The Woolsey bridge that crosses the West Fork of the White River in Washington County, Arkansas, was built in 1913. This bridge is a steel drive-through Parker Truss type bridge. The dimensions of the Woolsey bridge are 30' x 15' and has only one lane. It has two arches on each side, with each spanning 150’ in length. The driving surface of the bridge is a four inch (4”) concrete slab on a 1/2” mesh and fabric base. There are 18 Beams running in two directions, supporting the slab of the bridge, which are 6” x 10” x 5” x 5” at 2” on center, spanning the length of the bridge and supporting the slab. Spanning the width of the bridge and supporting the 18 Beams is a 1’-0” x 5” x 1/2” typical at each panel. Each panel is 18’-0” in length for a total of sixteen panels.

There are three concrete piers that support the bridge, one at each end and one at the mid-span of the structure. At the west pier there is a paved connection as opposed to the east pier, which used a rock cut connection. In the mid-span pier both a rock cut and a paved connection are used. The structure height from the top of the slab to the water is approximately 13’-0”, the height from the top of the slab to the highest point at the 18’-0”.

In the mid-thirties there became an awakening to streamline bridges, by using thin steel plates. This was achieved in two ways. The first being a change from cast iron to steel which reduced the amount of material required. The second way was by using elements of a plate, two C-channels, and a sheeting between the C-channels and the plate. The method used on the Woolsey bridge solved several problems in the construction. All parts of the bridge could be hot rolled then punched or drilled at a steel plant, then shipped to the site. The method of fabricating the parts and shipping them to the site for assembly proved to be more cost effective. Because of the terrain area this allowed the parts to be shipped in at a great deal of ease. With the light building construction of the area, the steel could not be used, instead plywood, block and timbers were used to host the elements of the bridge in place. Soon all elements had to be assembled on site hot rivets were used to connect the structure.

All drawings, field notes, photographs and sketches were done by Kenneth Ring and Matthew Salam under the supervision of Professor Elam Deibl at the University of Arkansas in the Spring semester 1984.

The Woolsey Bridge
ON THE WEST FORK OF THE WHITE RIVER
THE USE OF DETAILS SUCH AS PINNED JOINTS, ROCKER JOINTS, AND PINNED EYE HOOKS ALLOW THE BRIDGE TO TRANSFER LOADS SO THAT THE STEEL DOES NOT REACH ITS YIELD POINT. THESE JOINTS HELP THE BRIDGE TO MOVE AND ADJUST AS LOADS ARE APPLIED AND REMOVED, ALLOWING THE BRIDGE TO MOVE IN THIS MANNER PLACES THE STEEL IN TENSION, WHICH PLACES THE STEEL AT ITS HIGHEST STRENGTH.