THE MID-SOUTH FLYER

May – June 2022

Entering a New Decade of Service

A Publication of the Mid-South Chapter of the Railway & Locomotive Historical Society, Inc

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CHAPTER NEWS

Membership Renewal Time

If you have not yet renewed your membership for 2022, please do so soon. We value your membership in the Chapter and your staying connected with us. The web address to join or renew online or to print the application form is as follows: http://rlhs.org/Membership/index.shtml. If you have any questions about membership or joining, contact Warren Jones (Membership Chair) at wjones1302@gmail.com.

New Members

We welcome the following new members who have joined since the last newsletter:

Lynn and Ken Mosby, Seneca, South Carolina

Chapter Membership Meeting

As you are aware, the Chapter has not been having in-person meetings during the COVID-19 situation, and (as explained in the Chapter Update in this newsletter) meetings at the Leeds Depot are not possible at this time. Therefore, the Chapter will gather for an in-person membership meeting at a different location that will feature viewing a collection of restored historic fire engines. The meeting is planned for Saturday, June 18, at 2:00 pm at the Southern Vintage Fire Apparatus Association Museum. The museum address is 4500 5th Avenue South Building F, Birmingham, AL 35222, in the Avondale area of Birmingham's Southside. This museum houses more than 60 vintage fire engines, making it one of the five largest collections in the United States. Mark your calendar, and plan to attend. Details of the meeting and directions to the location will be sent later in an e-Newsletter mailing.

Chapter Annual Report for 2021-2022

Every year, the Chapter makes a report to the national R&LHS Board of Directors and to the Chapter membership. That report for the period June 2021 to May 2022 is included in this newsletter as the Chapter Update.

Railroading News

Tourist Lines and Museums — The May 2022 issue of *Trains* magazine (Kalmbach Media) includes an extensive 600+ entry guide to railroad museums and tourist train rides across the United States and Canada. The guide is organized by state / province and is included as a centerfold that can be removed and saved as what the magazine calls a "Family Fun Guide."

Gulf Coast Rail Dispute — The regulatory showdown between Amtrak and CSX / NS continues as Amtrak seeks to reopen passenger service between New Orleans and Mobile.

Birmingham's Railroad Reservation — The current (May/June 2022) issue of *Alabama Magazine* includes a feature on train watching in historic Birmingham by Mid-South chapter and board member, Ken Boyd.

JIM WRINN, 1961—2022

Editor, *Trains*

The railroading world suffered a great loss with the recent passing of Jim Wrinn, long-time editor at Kalmbach Media. For a full tribute, see the June 2022 issue of his beloved publication —*Trains* magazine (Kalmbach Media).

Member Moment

The Member Moment this month features chapter board member, Tim Smith. The Member Moment page is very popular with readers — if you would like to be featured and tell your story, please contact Warren Jones (wjones1302@gmail.com). The story should total 400 words or less and ideally include a photo or drawing.

Ken Boyd, Editor
THE MID-SOUTH FLYER
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THE MID-SOUTH FLYER is published bi-monthly by the Mid-South Chapter of the Railway & Locomotive Historical Society (R&LHS), Inc. The R&LHS is a non-profit educational organization dedicated to the study and preservation of railroad history. Contributions, article ideas and reader comments are welcome.

CHAPTER ANNUAL REPORT 2021 – 2022

James Lowery, President

National R&LHS Conventions

Several Chapter members attended the 2021 national convention in central Texas, and several Chapter members have registered for the 2022 convention in Rochester, New York.

General

The Chapter is strong and has continued all of its publications during the COVID-19 situation. Plans are underway for returning to in-person meetings and events this summer.

The Chapter has been staying in touch with its members through a digital e-Newsletter and *THE MID-SOUTH FLYER* newsletter that continues to be published six times a year.

Many of our members have continued to do historical railroad research, often to answer questions asked by members and non-members.

Chapter Memberships

The Chapter continues to grow with many new members in 2021 and 2022, a number of them from states outside of the Mid-South Chapter region.

The Chapter's Membership Chair has provided the following information regarding our memberships:

Donations made with memberships for Year 2021 as of November 2021

Total membership: 71

Total members who added a donation: 18

Percentage of members who added a donation: 25%

The total amount of the added donations is a significant portion of the chapter's yearly income.

Members of the Mid-South Chapter who also are members of other Chapters as of February 2022

1. Eleven of our members have multiple chapter memberships.

2. Three of our members are members of all ten chapters.

3. One member is a member of nine chapters.

4. Five members have one additional chapter membership. The extra memberships were distributed as follows: Southeast (2), Lackawanna, Southern California, and Steel City.

5. Two members have two additional chapter memberships. These are:

   Member 1: Southern Central States and Steel City.

   Member 2: Southeast and Southern California.

Birmingham Terminal Station Exhibit Funding

The Chapter has received a grant from the National Trust for Historic Preservation and a grant from the Alabama Historical Commission for exhibit installation. Both grants will be used to design and install a Birmingham Terminal Station exhibit at the Leeds Depot.

Historic Birmingham Mineral Railroad Signs Project

The Chapter's Historic Birmingham Mineral Railroad (BMRR) Signs Project continues, and 179 signs have been installed already in all 6 counties served by the BMRR. Part of the ongoing work of the project is performing maintenance on the already-installed signs which sometimes includes cleaning the signs and sometimes replacing ones that have been hit or destroyed (including one that was destroyed by a tornado). People (including many members of the general public) often tell us that they have seen the signs and that they appreciate the project and the information and education it provides about this significant historic railroad.

Leeds Depot Situation

The Mid-South Chapter maintains three rooms in the historic Leeds (Alabama) Depot and normally holds its program meetings at the Depot. Well…a new twist presented itself just as the chapter was gearing-up to attempt some semblance of normalness by (1) exploring the possibility of returning to in-person meetings at the Leeds Depot and (2) starting to work with the consultant responsible for implementing the permanent historic Birmingham Terminal Station exhibit at the Leeds Depot as part of the two grants the chapter has received for that purpose. However, the City of Leeds discovered that a sinkhole had opened up underneath part of the observation platform attached to the Leeds Depot. Understandably, the City of Leeds closed the Depot and did not allow any occupancy until the City determined the extent of the sinkhole underground and fixed the sinkhole. That fix was accomplished, but, during the process of dealing with the sinkhole, the City discovered termite damage in the Depot building, and the City had to extend the "no occupancy" order until the termite damage could be repaired.

The Chapter is tremendously grateful to the City of Leeds for funding the sinkhole remediation, for making the sinkhole repairs, for funding the termite damage assessment and repairs, and for contracting for those repairs to be made. The City of Leeds recognizes the significance of the historic Leeds Depot and the value it has for their city.

The consequences of the sinkhole and the termite damage for the Mid-South Chapter are as follows:

- The Chapter will not be able to hold its membership meetings at the Depot until the City of Leeds gives the "all clear" after dealing with the sinkhole and termite damage.
- Artifacts and displays in the Depot may have to be moved to another location if the termite damage repairs are extensive.
- The Chapter's work on the Birmingham Terminal Station exhibit will remain in the planning stages (which includes a large part of the exhibit work), and, if necessary, the actual installation work to come later will be on hold until after the sinkhole has been corrected and the termite damage has been repaired.

Anyone who deals with older, historic buildings knows that they sometimes present problems that have to be dealt with. We were prepared to deal with minor issues as they came along, but we never thought of sinkholes and major termite damage as things we would have to deal with.

Center for Alabama Railroad History and Archives

The Center for Alabama Railroad History and Archives (along with its digital Alabama Railroad Archives component) continues and is based at the Heart of Dixie Railroad Museum. That museum is the primary supporter of that Center, and the Mid-South Chapter has been heavily involved in the creation of, and ongoing plans for, the Center and its digital archives. Scanning of already-acquired images by Heart of Dixie Railroad Museum volunteers is continuing, and the Center welcomes additional photographs for loan or donation to the Archives.

MEMBER MOMENT

WHY TRAINS?

In 2011, I found myself facing "an offer I couldn't refuse" when Marvin Clemons informed me I was on the Board of Directors for the newly formed Mid-South Chapter. As time went by, I sometimes wondered what I was doing there. While I used my art and graphics background to help us imagine possibilities of what we could do, I found I was surrounded by real railroad experts. They ranged from knowledgeable historians, to people who'd worked for railroad companies with great stories, to railroad authors who wrote books on specific and general railroads in Birmingham, to railroad car owners, and those who had basements or attics filled with elaborately detailed model railroads. I was surrounded by railroad greatness! So what was I doing there? In truth, I'm just a guy who likes trains. Not even a full fledged "foamer."

Tim Smith, At Leeds Depot

So where does a love for trains begin? Is it genetic? Maybe. On the Smith side of the family, my great grandfather was a railcar builder, a mechanic and expert carpenter, for, I think, a Gadsden shortline. My grandfather had a job of some kind with Southern for a while. My father had a job before his chemist years with L&N, working in the Tarrant yards as a quartermaster. All of those generations were surrounded by railroads when they were the prime mode of transportation for the industrial age. So, maybe some was passed down to those of us who came after.

As the youngest of four, with two older brothers, one of whom was a certified train fan from a very young age, it seemed trains were everywhere around — mostly in toy, electric train, or book form. I remember frequently checking out every last train related book I could find in the East Lake Library. Today, I own copies of several of those. Those books were about a decade out-of-date by the time I thumbed through them, most ending with the "Train of Tomorrow," the *Aerotrain*, which had long since gone to the scrappers or were rusting away, awaiting rescue by a rail museum. In my young mind, in the 1960s F and E units still pulled trains of freight and passengers both at home and in faraway places like New York and California.

Oddly enough, at a very young age I resigned myself to the fact that steam locomotives were gone. I'd never see one, beyond the small No. 3 tank engine at the Heart of Dixie or re-creations in places like Six Flags with the big engines that once pulled daily trains. Fortunately, I was wrong. Around 1967, my dad took us to the BIR stock car races at the Birmingham Fairgrounds on Friday nights, and it was great fun. One evening, either in early fall or spring, we crossed the 1st Avenue North viaduct and I looked over toward Terminal Station and spotted what I thought was a green tank car with some kind of vapor coming off of it. A few moments later we'd pulled into the station and there on the tracks before me was the green goddess herself, No. 4501! The next day we watched her steam through Irondale. Dad shot film of the event, and it would have been one of his most spectacular movies, but alas, the camera had developed a defect, and the film was not aligned with the lens, so all we got of 4501 was a green flash! Nevertheless, failed film and all, I think it was then that my love for trains went into overdrive.

Years later, with the Southern steam shop being so close to our house, we could hear the engines chugging in the yards, we began to pay closer attention to their movements and in time would begin to chase the many excursion trains. We also missed some, as we did not have any inside contacts to alert us of special moves, but we kept Kodak in business for at least 10 years, and maybe longer. Chasing trains was always an adventure — the thrill of the chase tempered by a realization that you had to try to drive safely but somehow beat the train to the next photo location — and getting those rare perfect slides, movies, or photographs as well as occasional videos. There was many a train chase locally, to Gadsden, and even to Chattanooga. As I moved around in my graduate years, I was able to chase steam specials in Texas and Ohio. These were road trips with purpose, and a lot of times sideline adventures would follow. When in time I had my own family, we continued with our own chases, all the way up to that sad day in December 1994, when the original steam program was killed.

But nothing is quite as satisfying as being on one of the excursions. Since most of the time these were more costly than my family's or my own budget would allow, I chased more frequently than I rode. But I did have some amazing rides, including on the Durango & Silverton Railroad, a not to be missed ride if you are in the area, and trips behind the Southern Railway dream team of 4501, and 2716, and later Frisco 1522 and Norfolk and Western Railway 611, perhaps my all-time favorite locomotive.

Today with steam elsewhere, I look for special moves to photograph, such as the many heritage units, or the occasional executive train. And while I may not be one of the railroad specialists in Mid-South Chapter, I find the goal of helping to preserve this "moving" part of American history an important goal and am happy to be a small part of it.

Steam Excursion Photos by Tim Smith.

HEART OF DIXIE RAILROAD MUSEUM

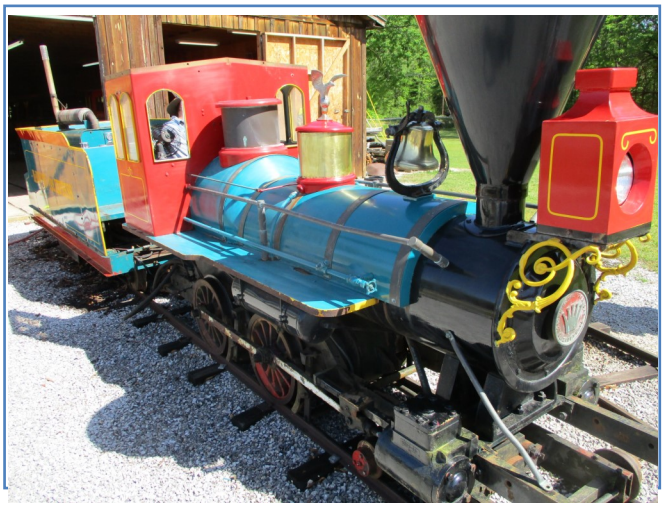
OFFICIAL RAILROAD MUSEUM FOR THE STATE OF ALABAMA

The month of April provided good ridership numbers for our Easter Eggpress. Also, a new event in conjunction with Calera Parks and Recreation, called Youth Sports Express, was held the last Saturday of April. The first Saturday in May will see the return of our Mother's Day Special with Vendor Festival. The remaining Saturdays of May will offer regular train rides.

Additional surplus railroad books from our library have been added to the sales cart in the gift shop. Many of these books are no longer in print. Stop in and see what the gift shop has to offer. Shelby & Southern No. 3 has been down for repairs during the winter. We are hoping to have her back operational within the next month. Read the post below for a new addition to the S&S fleet! It is an exciting addition, as we can now represent the history of two local zoo park trains!

Current Restoration Projects

- 1926 L&N RR Tavern/Lounge Car *"Alabama Club"* interior trim being installed to allow for final interior painting.
- 1952 CB&Q RR dining car *"Silver Cuisine" roof* repairs nearing completion. Interior work still ongoing.
- 1910 Frisco coach recently had a generator hung underneath. Also plans for wheel work.
- S&S No. 3 still down for repairs but volunteers working hard to return her to operation soon.



Upcoming 2022 Train Rides

Train Rides Every Saturday

Now - December

- *C&S Departure Times:* 10:00 am & 1:00 pm
- Regular Ticket Price $15 for adult or child
- S&S Train departs every 20 minutes
- S&S ticket price $3.50; or All Day pass $10
- Special events may alter price, dates & times

Father's Day Limited

June 18

- *C&S Departure Times:* 10:00 am, 1:00 & 3:00 pm
- C&S Ticket Price $18 adult or child
- Father only pays $5 with a paying adult
- S&S Train departs every 20 minutes
- Peter Cottontail & family activities

Stars & Stripes and Wild West Day

July Events

- *C&S Departure Times:* 10:00 am & 1:00 pm
- Visit web site for details for each event
- S&S Train departs every 20 minutes

Visit ***www.hodrrm.org*** to learn more about our events.

Piece of Montgomery Zoo Train History

Purchased by the Montgomery Zoo in 1989, Locomotive No. 102, nicknamed the McMonty was the last locomotive produced by Crown Metal Products. This locomotive operated into the early 2000s at the zoo. Museum volunteers have worked for many years to bring this locomotive to Calera where she could join a sister Crown Locomotive No. 3 that once served the Birmingham Zoo. Unlike No. 3 which is steam fired, McMonty operated with a John Deer diesel motor that powered a hydraulic drive system. Major work will be required to make her operational again, but we hope to one day operate her along side No. 3. Many of us may remember riding the train at one of these zoos. Good chance it was one of these Crowns pulling it.

ALABAMA RAILROAD HISTORY

Andrew "Andy" Jackson Beard

(Reprinted with Permission to Matthew Stitt from Bham Wiki)

Andy Beard (1849-1921) was a farmer, mechanic, and inventor of the automatic railcar coupler, a type still used today. Mr. Beard preferred to be called "Andy."

Beard was born into slavery in Woodlawn, Alabama, on a plantation owned by the Beards, from whom the slaves took their surname. He was emancipated at age 14, but remained on the farm until he was about 18. Though illiterate, his mechanical skills and inventiveness became known through his work as a carpenter, blacksmith and railroad worker.

Through his labors as a sharecropper, Beard acquired an 80-acre farm near Center Point, where he and his wife, Edie, raised three sons. He built a small building which served as church and school for the community.

While working the farm, Beard built a flour mill. He received his first patent for a plow, in 1881, and sold the rights for $4,000 in 1884. He patented an improved plow design in 1887 and sold the patent for $5,200. He invested in a real-estate business and moved to Woodlawn, then to nearby East Lake, and later returned to Mount Pinson.

In the 1890s, Beard took a job with the Alabama and Chattanooga Railroad, part of the Georgia Pacific system. With the help of nationally respected Birmingham Mayor Melville "Mel" Drennen, he received a patent for an improved rotary engine with a better system for balancing internal pressure. Frequent accidents involving car couplings cost the limbs of many fellow railroad workers. Beard created a safer means of automating the coupling process.

Several years later, he submitted a patent for a "Jenny Coupler", eliminating the need for a worker to stand between uncoupled cars. He built a wooden model, which was displayed at a convention of the Master Car Builders' Association in Atlantic City, New Jersey. Based on his design, he was made an honorary member of the association.

Beard's railcar coupler improvement included two horizontal jaws, which automatically locked together. His improved coupler was the first automatic coupler widely used in the U.S. In 1887, the same year Beard's first improvement of the automatic coupler was patented, Congress passed the Federal Safety Appliance Act, which made it illegal to operate any railroad car without automatic couplers.

Beard's attempts to perfect and market his inventions were supported by Birmingham investors. His patents for couplings were approved between 1897 and 1905. He founded the Beard Automatic Coupler Company and later sold the rights to the coupler for $50,000. His royalties made Beard the first African American millionaire in Jefferson County, Alabama. He invested in real estate and a jitney (taxi) service.

Beard suffered business failures and declining health. In his later years, virtually paralyzed, he lived with his foster daughter. He was admitted to the Jefferson County Alms House soon before he died. His remains lie in an unmarked grave in Greenwood Cemetery.

Beard was inducted into the National Inventors Hall of Fame in Akron, Ohio, in 2006 for his improvements to the railcar coupler. Railroad Car Coupling, US Patent 594059, AJ Beard, Nov 23, 1897: Jenny-Coupler-and-Love-Sharpener.jpg (933×741) (thehub.news)

A REGIONAL DAYTRIP ON YOUR OWN

The Fairfax Depot – Valley, Alabama

(From the *Encyclopedia of Alabama*)

Fairfax Depot. Photo by Jimmy Emerson

The train depot at the mill town of Fairfax, in southeast Chambers County, was built in 1917. The depot is one of two remaining from the Chattahoochee Valley Railway. The interior features wall murals of scenes from when trains traveled through Chattahoochee Valley.

Fairfax is now part of Valley, Alabama, and the city is converting the station into a museum.
The Fairfax Historic District was listed on the National Register of Historic Places in 1999. The district is centered around a textile mill and the surrounding buildings, the majority of which are mill worker cottages. Other buildings include commercial, civic, recreational, and civic structures. At one time, four mills were located along the Chattahoochee River in the nearby area.

Langley Covered Bridge, Valley, Alabama

THOSE INCREDIBLE SNOW PLOWS!

Text and Photos by Ken Boyd

Colorado & Southern Railway No. 99201, a steam-operated rotary snow plow with oil tender. Built by the Cooke Locomotive and Machine Works in 1899 and typically pushed by a 2-8-0 steam locomotive. Displayed at the Colorado Railroad Museum.

One thing readers of the *THE MID-SOUTH FLYER* have in common is a fascination with unusual and exotic railroading equipment and machinery. A classic, yet little-understood example is the incredible snow plow!

While most readers of *THE MID-SOUTH FLYER* have never witnessed a snow plow in action on the rails through this part of the country, and probably never will, these massive machines are quite literally awe-inspiring to behold even just sitting still in a railyard.

In more northernly and higher-altitude parts of this country and in many mountainous regions around the world, heavy snowfall is a reality of rail travel. The removal of snow and ice from the tracks is vital if year-round operations are maintained. In some areas, the buildup of snow can literally total tens of feet and has to be removed just to find the tracks and to prevent trains from getting stuck or buried or even derailing.

Along some mountainous routes with especially immense snowfall totals, such as the Sierras and the Alps, the railroads have constructed tunnels to cover the tracks and keep the lines open below the snow drifts when no amount of track clearing would be enough. But in most snowy areas, the tracks are cleared routinely throughout the winter season and especially after major snow storm events.

In the early days, this difficult job was, of course, done by hand. Crews of men were sent out to shovel and scrape the

Newfoundland Railway No. 3467, a 42-inch narrow-gauge wedge snow plow displayed with Newfoundland Railway locomotive No. 934 (EMD 567 diesel, 1,200 hp (890 kW), built 1956). Displayed at the Port aux Basques Railway Heritage Center.

tracks clean. This was a arduous, grueling, costly and time-consuming job. At times, it was literally an impossible task, and trains were delayed. In the United States, as the railroads moved west into the Rockies and Sierras, the snow was much deeper than experienced in the East, and it could remain on the rails for extended period of time. Something better than the shovel and pick had to be devised.

Canadian Pacific Railway No. 400850, a 20-ton wedge snow plow. Built in 1923 in the Montreal Angus Shops. Displayed at the Henry Ford Museum.

At first, blades or plows were fitted to the front of early locomotives where the traditional cowcatcher or pilot had been attached. In fact, many modern locomotives are still equipped with v-shaped wedges to deflect objects from the tracks. These wedges are not very effective for removing significant amounts of snow.

The first equipment designed specifically to help with snow removal was the *Bucker* or *Wedge Snow* Plow. The wedge plow forces snow off the rails and to the sides of the tracks. The first wedge plows were made from wood, but later these plows were constructed using reinforced iron or steel. Wedge plows are still in use today. The basic design is simple, but significantly, they

Many historic wedge snow plows are now displayed in deteriorating condition and awaiting future restoration.

must be heavy to push through snow and stay on the tracks. As one might imagine, a wedge requires a tremendous amount of force to move forward through heavy snow, and the power requirement is compounded by the compression of the snow as it is pushed.

The wedge is not self-propelled and must be pushed with a locomotive or in some cases with more than one locomotive. In the mid-1800s, a wedge might require six to nine wood-burning locomotives! This approach to track clearing works reasonably well with fresh powder snow, but with thicker and frozen snow known as "Sierra Cement," locomotives pushing the wedge sometimes begin to derail. Rail traffic could be delayed.

At smaller railroads with limited capital budgets, a wedge might simply be fitted to a weighted, existing railcar. A key to effective operation is, again, the weight to stay on the tracks and clear the rails of snow and ice. Weight is especially crucial in clearing icy situations and at crossings.

A popular advancement in wedge plow design came from the Russell Snow Plow Company in the years after World War I. This plow incorporated adjustable wings for better track clearing. Some of these plows are thought to still be in use today.

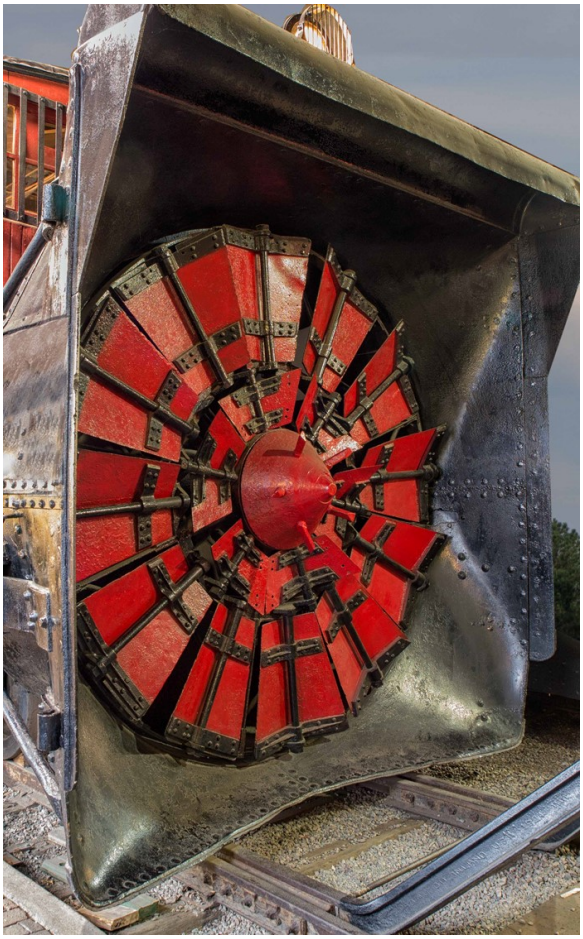
Oh yes, one additional and important note – to work effectively at clearing the tracks, the wedge needs to be pushed down the tracks at a high rate of speed. Speeds up to 50 miles per hour may be necessary to assure that the snow is thrown well away from the rails!

This speed requirement issue is one of the primary reasons that wedge plows are not used as much today. Taking this one step further, a spotter was often required to warn the engine crew about potential obstacles and hazards ahead. The spotter was positioned out in a precarious position near the front of the wedge with the train running at speed. Clearly, operating a wedge plow was a dangerous proposition and, together with the fact that even today multiple locomotives are needed, the risks and costs are unpopular with railroad workers and management.

By the 1850s, railroads were looking for a better snow plow design. The first rotary snow plow model was conceived in concept by J. W. Elliot, a dentist in Toronto, in the late 1860s. Several additional but unsuccessful prototypes were considered over the next 10 to 15 years but not adopted by the railroads. These included the *Hawley Plow*, *Marshall Plow*, *Blake Machine Plow* and the *Kryger Steam Snow Shovel*.

Canadian National No. 3462, a 42-inch narrow-gauge wedge snow plow that was built in 1953 and currently displayed with Canadian National No. 902 locomotive (EMD 567 diesel, 1,200 hp (890 kW), built 1953). This wedge plow (Newfoundland spelling for plough) was crucial in keeping the tracks clear for twice daily "oil trains" from Lewisporte to the strategic Gander International Airport during WW II and for several decades of transcontinental flights that required refueling at the airport.

Interesting Italian wedge plow attached to early electric locomotive, No. FS 806 211, for weight and shown pushed by a steam locomotive. This plow was used to clear the winding mountain railways through the Italian Alps. Displayed at the Italian steam shops, Deposito Rotabili Storici di Pistoia.



Above **– Long Island Railroad Rotary Snow Plow No. 193. This plow was built in 1898 and is a rare rotary plow ordered by an eastern railroad. Only a few rotaries were ordered by railroads in the northeast. Displayed in the Delaware and Lackawanna yard at Scranton Steamtown National Historic Site.**

Left **– Northern Pacific Railway Rotary Snowplow No. 2, built in 1887 by the Cooke Locomotive Works. Displayed indoors at the Duluth Lake Superior Railroad Museum.**

Union Pacific Diesel Rotary Snow Plow No. 900081. This plow was built in the Omaha Shops in 1966 and is said to be the largest and heaviest rotary snowplow ever built. It is over 56 feet long, 17 feet high and weighs 376,400 pounds. The rotary cutting wheel is 12 feet in diameter and in operation it turned at up to 150 revolutions per minute. The plow is powered by a 3,000-horsepower diesel engine. It was pushed forward by up to four locomotives at four to six miles per hour. The plow retired in 1994 and is displayed at the St. Louis National Museum of Transportation.

Denver & Rio Grande Western Railroad Flanger OC No. 2. Flangers like this were sometimes pulled behind snow plows to clear snow and ice from between the rails. They were also pulled separately by two steam locomotives without a lead snow plow. It was built in 1885 and displayed at the Colorado Railroad Museum.

Burlington Northern Jordan Spreader No. 973127. Displayed at the Green Bay National Railroad Museum.

It would be about 1883 before a successful rotary snow plow was demonstrated. This plow was designed by Orange Jull and built in a machine shop owned by the Leslie brothers. Early models were known as the *Jull Plow*. This plow was tested in the winter of 1883 / 1884. The Leslie brothers then purchased the rights to the design and went into business manufacturing rotary snow plows.

The plow had one large circular fan blade that rotated across the tracks. These steam-powered and fan-type plows were powerful and could clear more snow and deeper frozen snow and ice and do so at a slower rate of speed than any wedge plow. They did not need a spotter.

The Leslie brothers improved on the initial design to use two fans spinning in opposite directions. One fan sucked the snow into the blades, and the second fan exhausted the snow to the side of the tracks. This became the famous *Leslie Snow Plow*.

With the larger railroads, the Leslie plow soon became the preferred way to clear heavy snow from the rails. By 1903, the Leslie brothers had sold 64 snow plows. American Locomotive Company (ALCo) purchased the rights to the design and had sold 71 steam-powered rotary plows by 1937. Lima-Hamilton built four additional steam-powered plows in the later 1940s. In total, 146 Leslie snow plows were built. At least 41 survive today. In 2021, the Illinois Railway Museum completed restoration of a 1949 Union Pacific steam-powered rotary snow plow.

The Jull / Leslie rotary snow plows used a steam engine to spin the fan(s), but like the wedge plows, they still were not self-propelled and required a separate steam locomotive(s) or in more recent decades a diesel locomotive to push them down the tracks. Because they could operate at a slower speed than a wedge snow plow, they did not need a team of locomotives to get them up to a fast-track speed. One or two locomotives was adequate to push most rotary plows.

Although the railroads adopted the rotary snow plow, this machine required a minimum of two crews for operation — one crew inside the snow plow to manage the steam engine and fan(s) and a second crew to man and drive the locomotive. Factor in that rotary plows were costly to purchase and maintain, and these amazing but complex machines were an expensive proposition even for the larger railroads, limiting their application to only dramatic snow events.

Even when steam engines were replaced by diesel engines, rotary plows remained expensive to operate and were only used when absolutely necessary. They proved so costly to operate regularly that a more economical replacement was and is still needed.

In the 1890s, Oswald Jordan began developing the *Jordan Spreader*. This remarkable machine could be applied to remove snow in the winter and spread ballast for rail maintenance at warmer times of the year. It can be thought of as a snow plow / spreader / ditcher.

A Jordan Spreader features a wedged front with compressed -air controlled flaps on the sides. For removing snow, the flaps are extended as much as 12 feet to the sides with the air compressor. Much like the wedge, the spreader plows snow to the sides as it is pushed down the rails. When not needed for snow removal, it can be reset, adjusted and used for track maintenance.

Another track-clearing issue still needed to be addressed. The wedge, rotary and spreader effectively clear snow and ice down to only the top of the rail. If the track flange is iced up below the top of the rail, wheels can still be derailed. To address this issue, another interesting refinement in snow removal equipment is known as the *Railroad Flanger*. The flanger is designed to remove snow and ice from below the level of the rails, where the locomotive and railcar wheel must fit. Flanger blades can be lowered down below the top of the rails and inside and between the rails to clear a path for wheels to turn. Snow and ice are plowed to both sides of the tracks. Early flangers used a single V-shaped blade, but later designs provided separate blades for each rail to achieve a better fit.

Flangers are often used with snow plows and some plows include flanger blades within the plow. As the flanger moves down the tracks, the operator raises and lowers the blades when the machine encounters switches, street crossings and other obstacles that might damage the blades or be damaged by the blades.

Today, railroads continue to look for improvements in snow removal equipment design. In addition to wedges, rotaries, ballast spreaders and flangers, more recent designs have included the *Cyclone Blower Snow Plow* and a snow melting machine. Neither of these have proven successful. Electric-motor rotary snow plows have been developed and used to fight snow with some success. Bulldozers and tractor loaders have been used but can only handle a limited volume of snow.

For really heavy and relentless snow, nothing has been developed to take the place of a rotary snow plow. Today, only a few rotaries are still in service by the railroads. Union Pacific maintains three diesel-powered plows for clearing heavy snow. BNSF has about four that were originally built for Northern Pacific Railroad and Great Northern Railway but have been rebuilt and modernized.

Canadian National Railway maintains a total of about 13 rotary plows, 190 flangers, 46 Jordan Spreaders and 260 winged plows with drop-nose or flanger attachments. Canadian Pacific Railway also has active rotary snow plows, especially in British Columbia.

Here in the Mid-South, railfans may never see a plow in action, but many have seen them in operation on TV, in movies and in online videos. Static displays of historic equipment can be examined at anytime of year at larger railroad museums and even in some old almost-abandoned railyards around the country.

SOURCES:

Boyd, Ken, *Historic North American Locomotives*, Kalmbach Media (Trains), Milwaukee, Wisconsin, 2018.

Boyd, Ken, *The Art of the Locomotive*, Voyageur Press, The Quartos Group, Minneapolis, Minnesota, 2014.

https://nationalrrmuseum.org/

https://www.american-rails.com/plows.html

https://en.wikipedia.org/wiki/Wedge_plow

https://en.wikipedia.org/wiki/Rotary_snowplow

https://en.wikipedia.org/wiki/Flanger_(railroad)

http://hazegray.org

http://arema.org

THE MID-SOUTH FLYER

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