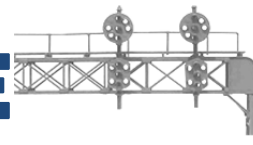


# THE SIGNAL BRIDGE



Volume 18

NEWSLETTER OF THE MOUNTAIN EMPIRE MODEL RAILROADERS CLUB  
OCTOBER 2011 COMBINED EDITION

Number 10A/B

Published for the Education and Information of Its Membership

## THE VIEW FROM THE ENGINEER'S SIDE OF THE CAB:

The view from the engineer's side of the cab: Everyone seems to have enjoyed the RailGrass Train Show at the Armory in Erwin on September 17-18<sup>th</sup> and many of our members were in the crowd. The MEMRR was present with items for sale on a club table and some of our members, **Allan Morton** and **Gary Emmert**, had their own tables as well. While the show was not big by some standards, there were numerous vendors, some model train layouts, and lots of shopping with some of our group coming away with additions to their model train collections. **Gary Cameron** did a good job with this first local train show in many years and we hope he is already planning another one for next year. The club made some sales and the funds have already been deposited to be used on some of the projects now underway at the Carter Railroad Museum.

Back in February, **Gary Rabetoy**, began working with a group of modelers to produce the ET&WNC RR caboose #505 as an HO n3 kit. For many of us just assembling a kit with many small parts that has been commercially produced can be a daunting task, but can you imagine starting from scratch and deciding you want to have a kit produced that is accurate enough in its detail to pass muster with a knowledgeable group like the Tweetsie historical society and all the others who hold this little ghost railroad dear to their hearts? Gary persisted through many trials and tribulations and by early September the little caboose was ready in kit form complete with instructions for the lucky modelers who had either pre-ordered them or were lucky enough to purchase one of the few not already claimed. Several MEMRR members ordered the kits and the Carter Railroad Museum purchased three for the Tweetsie railroad layout we are building. After all the time and energy Gary put into making these little cabs available to the model railroading world, he chose not to keep any profit for himself out of the sales of this wonderful little caboose. Instead, Gary donated all the profits from these sales to the Carter Railroad Museum to be used in the creation of the layout they will track over once more in miniature form in Johnson City. Thank you Gary, not only for the donation, but more importantly, for providing the little cabooses our little 10 wheelers will need to make each little freight consist complete.

For the 4<sup>th</sup> consecutive year the Carter Railroad Museum was asked to participate in the President's Classroom hosting the 25 special guests of President Paul Stanton for 15 to 20 minutes as their first campus stop following their orientation meeting in the

ETSU Library. We opened the Railroad Museum for their visit around 5:00 p.m. on September 18<sup>th</sup> and 17 of our members were present to greet them and answer their questions about the museum and model railroading. What a terrific club turnout! Thank all of you who came to support the Carter Museum and to show the President's guests what a wonderful facility ETSU has provided for us and what the MEMRR has done in turn to make it such an outstanding railroad museum. Very Well Done, Indeed!!!!

By the time you are reading this we should have purchased a 6 x 12 box trailer for the Carter Railroad Museum. As you are aware through my emails of October 7<sup>th</sup> and 9<sup>th</sup>, **Jim Pahr** located the kind of trailer we have been hoping to find to transport the Cope Traveling HO Layout to various events in the region. His phone call about the trailer on the 5<sup>th</sup> resulted in my inspection of it with him that afternoon and a discussion regarding our options for purchasing it. You have all followed the emails and you are aware that the amount available in the Railroad Museum's Foundation Account represented only 40% of the purchase price. Jim and I decided to contribute towards the purchase and I wrote a request for donations to the membership of the MEMRR and the Carter Chapter of NRHS, something I have never done before in my many years as president, asking for \$500 additional dollars to bridge the financial gap that still existed between what we had available and what we needed to complete the deal with the trailer's owner. In less than 24 hours of those emails being distributed 3 members had contacted me with pledges surpassing the amount being requested. We quickly raised not only enough money to purchase the trailer, but also to have proper identifying logo signs for the Carter RR Museum and ETSU purchased for it, and a little left over to begin rebuilding the funds taken from the museum's foundation account that can be used for other museum projects. I send my deepest thanks to each of you who so generously donated your dollars to make this purchase a reality and for your continued support of the museum. I will keep you all informed on our progress with this trailer and its availability.

Monday, October 10<sup>th</sup> will be a grand day-long celebration on the ETSU campus of its Centennial. We have been asked to have the Carter Railroad Museum open during mid-day as part of these planned festivities. Finding a parking place on campus during the day is difficult enough in itself, but with the additional alumni and guests that are expected to come to join in the events, it will be bordering on chaos. My thanks to each of you who came to support the club and the museum wearing your green club shirts, or the yellow Carter Museum shirts that seem to be gaining popularity with our members. We won't be asked to do this again for another 100 years!

In connection with the centennial events we have been asked to decal 55 locomotives with custom-made decals commemorating

### CLUB OFFICERS

**President:**  
**Fred Alsop**

**Secretary:**  
**Donald Ramey**

**Newsletter Editor:**  
**Ted Bleck-Doran**

**Vice-President:**  
**John Carter**

**Treasurer:**  
**Duane Swank**

**Webmaster:**  
**John Edwards**



### LOCATION

**ETSU Campus,  
George L. Carter  
Railroad Museum**

### HOURS

**Business Meetings are held the  
3<sup>rd</sup> Tuesday of each month.  
Meetings start at 7:00 PM at  
ETSU Campus, Johnson City, TN.  
Brown Hall Science Bldg, Room 312,**

Open House for viewing every Saturday from 10:00 am until 3:00 pm. Work Nights each Thursday from 5:00 pm until ??

the 100<sup>th</sup> anniversary of the founding of ETSU. I have spoken to several of our members who have agreed to help and I am inviting all of you who are so inclined to come to a 'decaling party' at the Carter Railroad Museum at 2:00 p.m. on Sunday afternoon, October 23<sup>rd</sup>. If we have 8-10 people helping cut out and set the decals the job should go quickly. We have one large decal that will cover most of the side of a long-haul tender (1 for each side) and the number '100' that will be placed under the window on the locomotive cab; four decals in total for each locomotive/tender combination. So, please put the afternoon of the 23<sup>rd</sup> on your calendar and come on down to our Decaling Party. After they decals have been applied and have had a couple of days to dry, we will set them down with a coating of dull-coat in the museum's spray booth. I really need your help with this, so please plan to attend. The university will fund this work with the funds being transferred into the Railroad Museum's Foundation Account, so you will be helping to raise funds to support the completion of the Tweetsie RR model project and other museum expenditures.

**Jim and Charlotte Pahr** treated us to an outstanding open house in their cozy home on Sunday, 25 September. They opened their house for us to see the excellent O-gauge layout that Jim has been building in the basement (the room that to a model railroader justifies the existence of the rest of one's home). The large scale locomotives in the paint schemes of the Clinchfield and the Central of Georgia loop around a little narrow gauge short line that switch-backs smartly up a mountainside. In addition to a layout room packed with operating trains, Jim has a wonderful reference library on railroading, and railroading memorabilia from all over the world. All this, friendly socializing and tasty refreshments too!!!! Thanks for welcoming us into your home Jim and Charlotte; it was a great afternoon for all of us fortunate enough to attend.

Thursday nights are work nights at the Carter Railroad Museum and we have lots of projects going on. The expansion of the HO-Scale freight yard is well underway and the group reworking our electrical wiring on that layout is making great progress. Work continues on the large-scale and the N-Gauge layouts as well. Across the hallway, most of the benchwork has been completed on

the Tweetsie layout, track is being laid and the initial steps to wiring that layout are just beginning. There is a lot of model railroading work going on and in many different stages. We need everyone's help to keep these projects rolling and on schedule. While we generally have 12 to 15 people or so turning out on Thursday nights much of the work is going much more slowly that it should be because not everyone who is present is pitching in and helping. Come on fellows! Please volunteer your services to any of the coordinators who have groups working as we can use your talents and your labor. The many projects are all under the leadership of various volunteers who have taken on the mantle of 'coordinator', but they all need your help. Just dropping by on a Thursday evening and waiting around to go out to eat with a group is a wonderful social event, but please pitch in, roll your sleeves up and help out while you work up an appetite. Your work will help lift the spirits of those who are staying behind and working while you are dining. Please help us get these projects completed so everyone's trains are running better on all our layouts. Thanks in advance.

In November we will be celebrating the 4<sup>th</sup> Anniversary of the dedication of the George L. Carter Railroad Museum. November is also National Model Railroading Month, and Friday, November 18<sup>th</sup> is National Take a Model Train to Work Day. Our club elects officers for the coming year in November and we usually plan for some public workshops to take place during that month. Please look ahead to November. It will be a busy month for us with lots of publicity for the MEMRR and the RR Museum that translates into more visitors than usual on many of the month's Saturdays. Also, think about how you can help the club and the museum during that month with some or all of these special events, with your ideas, suggestions and efforts. We have a great model railroad club and we should all be proud of what we have been able to accomplish. Hear the whistle blow in the night and dream of all the destinations yet to come.

**Fred J. Alsop III**  
**President, Mountain Empire Model Railroaders**  
**Director, George L. Carter Railroad Museum, ETSU**

## Mountain Empire Model Railroaders Minutes of General Meeting: September 20, 2011

### All Aboard

After presenting the museum and layout to the Presidents Classroom tour and several members travelling to the Firehouse restaurant for the monthly pre-meeting Group Feed, President Fred Alsop called the meeting to order at approximately 7:26 p.m. in room 312. The weather outside was warm and humid. There were 19 members including our newest member David Whitley, present. When you meet him, welcome David to the club.

### Officer Reports:

**Secretary Report:** With the statement that the minutes of the previous meeting were indeed tendered in a timely and expeditious manner, the Secretary moved that without corrections or additions, those very same minutes be approved as published in the previous edition of the Signal Bridge. Motion carried.

**Newsletters Editors Report:** Please forward any ideas, contributions, pictures etc to Ted for consideration in future editions of the Signal Bridge Newsletter. What a wonderful job Ted continues to do with the publication of each month's Signal Bridge. Remember, if you were at Cass or Elkins WV, and promised a report on the trips, now is the time to forward those to Ted if you haven't already done so. Ted the Terrible does not like to be kept waiting... believe me, I know.

**Treasurers Report:** Duane gave his accounting of our funds and expenditures were approved.

**Web Masters Report:** John was out-of-town and not present at the meeting, but our web site continues to function normally. Should you desire to have a [-name@MEMR.org](mailto:-name@MEMR.org) e-mail address, please see John.

**Vice Presidents Report (upcoming programs):** John Carter reported on a current listing of upcoming programs as follows:

- Freight train "blocking" (pre 1970), Gary Emmert
- Freight train "consisting" (1970 to date) Gary Emmert
- DCC installs on non-dcc ready equipment-

**Presidents Report:**

- Fred started his reports with a gracious, "Thank You", to all members who assisted in the dismantling of the Brenda Woods layout, the Erwin Train Show, and the Presidents Classroom tour.
- He proceeded to abbreviate his reporting due to the lateness of our start time. But it was a good abbreviated report non-the-less!

**Old Business:**

1. Jack Miller Coach needs will be met with Coaches from the Erwin Train Show.
2. Flyers are needed for the club showing a map and directions as well as brief details on Museum and work is progressing on these. More later.
3. We did get an address for Tom McKee and the Thank you card for the picnic was sent. Please be considering an honorable membership for the McKees for their hosting of our annual picnics.
4. West Virginia trips to Cass and Elkins over the Labor Day weekend went off without a hitch, or a coupler. There were 11 participants and a good time was had by all. One memorable moment experienced by those on the Tygart Flyer was the ex-CRR F unit (albeit in Western Maryland paint) pulling the train. A notation on the rear corner designates previous owner and number.
5. Presidents train update is awaiting reply on the L&N coaches.
6. Duane has some "old-stock" (before price increase) club shirts to sell. If you want one, see him.

**New Business:**

1. Our Railroad Heritage days continue to be a hit with the general public. Our latest was railroads west of the Mississippi, September 30<sup>th</sup>, were you there?
2. A draft proposal was presented for the Railroad Heritage days for year 2012, with some discussion, motion was made to formally adopt the dates and schedule. Geoff will forward the press releases as required.
3. New books are to be purchased by the Museum for the Kids Room.
4. Club currently has approximately 15 cars on the RIP track in need of couplers and wheels. Jim Hoit will co-ordinate repair of all rip track cars. If you discover a club car with a problem, label it and identify the problem and place in drawer for Jim.

5. Jim Pahr's will host an "O-Scale" open house at his home on Sunday Sept, 25<sup>th</sup>. From 2-4 p.m Please follow the signs for parking and enter thru the basement..

**Volunteer Recruiting for Saturday Operating Sessions:**

Next 4-weeks Operator Volunteers. *Thanks to all you engineers for your unselfish desire to come out and run your trains. This is what makes it fun for all.* With Fall fast approaching upon us and outside work going on, it is sometimes hard to have enough volunteers available to properly man the museum and layouts. If you can spare the time, please come out and help whenever you can.

**Announcements:**

- On October 10<sup>th</sup> from 11:30 till 2:00 the Museum will be open for viewing. Parking will be a bear for sure, but, if you have to park in one of the outlying lower 40 parking lots, a free shuttle will be running on campus. We'll get ya back to your car.
- E.T.S.U.'s 55 Steam locomotives (for friends of E.T.S.U.) are ready to be decaled and clear coated, if you can help, please advise either Fred or Allen.
- An electrical book has been placed in the new yard. If you encounter any electrical difficulties, please make note of them in the appropriate section of the book.
- October 8<sup>th</sup>, Spruce Pine, NC layout tours. See flyer in Museum for more details.
- October 16<sup>th</sup> Doe River Gorge Ministries will have their annual "Fall Color Runs" up the ET&WNC gorge in Hampton. Run times start at 12:00 noon. Trains will run until everyone has had the opportunity to ride.

**Program for the Evening:**

- The program was deferred until a later date (Gary was most understanding) due to lateness of starting the meeting and all who were in attendance at the Presidents Classroom tour.

**Next Scheduled Monthly Meeting: October 18th, 2011**

Program: Gary Emmert: consisting freight trains prior to 1970 rules.

*Respectfully Submitted:*  
Don Q. Ramey  
Secretary

## IRM MUSEUM SHOWCASE WEEKEND 2011

*By Eric Bronsky*

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On Saturday, September 17, an army of volunteers arrived at the Illinois Railway Museum early in the morning to primp cars and locomotives that are infrequently seen outdoors. Friend Walter Fil and I arrived at this wondrous time machine of a railroad haven, far from those unwitting law enforcement types who regard railfans as terrorists, around 1 PM. The weather was spectacular. I promptly donned my conspicuous digital Nikon SLR and went to work.



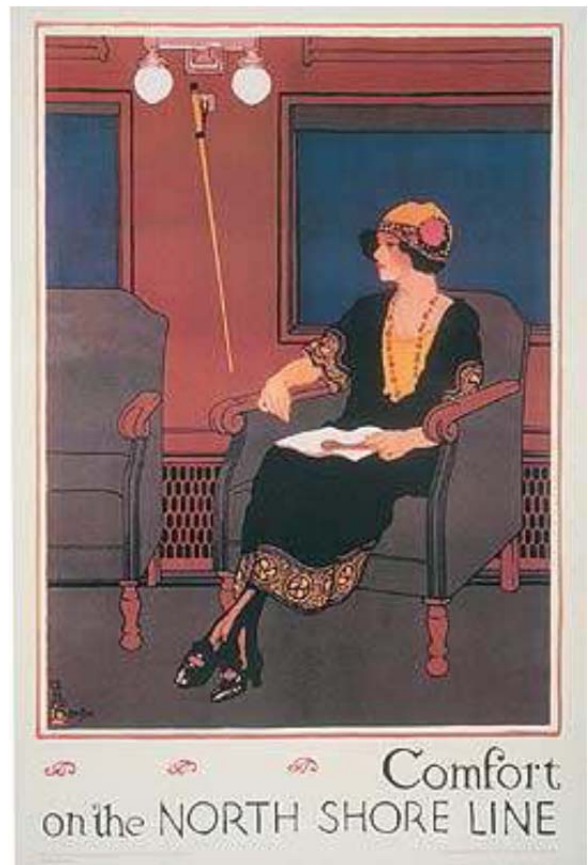
Highly visible from the parking lot was CTA 30, gleaming in a pristine coat of Mercury Green, Croydon Cream, and Swamp Holly Orange. For further information about this restoration project



Illinois Terminal 101 was preparing to make a mainline run, and CNS&M 714-749 soon emerged.



... And then along came this gal dressed as a 1920s flapper. Isn't this image reminiscent of the famous 1924 poster by artist Oscar Rebe Hanson?



Among the many welcome sights (*and sounds and smells*) of the day was the *Leviathan*, a superb replica of the legendary 1868 locomotive. Although squeaky-clean as a theme park attraction, she is in fact a live steamer—what a treat it was to watch her huff and puff along the mainline! For much more information about this visiting 4-4-0, billed as America's newest operating steam locomotive, go to <http://www.leviathan63.com/>.





Diesel locomotives, engines throbbing and burbling, also made appearances throughout the day to show off their colorful liveries and perfume the atmosphere.



ABOVE: C&W 141 and Northwestern L/CRT 1797.

BELOW: Hey, we managed to get CA&E, North Shore, and South Shore cars all in one photo! Far out!



CNS&M Waukegan city car 354, though not operating, was open to visitors. Inside, a docent clad in period clothing was on hand to talk about the history of the streetcar and the North Shore Line.



Perhaps the most interesting aspect of Museum Showcase Weekend is the element of surprise: You just never know what rare or exotic piece of equipment you're going to find operating.

This was the first time we've ever seen CSL 84 (Brill-American Car, 1930) outside of the TC barn, much less under wire.



Neither fully restored nor "open" to the public, it was brought out to make a couple demo runs. Charlie King was driving and we managed to cajole a ride. 84 is quite a different experience than, say, a 1951 M-H trolley coach. Motor whir is accompanied by the sounds of hissing valves and clacking relays, also the familiar "twang" of the overhead wires.



By 6 PM, the shadows were starting to lengthen. Over on Central Street, a BBQ was in full swing and the West End Jazz Band was performing hits from the swing era. The lull in operations on the mainline was a good opportunity to photograph the Nebraska Zephyr and the Leviathan without having to resort to a "people filter."



Pretty soon, IRM's colorful collection of restored signals and neon signs was punctuating the deepening twilight. We clambered on board IRR 65 and rode one trip around the trolley loop.



The day finished in spectacular fashion with the night-time operation of a 3-car Illinois Terminal consist—combine 277, trailer coach 518, and observation 234—on the mainline. A crew member extinguished the interior lights so that we riders could see out the windows.



Instantly, we felt transported back in time to a cornfield somewhere south of Springfield in 1956. The experience of riding 277, built 98 years ago, was a sharp contrast to the nimble 65. With two trailers in tow, she lumbered and groaned like a trolley

freight locomotive, swaying like a rowboat at the dizzying speed of 25. A fellow rider remarked that the Illinois Terminal's track in later years was not nearly as smooth as the museum's!

I've often mused how unfortunate it was that IT did not acquire the well-engineered highsPEEDS from IRR when they quit in 1941.

Of course, that was just prior to USA involvement in WWII, when most of the remaining interurbans neither foresaw a need for more passenger equipment nor had the capital to purchase any. The IT's 1948 streamlined trains proved to be a costly boondoggle.

~ ~ ~

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### Concept Features

The following are some of the basic goals that were set as guidelines for the locomotive design

- F.R.A. /interchange compliant
- Alignment control Couplers.
- Optional M.U. able
- Standard E.M.D. power contactors and reversers
- Standard locomotive controller
- Optional remote interfaced into the build or reuse existing system
- Technology can be adapted to fit most any locomotive
- Non Standard locomotive parts are available at the standard industrial /electrical supply houses. In some cases even the local hardware store.
- Be the easiest to service locomotive on the market. Any major component change outs can be done in an 8 hour shift or less.
- Take full advantage of the latest and greatest technology available and when needed design and create such technology

### About The Technology

To meet the guidelines set forth in the original concept the following technologies have been incorporated into the locomotive design.

#### T.M.V. locomotive management system.

This system features the latest in wheel slip adhesion technology providing the best traction available in the market. Also included is the ability to communicate with all other onboard systems on a touch screen monitor conveniently mounted on the control stand.

#### A few of the items displayed are:

All engine data from both engines, Main generator output, Speed, cooling fan operations, load, anything found on an event recorder, a history of faults, and to many more items to list here.

#### A.P.U. unit

M.T.U. onsite energy proprietary 135KW generator. John Deere 4045 tier 3 (subsequent models will be tier 4i) This unit provides all power for the locomotive including air compressor, cooling fans, battery charging, traction motor and rectifier blowers

- The A.P.U. also provides power for the I.G.B.T. air cooled choppers. This system allows the locomotive and a train of limited tonnage to be moved without the need to start the large engine. Air cooling eliminates the problem of failure common in the liquid cooled versions used by others.
- Main engine MTU-Detroit Diesel 12V2000 V-12 1005 B.H.P. Charge air cooled engine. Tier 2 (subsequent models will be tier 4i)  
 Air compressor Ingersoll-Rand 30 HP rotary screw air compressor with built in refrigerant cooled dryer. This air compressor provides air with the lowest humidity in the market.  
 Main alternator Marathon two bearing variable frequency alternator with a proprietary Darrah Electrical air cooled rectifier Grants.

The lean and Green has been awarded an Ohio Third Frontier grant, Ohio D.E.R.G. grant for 3 units, Northwest Indiana clean air grant and a California Carl Moyers grant. With the recent 5 year extension of the Diesel clean air grant program, grants will continue to be an attractive way to help finance clean

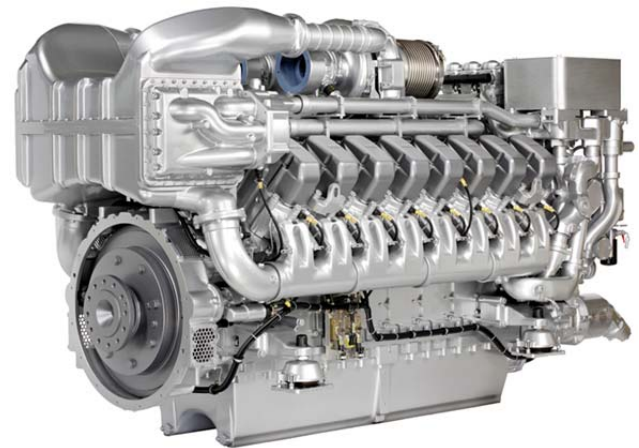


The Lean and Green is now testing on the Cuyahoga Valley Railroad

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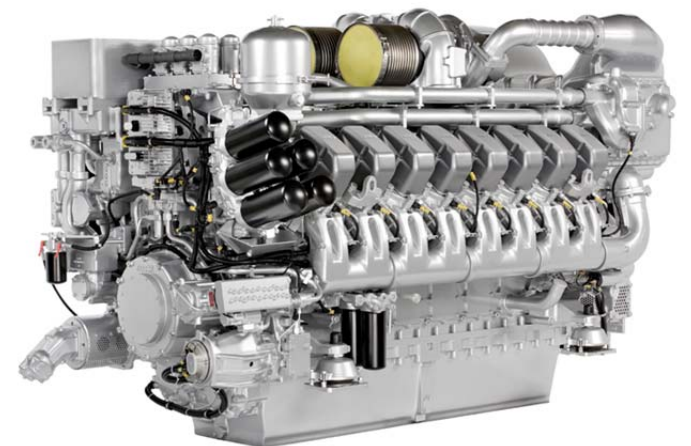
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## Intermodal Freight Transport

From Wikipedia, The Free Encyclopedia



Intermodal ship-to-rail transfer of containerized cargos at APM Terminals in Portsmouth, VA.

**Intermodal freight transport** involves the transportation of freight in an intermodal container or vehicle, using multiple modes of transportation (rail, ship, and truck), without any handling of the freight itself when changing modes. The method reduces cargo handling, and so improves security, reduces damages and losses, and allows freight to be transported faster. Reduced costs over road trucking is the key benefit for intracontinental use. This may be offset by reduced timings for road transport over shorter distances.

### History Origins

Intermodal transportation goes back to the 18th century and predates the railways. Some of the earliest containers were those used for shipping coal on the Bridgewater Canal in England in the 1780s. Coal containers (called "loose boxes" or "tubs") were soon deployed on the early canals and railways and were used for road/rail transfers (road at the time meaning horse drawn vehicles).

Wooden coal containers used on railways go back to the 1830s on the Liverpool and Manchester Railway. In 1841 Isambard Kingdom Brunel introduced iron containers to move coal from the vale of Neath to Swansea Docks. By the outbreak of the First World War the Great Eastern Railway was using wooden containers to tranship passenger luggage between trains and sailings via the port of Harwich.

The early 1900s saw the first adoption of covered containers, primarily for the movement of furniture and intermodal freight between road and rail. A lack of standards limited the value of this service and this in turn drove standardization. In the U.S. such containers, known as "lift vans", were in use from as early as 1911.

### Early containers

In the United Kingdom containers were first standardized by the Railway Clearing House (RCH) in the 1920s, allowing both railway owned and privately owned vehicles to be carried on standard container flats. By modern standards these containers were small, being 1.5 or 3.0 meters long (5 or 10 ft), normally wooden and with a curved roof and insufficient strength for stacking. From

1928 the London, Midland and Scottish Railway offered "door to door" intermodal road-rail services using these containers. This standard failed to become popular outside the United Kingdom.

Pallets made their first major appearance during World War II, when the United States military assembled freight on pallets, allowing fast transfer between warehouses, trucks, trains, ships, and aircraft. Because no freight handling was required, fewer personnel were required and loading times were decreased.

Truck trailers were first carried by railway before World War II, an arrangement often called "piggyback", by the small Class I railroad, the Chicago Great Western in 1936. The Canadian Pacific Railway was a pioneer in piggyback transport, becoming the first major North American railway to introduce the service in 1952. In the United Kingdom the big four railway companies offered services using standard RCH containers that could be craned on and off the back of trucks. Moving companies such as Pickfords offered private services in the same way.

### Containerization

In the 1950s a new standardized steel Intermodal container based on specifications from the United States Department of Defense began to revolutionize freight transportation. The International Organization for Standardization (ISO) then issued standards based upon the U.S. Department of Defense standards between 1968 and 1970.

The White Pass and Yukon Route railway acquired the world's first container ship, the *Clifford J. Rogers*, built in 1955, and introduced containers to its railway in 1956. In the United Kingdom the modernisation plan and in turn the Beeching Report strongly pushed containerization. The British Railways freightliner service was launched carrying 8-foot (2.4 m) high pre-ISO containers. The older wooden containers and the pre-ISO containers were rapidly replaced by 10-foot (3.0 m) and 20-foot (6.1 m) ISO standard containers, and later by 40-foot (12 m) containers and larger.



Highway semi-trailers in piggyback service at Albuquerque, New Mexico.

In the U.S., starting in the 1960s the use of containers increased steadily. Rail intermodal traffic tripled between 1980 and 2002, according to the Association of American Railroads (AAR), from 3.1 million trailers and containers to 9.3 million. Large investments were made in intermodal freight projects. An example was the USD

\$740,000,000 Port of Oakland intermodal rail facility begun in the late 1980s.

Since 1984, a mechanism for intermodal shipping known as double-stack rail transport has become increasingly common. Rising to the rate of nearly 70% of United States intermodal shipments, it transports more than one million containers per year. The double-stack rail cars design significantly reduces damage in transit and provides greater cargo security by cradling the lower containers so their doors cannot be opened. A succession of large, new domestic container sizes was introduced to increase shipping productivity. In Europe the more restricted loading gauge has limited the adoption of double-stack cars. However, in 2007 the Betuweroute was completed, a railway from Rotterdam to the German industrial heartland, which may accommodate double stacked containers in the future. Other countries, like New Zealand, have numerous low tunnels and bridges that limit expansion for economic reasons.

Since electrification generally predated double stacking, the overhead wiring was too low to accommodate it. However, India is building some freight only corridors with the overhead wiring at 7.45 m above rail, which is high enough.

### Containers and container handling

See also: *Intermodal freight shipping container*



Intermodal ship-to-rail transfer of containerized cargos at the Port in Long Beach, California.

Containers, also known as intermodal containers or ISO containers because the dimensions have been defined by ISO, are the main type of equipment used in intermodal transport, particularly when one of the modes of transportation is by ship. Containers are 8-foot (2.4 m) wide by 8-foot (2.4 m) high. Since introduction, there have been moves to adopt other heights, such as 8-foot-6-inch (2.59 m), 9-foot-6-inch (2.90 m) and 10-foot-6-inch (3.20 m). The most common lengths are 20 feet (6.1 m) nominal or 19 feet (5.8 m) - 10½ in (0.27 m) actual, 40 feet (12 m), 48 feet (15 m) and 53 feet (16 m), although other lengths exist. In countries where the railway loading gauge is sufficient, truck trailers are often used. Variations exist, including open-topped versions covered by a fabric curtain are used to transport larger loads. A container called a *tanktainer*, with a tank inside a standard container frame, carries liquids. Refrigerated containers are used for perishables.

Handling equipment can be designed with intermodality in mind, assisting with transferring containers between rail, road and sea. These can include:

- Transtainers for transferring containers from sea-going vessels onto either trucks or rail wagons. A transtainer is mounted on rails with a large boom spanning the distance between the ship's cargo hold and the quay, moving parallel to the ship's side.
- Gantry cranes, also known as straddle carriers, are able to straddle rail and road vehicles, allowing for quick transfer of containers. A spreader beam moves in several directions allowing accurate positioning of the cargo.
- Grappler lift, which is very similar to a straddle carrier.
- Reach stackers are fitted with lifting arms as well as spreader beams and lift containers to swap bodies or stack containers on top of each other.
- Swap body units are not strong enough to be stacked, but they have folding legs under their frame but they

### Transportation Container ships



The 300-meter-long container ship CMA CGM Balzac

Container ships are used to transport containers by sea. These vessels are custom-built to hold containers. Some vessels can hold thousands of containers. Their capacity is often measured in TEU or FEU. These initials stand for "twenty-foot equivalent unit," and "forty-foot equivalent unit," respectively. For example, a vessel that can hold 1,000 40-foot containers or 2,000 20-foot containers can be said to have a capacity of 2,000 TEU. After the year 2006, the largest container ships in regular operation are capable of carrying in excess of 15,000 TEU.

Onboard ships they are typically stacked up to seven units high. A key consideration in the size of container ships is that larger ships exceed the capacity of important sea routes such as the Panama and Suez canals. The largest size of container ship able to traverse the Panama canal is referred to as Panamax, which is presently around 5,000 TEU. A third set of locks is planned as part of the Panama Canal expansion project to accommodate container ships up to 12,000 TEU in future, comparable to the present Suezmax.]

As of June 2011 it costs around \$5000 to ship a container from China to the US with oil at \$100USD/bbl. As the price of oil increases, shipping costs increase.

Very large container ships also require specialized deep water terminals and handling facilities. The container fleet available, route constraints, and terminal capacity play a large role in shaping global container shipment logistics.

**Railways**

In North America, containers are often shipped by rail in container well cars. These cars resemble flatcars but the newer ones have a container-sized depression, or well, in the middle (between the bogies or "trucks") of the car. This depression allows for sufficient clearance to allow two containers to be loaded in the car in a "double stack" arrangement. The newer container cars also are specifically built as a small articulated "unit", most commonly in components of three or five, whereby two components are connected by a *single* bogie as opposed to two bogies, one on each car. (The photo above under "Equipment" shows an example of the new setup.) Double stacking is also used in parts of Australia. On some older railways, particularly in the United Kingdom, the use of well cars is necessary to carry single stacked large containers within the loading gauge.



A portion of a "double stack" container train operated by Union Pacific Railroad, the containers are owned by Pacer Stacktrain, the cars by DTTX.

It is also common in North America to transport semi-trailers on railway flatcars or spine cars, an arrangement called "piggyback" or TOFC (*trailer on flatcar*) to distinguish it from *container on flatcar* (COFC). Some flatcars are designed with collapsible trailer hitches so they can be used for trailer or container service.

Such designs allow trailers to be rolled on from one end, though lifting trailers on and off flatcars by specialized loaders is more common. TOFC terminals typically have large areas for storing trailers pending loading or pickup.

If the rail line has been built with sufficient vertical clearance then Double-stack rail transport can be used. Where lines are electrified with overhead electric wiring double stacking is normally not possible. The mandatory requirement to fit under overhead wire for the traction engine electrical power supply sets the height limit for the railcars to allow for trailer transport. This requires a certain low building height which led to a minor size of wheels for the railcars. Hence increased degradation of bogeys by wheel wear-out is a cost disadvantage for the system.

Trailers with cargo containers are not subject of such transportation. When carried by rail, containers can be loaded on flatcars or in container well cars. In Europe, stricter railway height restrictions (smaller loading gauge and structure gauge) and overhead electrification prevent containers from being stacked too high, and containers are hauled one high either on standard flatcars or other railroad cars. Taller containers are often carried in

well cars (not stacked) on older European railway routes where the loading gauge (especially with the reduced gauge for UK lines) is particularly small.

Narrow gauge railways of 610 mm (2 ft) gauge have smaller wagons that do not readily carry ISO containers, nor do the 30-foot (9.14 m) long and 7-foot (2.13 m) wide wagons of the 762 mm (2 ft 6 in) gauge Kalka-Shimla Railway. Wider narrow gauge railways of e.g. 914 mm (3 ft) and 1,000 mm (3 ft 3 3/8 in) gauge can take ISO containers, provided that the loading gauge allows it.

**Trucks**

Trucking is frequently used to connect the "linehaul" ocean and rail segments of a global intermodal freight movement. This specialized trucking that runs between ocean ports, rail terminals, and inland shipping docks, is often called drayage, and is typically provided by dedicated drayage companies or by the railroads.



A truck transporting a container on Interstate 95 in South Florida.

**Barges**



Barges utilising ro-ro and container-stacking techniques transport freight on large inland waterways such as the Rhine/Danube in Europe and the Mississippi River in the U.S.†

**Landbridges**

The term *landbridge* or *land bridge* is commonly used in the intermodal freight transport sector in reference to a containerized ocean freight shipment that travels across a large body of land for a significant part of the trip, en-route to its final destination; Of which the land portion of the trip is referred to as the "landbridge" and the mode of transport used is rail transport. There are three applications for the term.

**Image of a land bridge.**

- *Land bridge* - An intermodal container shipped by ocean vessel from country A to country B, *land bridges* across an entire body of land/country/continent, en-route. For example, a container shipment from China to Germany, is loaded onto a ship in China, unloads at a Los Angeles (California) port and travels via rail transport to a New York (New York) port, and loads on a ship for Hamburg.
- *Mini Land bridge* - An intermodal container shipped by ocean vessel from country A to country B, passes across a large portion of land in either country A or B. For example, a container shipment from China to New York (New York), is loaded onto a ship in China, unloads at a Los Angeles (California) port and travels via rail transport to New York (New York), the final destination.
- *Micro Land bridge* - An intermodal container shipped by ocean vessel from country A to country B, passes across a large portion of land to reach an interior inland destination. For example, a container shipment from China to Denver (Colorado), is loaded onto a ship in China, unloads at a Los Angeles (California) port and travels via rail transport to Denver (Colorado), the final destination.

The term *reverse landbridge* refers to a *micro land bridge* from an east coast port (as opposed to a west coast port in the previous examples) to an inland destination.

**Load Securing in Intermodal Containers**

According to the European Commission Transportation Department "it has been estimated that up to 25% of accidents involving trucks can be attributable to inadequate cargo securing". Cargo that is improperly secured can cause severe accidents and lead to the loss of cargo, the loss of lives, the loss of vehicles, ships and airplane; not to mention the environmental hazards it can cause. There are many different ways and materials available to stabilize and secure cargo in containers used in the various modes of transportation. Conventional Load Securing methods and materials such as steel banding and wood blocking & bracing have been around for decades and are still widely used. In the last few years the use of several, relatively new and unknown Load Securing methods have become available through innovation and technological advancement including polyester strapping and - lashing, synthetic webbings and Dunnage Bags, also known as air bags.

**Companies**

**Biggest ISO container companies**

Top 20 container shipping companies in order of TEU capacity, 23 Jan 2011

Company	TEU capacity	Number of ships
A.P. Moller-Maersk Group	2,150,888	545
Mediterranean Shipping Company	1,638,962	414
CMA CGM	1,100,007	384
American President Lines	589,879	147
Evergreen Marine Corporation	554,725	152
Hapag-Lloyd	541,811	124
COSCO	498,437	134
CSAV	469,428	128
Hanjin Shipping	448,051	98
China Shipping Container Lines	440,236	122
NYK Line	365,034	95
Mitsui O.S.K. Lines	363,188	94
Orient Overseas Container Line	353,338	77
Hamburg Süd	338,778	109
Zim Integrated Shipping Services	322,685	96
K Line	318,193	82
Yang Ming Marine Transport Corporation	313,379	77
Hyundai Merchant Marine	271,604	52
Pacific International Lines	227,649	126
UASC	199,082	50

**Gallery**



Application in container



Polyester Strapping and Dunnage Bag application



Polyester Lashing Application



Containers at Kuantan Port



ISO-code and dimension/load table on several newly washed containers



Straddle carriers in operation at the Port of Melbourne, Australia



A picture of a P&O Nedlloyd inter-modal freight well car at Banbury station in the year 2001

**TRAILER POSSIBILITIES**

**Club Communications**

Wednesday Jim Pahrts contacted me regarding a trailer he had located for sale in Jonesborough. I inspected it with him later that same day. The trailer is a 6 x 12 foot, single axle, covered box trailer. It is 5 years old, but has been used little and is in excellent condition. The back door is hinged from the bottom and opens downward to make a ramp for easy loading. There is an exit side door near the front of the trailer on the right side. Tires show very little wear. There is a large storage box mounted on the trailer tongue. The interior is paneled and has D-rings for tie-down attachment. It looks like the perfect trailer for transporting the Cope Layout and a lot of other things we may want to move in the future.

**The Deal:** The owner's initial asking price is \$2700. Jim has gotten that price down to \$2,500. The RR Museum would like to purchase this trailer, but we need your financial help to do so. The RR Museum has \$1,000 in its foundation account that it can put toward the purchase price. Jim Pahrts and Fred Alsop have each pledged up to \$500 apiece towards the trailer purchase. We need tax-deductible donations to cover the balance (at least \$500 in donations) and we need to move on this quickly. The owner has agreed to give us a little time to complete this transaction.

Once purchased, the trailer will belong to the RR Museum and ETSU, not to the MEMRR or the Carter Chapter NRHS. In turn, the university will assume responsibility for the licensing and upkeep of the trailer, and the insurance for it. They will also provide storage space for it at the university motor pool. The RR Museum can use it any time it wishes to and make it available to MEMRR and Carter Chapter NRHS. We will place ETSU and Carter RR Museum logos on the trailer sides and back to let everyone who sees it know about the RR Museum.

Any donation you may make is tax deductible and you will receive a letter from the university thanking you for your gift. All the funds will be placed into the Carter RR Museum's University Foundation Account and the purchase of the trailer will be made from this account. Any checks you may wish to write should be made out to the "George L. Carter Railroad Museum".

This is a good trailer and a good deal. For several years we have been looking for an answer to solve our transportation needs when we have moved the Cope layout to Kingsport, Johnson City and Jonesborough for public showings. We have declined to take it to other places to which we have been invited because we lacked the means to haul it. I would very much like to have your support in the form of personal donations to make this trailer ours. Please contact me by email: [fredjalsop3@earthlink.net](mailto:fredjalsop3@earthlink.net) or telephone (cell): 615/604-8759 and give me your pledge. If you have any questions please don't hesitate to contact me as well as I shall be happy to answer them.

Thank you for your interest and support. I hope you will join Jim and me in the purchase of this trailer.

Best regards,

*Fred J. Alsop III*  
 Director, George L. Carter Railroad Museum ETSU  
 President, Mountain Empire Model Railroaders  
 President, George L. Carter Chapter NRHS



Image of a mini land bridge



Image of a micro land bridge



"In the Doghouse"

CASS SHOWCASE – A VILLAGE IN MINIATURE



## DECAL PARTIES



Set the following dates aside for decaling the ETSU 100<sup>th</sup> Anniversary Locomotives:

Thursday: October 20<sup>th</sup> 4:30 PM - 7 PM

Saturday: October 22<sup>nd</sup> 10 AM - 3 PM

Thursday: October 27<sup>th</sup> 4:30 PM - 7 PM

Saturday: October 29<sup>th</sup> 10 AM - 3 PM

No experience is necessary. We need a crew to cut the decals, a crew to place the decals, and a crew to overspray the decals.

Come join the fun.

## UPDATE ON THE HO TURNTABLE

Today, Oct 10th, Emile Hamm, took the time to re-index the HO turntable bridge serving the roundhouse. He has everything working as it should with the exception of lining up the bridge with engine stall #12 (still working on that).

**Notice:** The A-end of the bridge (the end with the doghouse on it) should now automatically align itself going counterclockwise if you let the bridge just pass your intended stop and then release the control button. It will currently align itself on all the engine stalls except #12. The B-end of the bridge (the end opposite the doghouse) will automatically align with the entrance/departure track leading to/from the bridge.

**PLEASE UNDER NO CIRCUMSTANCE TRY TO MANUALLY PUSH THE BRIDGE INTO POSITION USING YOUR FINGERS (OR ANY OTHER APPENDAGE OR TOOL). THIS ONLY SERVES TO GET THE ENTIRE BRIDGE OUT OF ALIGNMENT!!!**

Thanks for helping and have a good time swinging your locos around on the turntable and moving them in and out of the roundhouse.

Emile, thank you for working on this!!!

Fred

## ON THE WEB

### Members Discoveries While Looking Up Other Things



And you thought we had an accident prone layout?  
Courtesy – John Edwards



Hi-railin' on the cheap  
Courtesy – Gary Emmert



Hum? Anyone for pick-up stix?  
Courtesy – Gary Emmert