CENTRAL STATES *Challenger* SPECIAL

Monday, July 19, 1993

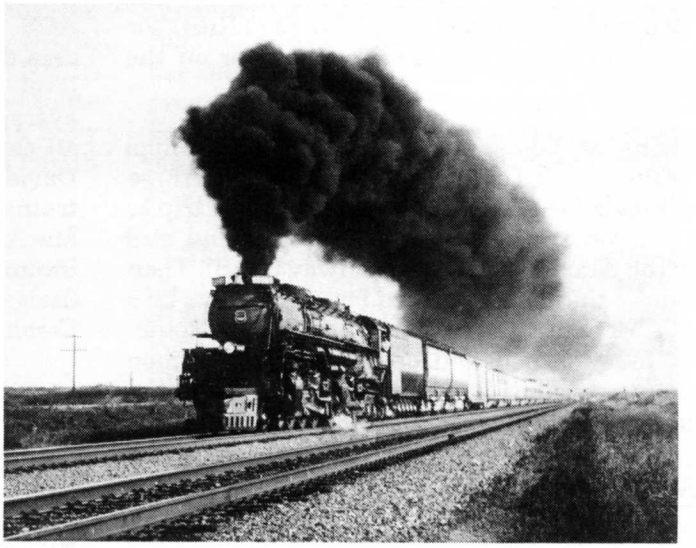
St. Louis — Villa Grove, Ill. — Chicago

Sponsored by the St. Louis Chapter, National Railway Historical Society
In Cooperation with Union Pacific Railroad

Welcome Aboard!

Your hosts in the St. Louis Chapter of the National Railway Historical Society (NRHS), along with members of the St. Louis Steam Train Association, and Union Pacific Railroad, welcome you aboard this special steam-powered excursion train.

Today's excursion is powered by the world's largest operating steam locomotive, Union Pacific 3985. Built in 1942 by the American Locomotive Company of Schenectady, N.Y. for the Union Pacific, the 3985 was a powerful workhorse pulling freight trains across the railroad's rugged territory in the West.



Union Pacific 3985 with a special excursion for the Union Pacific Historical Society convention in 1992. Photo courtesy Union Pacific Historical Museum.

Our trip today is also part of the 1993 Union Pacific Steam Excursion Program, the nation's oldest continuous program of steam-powered rail passenger excursions. Of all American railroads, only Union Pacific never fully retired its entire steam locomotive roster, maintaining its big Northern-type locomotive no. 844 (formerly 8444) in service without retirement to the present day. Later, the 3985, the world's only operating Challenger-type, was returned to service through restoration.

We are pleased and privileged to host this unusual summer steam excursion, made possible as the 3985 and its train head to Chicago for the 1993 Annual Convention of the National Railway Historical Society. Our sincere thanks to the Union Pacific Railroad and the Chicago Chapter NRHS for their generous cooperation in making this very special excursion possible.

For Your Safety and Comfort

Safety First! These are the two most important words on the railroad, and they should be your two most important words today, too. For safety's sake:

* **Always watch your step!** Be especially careful...
* Getting on or off the train, or
* When walking about the train or between cars.
* At stops, watch your footing on uneven ground, gravel, and track ballast stone.
* Always step **over**, *never* on top of, a rail.
* Always **walk**, *never* run.
* Keep your head, hands and arms fully inside the train at all times!
* Please always follow the instructions of your car host or other NRHS or railroad crew members, especially at photo stops.
* If you get a wind-blown particle in your eye in a vestibule area or while in the baggage car, *do not rub the eye.* Let the eye's natural watering action remove the particle.
* A medical team is on board. **For medical assistance, contact any crew member.**
* Children should not play in the aisles.
* Packages, camera bags, suitcases etc. must be kept out of the aisles and off the seats. Please use the overhead baggage racks.
* Union Pacific does not permit coolers to be brought aboard the train. Your cooperation is appreciated.
* No sandals, thongs or bare feet permitted. We reserve the right to insist on appropriate, safe footwear.
* **Alcoholic beverages may not be brought aboard or consumed on the train, nor anywhere on railroad property.**

THREE RAILROADS ACROSS THE PRAIRIES

Our trip today operates over a routing historically associated with five different railroads, but today operated by only three companies as the result of various mergers, consolidations and purchases. We begin in St. Louis for the first 3.4 miles on Union Pacific rails which were operated for many years by the Missouri Pacific Railroad. Most of this track was constructed in 1851 by the Pacific Railroad of Missouri, the first locomotive-hauled common carrier railroad west of the Mississippi.

Our train then briefly enters the trackage of the Terminal Railroad Association of St. Louis (TRRA) for the 1.25 mile trip across the Mississippi River on the MacArthur Bridge.

After leaving St. Louis and crossing the Mississippi River, our train operates over lines associated with three different railroads for all of the remainder of the trip to Chicago. First, we travel over the line built and still operated by the Alton & Southern Railway (A&S). Then our train follows the route operated for many years by a former New York Central subsidiary, the Big Four Route. This line is today owned and operated by the Union Pacific. Finally, we follow line built and operated by the former Chicago & Eastern Illinois and predecessors. This part of the route is also today owned and operated by the Union Pacific Railroad.

The Alton & Southern Railway

The Alton & Southern Railway is a major switching and terminal railroad which serves the busy Illinois portion of the St. Louis terminal district. The railroad's main line forms a rough semi-circle around St. Louis' Metro-East area, with its northern terminal and interchange point located at Lenox Tower in Mitchell, Ill. Its main southern terminal and yard is Gateway Yard (formerly Davis Yard) in East St. Louis. From Gateway Yard a spur runs 2.5 miles southwest to Fox Terminal on the Mississippi River. In addition, the A&S has operating rights on the Union Pacific (formerly Missouri Pacific) for access to UP's ex-MP Dupo Yard on the Illinois side of the Mississippi southeast of downtown St. Louis. It also connects with the Burlington Northern and Manufacturers Railroad in St. Louis via the MacArthur Bridge. The length of the entire railroad is 21 miles. On the excursion today, we will be traversing the portion of the line between the MacArthur Bridge and Mitchell, Ill., which is nearly the entire railroad.

The Alton and Southern Railroad was incorporated in 1913 and was owned by the Aluminum Ore Company (later to become the Aluminum Company of America, or Alcoa). It served the company's large aluminum reduction plant at Alorton (an acronym for ALuminum ORe TOwN), near East St. Louis, Ill. In its heyday in the 1940s, the A&S served 53 other industrial and commercial customers in addition to Alcoa. In addition to the large number of industries served, the A&S interchanged freight with 20 different railroads.

The large number of on-line customers combined with its many interchange partners produced heavy traffic for the Alton & Southern. In the 1940s and 50s, the A&S classified 4500 cars daily. This traffic level generated an average of 50 trains of 40 cars per day entering, and 50 more trains leaving Davis Yard (today Gateway Yard). An additional 14 trains a day were forwarded to St. Louis via the MacArthur Bridge. This heavy traffic resulted in good income, and qualified the railroad for a Class I designation under the old Interstate Commerce Commission classification system.

1926 A&S logo

As times changed, the Alton & Southern adapted to serve its customer's needs. In 1941 the A&S installed a "two-way talk-back speaker communication system" in Davis Yard. This system consisted of 31 speaker phones strategically located so yard workers could communicate with the yardmaster in the tower. This was the first of its kind in the country, and increased classification capacity by 20 percent. When dieselization swept the railroad industry, the A&S was an early player, receiving in 1947-48 fifteen of the first twenty 1500-horsepower RS-model locomotives produced by the American Locomotive Company (Alco). In 1948 Alton and Southern installed two-way radios in all its locomotives making it a pioneer in the use of this technology as well. And in the 1950s and '60s, Davis Yard was greatly expanded to become today's vast Gateway Yard, the largest yard in the St. Louis terminal district.

Today's Alton & Southern has evolved from its earlier days. Many of the industries it once served have closed down, significantly reducing large portions of its traffic. In 1958 Alcoa closed its plant at Alorton, and began looking for a buyer for the railroad. Ten years later, in 1968, the Interstate Commerce Commission approved the sale of the A&S to the Missouri Pacific and the Chicago & North Western. In 1973, the C&NW sold its half to the St. Louis Southwestern, or Cotton Belt. In 1982, the MoPac merged with the Union Pacific, giving the UP the MoPac's interest. Thus

1984 logo

the A&S is today jointly owned by the Union Pacific and Southern Pacific's Cotton Belt subsidiary.

Due to abandonments and mergers, the number of other railroads with which the A&S interchanges has been reduced by almost half compared to earlier years. A major portion of today's business derives from interchange traffic between the above-mentioned railroads and A&S-owners Cotton Belt and Union Pacific.

The Alton & Southern has never had scheduled passenger service, although Amtrak traverses a small portion of the line from the MacArthur Bridge to NS Crossing to reach the Norfolk Southern line to Centralia, Ill. In June of 1990 the St. Louis Chapter NRHS sponsored a Union Pacific steam excursion for the NRHS Convention in St. Louis which followed the same route over the A&S as today's trip. This trip is part of a ferry move for locomotive 3985 and train to this year's NRHS Convention in Chicago.

- Matt Taylor, St. Louis Chapter NRHS

The Big Four Route

The portion of today's excursion via Union Pacific's Pana (pronounced Pay'-na) Subdivision is the end result of many years of mergers and acquisitions, beginning in 1852 with the organization of the Terre Haute & Alton Railroad. Its backers favored a railroad to Indiana across coal-rich Southern Illinois to bolster the trade of the town of Alton, Ill., located on the Mississippi River above St. Louis, in the hope that it would gain dominance over St. Louis. The TH&A soon combined with the Belleville & Illinoistown Railroad to form the Terre Haute, Alton & St. Louis, which opened for business in October, 1856. After an 1861 reorganization, this road emerged as the St. Louis, Alton & Terre Haute.

1888 logo

In 1867 the line was leased for 99 years by the Indianapolis & St. Louis Railroad, which was building between Indianapolis and Terre Haute. However, both the St. Louis, Alton & Terre Haute and the Indianapolis & St. Louis came under the control of the Cleveland, Columbus, Cincinnati & Indianapolis Railroad (The Bee Line) in 1882. Seven years later, the Bee Line in turn combined with the Vanderbilt-backed Cincinnati, Indianapolis, St. Louis & Chicago Railroad to form the Big Four Route: the Cleveland, Cincinnati, Chicago & St. Louis Railroad.

In December of 1904, the Big Four completed a "cutoff" into St. Louis, diverging from the original line at Hillsboro, Ill. and rejoining it at Lenox Tower at Mitchell, Ill., northeast of St. Louis. The cutoff was in places heavily engineered with cuts and fills; it did not follow the existing topography as the old route had over some surprisingly rugged countryside. The cutoff saved twelve miles and bypassed Alton, which by that time had lost the river commerce race to St. Louis. The Big Four immediately rerouted fourteen of its daily passenger trains onto the cutoff, including the route's premier train, the **Southwestern Limited**, leaving only five passenger trains to serve the eleven stations on the old line until 1942, when passenger service ended on the original route.

1895 logo

The Big Four Route operated semi-independently until 1930, when it was leased by the New York Central System. The NYC's ill-fated merger with the Pennsylvania Railroad in 1968 brought the line under the control of the new Penn Central. The Pennsylvania, however, had its own line into St. Louis at the time of the merger, which left the merged Penn Central with two closely parallel routes across Illinois. This situation continued into the period of Conrail ownership beginning in 1976 after the resolution of the Penn Central bankruptcy.

In April 1982 Conrail sold the Pana Subdivision to the Missouri Pacific Railroad, opting to use its ex-Pennsylvania line between St. Louis and Terre Haute, Ind. The MoPac single-tracked the Pana Sub and extensively rebuilt it into a 60 mile-per-hour railroad, with remote dispatching from North Little Rock, Ark. via Centralized Traffic Control (CTC). The Missouri Pacific's merger with the Union Pacific Railroad in 1982 finally completed the long list of owners. Today, the Pana Subdivision forms an important link in the Union Pacific System, and hosts about eight freight trains daily.

- Brian T. McQuitty, St. Louis Chapter NRHS

The Chicago & Eastern Illinois Railroad

The Chicago & Eastern Illinois Railroad did not exist under its famous name until 1877. However, its predecessors date to as far back as 1849. From its origins, the railroad expanded from Evansville, on the Ohio River in southern Indiana, to the Mississippi and Ohio Rivers in Southern Illinois, and to Chicago and St. Louis.

The C&EI's earliest predecessor, the Evansville & Illinois Railroad, was chartered in 1849 to build a line north from Evansville on what would become the C&EI's

southern end. By 1854 it had become the Evansville & Crawfordsville Railroad (E&C), and was operating the route from Evansville to Terre Haute, Ind.

At the northern end of what would become the C&EI, the Chicago, Danville & Vincennes Railroad (CD&V) was chartered in 1865. Its first tracks were laid from Dolton, near Chicago, to Momence, Ill., in 1869. Due to the effects of the Franco–Prussian War on the bond market, track work slowed, but construction was finally completed to Danville, Ill. in 1871. That some year, the Evansville, Terre Haute, & Chicago (ETH&C) Railroad completed track construction between Danville and Terre Haute, completing a through route between Chicago and Evansville.

Financial difficulties hit the CD&V hard soon after reaching Danville and, as a result, the railroad was foreclosed in 1875. The company was reorganized in 1877 as the Chicago & Eastern Illinois Railroad. That same year the E&C became the Evansville & Terre Haute (E&TH) Railroad.

1894 logo

It did not take the new C&EI long to begin making acquisitions and setting goals. Among them was the lease of the ETH&C in 1880; purchase of 40 percent of the E&TH in 1881 (and eventually consolidation with the E&TH); and renewal of the efforts to build its own tracks into downtown Chicago, a goal that the CD&V was unable to achieve.

To reach Chicago from Dolton, both the CD&V and the C&EI had to pay a high rental fee to the Pittsburgh, Cincinnati & St. Louis Railroad (the Panhandle Route, later part of the mighty Pennsylvania Railroad). Efforts to build a separate route into Chicago encountered numerous problems.

The first effort to reach Chicago was made by the CD&V in 1873, but financial problems halted the effort. The Chicago & Southern Railroad was then formed to complete the project. The C&S reached 26th Street in Chicago later that year on a roundabout routing from Thornton Jct. via Blue Island. But in 1877 the C&S was foreclosed, and then sold to a group that later formed the Grand Trunk Railway.

With the C&S route into Chicago no longer available, the C&EI decided to set up a subsidiary, the Chicago & Western Indiana Railroad, to construct and operate a new line from Dolton into downtown Chicago. Construction began in July 1879. An important junction at 22nd Street in Chicago was reached in April 1880, but the C&WI's ultimate goal was Van Buren Street, further to the north on the southern edge of Chicago's downtown area, the Loop.

Anytime the C&WI's construction crew approached another railroad, various delaying tactics were used to keep the C&WI from crossing. An example was its crossing of the Illinois Central. On September 10, 1880, the courts cleared the way so C&WI could proceed. Then on the night of September 15, the crew was able to lay track to northward 12th Street--but it required police protection to do so! Several more streets were crossed the next night.

However, due to the heavy congestion at nearby LaSalle Street Station, the C&WI altered its plans to reach Van Buren Street in late September, looking instead to 14th Street. On November 12, 1880, the C&WI crew built over the Lake Shore Railroad (later the New York Central), again under police protection. Later that day, 14th Street was reached. At last, the C&WI was in operation from Dolton to 14th Street on the outer edge of downtown Chicago.

In 1883 the C&EI signed an agreement to permit joint ownership of the C&WI by five railroads. These were the C&EI; Erie; Grand Trunk Western; Chicago, Indianapolis & Louisville (Monon); and the Wabash. The first step for this "new" C&WI was the construction of a new passenger station at Polk and Dearborn Streets on the south edge of the Loop. This depot, Dearborn Station, was completed in 1885. It subsequently would also serve the Santa Fe.

The C&EI slowly expanded into Southern Illinois via acquisitions and construction. Expansion occurred southwesterly from Danville to Findlay, then due south. The C&EI reached Thebes, on the Mississippi Fiver, and Joppa, on the Ohio River, in 1900.

However, the C&EI's strongest desire was to reach St. Louis. This did not occur until after the railroad was acquired on October 1, 1902 by the B.F. Yoakum interests, who already owned the St. Louis & San Francisco Railroad (Frisco). One month later, rather than constructing a rail line of its own into St. Louis, the C&EI signed an important agreement with the New York Central's Big Four Route. Pursuant to the agreement, the Big Four agreed to double–track its route form Pana to Hillsboro to Mitchell. The C&EI would then be granted trackage rights on the Big Four between Pana and East St. Louis. Both projects were completed by the Big Four in 1904. The only construction required of the C&EI in the agreement was the building of its own track from Findlay to Pana. This, too, was completed in 1904.

But the C&EI decided to go one step further. In order to bypass congestion at Danville and to shorten the travel time between Chicago and St. Louis, a new 62–mile cutoff was constructed between Woodland Junction and Villa Grove. This cutoff, which we will travel over today, was also completed in 1904.

The Chicago, Rock Island & Pacific bought the Frisco, and thus the C&EI, from Yoakum in 1903. However, both were sold back Yoakum in 1909. Four years later, the Frisco and C&EI entered separate receiverships,

putting an end to Frisco's influence on the C&EI.

1934 logo

The C&EI remained independent until two of the legendary railroad investors of this century, the brothers Oris Paxton and Mantis James Van Sweringen, of Cleveland, bought the C&EI in 1928. The Van Sweringens, who already controlled such railroads as the Nickel Plate, the Chesapeake & Ohio, and the Missouri Pacific, did very little to integrate the C&EI with the rest of their empire. They lost the C&EI in 1940, part of the collapse during the Great Depression of the financial pyramid supporting their holdings.

In April of 1940, a new trademark was adopted by the C&EI: an oval with "Saturday Evening Post" lettering. The road's new leadership went on to improve its physical plant. This including installation of its first welded rail between Chicago Heights and Glenwood in 1952. Innovative freight and passenger services were also initiated, including trailer-on-flatcar (piggyback) freight service between Chicago and St. Louis in 1949.

1946 logo

Since coal was always the C&EI's biggest commodity, large new electric power generating plants built along its lines near Clinton, Ind. and Joppa, Ill. were of great importance. Illinois and Indiana coal had always been shipped from C&EI-owned mines to power plants elsewhere. A rail-to-barge coal transfer was built at Joppa on the Ohio River in 1954 to keep a rail haul for some of this traffic, which was increasingly being handled by barge instead of rail.

By 1959, the Missouri Pacific began to discuss merger with or purchase of the C&EI, but the Louisville & Nashville, New York Central and Southern Pacific were also interested. The NYC and SP subsequently dropped out of the bidding, leaving the MoPac and L&N Both to purchase C&EI stock in 1961. These roads then petitioned the Interstate Commerce Commission for control of the C&EI.

In 1963, the ICC ruled in favor of the MP, but only on the condition that MoPac would agree to sell the line from Woodland Jct. to Evansville to the L&N. This occurred in 1969. The agreement further stipulated that both railroads would own 50 percent of the common track from Woodland Jct. to Dolton. The L&N also bought one-half of the C&EI's interest in the C&WI from Dolton to Chicago.

The remainder of the C&EI became a subsidiary of the MP. In 1976, the MoPac completely absorbed the C&EI. After 99 years of service, the Chicago & Eastern Illinois Railroad existed no longer as a corporate entity.

Six years later, the MoPac's sections of the former C&EI became a part of the Union Pacific Railroad when the Interstate Commerce Commission approved the merger of the Missouri Pacific with the Union Pacific. This merger was formally consummated on December 22, 1982.

Because of its relatively small size, the C&EI was primarily a bridge-route railroad. It handled freight and passenger trains between gateway junctions, such as Evansville, Thebes, Ill. (site of an important bridge over the Mississippi for traffic bound to and from the Southwest), Chicago and St. Louis. Most of the C&EI's passenger trains were extensions of L&N into Chicago. Most common were L&N's "Dixie" trains, including the **Dixie Flyer**, the **Dixie Mail**, and the **Dixie Flagler**. These trains all traveled south from Chicago to Florida and/or New Orleans via Terre Haute and Evansville on the C&EI, and Nashville, Tenn on the L&N. Only The **Dixie Flyer** remained by 1960. Two other L&N trains, the **Georgian** and the **Hummingbird** also served Chicago over the C&EI.

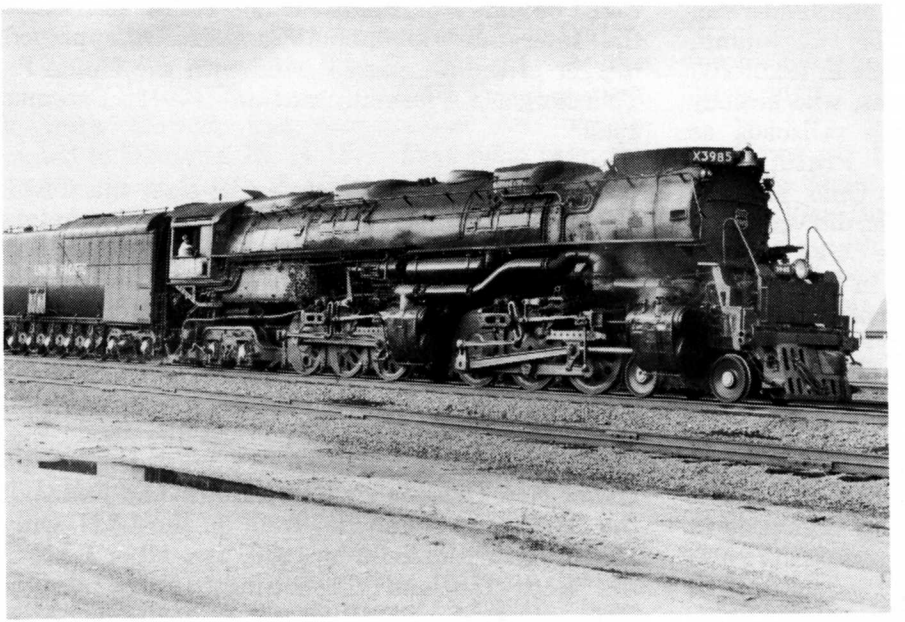
Passenger service between Chicago and St. Louis on the C&EI did not fare as well as it did on the Evansville line. This was due to tremendous competition from paralleling railroads, including the Alton (later the Gulf, Mobile & Ohio), the Illinois Central, and the Wabash. In 1916 three trains were offered by the C&EI; the **Chicago-St. Louis Limited**, the **Chicago-St. Louis Special**, and the **Chicago-St. Louis Express**. The latter two traveled overnight; all bypassed Danville.

By World War II, the C&EI had changed its Chicago - St. Louis trains considerably. The **Zipper** was a day train which traveled via Danville. The only other train, the **Silent Knight**, travelled overnight bypassing Danville. By the end of the 1940s, competition from automobile and airplane had such an impact on the C&EI's passenger revenues that the company ran its last Chicago - St. Louis train on April 20, 1949. Service into Southern Illinois lasted until 1962 when the **Meadowlark** was discontinued.

Amtrak took over most of America's passenger train service in 1971. The only service then left on the C&EI was the **Chicago-DanvilleFlyer** between its namesake cities; it did not become part of the Amtrak network. Today, there is speculation that Amtrak might select the former C&EI's Evansville Line if service between Chicago and Florida is once again restored.

- Dan Gassen, St. Louis Chapter NRHS

THE WORLD'S LARGEST OPERATING STEAM LOCOMOTIVE



The steam locomotive powering our train today, Union Pacific 3985, was built in 1943 by the American Locomotive Company (Alco) of Schenectady, N.Y. based on designs developed by Union Pacific.

The design was known as the "Challenger" type, having a 4-6-6-4 wheel arrangement. At the front of the locomotive, a four-wheel pilot truck guides the engine into curves. Six coupled driving wheels, with their massive connecting side rods, are powered from a forward pair of steam cylinders. Another set of six coupled driving wheels follows, powered from a second set of steam cylinders in the middle of the locomotive. Finally, a four-wheel trailing truck supports the rear of the locomotive, including the cab and the enormous firebox. The 3985 is the only operating Challenger-type in the world today, and it is also the largest steam locomotive currently in operation anywhere.

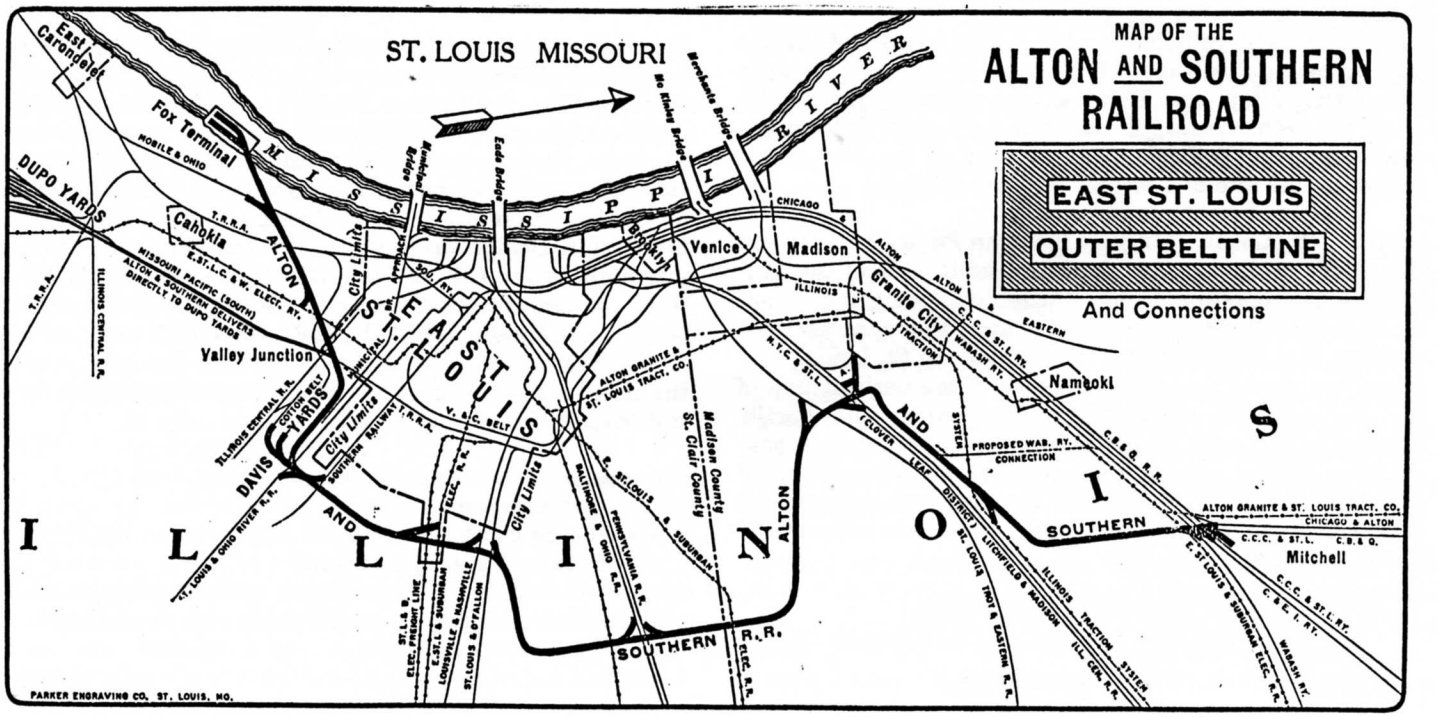
The 3985's twelve driving wheels offer tremendous pulling power. But the long wheelbase (over 24 feet) would, if rigid, severely limit the engine's ability to operate on any but straight track and the gentlest curves. To gain the efficiencies of more driving wheels on the rail (and thus more pulling power), but to avoid excessive wheelbase length, locomotive designers turned to *articulation* to allow them to effectively break the long wheelbase in two. A specially hinged frame allows the two sets of driving wheels to rotate on independent axes, in effect permitting the locomotive to "bend in the middle."

With twelve driving wheels, the 3985 can support an enormous boiler for the production of steam, and it can use that extra volume of steam to provide more pulling power. Union Pacific designed the Challenger-type for fast freight service on the company's rugged operating profiles in the West, especially over its crest of the Rockies at Sherman Hill in Wyoming. The company purchased 105 Challengers from 1936 to 1943. Used mostly in freight service, they did sometimes pull passenger trains. After a distinguished career, including hustling freight during World War II and the Korean War, the 3985 was retired in 1962.

Upon retirement the engine was stored in the roundhouse at its home terminal of Cheyenne, Wyoming. Later it was placed on display near the Cheyenne depot. A group of volunteer employees restored the engine to service in 1981. In 1990 it was converted from coal to fuel oil, and it began more regular excursion service. The trip today is one of a series of movements ferrying the locomotive and its train to and from Chicago, where it will attend the 1993 Annual Convention of the National Railway Historical Society (NRHS). Our sincere thanks go to Union Pacific for allowing us the opportunity to experience this marvelous machine on our trip today.

Some vital statistics on the Union Pacific 3985 :

Built	American Locomotive Co., 1943
Total Engine Weight	627,900 pounds, in working order
Weight on Drivers	404,000 pounds, in working order
Tender Weight	441,900 pounds, loaded
Main Driving Wheels	69-inch diameters
Fire Box Dimensions	15.58 feet x 9 feet
Tender Fuel Capacity	5,945 gallons fuel oil
Tender Water Capacity	25,000 gallons
Boiler Pressure	280 pounds per square inch
Cylinders - Bore/Stroke	21 inches x 32 inches
Length, Engine & Tender	121 feet 10 inches
Weight, Engine & Tender	1,069,800 pounds
Tractive Effort	97,350 pounds (pulling power)
Length, Engine & Tender	121 feet 10 inches
Weight, Engine & Tender	1,069,800 pounds



1926 Map of the Alton & Southern