

Newsletter of the Piedmont Garden Railway Society

February 2020 Editor: Scott Williams



Class Ps-4 4-6-2 Pacific steam locomotive (which operated only between Washington and Bristol) Industrial designer: Otto Kuhler.

Charging in to the New Year!

Greetings PGRS Club Members.

Happy February to you all. Our Board Members are busily planning the next **Trainfest meetup and sale.** planned for a Saturday in late March [Date: TBD] at the Grace

Lutheran Church fellowship room. <u>We will send all club members an email as soon as</u> the date is confirmed.

The Board members of the PGRS are busy discussing new exciting ideas to discuss this next get-together and already have several good topics to discuss.

As always though, we want to hear from <u>YOU</u> about topics <u>YOU</u> would like to discuss the next time we meet up.

<u>SO</u>, if you have <u>ANY</u> topics you think we have overlooked in the past or facets of our hobby you would like to discuss at the TRAINFEST please respond to this email or to our club President Bill Hunteman: <u>whunteman@gmail.com</u>

Ask us any question at all. Whether it's about sound systems for your trains, how to paint and weather your models for life-like realism, where to buy products for our hobby, should you convert your trains to battery power, how should I go about setting up a basic layout in my backyard, what plants should I use in my garden train layout, what beer pair best with Garden Train operations [Lagers, IPAs, Stouts or Porters]...No question that has crossed your mind is too trivial for our club to discuss.

ALSO, the **<u>Brag n' Drag</u>**, showing off our models last Trainfest <u>was a big hit</u> so please, bring any model you would like to share with us this spring.

We plan to have the club display track set up there which will give us all a chance to demonstrate our models.



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Easley CRMHA & WNC Train Shows and ECLSTS:

Easley SC: February 7th from 1:00 PM to 7:00 PM, and Saturday, February 8th from 10:00 AM to 4:00 PM. Impact Center at the Rock Springs Church, 207 Rock Springs Road, Easley, SC 29642

WNC Train Show: Friday, February 28, Noon to 7 PM, and Saturday, February 29, 9 AM to 5 PM. WNC Ag Center.

East Coast Large Scale Train Show: Friday, March 13th from 9am to 5pm and Saturday, March 14th from 9am to 4pm. Timonium Fairgrounds (2200 York Road, Timonium, MD 21093.

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How do you move a 140-ton locomotive? If you're the Smithsonian, very carefully.

Washington Post article By John Kelly



Old No. 1401, a steam locomotive from Southern Railway, is moved into place at the National Museum of History and Technology in November 1961. Getting it there was a challenge. (Smithsonian Institution Archives)

Jan. 18, 2020 at 3:13 p.m. EST

Old No. 1401, as the locomotive is known, did not roll across tracks laid on the Mall. That might have been easier. Nor was the museum built around the engine, as Answer Man once believed. (He may have confused it with the denouement of "Mike Mulligan and His Steam Shovel.")

In fact, it was only the eastern windows of the museum building that were left unfinished to allow the massive engine to be installed. Placing a locomotive on the ground floor of a museum is more challenging than arranging, say, Dorothy's ruby slippers on a shelf.



The 1926 locomotive was moved on a trailer from the Navy Yard. The crew had to be careful not to crush any of the city's infrastructure with the 140-ton locomotive. (Smithsonian Institution Archives)

The locomotive — known as a Heavy Pacific type, with three driving wheels on each side — was built in 1926 in Richmond, by the American Locomotive Co. It spent most of its career on Southern Railway's high-speed run between Washington and Atlanta. The train was retired in 1954 after the railway converted to diesels.

Smithsonian curator John H. White had long desired a representative of this mighty class of locomotive. The engine was donated by Southern and delivered to a truck-painting firm in Alexandria, Va., called Shelton Inc. There it was steam-cleaned and painted in Southern's green-and-gold livery. The locomotive was towed — on rails — to the Naval Weapons Plant on M Street SE.

"But on rails she had nothing more formidable to face than weather, mechanical failure and cows on the tracks," The Post wrote in a lead-up to the locomotive's installation. "Now she faces the District Highway Department and its problems."



The steam engine was wrestled into the museum through on opening on the building's east end, then rotated on a temporary turntable before being lowered into place. (Smithsonian Institution Archives)

No. 1401 sat for longer than anyone expected.

"We've been trying for two months to get a permit to haul her over District streets," said Aubrey M. Graves of the Merchants Transfer Co., the company overseeing the delivery. "Something keeps getting in the way."

Basically, it was physics that was in the way. The locomotive weighs 140 tons and is 92 feet long. District officials were afraid of what it might do to the streets it traveled on. It only had to travel a little more than a mile, but besides the asphalt and concrete of the roadbed itself there were underground water pipes, electrical cables, gas lines, steam ducts, tunnels, conduits and grates that could be crushed under the combined 178-ton weight of the engine and its trailer.

Every time a route from the plant to the museum was proposed, a utility or agency objected, fearful of the behemoth's potential damage.

To better distribute the weight, the trailer rig was redesigned — from seven axles to nine — and a route was finally chosen: north on Sixth Street SW to Independence Avenue, left on Independence to Seventh Street SW, right on

Seventh to Pennsylvania Avenue NW, left on Pennsylvania to 12th Street NW and then left on 12th Street to the museum.

No. 1401 began its final journey on the evening of Nov. 25, 1961. The parade crept along at a snail's pace, with workers putting down large metal plates to bridge the utilities.

Curator White later described the process: "All had gone well to this point but in coming up over the curb onto the museum grounds one of the rear axles of the trailer snapped. The locomotive rocked back and forth. For an instant I thought it might go over on its side, but it did not. We managed to jockey the rig off of the street. There it sat until the next day when repairs could be made."

Once the rig was fixed, the locomotive was borne to the eastern wall of the museum, then taken off the rig and placed on a temporary turntable. The turntable was rotated to line the engine up with tracks in the exhibit and the locomotive lowered. The topmost valve had cleared the window opening by an inch.

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The 8 Most Scenic Train Rides in America:

https://www.greatamericancountry.com/places/travel/the-8-most-scenic-train-rides-inamerica-pictures



G Scale Graphics:

A great website for converting Large Scale Trains to battery power.

https://www.gscalegraphics.net/#/

The link to MyLoco Sound:

http://www.mylocosound.com/

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MEMBER PHOTOS:

Marge Monahan sent me these photos: "Hi Scott, Jim Hendley donated this to PGRS for the display & Fran made it work."







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Send any idea, project, photo, something you found surfing on the Internet, etc., no matter how great or small you may think them to be to your newsletter editor. We all love trains so...if it's about trains, and you've got it on your computer, chances are you won't be the only person who might enjoy viewing it.

Send your photos and articles to: <u>srwavl@outlook.com</u>

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Trivia Question: When did American Rail Transportation first incorporate 'Streamline' body design?

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Membership:

Please consider sharing this newsletter with friends who might be interested and if they wish to become members ask them to contact our PGRS Secretary/Treasurer for a membership form.

Don Watson 125 Mistletoe Trail Hendersonville, NC 28791

docwatson@morrisbb.net

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Train Lovers Luncheons:

The current luncheons are:

Columbus Area: Meets every Third Thursday of every month at Rural Seed, 322 E Mills St. In Columbus, NC @ 1:00 PM. Contact Pete Gendron: 954-812-6270

Greater Greenville Area: Meeting the first Tuesday of every month - at 11:30. Meeting at the A&P Restaurant on Rte 14 in Greer. Contact Ken Majchrzak at: kemajchrzak@gmail.com or call Ken at: 864-385-4951

Meeting the 4th Thursday each month at 11:30 AM at <u>POST 25 restaurant</u> on Rte. 25 in Skyland, south of Asheville along the Hendersonville Highway. Contact Tim Wagner at: 828-712-9671 for more info.

Charlotte luncheons are meeting at Bubba's BBQ 4400 Sunset Rd. (exit 16, rte. I-77). at 11:30am on the third Tuesday of each month.

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** A reminder from Terry Ketcham that PGRS club members are invited to come by the Apple Valley Model Railroad Club in Hendersonville <u>the last Saturday of each month</u> to run their

large scale trains on the club layout from 10 - 2 pm. <u>Track power, battery and live steam are all</u> welcomed to run on their beautiful layout.

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Trivia Answer: The earliest known streamlined rail equipment in the United States were McKeen rail motorcars built for Union Pacific and Southern Pacific between 1905 and 1917.



Most of them sported a pointed "wind splitter" front, a rounded rear, and round porthole style windows in a style that was as much nautically as aerodynamically inspired. The McKeen cars were unsuccessful because internal combustion drive technology for that application was completely unreliable at the time and the lightweight frames dictated by their limited power tended to break. Streamlined rail motorcars would appear again in the early 1930s after the internal combustion-electric propulsion technology developed by General Electric and promoted by the Electro-Motive Company became the accepted technology for rail motorcars in the 1920s.

Streetcar builders sought to build electric cars with improved speed for interurban lines through the 1920s. In 1931 the car builder J.G. Brill introduced the Bullet, a lightweight, wind-tunnel designed car with a pointed front that could run either singly or in multiple-unit sets, capable of speeds over 90 miles per hour. Depression-era economics cut into their sales but the design was highly successful in service, lasting into the 1980s.



The Pullman Company first experimented with lightweight self-propelled railcars in co-operation with the Ford Motor Company, concurrent with Ford's development of their Trimotor aircraft, in 1925. In 1931 they enlisted the services of the Trimotor design contributor William Bushnell Stout to apply airplane fuselage design concepts to railcars. The result was the *Railplane* (not the *Bennie Railplane*), a streamlined self-propelled railcar with a tapered cross-section, lightweight tubular aluminum space frame and duralumin skin.



During testing with the Gulf, Mobile and Northern Railroad in 1932, it reportedly reached 90 miles per hour. Union Pacific had been seeking improvements to self-propelled railcars based

on European design ideas and the performance of the *Railplane* encouraged them to redouble their efforts in partnership with Pullman-Standard.^[3]

In 1931 the Budd Company reached an agreement with the French tire company Michelin to produce pneumatic-tired rail motorcars in the US, as an improvement on the heavy, underpowered, and shimmy-prone "doodlebugs" that ran on American tracks. In that endeavor, Budd would produce lightweight rail equipment utilizing unibody construction and the high strength alloy stainless steel, enabled by shot welding, a breakthrough in electrical welding technique. The venture produced articulated power-trailer car sets with streamlined styling, which left the Budd Company just a (much) more powerful engine away from producing a history-making streamlined trainset.

The Great Depression caused catastrophic loss of business for the rail industry as a whole and for manufacturers of motorized railcars whose primary markets, branch line services, were among the first to be cut. The interests of lightweight equipment manufacturers and rail operators converged in the development of a new generation of lightweight, high speed, internal combustion-electric powered streamlined trainsets for mainline service.^[4] The Burlington and Union Pacific railroads sought to increase the efficiency of their passenger service and looked to the lightweight, petroleum-powered technology offered by Budd and Pullman-Standard for their solutions. Union Pacific's project was named the *M-10000* (named *The Streamliner* and later *City of Salina* in revenue service 1935–41) and Burlington's was named the *Burlington Zephyr*. Both were articulated designs and went into service as three car (including power car) sets. The prime mover for the *Zephyr*'s propulsion was a new 600 hp diesel engine and for the *M-10000* a 600 hp spark-ignition engine running on "petroleum distillate", a fuel similar to kerosene. Both engines were produced by Winton Engine Corporation, a subsidiary of General Motors.

Both trainsets were star attractions at the 1934 World's Fair ("A Century of Progress") in Chicago, Illinois. The *M-10000* was officially named *The Streamliner* during its demonstration period, the original use of the term with respect to trains. Its publicity tour from February to May 1934 attracted over a million visitors and attention in national media as the herald of a new era in rail transportation.





On 26 May 1934, the *Zephyr* made a record-breaking "Dawn to Dusk" run from Denver, Colorado to Chicago for its grand entry as a Century of Progress exhibit. The *Zephyr* covered the distance in 13 hours, reaching a top speed of 112.5 mph (181.1 km/h) and running an average speed of 77.6 mph (124.9 km/h). The fuel for the run cost US\$14.64 (at 4¢ per U.S. gallon). The event was covered live on radio and drew large, cheering crowds as the "silver streak" zipped by. Adding to the sensation of the *Zephyr* were the striking appearance of its fluted stainless steel bodywork, and its raked, rounded, aerodynamic front end that symbolized its modernity and would echo in steam locomotive styling in the following years.

The Zephyr, after its Worlds Fair display and a nationwide demonstration tour, entered revenue service between Kansas City Missouri and Lincoln Nebraska on 11 November 1934. A total of nine Zephyr trainsets were built for Burlington between 1934 and 1939, serving various midwestern routes as named trains. The Burlington Zephyr was renamed the Pioneer Zephyr in honor of its status as first of the fleet. Two Twin Cities Zephyrs of the same three car configuration entered service on the link between Chicago and the Twin Cities in April 1935. Larger trainsets were built and put into service over longer routes, using Winton's more powerful engines, twin engine power units, and eventually booster power units to meet the additional power requirements. The four car Mark Twain Zephyr went into service on the Saint Louis Missouri - Burlington Iowa run in October 1935. Two partially-articulated six car sets entered Denver Zephyr service between Chicago and Denver in May 1936. They were replaced by a pair of partially-articulated ten car sets in November 1936, in turn replacing the original Twin Cities Zephyr sets which then went to other routes run by Burlington. The last of the classic Zephyrs built was for the Kansas City – Saint Louis General Pershing Zephyr run, entering service in June 1939 with GM's newest 1000 hp engine and conventional coupling. The original Zephyr trainsets remained in service well into the postwar era, with the last six car set retiring as the Nebraska Zephyr in 1968.

M-10000 went into service between Kansas City, MO and Salina, KS, on 31 January 1935, as *The Streamliner*, later becoming the *City of Salina* under Union Pacific's naming convention for its expanding fleet of diesel-powered streamlined trainsets. The *M-10000* served that route as a three car set until it was retired in 1941 then scrapped in 1942; it provided Duralumin recycled for military aircraft.^[5]

Union Pacific commissioned five more trainsets evolved from the initial *M-10000* design and inaugurated high speed service out of Chicago with its *City of Portland* (June 1935), *Los Angeles* (May 1936), *San Francisco* (June 1936), and *Denver* (June 1936) streamliners. The *M-10001* set consisted of a single power unit with a 1200 hp Winton diesel engine pulling six tapered low profile cars in the form of the original *M-10000* set. The *M-10002* set consisted of a 1200+900 hp cab/booster locomotive pulling nine cars of the same form. The *San Francisco* and *Denver* sets were powered by automotive-styled cab/booster locomotive sets with 1200 hp engines. The two *City of Denver* sets started service two cars shorter than the *M-10002* and *M-10004* sets, with roomier and heavier straight-sided cars. Initial service to the west coast consisted of five runs monthly for each route. Daily overnight service was maintained on the Chicago – Denver run by assigning three locomotive sets for two trains, then augmenting that stable with locomotive equipment pulled from other runs.

Despite the breakthrough schedule times of the long distance M-1000x "City" trains the service record of the fleet reflected the limitations of their technology in meeting the demands of long distance and higher capacity service. The *M-10001* served for 32 months as *City of Portland* until it was replaced, re-entered service on the Portland – Seattle run, then was pulled from service for the last time in June 1939. The *M-10002* spent 19 months as *City of Los Angeles*, 39 months as *City of Portland*, ten months out of service starting in July 1941, then was retired for good in March 1943 after serving on the Portland – Seattle run. After 18 months of service as *City of San Francisco M-10004* spent six months being refurbished, then served as a second unit on the *Los Angeles* run from July 1938 until it was pulled from service in March 1939. The *M-10001* and *M-10004* power units were converted to additional boosters for the *City of Denver* trains and their car sets became spare equipment. The two *City of Denver* trainsets, after cannibalizing power from *M-10001* and *M-10004*, stayed in service until 1953.

The GG1 electric locomotives brought streamlined styling to the Pennsylvania Railroad's fleet of electric locomotives in late 1934.



Boston and Maine's *Flying Yankee*, identical to the original *Zephyr*, entered service between Boston and Portland Maine on 1 April 1935.



The Gulf, Mobile and Northern Railroad *Rebel* trainsets were similar to the *Zephyr* in form, but not articulated. Designed by Otto Kuhler, the ALCO powered diesel-electrics built by American Car and Foundry Company were placed into service 10 July 1935.



The *Illinois Central 121* trainset was the first of the *Green Diamond* streamliners running between Chicago and St Louis. It was a five-unit (including power car) articulated trainset for day service. The Pullman-built set had the same power format and 1200 hp Winton diesel engine as *M-10001*, with some style aspects that resembled the later M1000x trainsets. It ran from May 1936 until it was replaced in 1947. After an overhaul it was placed on the Jackson Mississippi – New Orleans run until it was retired and scrapped in 1950.



The visual styling of the new trainsets made the existing fleets of locomotives and railcars suddenly look old hat. Rail lines soon responded by adding streamlined shrouding and varying degrees of mechanical improvement to older locomotives, and re-styling heavyweight cars. The first American steam locomotive to receive that treatment was one of the New York Central Railroad's J-1 Hudson class locomotives built in 1930, which was re-introduced with streamlined shrouding and named the *Commodore Vanderbilt* in December 1934.^[6] The *Vanderbilt* styling was a one-off design by Carl Kantola.



NYC's next venture in streamline styling was the full-length exterior and interior design of their *Mercury* trainsets by Henry Dreyfuss in 1936. Raymond Loewy designed art-deco shrouding with a bullet-front scheme for Pennsylvania Railroad's K4s locomotives in 1936.



In 1937, variations of the bullet-front design were used by Otto Kuehler on a 4-6-2 locomotive for B&O's *Royal Blue*,



and Dreyfuss on NYC's new J-3a Hudsons for the *Twentieth Century Limited* and other express trains.



While streamlining on steam locomotives was more about marketing than performance, newly designed locomotives with state-of-the-art steam technology became very fast. The Milwaukee Road class A Atlantics, purpose-built to compete with the *Twin Cities Zephyr* in 1935, were the first "steamliners" equipped to back up their styled claim to extra speed.



During a run by locomotive #2 with a dynamometer car on May 15, 1935, a top speed of 112.5 mph (181.1 km/h) was recorded. This was the fastest authenticated speed reached by a steam locomotive at the time, making #2 the rail speed record holder for steam and the first steam locomotive to top 110 mph (177 km/h). That record lasted until a German DRG Class 05 locomotive exceeded it the following year.



In 1937 Milwaukee introduced the class F7 Hudsons on the *Twin Cities Hiawatha* run, which were known to cruise above 110 mph (177 km/h) and said to exceed 120 mph (193 km/h) on occasion.^[7] The Milwaukee Road's speedsters were designed by Otto Kuehler with "shovel nose" styling and for the Class A some details evocative of the *Zephyrs*.



Streamliner steam locomotives continued to be produced into the early postwar era; among the most distinctive were Pennsylvania Railroad's duplex-drive 6-4-4-6 type S1 and 4-4-4-4 type T1 locomotives styled by Raymond Loewy.



In terms of service longevity, the most successful were the Norfolk and Western J1 class locomotives introduced in 1941.



The GM Electro-Motive Corporation (EMC) started production of streamlined diesel passenger locomotives, incorporating the lightweight carbody construction and raked, rounded front end introduced with the *Zephyr* and the high-mounted, behind-the-nose cab of the M-1000x locomotives, in 1937. The TA was a 1200 hp version produced for the Rock Island Rockets, a series of six lightweight, semi-articulated three and four car trainsets.



The EMC E series locomotives incorporated two features of their earlier EMC 1800 hp B-B development design locomotives, the twin engine format and multiple unit control systems that facilitated cab/booster locomotive sets. The E-units brought sufficient power for full-sized trains such as the B&O *Capitol Limited*, AT&SF *Super Chief*, and Union Pacific's upgraded *City of Los*

Angeles and City of San Francisco, which challenged steam power in all aspects of passenger service.



EMC introduced standardized production to the locomotive industry, with its attendant economies of scale and simplified processes for ordering, producing, and servicing locomotives, and offered a variety of support services lowering the technological and initial cost barriers that could deter conversion to diesel.

With power and reliability of new diesel units improved with the 2000 hp GM 567 powered E3 model in 1938, the advantages of diesel became compelling enough for a growing number of rail lines to select diesel over steam for new passenger equipment. The power and top speed advantages of state-of-the-art steam locomotives were more than offset by diesel's advantages in service flexibility, downtime, maintenance costs, and economic efficiency for most operators. The American Locomotive Company (ALCO), builder of the Hiawatha speedsters, saw diesel as the future of passenger service and introduced streamlined locomotives influenced by the design of the E units in 1939. The replacement of steam with diesel power was interrupted by the US entry into World War II, with a military premium on diesel technology that stopped all production of diesel locomotives for passenger service between September 1942 and January 1945.

Acc: Wikipedia: https://en.wikipedia.org/wiki/Streamliner

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