

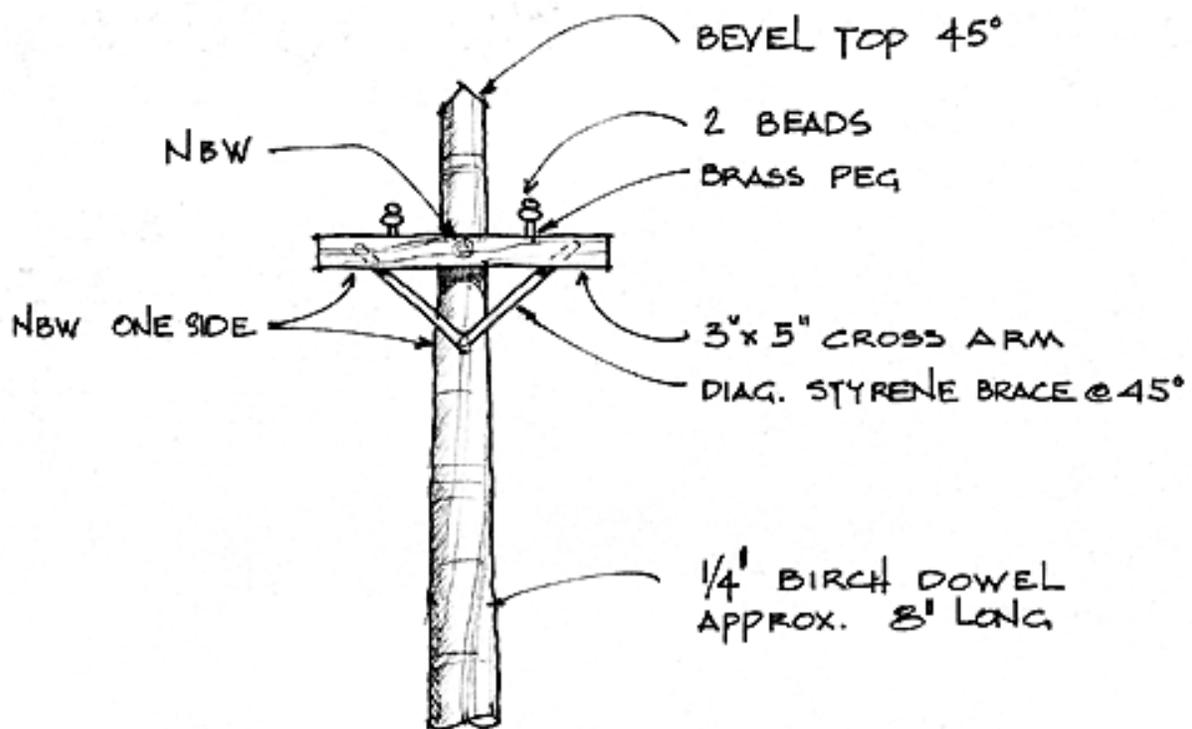
TELEGRAPH POLES

Telegraph poles are one of the easiest things to build. They have an amazing ability to create dimension and depth on a layout because they are installed in a row and they can be located behind or in front of the tracks and buildings. I advise locating them in front in some areas because it creates this illusion of depth.

Although the following description is based on 1:48 scale, the idea can be applied to any scale. There are several manufacturers of poles and there are details for them in various scales. Poles are available in plastic for military models and I have used them and their components successfully in the past. However, the plastic parts such as insulators are delicate and break easily, especially when you start attaching wire to them. As a result, I searched for a method that would be strong, easily constructed and that could have lines attached.

POLE

I like to use birch dowels because they are strong and will not break as easily as basswood. I buy 1/4" diameter birch dowels in 24" lengths from the lumber yard. This is suitable for the approximate 12" diameter of the pole. Anything larger tends to make the poles appear heavy. Before cutting the dowels to length, I taper them on a belt sander by laying them flat with more pressure to the end and slowly rotate them. I slightly taper approximately 8" on one end of the dowel, then flip it to the opposite end and repeated the operation. This allows a bit of a handle to hold onto to keep my hands clear of the sander. I cut the poles to length later. I use approximately 8" on average for the pole height, but you can determine yours accordingly. I cut a point on the top of the pole on each side at a forty-five degree angle to shed water.

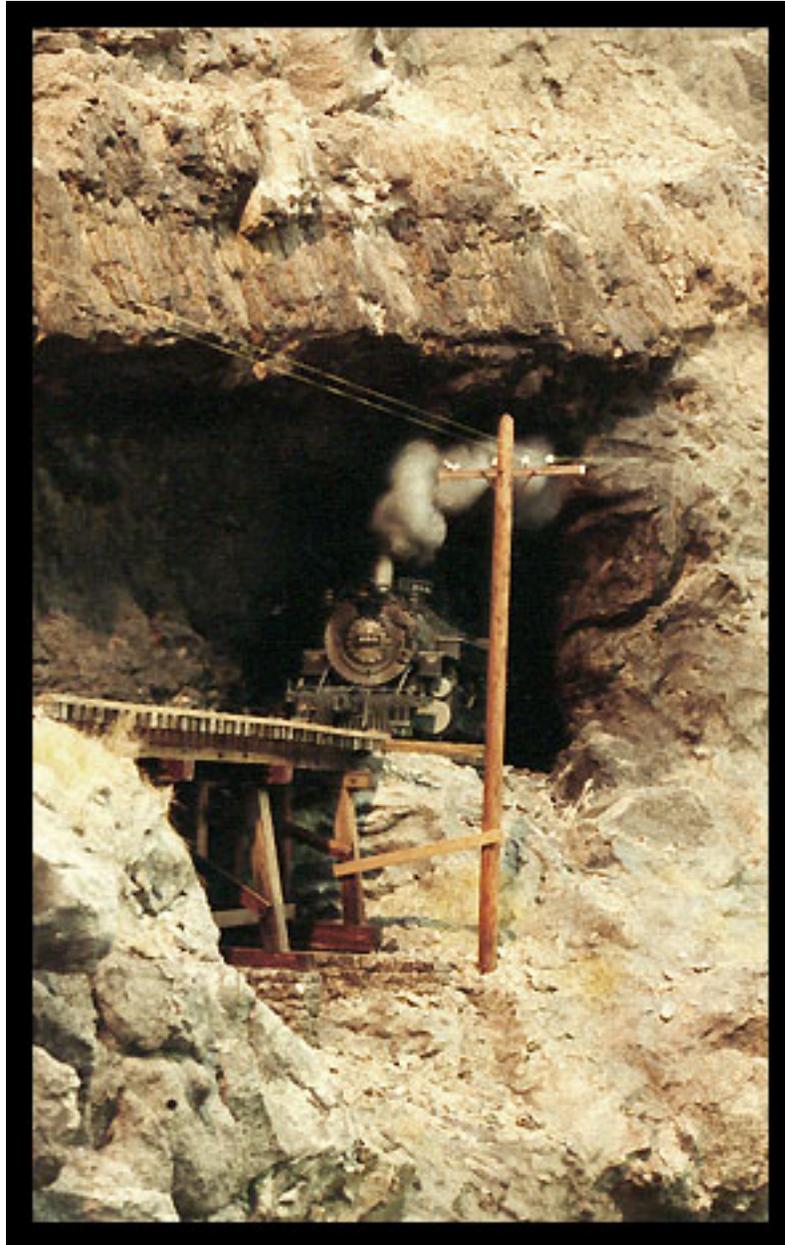


TYPICAL ELEVATION OF POLE

After I am satisfied with the contour, I apply the texture and graining, including a few knots here and there. There have been many methods described in the past to grain wood and any of these is acceptable. As the poles may not all have the same degree of distress, I vary them. I like the added touch of texture created from the lineman's boot spikes when scaling a pole. These I create by judiciously hacking the pole with a razor saw at an angle into the grain. When done, I lightly wipe in one direction with fine sand paper. I cut the poles to the desired length adding enough to bury a minimum of 1/2" in the scenery.

After deciding the type of weathering the poles are to have, I stain the poles. As I have mentioned, there are many excellent techniques for weathering. Remember, birch is a hard wood that doesn't take staining as well as basswood. I first stain the poles using Floquil "Grime", full strength

as a base grey. Then I apply various washes when the stain is completely dry to suit the degree of weathering desired. You can create the look of freshly creosoted poles with brown shoe dye. I like to take the gray weathered poles and dip the bases into the dye and then turn them upside down allowing the dye to run up the pole. This has an interesting effect and simulates the added dipping poles often receive before they are buried.



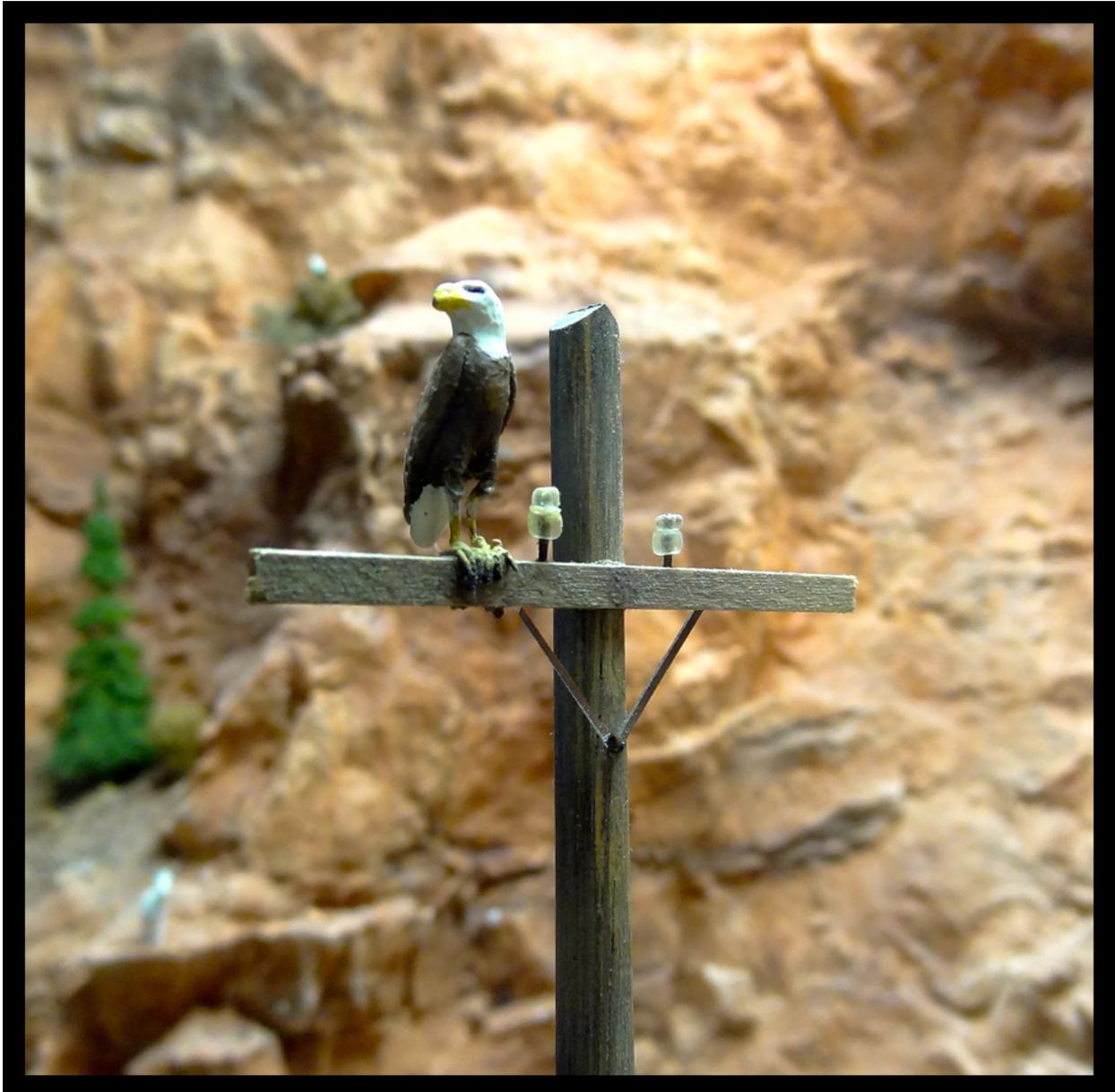
CROSS ARM

I use 5" x 7" basswood for the cross arms. When checking photographs for reference, I noticed that the arms were cut in both long and short versions. Although I do not know the reason for it or the exact dimensions, I use both versions, i.e., the short arm for two insulators at 4'-0" and the long arm for four, six or eight insulators at 9'-0". Remember I am making poles for telegraph lines not hydro wires, although the same principles apply. I cut the arms to length and stained to suit. I like to grain and stain them a more weathered grey as they are exposed to the environment. Next, I drill holes across the top for the pegs at 2'-0" on center to suit the peg diameter but I don't drill them completely through. I make sure the pin will fit the hole in the beads to be used for the insulators. I cut the heads off pre-blackened small brass brads or use brass wire and ACC them into the cross arm. Using a small piece of wood as a gauge, I lay it beside each peg and nip off the excess length to 8".

I believe scale insulators are now available from San Juan. However, if you can't find any, try the following method. I like it because the beads simulate glass insulators beautifully and make attaching the cable simple. A good friend of mine made me aware of beads that can be found in some craft or fabric stores. They are available in a variety of sizes, the small ones measuring approximately .095 in. Even within the package of small beads, there will be a couple of sizes. Pick out the smallest two sizes, .095 and .100 in. and set the larger one over the peg. Again, use a gauge to set the height above the cross arm at 2" to 3" and ACC the bead. When it is dry, set the smaller bead on top and ACC it. Not much ACC is required. Wick any excess ACC with a tissue. If you have set the peg height correctly there should be no peg protruding. If there is, just nip it with a parting disc.

Now glue the cross arm to the pole 3' 0" from the top. You may want to first cut a shallow flat notch on the pole face to receive the arm and give it some bearing surface. Install an NBW through the arm and pole on both sides. I brace the arm with two metal straps that I make from 1/2" x 2" strip of

styrene. Cut to length at 32" and ACC as shown. Install a small NBW through the brace at both ends but on one side only as it is probably a lag bolt. Use multiple arms and arms at angles to each other on the pole, as lines run in different directions. Just remember that telegraph lines are carried in pairs.



INSTALLATION

It is a good idea to first lay out the poles before you drill for them. Do this by attaching a clothespin to the bottom and set them on the layout and adjust the spacing. When you are satisfied, install the poles by drilling a 1/4" hole in the layout scenery and glue them in place. Pole centers vary and in a model you may wish to compress the scene. I use approximately 120' between poles and set them back 20' from the centre of the track. You should note at this time, that poles are rarely perpendicular but tend to tilt. They will always tilt if installed in a slope, tilting with the fall of the slope or tilting in the direction of a line coming off the arm. They never tilt towards each other. In these cases, and in cases where the pressure may be great because of a change in direction, apply a guy brace. Make these with the same thread used for the cable to minimize any future damage. When you are satisfied with the poles, it will be time for the cable. Occasionally a stronger brace will be needed, so I use a section of another pole set at an angle, buried at one end and bevelled at the other to fit the upright pole and through bolted together.

CABLE

Thread of some sort is the generally accepted means for cable. The problem is that anything in cotton is too heavy, will break if touched too hard and worst of all attracts lint and dust. I have found that fine "Spandex" thread works well. It is close to scale, can be painted and it stretches a great deal before breaking. I use the type that is not prewrapped in cotton thread. Spandex thread can be found in most fabric and sewing shops. Attach it to the first insulator by tying a knot and ACC it securely. Stretch it to each consecutive pole insulator and wrap around once between beads. Be sure to give it a gentle sag between poles. Every ten poles or so, go back and adjust the sag by gently pulling the thread and then continue laying the line until done. The thread comes naturally in a clear grey gelatinous colour. When you are satisfied, touch a little ACC to each connection and you are done. However, if you want to paint the line an oxidized copper, then do a test case between two poles first.

Use an acrylic based paint. I use Hobby Colour #H312 "Green" to simulate the copper oxidation. I caution that paints seem to slightly attack and reduce the elasticity. When the paint is applied, the line will sag slightly more than you desire. Don't be alarmed. Wait until dry and after a few hours the thread will assume a new sag. Now you can determine the original amount of sag before painting.

You can now go on to building hydro pole lines in a similar fashion, using the many castings that are available for other details, such as meters, fuse boxes, transformers and so on. Other sizes of Spandex are available for a variety of cable sizes that also can be painted black.

Try making some telegraph poles. You will be very pleased with the realism that they create. Remember, if you have any trouble following my instructions, I wouldn't string you along.