, and Trapping" - Edward Finnerty
"Outdoor Survival Skills" - Larry D. Olson
"The Long Hunters Sketchbook" - The Frontier Scout and Buffalo Hunters Sketchbook"
"A Voyagers Sketchbook" - "The Trade Gun Sketchbook" - Trade Rifle Sketchbook" - J. Hanson
"Buckskinner's Cookbook" - Hanson
"The Book of a Free Trapper" - Walters
"Powderhorns and their Architecture" - Madison Grant
"Tan Your Hide" - P. Hobson
"Home Tanning Leather and Small Fur Skins" - F. Veitch
"The Complete Book of Tanning Skins and Furs" - J. Churchill
"How to Sew Leather, Suede, Fur" - Scwebke & Krohn
"Flintknapping The Art of Making Stone Tools" - Helwig
"The Art of Flint Knapping" - D. C. Waldorf
"Making Buckskin Clothes" - Moss

Indian Craft Books:

"Indian Crafts and Skills" - David Montgomery
"The Complete Book of Indian Craft" - Ben Hunt
"The Book of Indian Crafts and Costumes" - Bernard S. Mason
"The Book of Indian Crafts and Indian Lore" - Julian Harris Salomon
"The Indian How Book" Arthur C. Parker
"Crafts of the North American Indian" - Schneider
"North American Indian Arts" - Andrew H. Whitford
"Traditional Indian Crafts" - Monte Smith
"Indian Dances of North America" - Reginald & Gladys Laubin
"The Indian Tipi" - Laubin
"American Indian Archery" - Laubin
"Universal Sign Language of the Plains Indians" - William Tomkins
"Indian Sign Language" - Tomkins
"Indian Talk-Hand Signals of the North American Indian" - Iron Eyes Cody
"Authentic American Indian Beadwork and How To Do" - P. Stanley-Millner
"Quill and Beadwork of the Western Sioux" - Carrie Lyford
"Porcupine Quillwork" - Orchard
"Indian Bead Stringing and Weaving" - Ruth Scholz-Peters
"American Indian Beadwork" - W. Ben Hunt & J. F. Burshears
"A Handbook of Beads" - W. G. N. va der Steen
"Drums, Tomtoms and Rattles" - B. S. Mason
"Dress Clothing of the Plains Indians" - Koch
"Brain Tanning" - Belitz
"Indian Rawhide" - Morrow

Books About Indians:

"The Saga of Chief Joseph" - Howard
"The Mystic Warriors of the Plains" - Thomas E. Mails
"The Pueblo Children of the Earth Mother" (Vol. I & II) - Mails
"Dog Soldiers, Bear Men and Buffalo Women" - Mails
"The People Called Apache" - Mails
"The Shoshonis, Sentinels of the Rockies" - Trenholm & Carley
"Black Elk Speaks" - J. Neihardt
"The Gospel of the Red Man" - Ernest Thompson Seton
"Bury My Heart at Wounded Knee" - Dee Brown
"The Crow Indians" - R. Lowie
"The Nez Perce Indians and the Opening of The Far West" - A. Josephy Jr.
"Touch the Earth" - T.C. McLuhan
"Children of the Sun" - Adoif Hungry Wolf
"Seven Arrows" - Hyemeyohsts Storm

In addition, visit the Native American Craft Supplies web page at
http://www.nativeweb.org/resources/crafts_indigenous_technology/craft_supplies_sources/