UNITED STATES
DEPARTMENT OF THE INTERIOR

CIVILIAN CONSERVATION CORPS
Project Training

SIGNS AND MARKERS

Prepared for and with the cooperation of the technical services
By
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P. T. SERIES NO. 9
SIGNS AND MARKERS

PROJECT TRAINING

CIVILIAN CONSERVATION CORPS

DEPARTMENT OF THE INTERIOR

UNITED STATES
Preparing for, and with the cooperation of, the regional director.
The following is a list of the steps, poses, movements, or other

The correct sequence of the information presented, plus

The list must be connected as a whole.

Procedures:

A. Sprint
B. Hurdle Race
C. Shot Put
D. Javelin

Procedures or Operations:

These take many forms, but the three most common are:

1. Inertial Operation
2. Inertial Operation
3. Inertial Operation

Other factors and certain more local

The developer and installer are not the sole source of this information. Therefore, the information presented herein should be read.
As the site is not a chance location, the site and environment may go far to determine the style, materials, size and treatment.

If it is a board sign, the kind of lumber to use is important, and it must be seasoned. The joining must be tight, with sufficient battens and braces to prevent warping and twisting. The priming, painting and varnishing must be done with due regard for the effect of weather.

The selection of lumber for all kinds of signs will be made easier by referring to Chapter III "Selection of Lumber for Farm and Home Building" in Project Training Series No. 8 entitled "Lumber." Here the kinds of use are compared with the properties of woods and the various headings given indicate conditions to which signs are exposed.

Timbers may be round, hewn square, or smoothed. Tool marks may be desired, or not. The framing may be rustic or finished. Ends may be sawed, roughed off with an axe, broken, or splintered.

Fittings for hanging or otherwise supporting the sign may be conventional nails and bolts, or they may be hand forged.

Posts and supports may be of masonry, using field stones or dressed stones, in mortar or dry, rough or finished. Or they may be of concrete, with floated or rough or hammered surfaces; natural gray or colored.

These construction and design features are mentioned to indicate forms which a design may take, and to show how the several factors which enter into the establishment of a sign influence each other.

Like any other man-made feature of a recreational or historic area,
 Formation of cocoon, pairing, and pupation.

Sheep's wool is the main source of raw materials for making the cocoon from which the pupa emerges. The process involves the secretion of a silk-like protein, known as sericin, which is then hardened into a cocoon. Once the cocoon is complete, the pupa remains inside until it emerges as an adult butterfly.

The cocoon is often attached to a variety of objects, such as plants, walls, or even other butterflies. The butterfly emerging from the cocoon uses its proboscis to drink nectar from flowers, and eventually mates with another butterfly to start the cycle anew.

Practise and progress.

The steps outlined for 

...
If you get off the track, or make a poorly shaped letter, don't do it.

Movement of the arm, hand, and eye is a great part of good work.

How to BEGIN

Patience is made and needed.

For a slip

Putting on the pattern, or for the pattern, a slip is made, as for any other form. It is also made to hold the pattern. The edges of the paper should be made with

The pattern is to look just as a pattern pattern uses here. It is

The pattern is an insubstantial piece of the slip pattern.

Tools for Patinating.
mahl-stick, palette, and brushes. You must get full control of the brush, so that it will go where you want it to go, and fill out the outlines of a letter completely. The more completely the stroke can be made to fill the line, the more satisfactory will your work become.

**Engraved**

Letters may be made by carving, which is one of the most finished methods of making signs, and some of our finest examples are done in this way. Engraving may also be done by chemical reagents, but this method is not satisfactory. The quickest and cheapest way is by burning, and some very fine work has been done.

The tools and methods used in burning letters have been devised wherever this method has been adopted, and no one camp is able to monopolise all of the tricks which can be employed. But Camp SP-10-C, at Glenwood Springs, Colorado, has developed tools and technique which are more complete than elsewhere, and the photographs on page 22 show the procedure there. The ingenious tools and shields were all made in camp.

**Embossed**

Letters may be left in relief, and many artistic examples may be found. Wood will even weather away from letters which are protected, as by good paint, so that the surface not so protected is scoured away, leaving the letters in relief.

Sand blasting may be employed to cut away the wood outside of protected letters, and chemical reagents can be used.
These pictures show the tools made in camp together with shields and the actual burning operation. The tools are heated on a special rack attached to a blow torch.
A SIGN EMBOSSED BY NATURE. Embossing may be accomplished by many devices. So long as the surface of the letter is protected, the remaining surface may be cut away. This sign was merely painted and over a period of years all of the surface except that covered by paint weathered away.

The most popular way to do embossed signs is with a blowtorch. Care must be taken to have the heat generated from the torch at all times, in order to keep the burning uniform. If the flame is allowed to kindle on the wood, and throw a flame upward, the burning gets out of control. The letters to stand in relief must be protected by some covering. At first metal letters were tacked in place, but this limited the lettering to such styles as could be purchased, and they became expensive. Another way is to cut letters out of sheet asbestos and tack them in place. This is a gain in freedom of design. Another way is to paint the letters with asbestos paint, going over them several times.
MECO STATE PARK,
Dardanelle, Arkansas.
A 3-board directional sign in rustic style.
This entire sign is in good taste. The
forging, style of lettering, the carving, shaping the boards,
and the proportions are unusually good.

HUMBUG MOUNTAIN
STATE PARK,
Oregon.
This directional sign is notable
for its simple design and propor-
tions. The lettering is plain and well
executed.
Perforated

This method is not so successful for ordinary signs in wood as in metal, but some very fine examples of cut-out and perforated signs have been done in wood. Good looking signs are made with metal sheets or plates. The perforating is most commonly done with drills or punches, but cold chisels and other tools can be used with excellent effect. The work does not necessarily need to be smooth. Rough edges also have an appeal.

A variation of this method is the sign cut entirely out to present an idea by its form. A simple form is the cut-out of a pointing hand. Two signs of this kind are shown on page 6.

Stand-Off Letters

There is only one place where this type has been developed, at Lookout Mountain Park, Glenwood Springs, Colorado, in the same Camp SF-10-C where the burning method is so well developed. In this type, each letter is burnt out of heavy steel plate. Then on the back of it two or more cap bolts are welded, their heads in contact with the letter, and their shanks extending away from it at right angles. For mounting, holes are drilled through the wooden panel, and the bolts are passed through to be fastened with nuts and washers. The letters stand away from the panel by the thickness of the bolt heads. Illustrations appear on page 26.

There is a certain freedom about the fused edges of these letters which makes the sign very attractive, and after burning the metal needs no painting to prevent corrosion, so that such letters are as near permanent as any can be. The effect of raising the letters off the surface of the panel is chiefly in the longer shadows, which add a great deal to the sign's appearance.
MEASL LETTERS. Letters cut from steel plate with welding outfit and mounted on a wooden panel with cap screws. The heads of the cap screws are welded to the back of the letters.

LOOKOUT MOUNTAIN PARK
DEVELOPED & SUPERVISED BY NATIONAL PARK SERVICE STATE PARK DIVISION
CIVILIAN CONSERVATION CORPS
CLEYWOOD SPRINGS
Spacing Letters

No matter what is done with letters, they must be spaced, and spacing is not accidental.

Uniformity of effect is gained, not by spacing the letters equal distances apart, but so that areas of white spaces between the letters are approximately equal.

The following few rules for spacing will enable the letterer to do satisfactory work, until such time when he is able to judge the spacing for himself. If these rules are followed, uniformity of spacing will be obtained.

1. Space letters that have a rectangular shape one unit apart---B, E, H, I, K, M, N, R, S, U, Z.

2. Space letters that have both sides curved ½ unit apart---C, G, Q, Q.

Also combinations such as: NO, OW, FN, etc. That is, when a letter with a straight side is adjacent to one with a curved side.

Also combinations such as: TH, NH, NH, etc.

3. No space should be left between the letters W/V/T and combination TA.

When the letters AV or AW occur together a space of one unit should be left between the inclined sides AW--1 space between, AV--1 space between.

The beginner should pencil in the letters first and then judge as to the correctness of the spacing. No rigid rule can be laid down to cover the spacing of all possible combinations of letters. Correct spacing is explained in the copy on page 47.
SEQUOIA NATIONAL PARK, California. Descriptive sign in heroic proportions. The one below is a directional sign in unusually good taste.

For transferring letters to a sign, there is a trick used at Richmond National Battlefield Park at Richmond, Virginia, which is worth mention. The alphabet is made on heavy paper, and holes are punched around the outline of the letter with a needle or tracing wheel. When a letter is to be used, it is placed in position on the sign, and dusted with a "pounce bag", which is any bag of coarse cloth half full of talcum powder. The powder passes through the holes to form an outline of the letter on the sign, and this is then traced in with a pencil.

Rule for Shading Roman Letters

Shading came about because the down stroke of a pen or brush was heavier than the up stroke. The ink or paint would run down, but would drain back into the pen or brush on the up stroke. From that we have a simple way of determining which strokes should be shaded. Merely decide which are natural down strokes, and make them heavy. Be governed by the natural flow of ink in a pen, or paint in a brush.

Some exceptions to this rule have developed in conventional styles, and these may be noted as they come to attention.

Artificial Weathering of Wood

Many signs and markers would settle more gracefully into their surroundings if the wooden parts were aged or weathered, but there has been no simple and effective method of doing this artificially.

It is not sufficient to merely cut away the soft fibres of the wood. The remaining hard portions must have the appearance of natural wasting. For this reason harsh mechanical methods, such as sand blasting and burning, are not acceptable. The corrosive action of
LINCOLN LOG CABIN STATE PARK,
Charleston, Illinois.
A distinctive type.

MOHAWK METROPOLITAN STATE PARK,
Tulsa, Oklahoma.
An effective sign with excellent choice of lettering for the purpose. The leaf decoration is a tasteful addition. The rough slab is in keeping with the rustic architecture.
chemicals more nearly simulates the slow advance of outdoor weathering.

An extensive search has yielded three methods from the British Forest Products Research Laboratory, in the Department of Scientific and Industrial Research at Aylesbury, Bucks County, England. Their letter follows:

**Weathered or Aged Appearance on Wood.**

We have no section in this Laboratory which deals exclusively with wood finishing problems, and are therefore not in a position to vouch for the accuracy of the following information which we have obtained for you. We trust, however, that one or the other of the processes will meet your requirements.

We would point out that equally successful results cannot be expected with all woods. Oak appears to be the wood which is most commonly used in connection with artificial aging processes.

1. **Limed Oak**

If a warm tone is desired, the surface of the wood should first be treated with ammonium, preferably by fuming, but brush application of a dilute aqueous solution of the reagent might be satisfactory. Thereafter the wood should be brushed along the grain with a wire brush. Freshly slaked lime of the consistency of soft putty should then be rubbed in across the grain. When dry, wipe off excess lime and finish with varnish, linseed oil, wax polish or button polish.

A paler tone in the finished surface can be obtained by bleaching in the first instance with hot 10% aqueous oxalic acid or other bleaching agent.
Two directional signs of particularly good design. Both are nicely balanced and both are in tasteful lettering. The one of Jewel Cave might be termed an entrance sign. The one below reverses the usual design of this type. Usually the open side of the design is toward the object.
2. Silver-grey Oak

(a) Dissolve 1 lb. of caustic soda in 1 gallon of boiling water. Apply the hot solution to the wood. When the surface of the latter begins to dry, wash off excess reagent with boiling water and brush along the grain with a wire brush. Allow the surface of the wood to dry.

(b) Slake one handful of quicklime in 1 gallon of water. Apply to the wood which has previously been treated with caustic soda. One or more treatments with lime may be necessary to obtain the desired tone, but allow to dry after each application. When the wood is finally dry it can be finished by any of the methods mentioned under 1.

3. Weathered Oak Finish

The following is taken from "The Decorator" 1936, Vol. 135, No. 4th, (October), p. 36.

"...Bleach the wood with oxalic acid or other bleaching agent to remove the brownish tinge of the oak. A thin wash coat of lead colour is next applied, and this is made up from white lead or zinc oxide paste, bound with gold size and thinned down to water-like consistency with pure turpentine; drop black is added to produce the grey shade, and if desired this can be warmed up by adding yellow ochre. More than one application may be necessary to obtain the shade desired, and it is better to have this wash coat on the weak side and to apply several coats than to have it too dark and muddy. Allow overnight for the wash coat to dry then apply one or two thin coats of shellac and finish with a flat varnish or wax polish."

33
ABCDEFGHIJKLMNOPQRSTUVWXYZ

ABCDEFGHIJKLMNOPQRSTUVWXYZ

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JKLMNOPQRSTUVWXYZ
STUVWXYZ&$
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abcdefghijklmnopqrstuvwxyz
lmnopqrstuvwxyz
wxyz....-'::.;!?
Alphabet No. XII

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ABCDEFGHIJKLMNOPQRSTUVWXYZ
ABCDEFGHIJKLMNOPQRSTUVWXYZ
ABCDEFGHIJKLMNOPQRSTUVWXYZ

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abcdefgijklmnopqrstuvwxyz
Roman Letters Mechanically Formed.
Instructions for freehand lettering. Michigan College of Mines C&ME Dept

Freehand lettering should be either vertical or sloping 70°. It is
advisable to use pencil guide lines for alignment and slope. One of
the most important rules to be observed is that a, b, c, d, e, f, g, h, and a
are formed with an ellipse whose major axis slopes 45° while the
stem slope is 70°. A, B, C, D, E, O, Q, H, M, N, P, Q.

The mathematical signs are always made perpendicular as shown.

The small letters are 4 times the size of the capital.

The Roman and Arabic numbers are 4 as high.

The spacings between the letters are only approximate, but
there should be a constant relation between the line and space
which is best determined by eye, giving the appearance of
equal areas between them. The unit space is 4 the height of
the letter. When II lines are adjacent, the space between the
letters is 2 units eg. MINIMUM. When the curved lines are adjacent,
the space between the letters is 1 unit eg ACCOQSTV 99999777
Leave the space of one letter between words and two letters
between sentences. The Greek letters are, A, B, E.

SPACING LETTERS. A system published by the Michigan College of Mines.
NOTE:—
The chisel edge of the brush must be kept horizontal. Do not twist the brush in fingers. Turn chisel edge of brush to vertical position on thin vertical stems in A-E-F-H-K-L-M-N-T-V-W-X-Y-Z.

THICK-THIN METHOD
Make all strokes in order of the letters
NOTE - The edge side of the brush must be kept sharp. Do not twist the brush in strokes. Turn the brush edge over and try on thin vertical strokes in the begining.

MAKE ALL STROKES IN ORDER OF THE LETTERS

THICK - THIN METHOD

MAKE ALL STROKES IN ORDER OF THE LETTERS
MAKE ALL STROKES IN ORDER OF THE LETTERS.

USING TWO STROKES
MAKE ALL STROKES IN ORDER OF THE LETTERS.
THE PALETTE

THE MAHL-STICK

USE OF THE MAHL-STICK AND PALETTE
GOOD CARVING. Always looks neat and durable. It provides excellent training, leading into many kinds of employment. Below, a close-up view of carving or burning, showing the texture of wood.
DEPARTMENT OF THE INTERIOR

THE ENTRANCE WARRANTY, Washington. A peculiar and fitful style of letter. This inscription goes around the four sides of the building in an enlargement.