

Freight Cars and Cabooses  
By Rich Croll

This article was extracted from the November issue of the CallBoy – Pat Young, librarian.

## TECHNICAL TALK SUMMARY FOR OCTOBER 2003

Rich Croll was the speaker for the October talk and his subject was *Freight Cars and Caboosees*.

### Introduction

Rich first described the history of rolling stock. In the USA it all started with the B&O way back in 1828. In the beginning all efforts were essentially trial and error with each improvement unique and without the benefit of standards. However, by the mid 19<sup>th</sup> century, some patterns started to emerge. The 4-4-0 engine and all wood, 30 foot cars with arch bar trucks, truss rods, and link and pin couplers were the order of the day. Enough so in fact, that in 1879 the Master Car Builders published a technical dictionary as an agreement on what to call the various car parts. By the late 1890s, automatic couplers and air brakes were adopted as a safety measure and as a necessity to handle the longer and heavier trains coming into operation.

After the turn of the century, 40 foot cars of 50 ton capacity with steel underframes made their appearance. The variety of car types increased, such as, tankers, gondolas, hoppers, and furniture wagons. Trucks were still predominately the arch bar type, but designs like the Fox pressed steel truck and the T Section Bettendorf were tried as car capacities and speeds increased. During WW1 the USRA produced some very good cars designs. The 55 ton twin hopper, all steel box car, and Andrews truck became standard. Progress for the rest of the 20<sup>th</sup> century can be characterized as improvements in existing designs and increase in hauling capacities both in volume and weight. During this period, many time, honored materials and designs were declared illegal and outlawed for interchange. Out of favor were: wood construction, arch bar trucks, plain bushing bearings, vertical staff brakes, roof walks, and long ladders. Modern cars featured welded steel construction, roller bearings, cushioned under-frames, and various ribbed and waffled sides.

### Car Types

Rich described the various car types that the model builder can choose to build. The most numerous type, of course, is the boxcar; there were over a million in use in 1922. Following in order are the gondolas, flat cars, hoppers, reefers, tankers, stock cars, and the ever popular caboose. Wood was used in caboose construction well into the thirties, after which, steel was the material of choice. The wide vision caboose appeared in the fifties, but note that the bay window was used on only a few roads, such as, the SP and WP.

Rich urged caution in selecting a design in order to be consistent with the era. For example, a 19<sup>th</sup> century 4-4-0 hauling an all welded, 60 foot steel box car would look pretty silly. Three ways to get design information are as follows:

- Find a full size version of the car you wish to build and photograph and measure it,
- Obtain drawings of full size cars and use appropriate scaling factor to produce a working drawing for the model, or
- Take measurements from an accurate small-scale model.

## Construction

Right off the builder must decide whether to focus on a museum piece or strive to build a robust and easy to maintain car. Highly detailed cars with scale dimensioned external fittings are vulnerable to damage as well intentioned, but oversize hands push or pull on the car.

Rich suggested wood as a good material for car construction. For early cars it's the correct material and for modern cars it can be finished to look like steel. Oak or maple is good for frames while poplar is easily worked and sands to a smooth finish. Planking can be individual pieces with the appropriate bevel or planking can be simulated on plywood by scoring on a table saw with the blade set at a 45° angle. MCB standard plank is 5 ¼ inch wide with a vee groove in the center. As an example of wood construction, Rich demonstrated an 1880 type gondola he and his brother built many years ago. It featured trussed frames and arch bar trucks.

Full size riveted steel cars can be modeled by using laser cut steel or aluminum panels and riveting them together pretty much as in full size practice. As an example of this type of construction, Rich demonstrated an offset side hopper.

Fiberglass or vacuum-formed parts can be used to advantage particularly in simulating waffled and ribbed panels. Rivet heads are fairly easy to simulate in fiber glass.

Welded steel cars can be modeled in wood finished to look like steel. The absence of rivet heads makes this a workable scheme.

## Research

Information about railroad cars may be gleaned from text books, such as, the Car Builders Dictionary and Cyclopedia. Magazines of interest include: Mainline Modeler, Model Railroder, Railroad Model Craftsman, Live Steam, and Modletec. The Internet should be visited, for example, [www.steamfreightcars.com](http://www.steamfreightcars.com).

Thanks to Rich Croll for a very informative talk and for taking the effort to have two cars on view during his presentation.

Technical Summary by Stephen Vitkovits