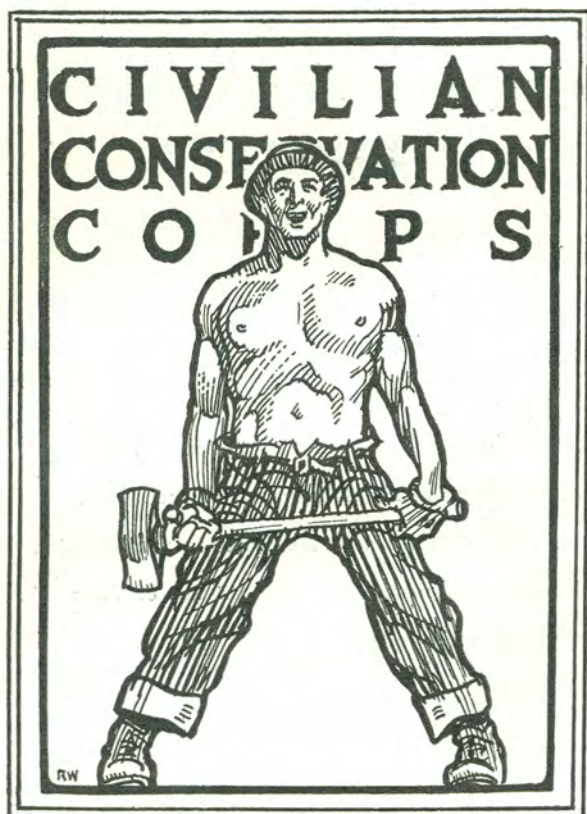


WOODSMANSHIP

FOR THE



CIVILIAN CONSERVATION CORPS

ROBERT FECHNER, DIRECTOR

1938



CIVILIAN CONSERVATION CORPS

Robert Fechner, Director

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Contribution from the Forestry Divisions
Civilian Conservation Corps

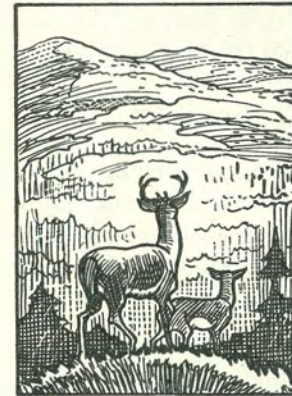
(Revised June 1938)

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THE MOUNTAINS and forests of this country may seem a wilderness to those of the Civilian Conservation Corps who come from the cities and farms. They may feel that they are in strange surroundings and new ways of life. Yet these same conditions of living and working were the normal experiences of their pioneer parents and grandparents who first settled America. With such an inheritance it is believed that they will adapt themselves to the Civilian Conservation Corps with the same spirit and courage displayed by their ancestors.



Experience in the C. C. C. will probably not call for as much of the pioneering ability such as enabled the early settlers to find their way through an unknown country and exist without the aids of civilization in the wilderness. It will, however, call for what is known as "Woodsmanship"—the ability to live and work safely, conduct yourself in accordance with your surroundings, and adapt yourself to your environment. No one can be taught woodsmanship out of a book, but here are a few traits of a good woodsman.

FIRE

HE IS CAREFUL with fire in all forms. He smokes only in camp, and guards his burning matches and tobacco. He clears away all inflammable material before building a fire; builds only a small fire, and puts the fire dead out with water before leaving. He always breaks his match in two before throwing it away.



SANITATION

HE KEEPS his camp neat and clean, and is as careful about his personal cleanliness as if in a town or city.

FISH AND GAME

HE OBEYS the State fish and game laws. He gives game a fair chance and does not destroy wildlife just for the sake of killing.

OBSERVATION—A WOODSMAN'S TRAIT

WHEN TRAVELING he observes the streams, the ridges, the trails, and other landmarks in the mountains and notes their position, just as a city man does the streets, buildings, and car lines in a strange town.

THE TEST OF WOODSMANSHIP

IF HE LOSES his way he does not get excited and run and yell or wander around, but sits down and tries to figure out where he is. If caught in a storm or fog or by night he finds a sheltered spot and camps until daylight. If hurt or injured he clears a spot on a promontory, makes a signal smoke, and waits until help arrives.

FANCIED PERILS

THE MOUNTAINS and forests may seem strange and full of perils to the tenderfoot, but the woodsman knows that he is much safer from accident in the wilderness than in towns and cities. The imagination of the new-comer is often filled with fantastic tales of savage wild beasts and dangerous reptiles. The old timer knows that bears, mountain lions, and other animals are afraid of him, and that he can catch a glimpse of them only by chance. There is really no danger of attack from any wild animal in the woods. They desire only to be let alone. Whatever truth there may be in bear stories arises from the fact man may have unexpectedly interfered in some way with a wild animal so as to startle it into acting in self-defense.



RATTLESNAKES

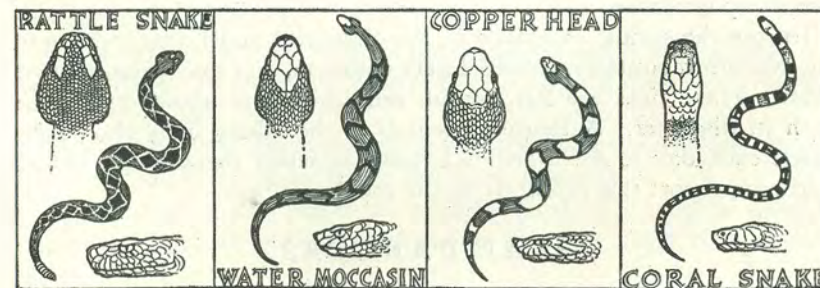
RATTLESNAKES are poisonous reptiles, yet millions of persons travel the forests each year and are not bitten. Like other wild things, they seek to avoid man if given a chance to get away.

Here are a few rules for emergency treatment of rattlesnake bites, given by physicians who are authorities on the subject, which the forest rangers say are well worth remembering:

1. Keep cool. Don't run or get overheated.
2. Apply a tourniquet (rubber garter, rubber tubing or band, handkerchief, cord, shoestring) a few inches above the wound and between the wound and the heart. Bind the limb tight enough to hinder circulation in the veins, but not tight enough to shut off arterial flow. Loosen the tourniquet every 15 or 20 minutes for 1 to 3 minutes.
3. Open the fang punctures by cross-cuts one-eighth inch deep and one-fourth inch or more long, made with a sharp sterile knife or safety-razor blade. Do not slash indiscriminately or too deeply especially on hand, foot, wrist, or ankle, as serious damage to tendons may result.
4. Suck the wound, by mouth if necessary. If suction bulb is available, apply mechanical suction for 20 minutes out of each hour.
5. Get the patient to a physician as soon as possible.

Some other poisonous snakes found in this country are the Copperhead, distinctly a southern species but found also in the eastern and central United States; the Water Moccasin or "cotton-mouth" found in the Southern States from Florida to Texas; and the Coral snake found in the South.

All of our poisonous snakes have the typical triangular-shaped head, except the rather rare Coral snake. Our nonpoisonous snakes have smaller and oblong heads.



POISONOUS PLANTS AND INSECTS

THESE ARE the cause of a large part of the real troubles of those who live in the woods and mountains.

COMMON NETTLE



POISON IVY

POISON OAK



WATER HEMLOCK

Some forest plants may cause injury to the skin if touched. The worst of these is poison oak, which causes a painful itching that spreads rapidly and lasts a long time. Oak poisoning appears first as small blisters. Poison-oak is a low-growing woody plant with leaves in groups of three. Leaves are irregularly wedge-shaped, the shape varying much among those even on the same plant. In summer, the leaves are dark, glossy green, turning to deep red in the fall. Berries, present in dense clusters during the fall, winter, and spring, are small, not more than one-eighth inch in diameter, and practically colorless. Learn to recognize this plant; find out if it occurs where you are working, and avoid it carefully. If you find that you have touched it, wash the exposed skin promptly with gasoline or kerosene or laundry soap. Do not use water alone, and if soap is used, add only enough water to apply the soap.

Stinging nettles cause no serious injury but produce discomfort for a short time where they touch the skin. The stem is unbranched, usually about 2 to 2½ feet long. Narrow, wedge-shaped leaves grow on short leaf stems on all sides of the central stalk; edges of the leaves are sharply notched.

During the spring, especially in the chaparral and brush country of the western mountains, woodticks are common, and may cause spotted fever. These ticks are flat, round, reddish-brown, about one-eighth inch in diameter. A thorough search of the whole body should be made each day to see if any ticks have attached themselves. If you find any, report this promptly to the medical officer.

REAL DANGERS

THE REAL DANGERS and causes of accidents in the Civilian Conservation Corps will arise from the work itself. Carelessness or ignorance

of the use of tools and machinery is always dangerous. The mottoes, "Safety First" and "Better be Safe than Sorry", are excellent advice in the woods.

USE AND CARE OF TOOLS

SAFE AND SKILLFUL use of tools in forest work can be acquired by men with little or no prior experience in such work through observing certain precautions and striving to become increasingly proficient as the work progresses.

The tools with which the bulk of forestry and park work will be done are axes, cross-cut saws, shovels, picks, mattocks, drills, and crowbars.

In every camp there will be a shop with a tool man in charge. Tool conditioning will be done there. However, each axman should carry a flat file for removing nicks and for minor sharpening while on the job. A pocket whetstone is also useful for ax sharpening in the woods.

The following suggestions should be carefully observed in the care and use of tools:

Axes. Most chopping accidents are due to carelessness. Before starting to swing your ax, look around; clear away overhanging limbs and all undergrowth or small trees that may interfere. An ax that strikes such interference is apt to glance and swing wild. Be sure that no workmen are within range of the swing of your ax. After you are sure of your swinging space, keep your eye on the mark.

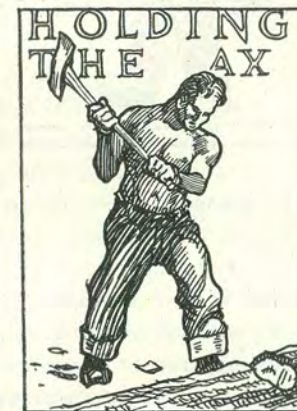
In chopping, always keep a solid grip with the hand uppermost on the handle.

Be sure to swing the ax away from the legs and body so that, if it misses the mark or glances, it will not strike you.

Try always to keep one edge of the double-bitted ax sharp, using the duller edge in all chopping where there is any chance of striking the ground or rocks.

Never throw your ax, and never leave it lying on the ground. When not in use, drive the blade firmly into a log or stump.

Single-bitted axes. Never use a single-bitted ax in place of a sledge hammer, since this results in spreading the "eye" and thus ruining the ax.





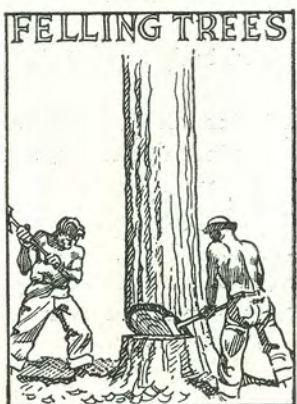
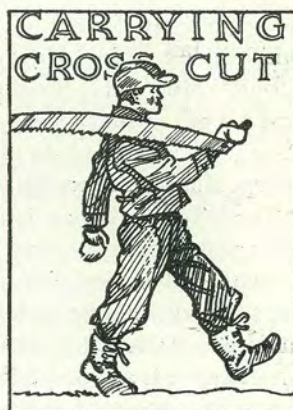
How to carry an ax. When going through forest or brush or rough country, the best way to carry an ax, whether single or double-bitted, is to carry it in the hand, grasping the handle close to the head, with the bit at right angles to the ground. Never carry a double-bitted ax on your shoulder in rough country.

Crosscut saws. Never carry a saw under the arm, but always carry it balanced on the shoulder, with the teeth pointing outwards. Saws will be sharpened by a saw-filer in camp. Never attempt to file a saw in the woods.

In using a two-man crosscut saw, one point should be kept in mind always—don't try to push the saw. After you have pulled it toward yourself, let your partner pull it without your help, except in guiding it.

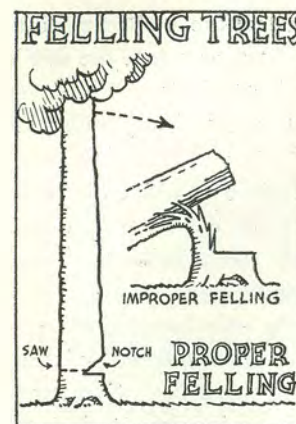
Felling trees. Requires the most skill, and is one of the most dangerous of all woods work. Unskilled workers should not try to fell large trees without experienced supervision.

Live trees or snags (dead trees) which must be cut will, as a rule, be felled with crosscut saws. First decide the direction in which to fell the tree. As a rule, this will be



in the direction of the lean, although occasionally it will be necessary to force the tree in another direction by means of wedging, in order to avoid blocking a trail, striking a telephone line, or for some similar reason. Stumps should be cut as low as practicable, and rarely higher than 14 inches above the ground on the upper side.

The first step in felling is to make an undercut on the side of the tree which faces the direction you wish the tree to fall. The lower surface of this cut should be made with a saw, and should be as nearly horizontal as possible. The upper surface



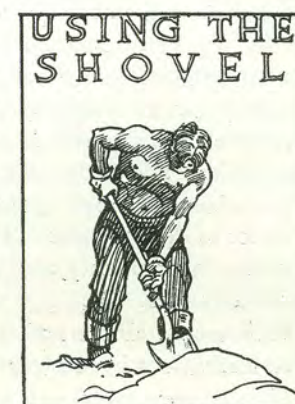
should be chopped with an ax sloping downward to intersect the horizontal cut, thus forming a V notch with a depth that is from one-sixth to one-fourth the diameter of the tree. The lower side should be one or two inches below the expected height of the stump. Both corners of the undercut must be in sound wood. A horizontal cut should then be made with a saw on the opposite side of the tree—no lower and not over two inches above the lower surface of the undercut. It will usually be necessary to drive a felling wedge into the saw kerf to prevent the tree settling upon and pinching the saw.

Avoid felling a tree so that it will lodge in the top of a neighboring tree or fall across a road, trail, telephone line, etc. If it does lodge, work on it until it is on the ground.

In felling a snag or a live tree which contains some dead limbs or a spike top (dead top), keep constantly on the watch for heavy limbs or chunks which may be broken through the swaying of the tree as it starts to fall. Such limbs are commonly known as "widow-makers." Before the tree is ready to fall be sure no one is anywhere within the reach of the top or limbs. Get in the habit of yelling "Timber-r-r" whenever a tree is about to fall. When the tree starts to fall remove the saw quickly and step back at least 20 feet away from the stump, to avoid falling limbs and any possible "kick back" from the trunk as it leaves the stump.

Shovels. Do not allow the handle to become roughened by contact with rolling rocks or by throwing it carelessly down upon the ground. Rough handles cause blisters on the hands. Keep the round end of the handle smooth. Do not use the shovel handle to pry with, poke chains under logs, tamp powder shots, etc. Keep your shovel handle smooth. Do not pry any object with blade or handle.

Crowbars. A crowbar is a dangerous tool in inexperienced hands. Be sure the point or chisel part of the bar is safely placed so that it will not slip before you apply power to the handle. Do not put knee, foot, or other part of body in direct line of bar while pulling. A slip may injure you seriously.



Avoid bent bars. If you are unable to straighten the bar by hitting it over a log, take it to the blacksmith for straightening when the day's work is over.

In rock work, have chisel end of bar slightly upset. This ridge will hold on to and seldom slip from the rock.

When prying metal be sure to have a small piece of wood between bar and other metal. This wood chip will keep the bar from slipping.



Drilling. (Drill steel, striking, hammer—two faced, single jack.)

The tools used in this work are steel drills, and single- or double-faced striking hammers for striking the drills. One man drilling is called single jacking; two men striking with a third man holding the steel, etc., is called double jacking. Single or double jacking requires practice, a keen eye, and steady nerves. When striking, keep your eye on the head of the drill steel. Do not bother about the man who holds the steel, turns it, and mucks out the mud, but concentrate on hitting the

drill head. Teamwork will result in easy work, a satisfactory volume of work and few accidents. Hit the drill squarely. To accomplish this, the hammer handle should be at right angles to the drill at contact. If you hold the hammer handle higher or lower, the hammer head will probably glance off, hitting your striking partner, or your steel holder who nearly always sits with legs straddling the steel. Watch the drill steel; when the head becomes ragged, break off the ragged bits, or tie a small rag on the head when sending it to the blacksmith shop for resharpening. This rag indicates that the head must be retempered.

Always, when inserting a new steel, work the steel up and down, and always hit lightly with hammer when first starting a new steel. The easy striking allows the new steel to cut the old bottom to fit the new steel.

Hammers for single jack work and steel must be used in the same manner as double jacks. The only differences are that single jacking is done by one man only, and that the drills used are generally short and of small diameter.

Pick work. Picks and mattocks are used for loosening dirt and soft rock formations in road, trail and firebreak work.

Always keep your pick sharp. The pick point is highly tempered,

and will break with a slight pry unless the point is down under to a place where the steel of the point is large enough to hold. The point is for opening up small crevices, digging in tight ground, decomposed formations, etc.

The chisel end of the pick is used to cut roots and dig in tough soils, but should be used in decomposed formations, like granite, only after experience has taught the user how to avoid jumping the dirt into his eyes, etc.

SIMPLE FIRST-AIDS FOR WOODSMEN

Bites and Stings. Ammonia should be applied if immediately available. Wet salt or wet earth is also a good emergency remedy. Try oil, grease, or lard or bacon rind for chiggers.

Nose Bleed. A slight nose bleed requires no treatment. When severe, loosen the collar. Do not blow the nose. Apply cold to back of neck by means of a key or cloth wrung out in cold water. Have patient sit down with head hung backwards. A roll of paper or cloth pressed under the upper lip between it and the gum will also help.

Fainting. Patient should be laid flat with head lower than body so that the brain receives more blood. Loosen clothing at neck. Sprinkle face with cold water but do not wet clothes.

Frost Bite. Treatment is to restore warmth gradually to the frozen part, by rubbing part first with snow or cold water, warming the water gradually. In no case use hot water. Prevent frost bite by rubbing or slapping the part of body affected to bring more warm blood to skin surface.

Sun Stroke. In sun stroke, unconsciousness is complete. Face is red, pupils large, skin hot and dry but no perspiration. Pulse is full but slow. Treatment is to reduce the temperature of body. Remove patient to a cool place and loosen or remove clothing. Rub cold water over the face, neck, and chest. Summon a doctor. Similar treatment for lightning stroke.

Heat Exhaustion. Patient is greatly depressed and weak but not unconscious usually. Face is pale and covered with clammy sweat, breathing and pulse are weak and rigid. Heat exhaustion is not as dangerous as sun stroke, but summon a doctor. Remove patient to cool place and lay him down, loosening clothing. Nothing cold should be used externally, but permit patient to sip cold water.

Burns and Scalds. For slight burns, the pain may be relieved by some sort of dressing to exclude the air. Severe burns and scalds are very serious injuries, requiring a physician. Do not attempt to remove clothing which sticks to a burn; cut away the part around the burn which sticks, or leave it on.

CONSERVATION, FORESTRY AND REFORESTATION

MEMBERS of the Civilian Conservation Corps will be engaged in many different kinds of work in the national forests which apparently have no relation to the popular idea of the word "forestry." The name of their organization is connected with the words "reforestation" and "conservation" in addition to forestry. It may be well to define these terms, and to show in what ways the work of the Corps is a part of the conservation of the forests and other allied resources.

WHAT IS CONSERVATION?

CONSERVATION means the preservation of natural resources for economic uses. It is the opposite of exploitation, which means the wasteful use of any resource. These two words are usually used in connection with the natural resources of land, forests, minerals, and water. These resources, combined with climate, have a great effect in determining the population, wealth, and history of any nation.



Forest conservation has for its purpose the preservation of a perpetual supply of timber and the prevention of the destruction of forest cover which regulates the flow of streams. Besides timber and water, there are other resources related to forest conservation. Game and other wildlife depend on the forests for their home and feeding grounds. Fish live in the streams and lakes. Some of the plant growth and the mountain meadows furnish feed for cattle, horses, sheep, and goats. The forests, streams, and lakes located in the mountainous country constitute vacation grounds, which are an important recreational resource of the nation.

WHAT IS FORESTRY?

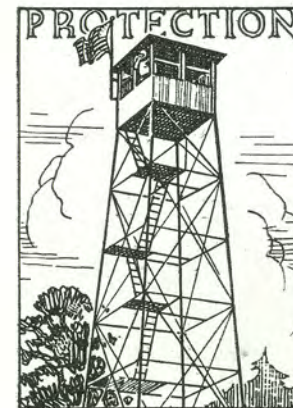
FORESTRY is the use of the land to grow a continuous crop of trees. Forestry means more than the preservation of trees as in a park. It implies the use of the trees and wood products. Forestry is as much a commercial undertaking as is the growing of farm crops. The difference is that the farmer harvests his crops once a year, and the forester can harvest his only once in a hundred years. Just as scientific studies have developed the knowledge of growing crops of vegetables and fruits, so has it divided the practice of forestry into many divisions, with the

objects of making the land produce the most valuable crop of timber. Forests must be protected from insects, disease, and fire. They must be thinned to prevent overcrowding. The most valuable species must be encouraged and the least valuable removed. The land must be made to produce the greatest possible amount of valuable timber. Where trees are removed by cutting or fire a new growth must occupy the soil so that a continuous crop of trees is always growing.

REFORESTATION AND FORESTRY

REFORESTATION—a word widely connected with the Civilian Conservation Corps—is used to cover many kinds of forest-conservation activities. The real meaning of reforestation is to replace a growth of trees on an area once covered with a forest. Reforestation may be by natural means, that is, by the sowing and germination of seeds scattered by living trees, or it may be by artificial means through the planting of seedlings grown in nurseries.

In the Eastern and Central States reforestation usually means artificial planting. There are several reasons for this. In some of those regions the forests have been cut so heavily that few trees are left to reseed the ground, and the process of natural reforestation is slow and irregular. Rainfall is distributed through the year so that planted seedlings have a chance of survival.



In the far West conditions are entirely different. Here the forests have not been cut so heavily, and there are, except in certain localities, sufficient seed trees left to make natural reforestation possible. The climate is unfavorable to artificial reforestation. Long, hot summers with little or no rain for several months not only are liable to kill the planted seedlings, but also render the danger of forest fires very great. Forest protection is therefore more important in the West than reforestation. Both of these are part of the practice of forestry.

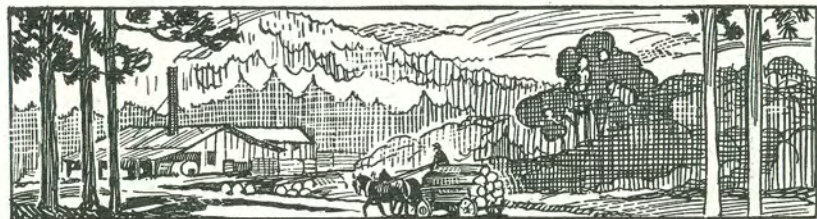
In the West, where the greater part of our remaining forests are located, forestry has come to mean the careful use of present standing

forests, and their protection from fire and other enemies, such as tree disease and insect attack. For this reason the Civilian Conservation Corps, while it may not be engaged in reforestation, is actually doing forestry work, because what it does tends to protect and develop the forest resources.

The roads and trails you are building open up the forests and aid in their administration and protection. They aid in forest fire protection by making all parts of the forest accessible to the fighters. Truck trails, lookout houses, and firebreaks are for the special purpose of fire protection. Camp grounds and recreation areas, together with roads and trails, are to develop the recreational use of the forests. The construction of buildings, ranger stations, and telephone lines are both for administration and protection.

All of the work you are doing has been planned for many years by the Forest Service and Park Service as a necessary part of the scheme of wisely using and protecting the national forests and parks. As woodsmen of the C. C. C. you are practicing forestry, and by your help the Forest and Park Services will be enabled to do in a short time what might otherwise have taken years. It has been proved by history that a nation which neglects and destroys its forests is certain to suffer the loss of the other vital resources of land and water. By doing your part in helping to conserve and protect our forests you are working for the national welfare.

Additional information on the national forests and national parks and forestry and park activities will be found in Government bulletins available at your camp library.



HELP KEEP THE FORESTS CLEAN AND GREEN

SIX RULES FOR PREVENTING FIRE IN THE FORESTS

1. **Matches.** Be sure your match is out. Break it in two before you throw it away.
2. **Tobacco.** Be sure that pipe ashes and cigar or cigarette stubs are dead before throwing them away. Never throw them into brush, leaves, or needles.
3. **Making Camp.** Before building a fire, scrape away all inflammable material from a spot 5 feet in diameter. Dig a hole in the center, and in it build your camp fire. Keep your fire small. Never build it against trees or logs, or near brush.
4. **Breaking Camp.** Never break camp until your fire is out—dead out.
5. **Brush Burning.** Never burn slash or brush in windy weather or while there is the slightest danger that the fire will get away.
6. **How To Put Out a Camp Fire.** Stir the coals while soaking them with water. Turn small sticks and drench both sides. Wet the ground around the fire. Drown out every spark. If you cannot get water, stir in moist earth and tread it down until packed tight over and around the fire. Be sure the last spark is dead.