

*STREAMLINED  
TRAINS OF THE  
1930s*

and their FAMOUS  
INDUSTRIAL DESIGNERS

By Rick Abramson

Streamlining while new to man has been a part of nature since the dawn of time; no birds or fish have square edges.



The shark, smoothly contoured.  
Eventually man would copy  
nature.



**People wanted to move around, soon the horse  
was attached to the stage coach. . .**





The stagecoach gave way to the steamboat. .

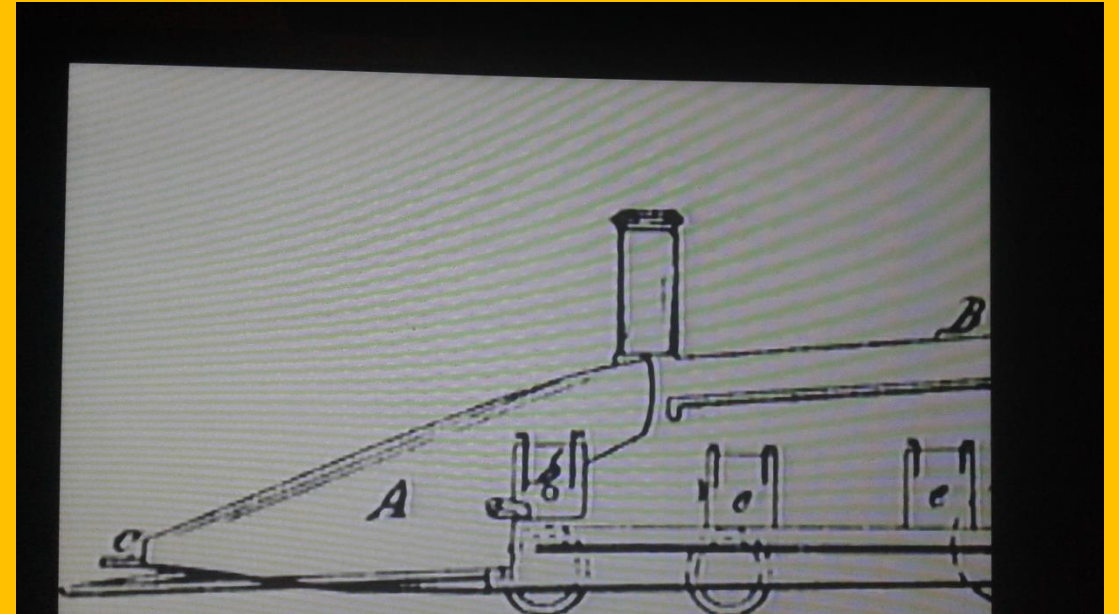


The steam boat then gave way to the railroad.

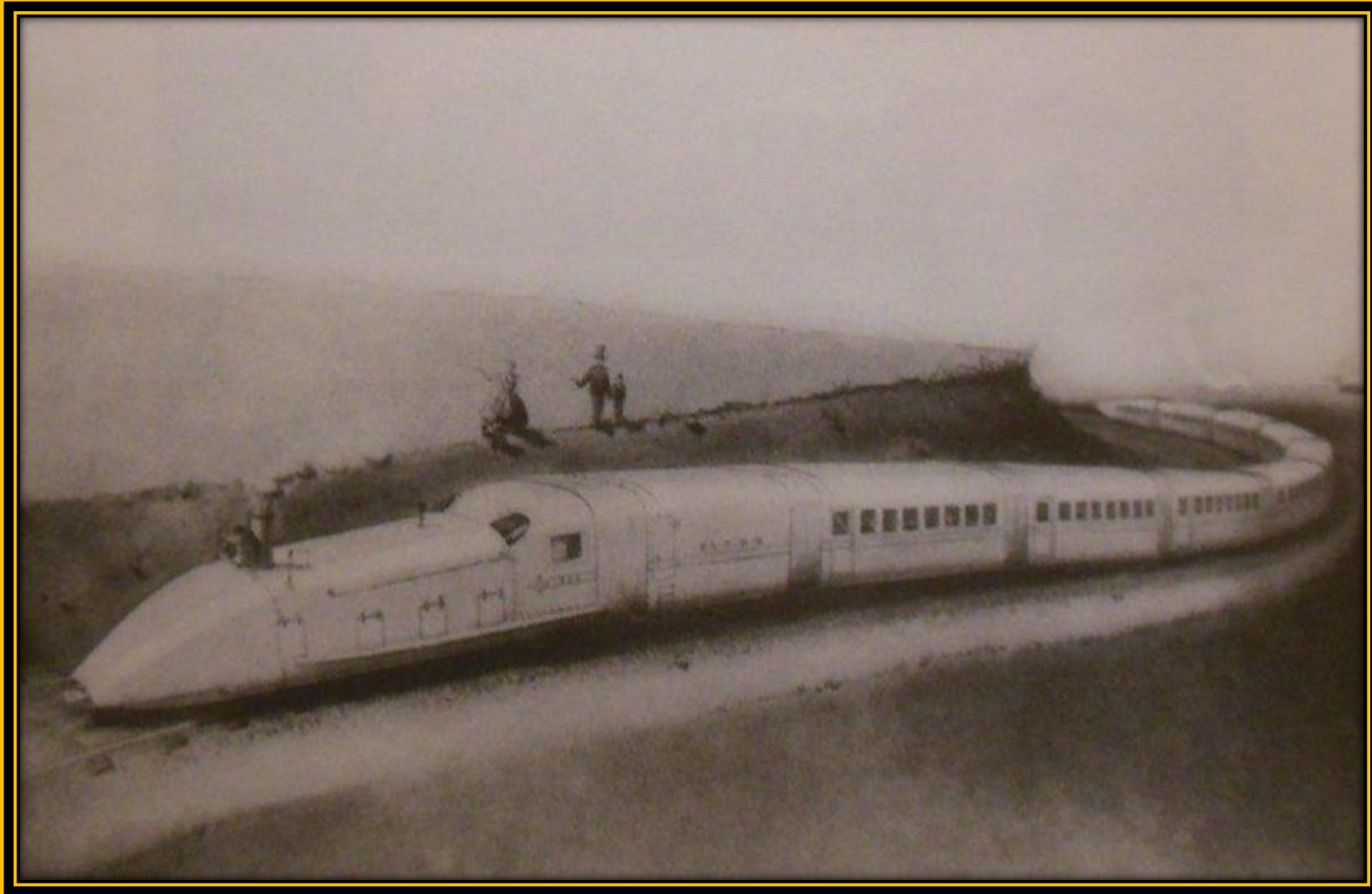




In 1865, Rev. Samuel Calthrop(1829-1917) invented a way to streamline a train. He designed a framework that would be attached to an engine to support a shroud.

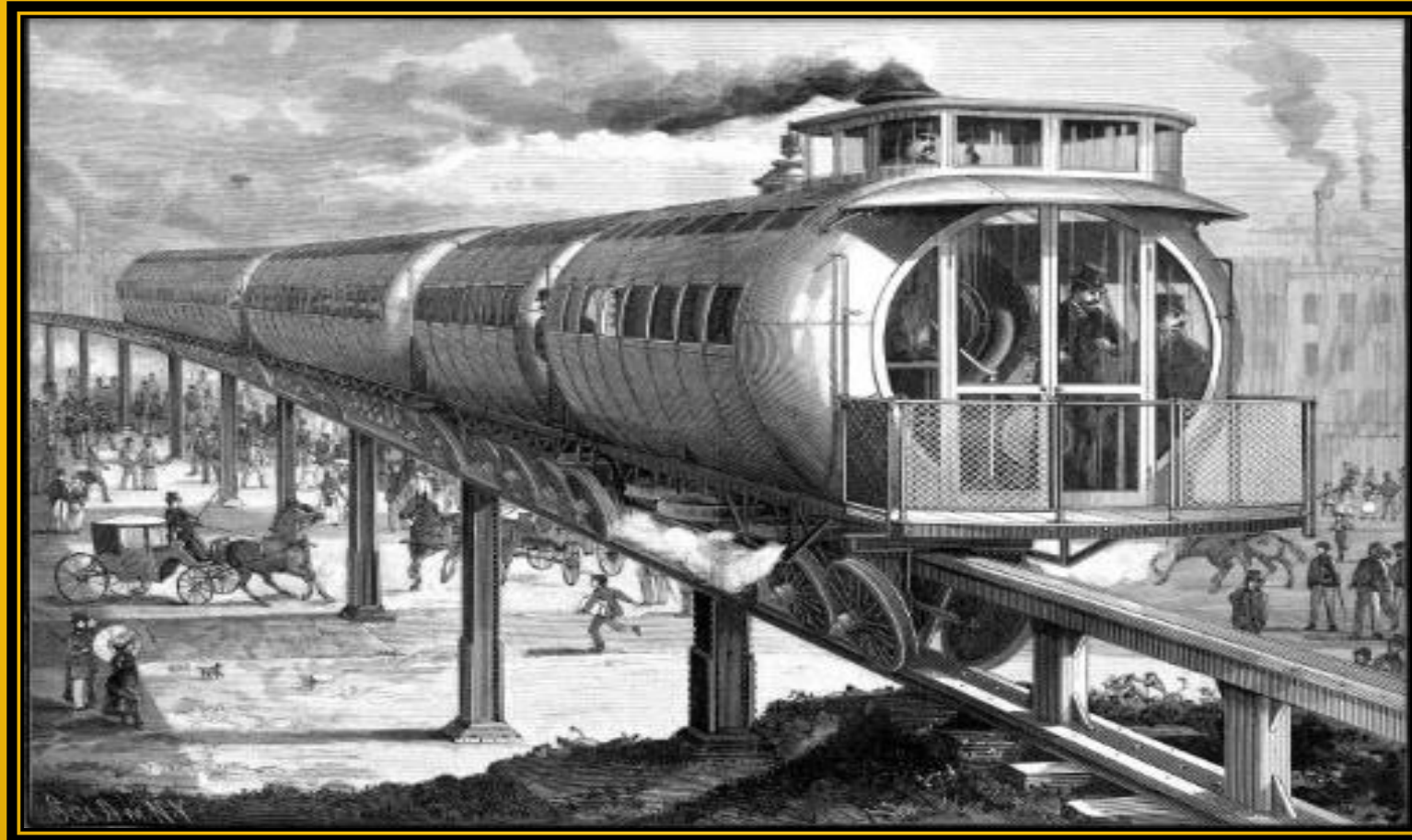


This is what the train would have looked like. Rev. Calthrop was issued a patent. His design was passed by and didn't surface until 70 years later!





In 1885 a Massachusetts inventor, Joe Meigs invented a unique tubular, elevated train.



# “Meigs’ Elevated Railway” It too went nowhere.

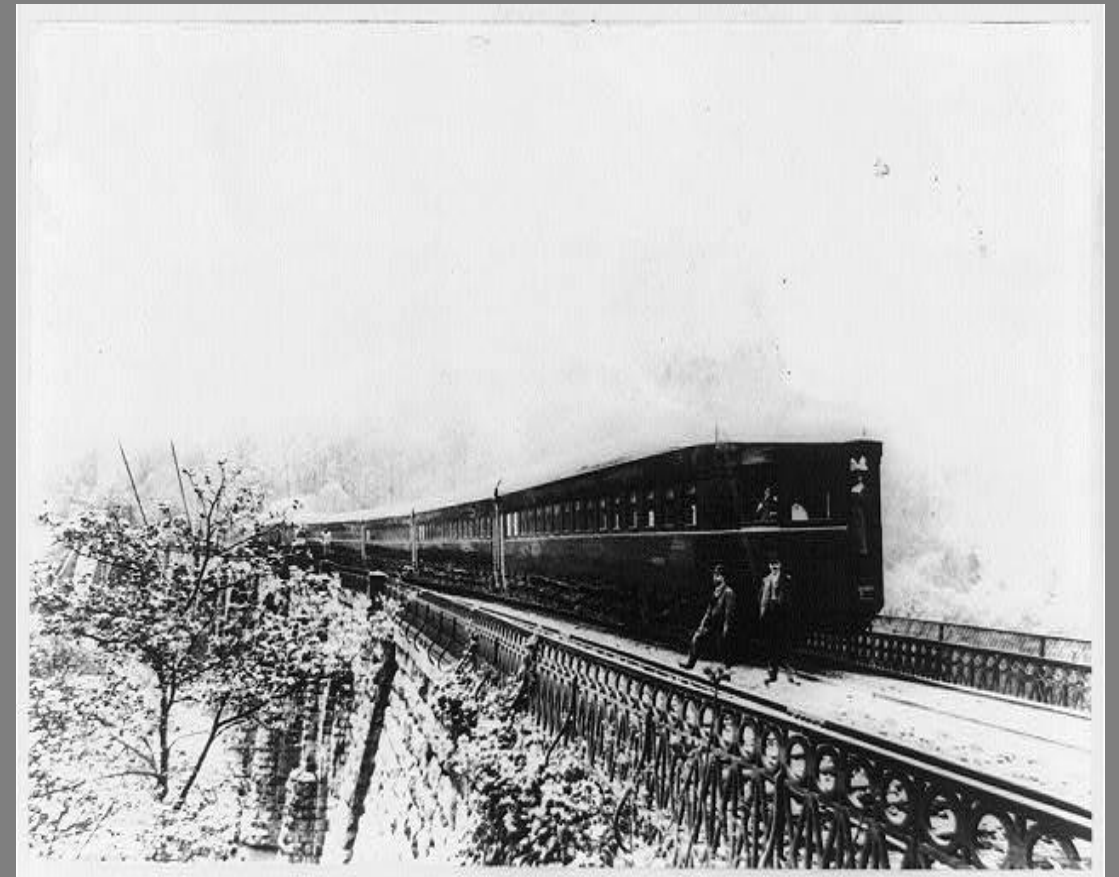


*Exposition to Philadelphia City Council by the Meigs & Coated & Railroad Construction Co.  
East Cambridge Mass. May 27, 1887.*

This plaque in Boston marks where Meigs' railway was built.









The B&O rebuilt several cars  
for the “Streamlined Train.”  
It was considered a novelty  
and went back to being a  
conventional train.

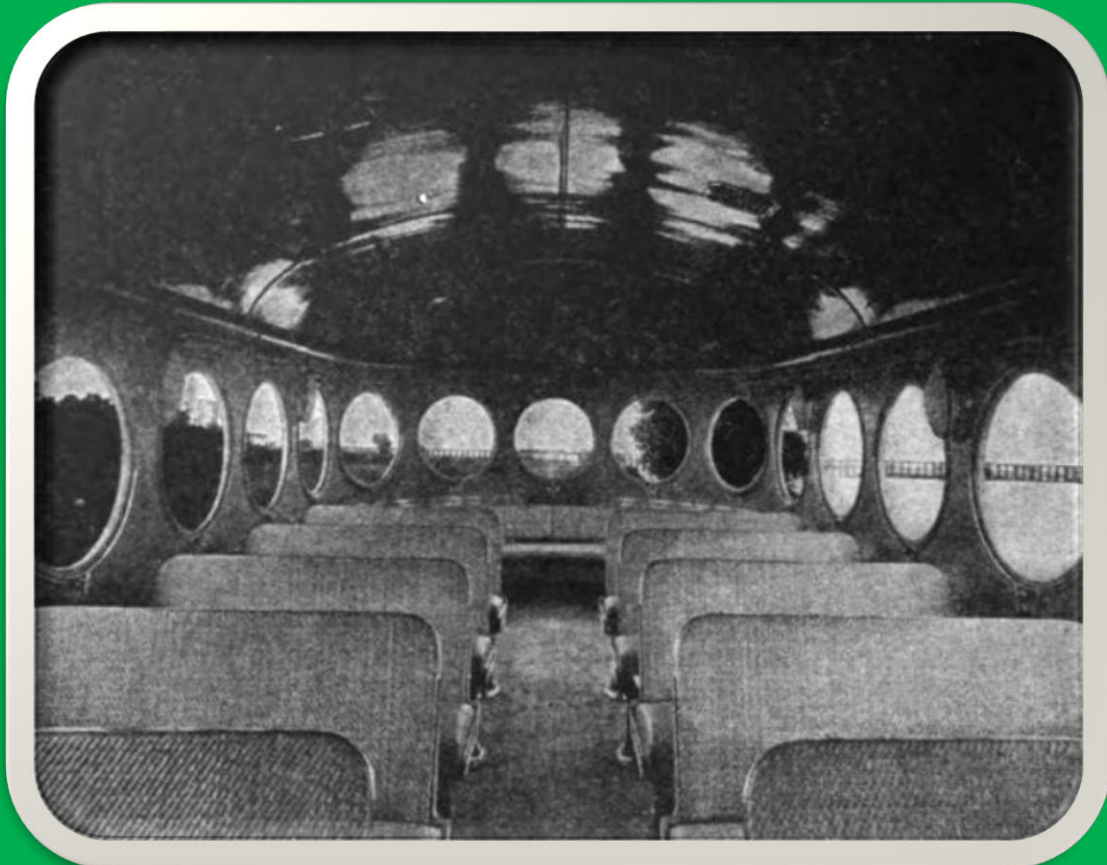
In May of 1893 locomotive No.999 of the  
New York Central & Hudson River RR on the Empire State Express set a world's  
speed record  
near Batavia, NY of 112.5mph.



In 1905, William McKeen of the Union Pacific invented the McKeen Motor Car. Over 100 were built. The car had a very unique shape and was actually called “freakish!”

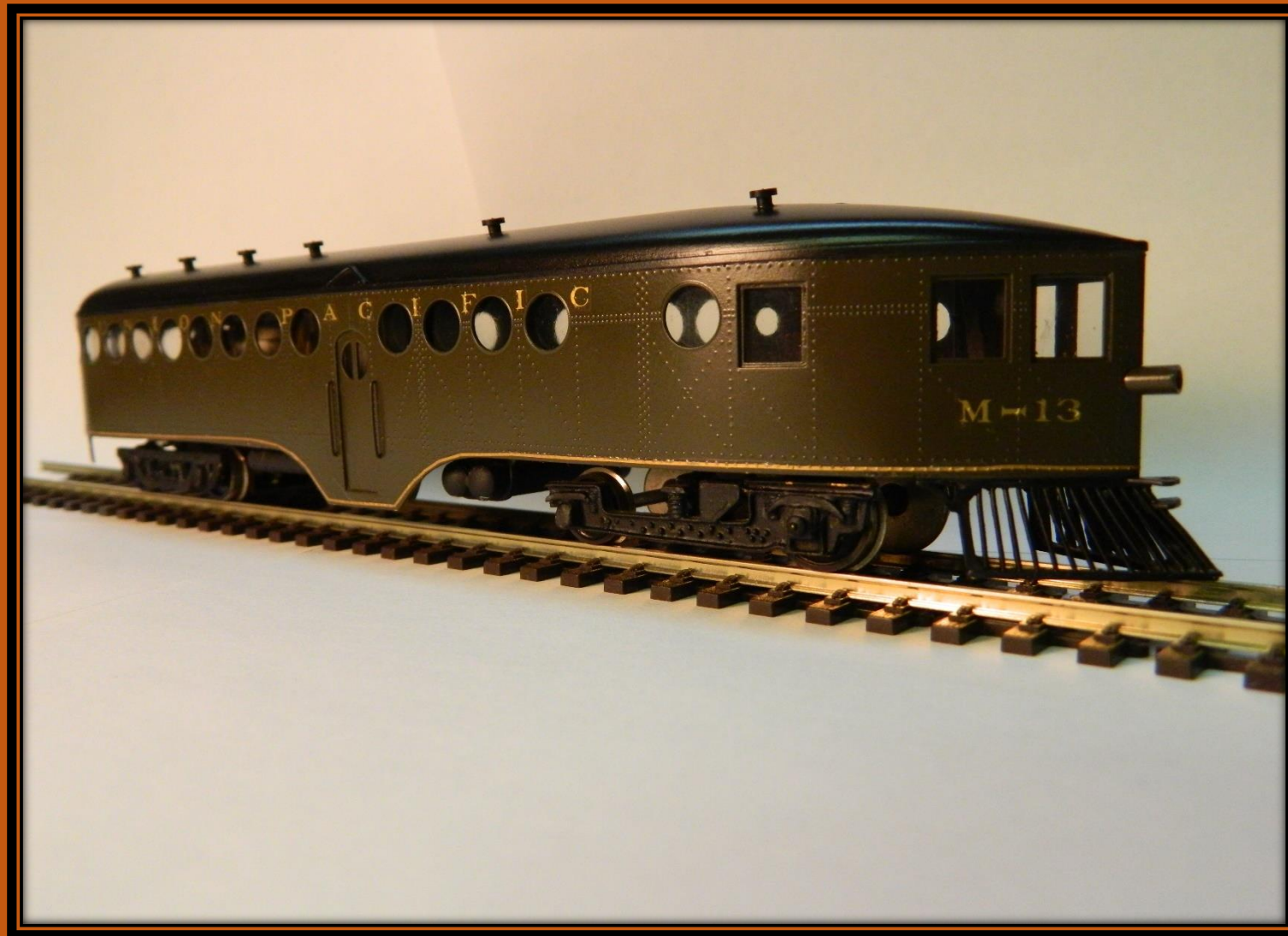


Exterior and interior views of the McKeen Car.  
To reverse the car, the valve settings had to be  
changed since it had no transmission!





# HO Scale McKeen Car





Cars began to challenge the passenger train. Every 40 seconds a Model T rolled off the assembly line. The Model T's were built between 1908 and 1927 with a total of 15 million sold.

By 1920 railroad passenger revenues began to drop.

The railroads began to realize that not just the automobile was eroding their profits, but buses too. Railroads like the Pennsylvania, New York Central and others bought equities in Greyhound.







# Union Pacific Stages



# New England Transportation in conjunction with the New Haven RR.



*In 1929 the Pennsylvania and Santa Fe began a rail-air transcontinental service called*

*Transcontinental Air Transport.*

*It operated until 1930 when the government prohibited railroads from getting involved in other modes of transportation.*



# TAT

TRANSCONTINENTAL AIR TRANSPORT, INC.

H. W. CONNER  
EASTERN TRAFFIC MANAGER  
27 WEST 57TH STREET  
NEW YORK CITY  
TELEPHONE WICKERSHAM 9800



COAST TO COAST BY TRAIN AND PLANE

The PRR even commissioned artist Grif Teller to prepare a painting of the new service for their 1931 calendar.



*Aside from the threat of the automobile,  
another storm loomed on the horizon. . .*

## *The Great Depression!*

**Its effect would last until the entry  
of the US into WWII . . .**



# BROOKLYN DAILY EAGLE

And Complete Long Island News

LATE NEWS  
WALL STREET ★★  
1:15 PRICES ★★

89th YEAR—No. 285.

★ NEW YORK CITY, THURSDAY, OCTOBER 24, 1929. ★

RECORD

32 PAGES

THREE CENTS

## WALL ST. IN PANIC AS STOCKS CRASH

### Attempt Made to Kill Italy's Crown Prince

#### ASSASSIN CAUGHT IN BRUSSELS MOB; PRINCE UNHURT

Royal Sutor Was About  
to Lay Wreath on Un-  
known Soldiers' Tomb.

#### Princess, Deeply Mourned, Falls Into France's Arms and Kisses Him

Brussels, Oct. 24 (AP)—Crown Prince Umberto, after his return from the Italian Riviera, was today in the city where he assumed his duties as king of Italy. He was accompanied by his wife, Princess Marie-José, who arrived here today. The prince and princess were seen by the crowd in the city. The prince and princess were seen by the crowd in the city. The prince and princess were seen by the crowd in the city.

#### Hollywood Fire Destroys Films Worth Millions

ATTEMPT MADE ON LIFE.



Charles Foster Keane.

Consolidated Studios Are  
Swept by Flames Fatal  
to One—Master Pictures  
Burned Include Many  
New Talkie Productions.

Hollywood, Oct. 24 (AP)—One man was killed and twelve picture films, the value of which probably will run into millions of dollars, were lost in an outbreak of fire which destroyed the laboratories of the Consolidated Film Industries here today.

Photo This W. Page 11

#### FEAR 52 PERISHED IN LAKE MICHIGAN FERRY IS MISSING

Wreckage Picked Up In-  
dicates Craft Went  
Down With All Aboard.

Milwaukee, Wis., Oct. 24 (AP)—News that the ferry Milwaukee of the Grand Trunk, with 52 aboard, had disappeared in Lake Michigan today, with a report that wreckage from a boat had been picked up 10 miles off Wood Point, which is about 4 miles from the shore.

Some of the wreckage was picked up by the Coast Guard, but out of 100,000 lbs. of wreckage, only 10,000 lbs. were recovered.

Firefighter Donaldson Safe.

Superior, Wis., Oct. 24 (AP)—The firefighter Donaldson, who was killed in a fire here today, was found safe today.

He Rescued on Lake Huron.  
Said Mr. Davis, Mich., Oct. 24 (AP)—Twenty-three persons and officers of the Grand Trunk Ferry were rescued by a Coast Guard

#### PIECE OF PLANE LIKE DITEMAN'S IS FOUND AT SEA

Black and Orange Wreck-  
age Indicates Daring  
Flier Went to Death.

St. John's, N. F., Oct. 24 (AP)—The Canadian Press—The report from St. John's that the U. S. Navy had picked up a message from an unidentified ship concerning the finding of airplane wreckage was stated by the Newfoundland management to be without foundation.

St. John's, N. F., Oct. 24 (AP)—A radio message from "Operator Service" of the U. S. Navy today advised that he had picked up a message from the U. S. Navy. The message was picked up at 8 p. m. yesterday.

The U. S. Navy is presumably the Newfoundland Government ship of that name.

No Human Gas in Liverpool.  
Liverpool, Oct. 24 (AP)—Said John, Governor of Liverpool, that there was no human gas in Liverpool.

#### High Duty Group Gave \$700,000 to Coolidge Drive

Grundy Agrees Rates Went  
Up Due to His Activi-  
ties as Propagandist.  
Favors More Lobbying to  
'Carry Out Voters' Wish.'

By HENRY MCGRAW.

Washington, Oct. 24—Joseph R. Grundy, Bristol, Pa., manufacturer who admitted he has been lobbying in the capital for several decades in the interest of a protective tariff, testified before the Senate Lobby Committee today that he raised \$700,000 for President Coolidge's campaign in 1924 and that most of the money came from interests seeking higher tariffs.

He indicated that he was in favor of more lobbying for higher tariffs.

Please Turn to Page 1.

FOR MORE LOBBYISTS



JOSEPH R. GRUNDY

#### STOCKS CRASH IN RUSH TO SELL; BILLIONS LOST

Morgan, Mitchell Buying  
Stocks in Effort to  
Check Rush to Unload.

Wall Street was in a panic today, with no one to guide it out. Stocks crashed 15 to 20 points in Washington. Wheat broke 18 cents a bushel in Chicago on distress selling. Bankers were offering some support, but admitted the situation had gotten beyond them.

Charles E. Mitchell, chairman of the National City Bank, was conferring in the office of J. P. Morgan & Co. It was understood, and other leading bankers were there.

It was also understood the Morgan partners had been talking for telephone with J. P. Morgan in New York all morning.

It was also understood the Morgan partners had been talking for telephone with J. P. Morgan in New York all morning.

#### CARNEGIE CHARGE OF PAID ATHLETES BOUSES COLLEGES

#### HOOVER'S TRAIN HALTED BY AUTO PLACED ON RAILS

#### WARDER SOUGHT TO KEEP SEA TRIP

#### SOMERS NAMED AS HEAD OF NEW

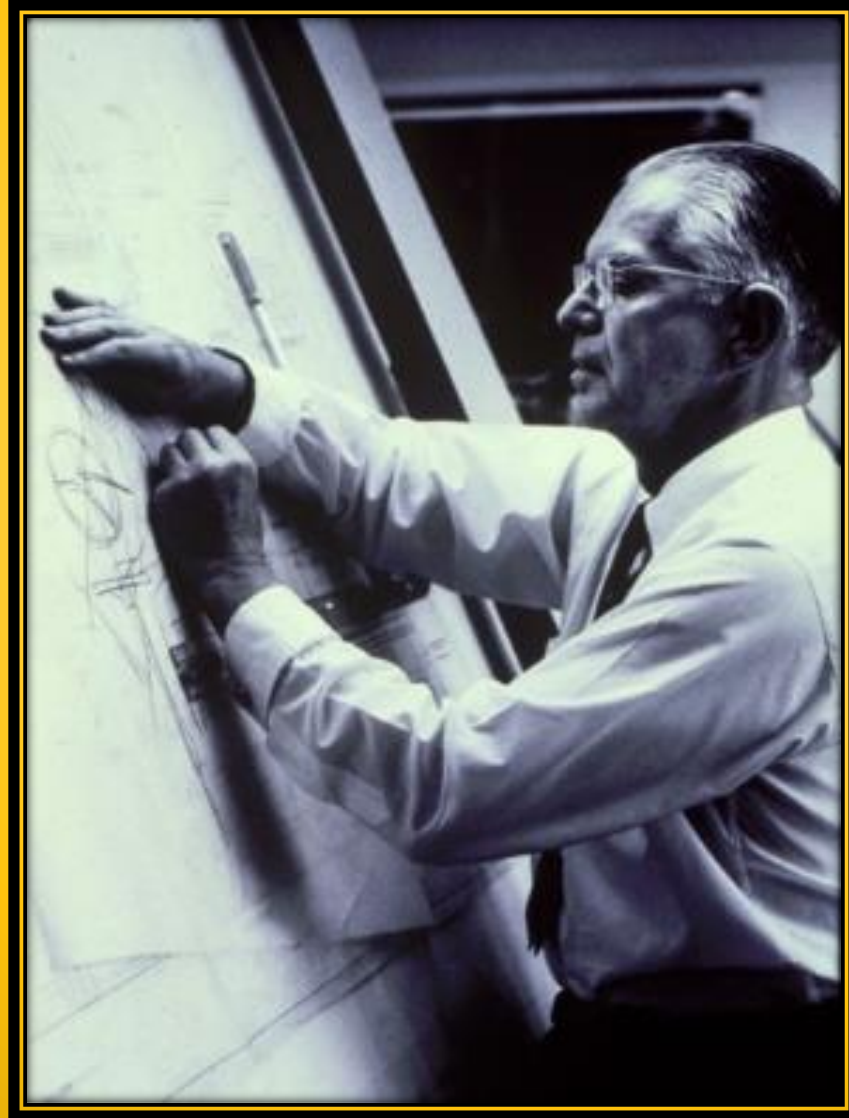
Revenues began to drop; yards began to fill with empty passenger cars and traffic slowed to a trickle in the great stations and terminals. . .

Something needed to be done to bring the people back to the trains!

In order to do so,  
the railroads employed  
the great industrial  
stylists of the 1930'S



# Henry Dreyfuss (1904-1972)





*Otto Kuhler (1894-1977)*



Raymond Loewy( 1893-  
1986)



*The Union Pacific contracted with Pullman-Standard in 1934 to construct the M-10000. It was designed by William Stout and built at a cost of \$230,997.00. It consisted of a power car with a Winton 600 HP distillate engine and two coaches.*

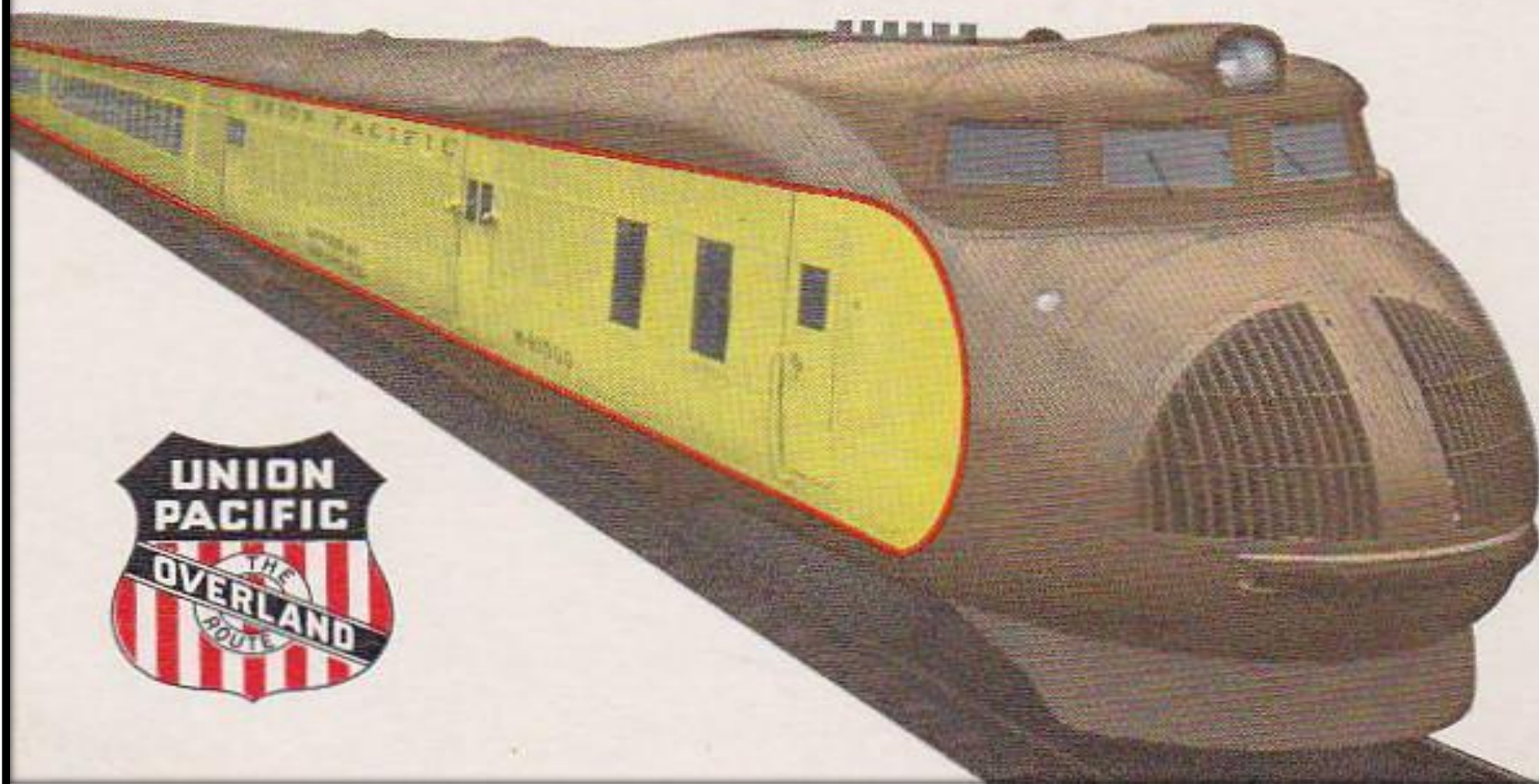
*The train weighed 85 tons; equal to  
the weight of one Pullman Car!*

The Union Pacific began to  
advertise its new train which  
would eventually be named

**The CITY OF SALINA.** The  
train was scrapped in 1942  
to help the war effort.

# The Streamliner

America's First Fully Streamlined, Light-weight, High-speed Train  
Completely Air-conditioned



## EASTBOUND

Lv Salina . . .	7:00 am
Lv Abilene . . .	7:32 am
Lv Junction City	8:00 am
Lv Manhattan . .	8:28 am
*Lv Wamego . . .	8:42 am
Lv Topeka . . .	9:18 am
Lv Lawrence . . .	9:48 am
Ar Kansas City	10:30 am

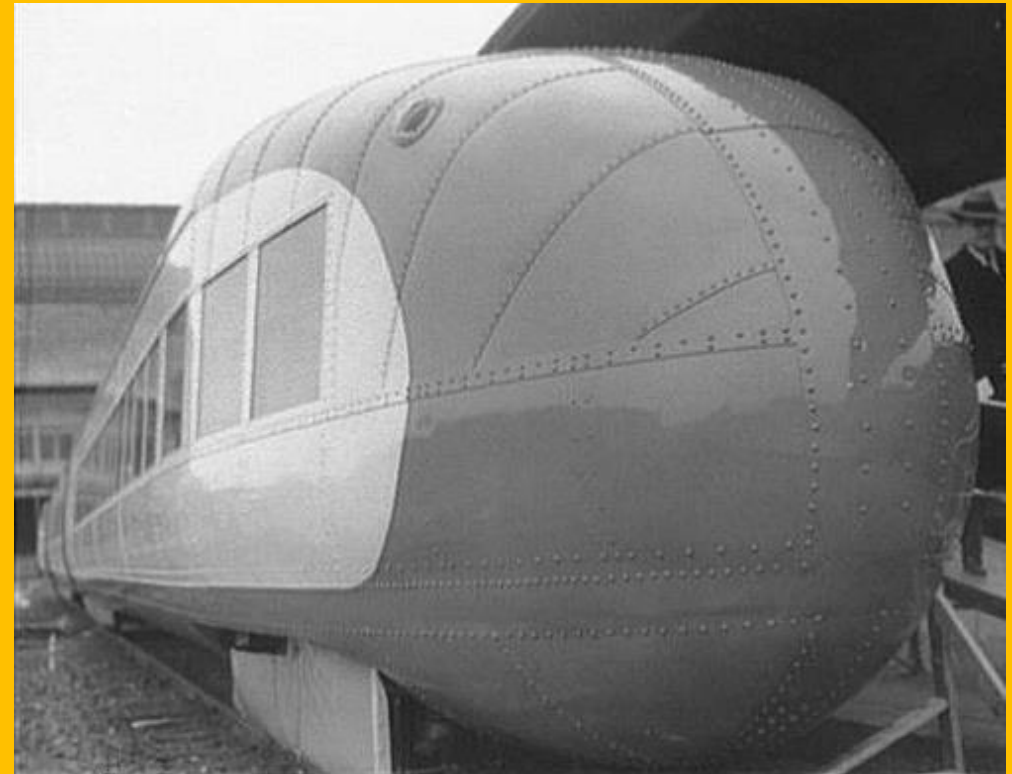
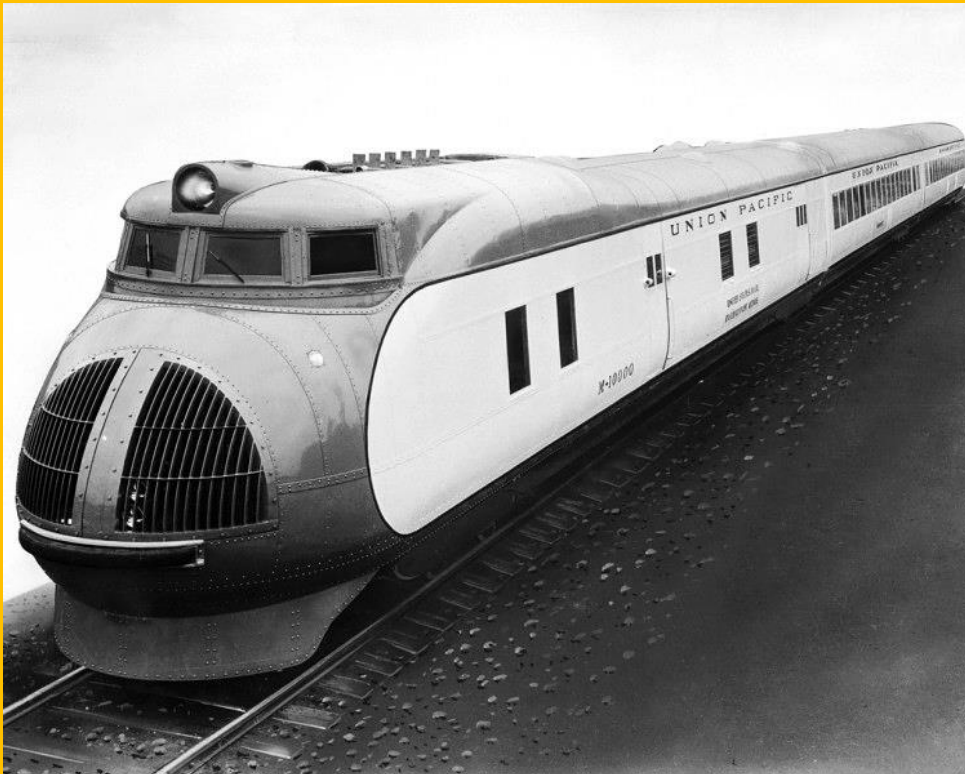
## WESTBOUND

Lv Kansas City	4:00 pm
Lv Lawrence . . .	4:42 pm
Lv Topeka . . .	5:12 pm
*Lv Wamego . . .	5:47 pm
Lv Manhattan . .	6:02 pm
Lv Junction City	6:30 pm
Lv Abilene . . .	6:58 pm
Ar Salina . . .	7:30 pm

\* Flagstop



# Front and rear of the M-10000



# UP M-10000 and Chrysler AirFlow



# Same scene re-created in HO Scale



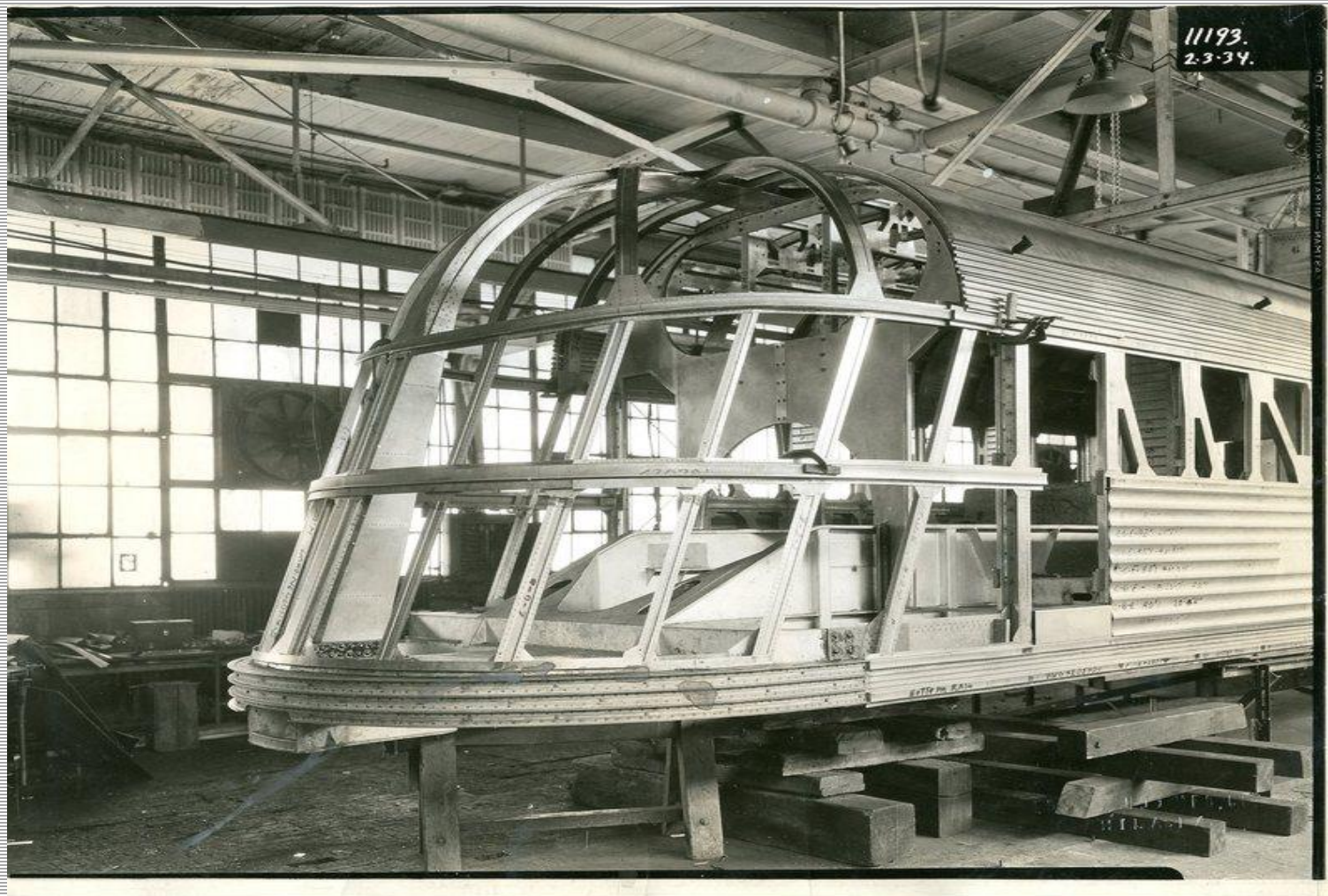


**In the meantime, the Burlington Route  
in 1934 contracted with the Budd Co. of  
Philadelphia to construct a three-car  
lightweight train of stainless steel...  
It would be diesel powered!**

It would be named “Zephyr” after the  
God of the West Wind



# Under construction at the Budd Co.





The completed train.



# *Advertising announcing The Zephyr*



The Burlington displayed the train. It drew more attention than the UP's M-10000.

*The Zephyr*  
Burlington's Streamline Motor Train



*built of*  
Stainless Steel  
Diesel Engine  
ARTICULATED TRUCKS  
ROLLER BEARINGS  
AIR CONDITIONED

**PUBLIC EXHIBITION**  
DETROIT  
Wednesday, May 2 11:00 a. m. to 9:00 p. m.  
Michigan Central Terminal

Burlington  
Route



On May 26, 1934 the Zephyr  
departed Denver at 5:05AM  
and arrived Chicago at 7:10PM  
the same day; 1015.4 miles!  
The train averaged 78mph.

**In 1935, Hollywood produced SILVER STREAK;  
starring the Zephyr!**



*The train would enter service between Kansas City, MO. and Lincoln, NE. It would remain in service until 1960 where she would be placed on display at the Museum of Science and Industry in Chicago.*





# Zephyr on display at Museum of Science and Industry



In 1935 the New Haven RR introduced The Comet to operate between Boston and Providence. It was designed and built by the Goodyear-Zeppelin Co. of Akron OH.





*The Comet was unique among these motor trains in that it was double-ended. The train did not require turning at its destinations.*



*The World's Finest* **STREAMLINED TRAIN**

*Introducing* **"THE COMET"** . . . last word in luxury rail travel



**ULTRA-MODERN AIR-CONDITIONED STREAMLINED TRAIN ..THE NEW HAVEN'S "COMET"**

*Note that there is a cab  
at each end.*

# The Comet

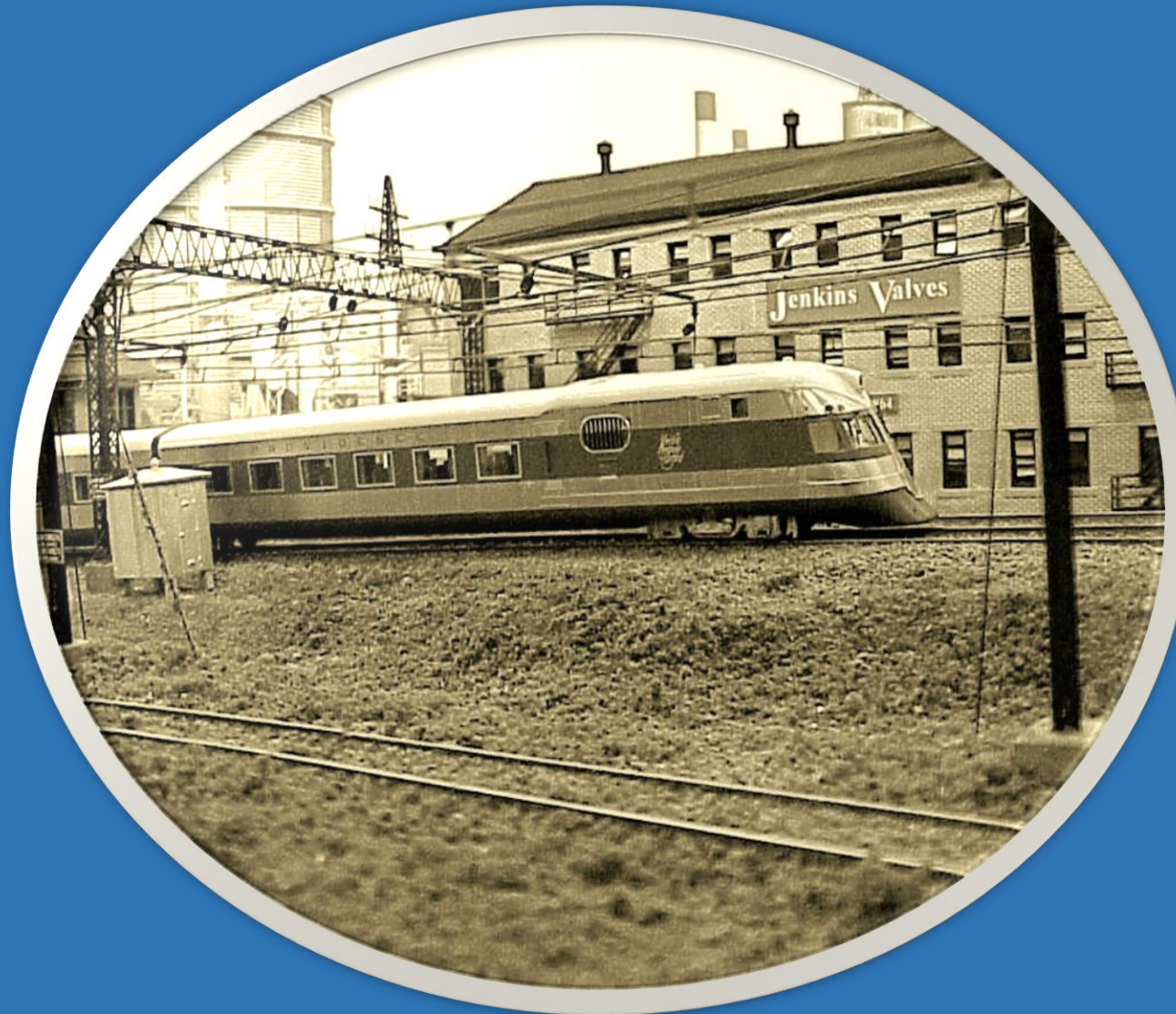


# Comet on display in Canaan, CT.



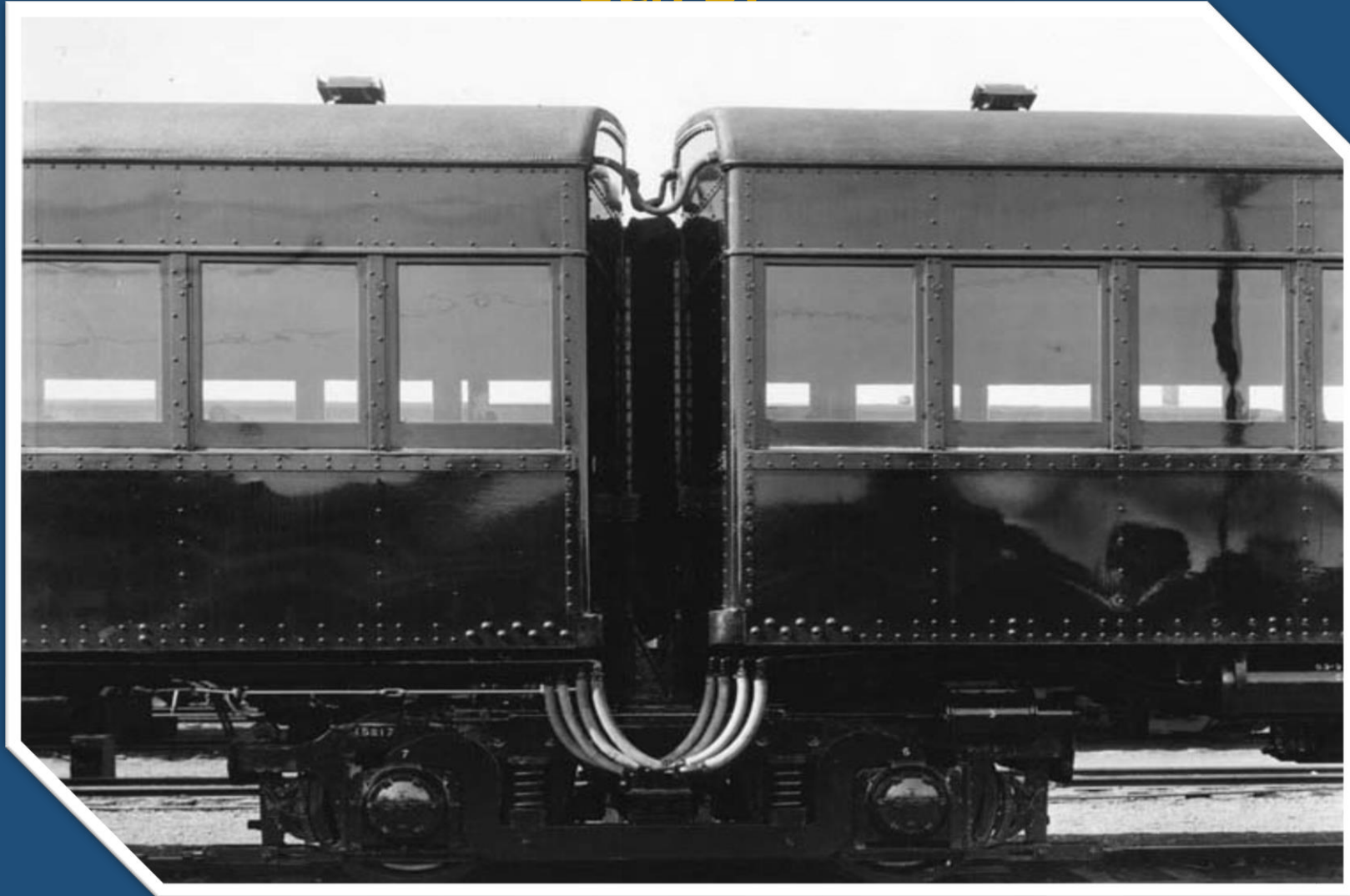


H0 Scale model of the Comet on my layout.



A problem which eventually revealed itself with these motor trains was the fact they were articulated. Due to this, they had fixed consists; cars could not be added to these trains.

In articulation, one truck supports two cars.



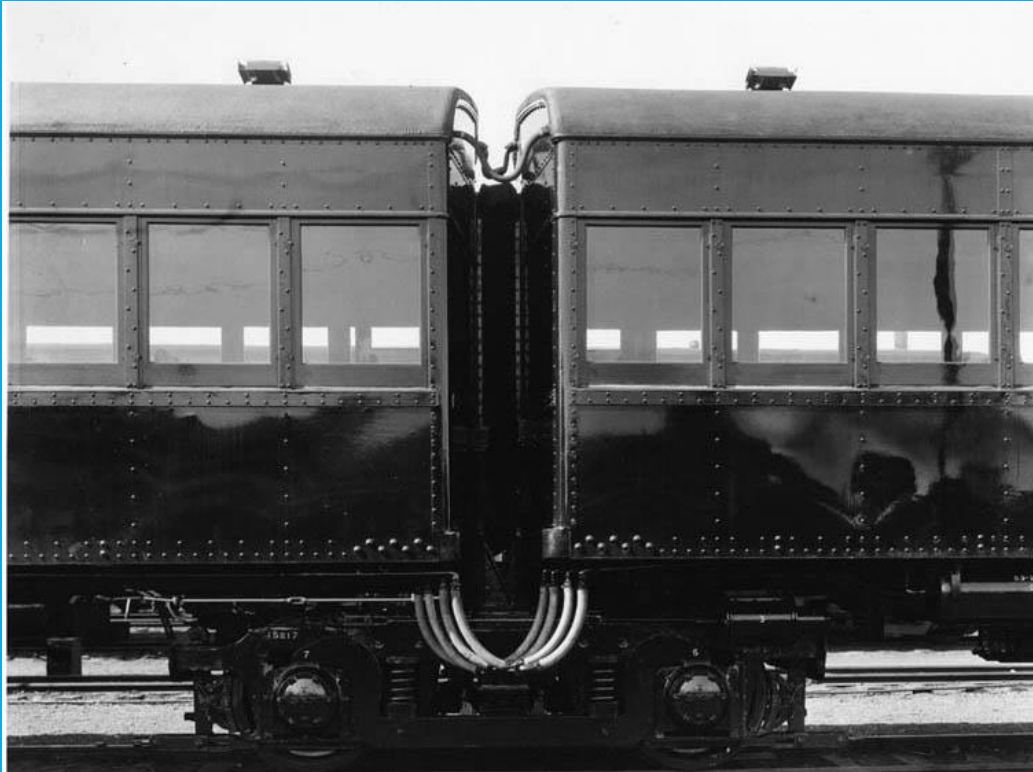


*A conventional passenger car.*



Note the difference.

**Articulated**



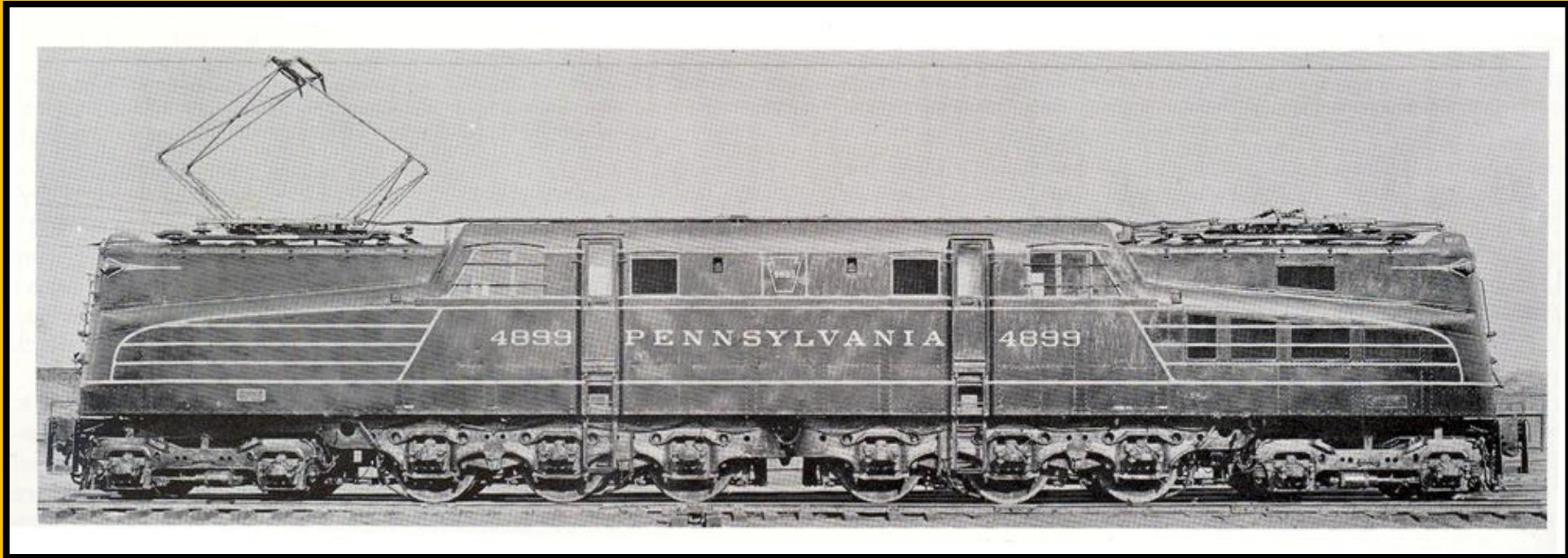
**Conventional**



**Streamlining also  
assumed other forms  
beyond the motor trains,  
such as the Pennsylvania  
Railroad's GG1 of 1934.**



**The first GG1 with its heavily riveted carbody  
and not-so-pleasing striping.**



Contrary to common belief, Raymond Loewy did not design the GG1.

In fact, it was designed by Donald R. Dohner of GE.

Raymond Loewy was called upon by the PRR to “clean the engine up aesthetically.”

*First GG1 after Raymond Loewy re-designed the  
striping.*





**Original Striping**



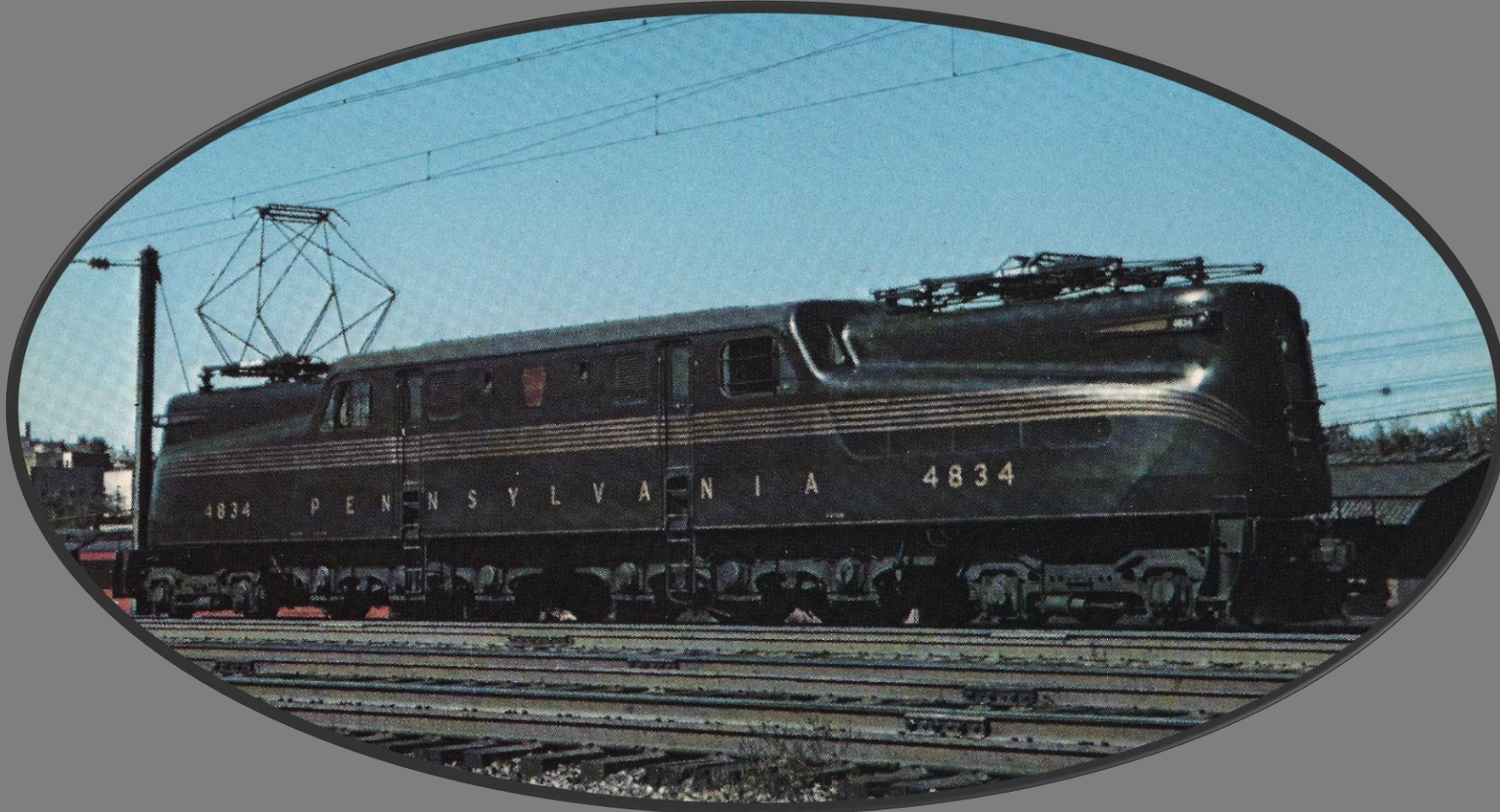
**Striping designed by Raymond Loewy**



**Raymond Loewy then proposed  
an all-welded carbody which  
would be aerodynamically  
smooth and more pleasing to  
the eye.**



This was the result, smooth aerodynamic carbody and closely spaced stripes. The GG1s operated from 1934 to 1983.





# New Haven EP-4, GE 1938.



On October 29, 1983 NJ Transit sponsored  
**“THE LAST RUN OF THE GG1”**





# Restored GG1's.



RollPicture.Net - Images Copyright Jeff Berrowink



Trains of the times were hauled by black steam engines and dark green cars. . . .



In 1934, the New York Central employed the services of industrial designer Henry Dreyfuss to take one of its famous Hudson Type locomotives and streamline it.



He designed a streamlined shroud to encase the locomotive and tender.

The result was the **COMMODORE VANDERBILT**. It would have the distinction of being the first streamlined steam locomotive in the US.



This was the result of actual wind tunnel testing of models.



# New York Central advertising for The “Commodore Vanderbilt”



# The “COMMODORE” departing Chicago with the 20<sup>th</sup> Century Limited.





The first steam locomotive *built* to be streamlined was Otto Kuhler's design for the Milwaukee Road in 1935. The engines were built by The American Locomotive Company. They were used on the twin cities Hiawatha.



The engines were painted in a flashy gray, maroon and orange.



In 1936 the New York  
Central contracted once  
again with Henry Dreyfuss to  
streamline a locomotive for  
their new MERCURY  
between Cleveland and  
Detroit.



*Poster announcing the* **MERCURY**



The new streamlined MERCURY locomotive.



# **The Mercury on display in Grand Central Terminal.**



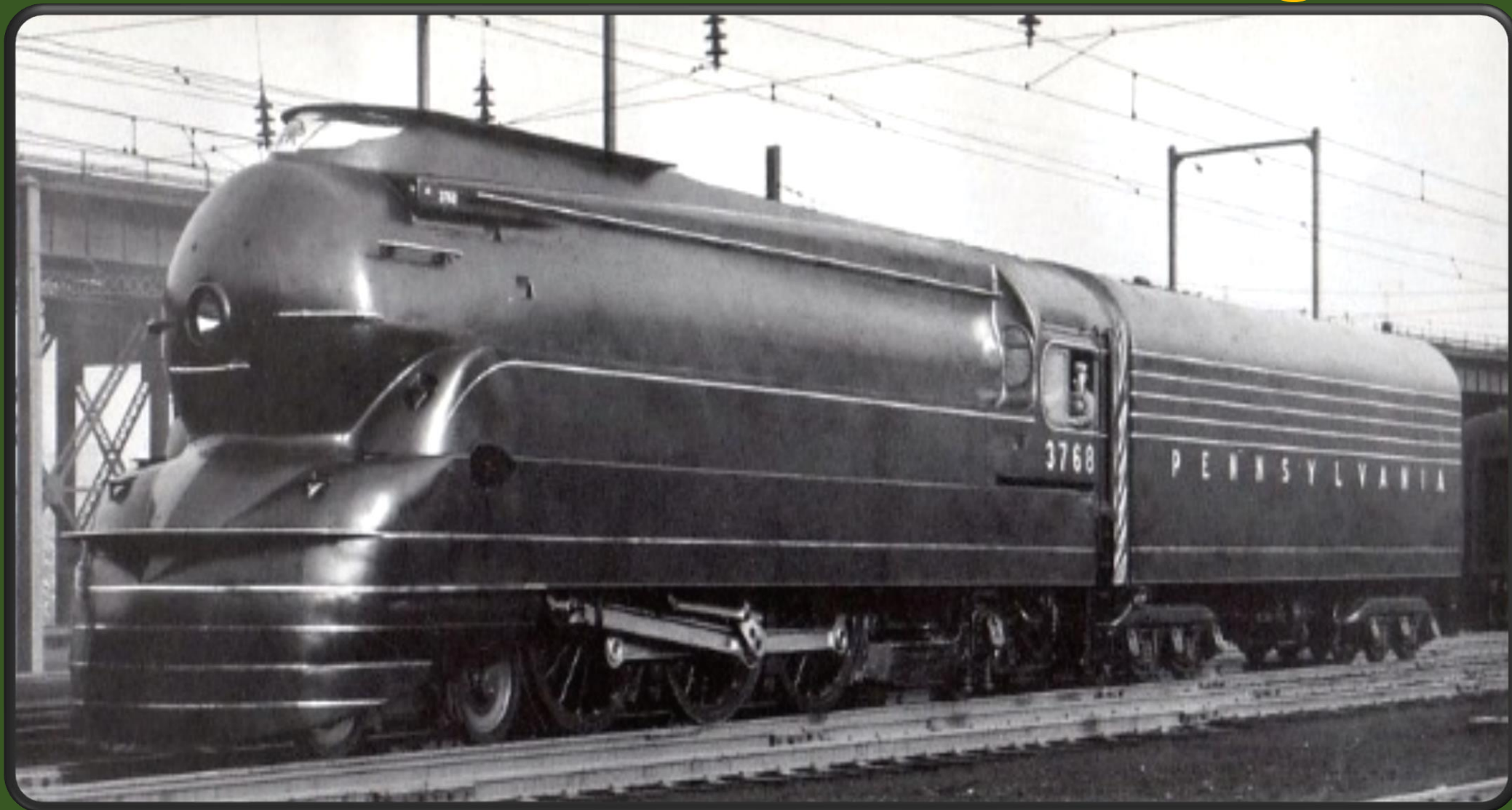


*Not to be outdone, the Pennsylvania  
RR contracted with Raymond Loewy in  
1936 to streamline one of its K4s class  
locomotives.*

The engine selected was K4s No.3768  
pictured below.

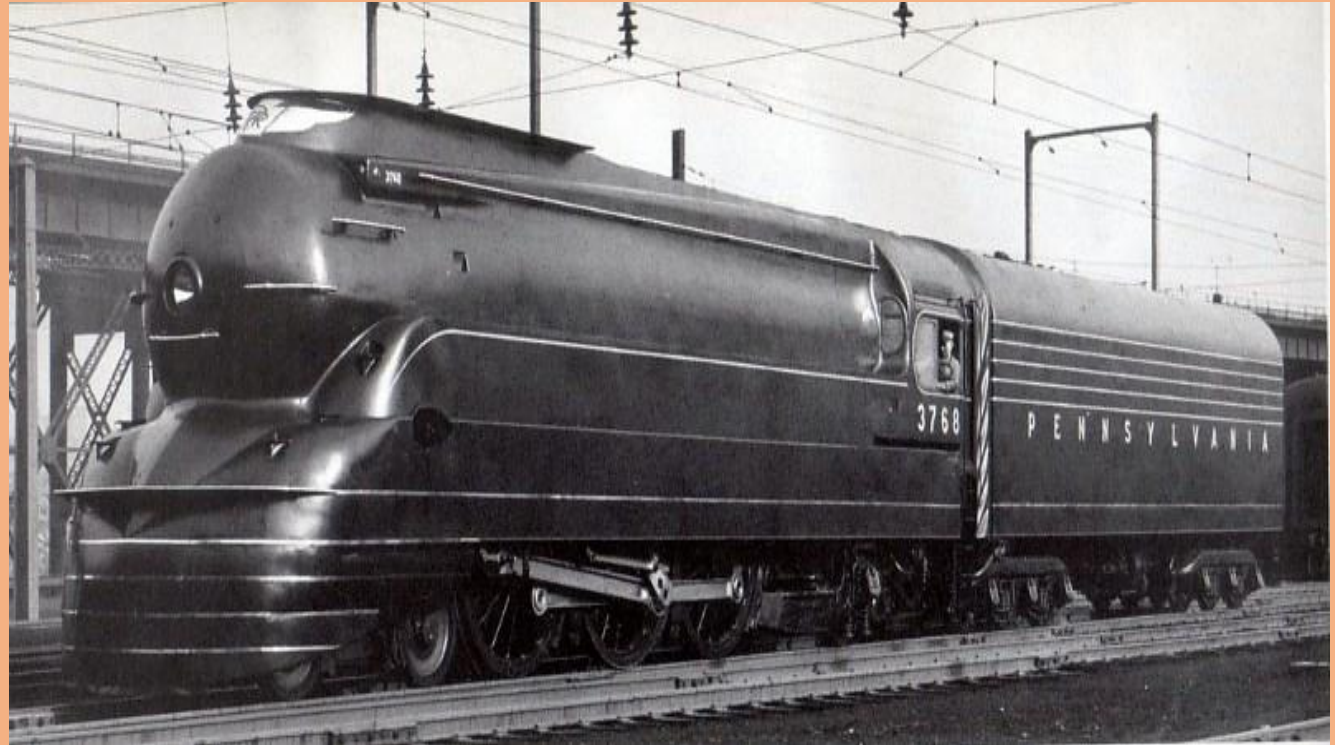


# No.3768 after streamlining.

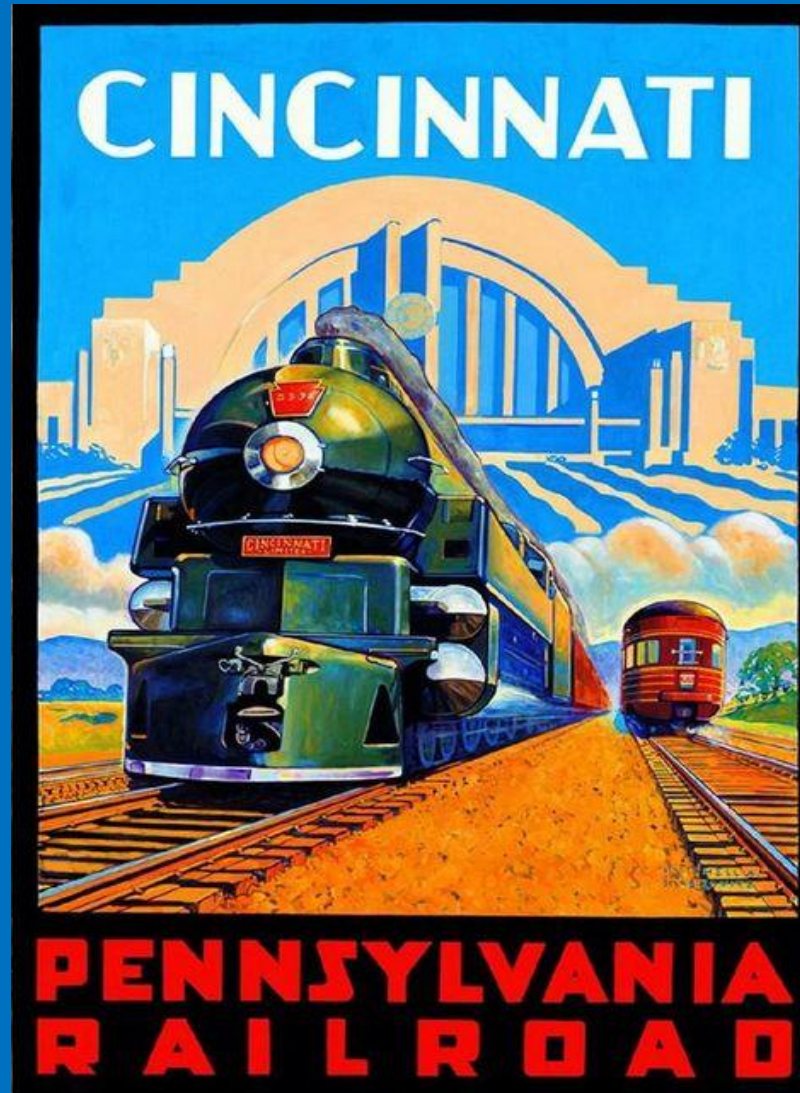




# No. 3768 before and after streamlining.



# Pennsylvania Railroad travel poster.



In 1938 the New York central  
once again called upon  
Henry Dreyfuss to streamline  
the engines and cars for  
the 20<sup>th</sup> century limited.



The result was  
one of the most  
classic designs of  
the 1930s.

The engine boasted a powerful front with a strong vertical fin. Seen here at the 1939 NYWF.

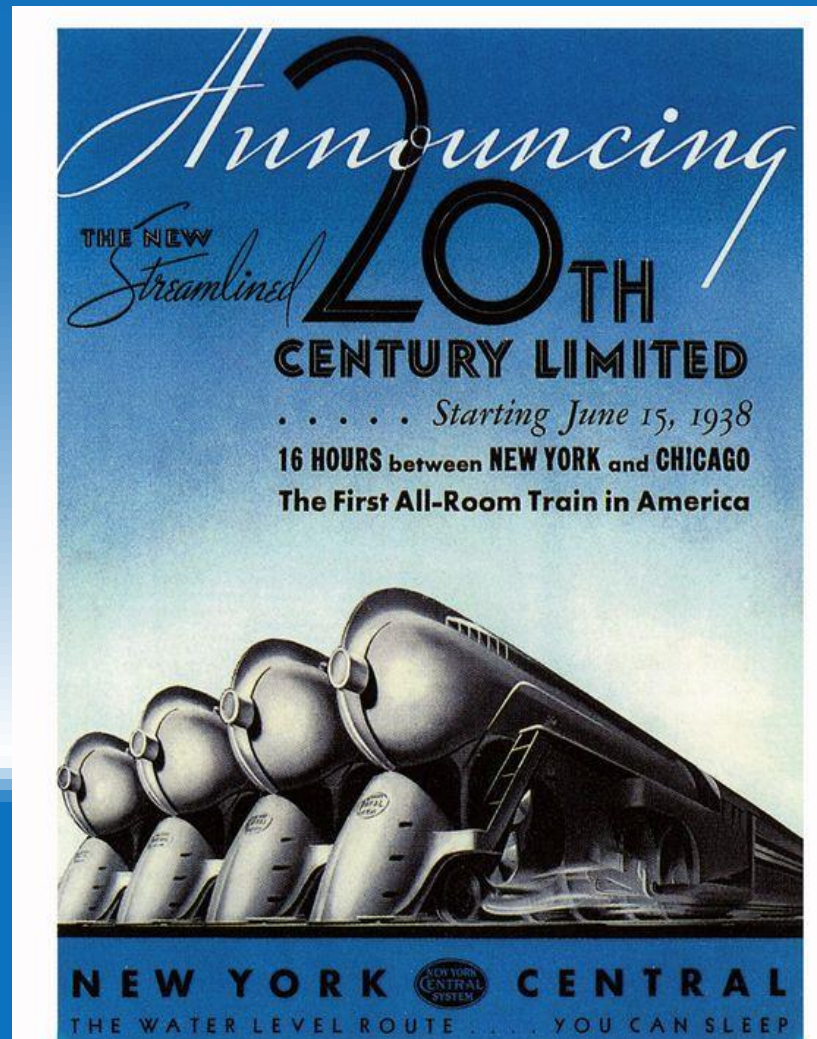


# The classic, Dreyfuss NYC Hudson.

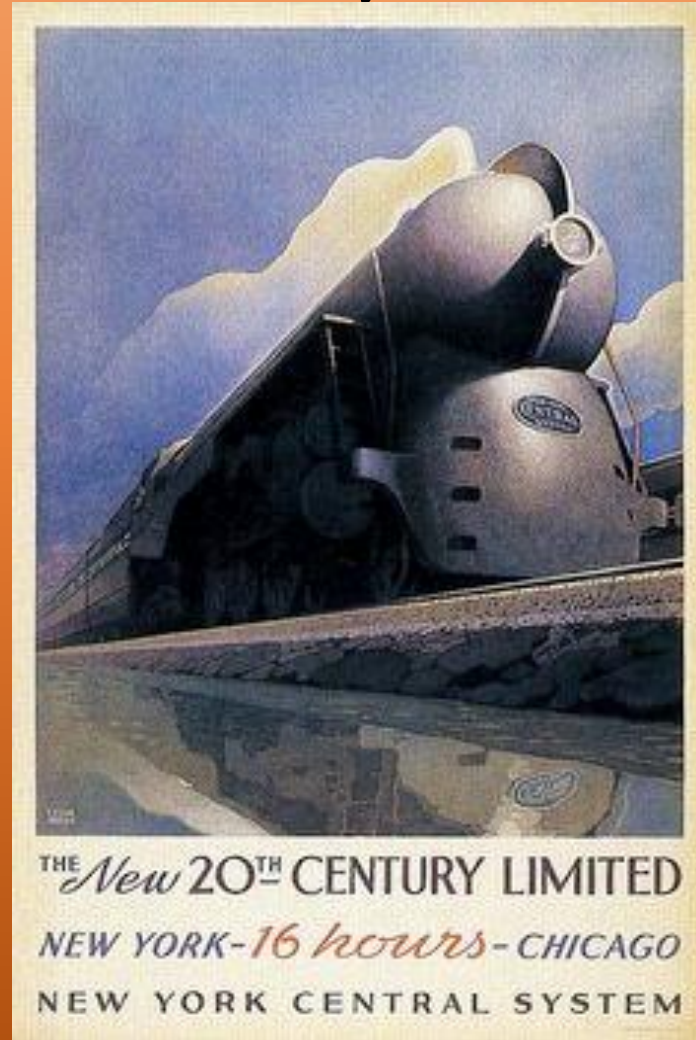




# The NYC Announcing the new 20th Century Limited



# *Advertising for the re-equipped 20<sup>th</sup> Century Limited*





Henry Dreyfuss stressed function over form whereas Raymond Loewy was the opposite.

Running gear exposed.



Running gear covered over.





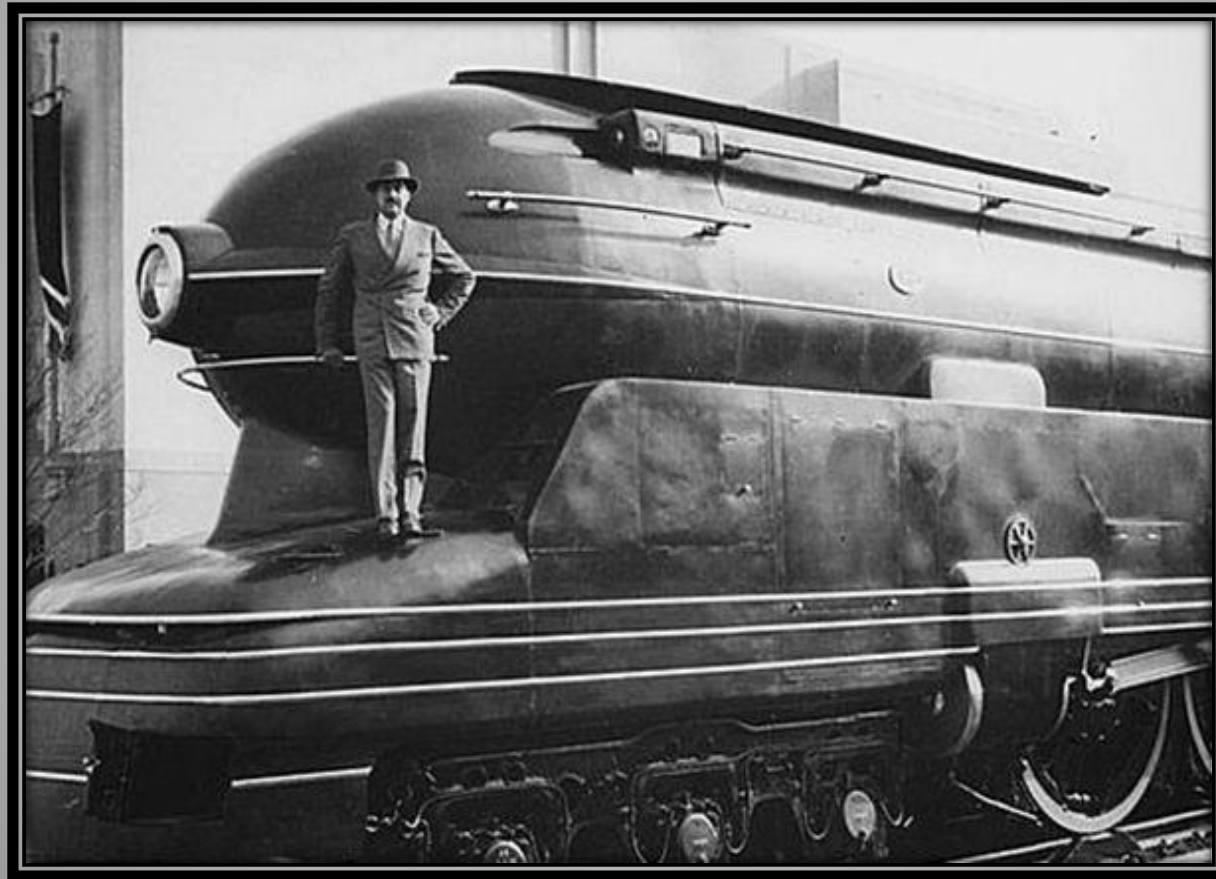
In 1938 the Pennsylvania RR built the largest streamlined steam locomotive, it was 140' long and weighed 304 tons. designed by Raymond Loewy it was put on display at the 1939 NYWF. It soon became known as "The Big Engine."



# PRR calendar painting of the “Big Engine.”



# Raymond Loewy on his creation.





The engine was placed in revenue service in 1940 between Chicago and Crestline, OH. It was too big to operate elsewhere and was considered not much of a success. As was the case with many streamlined steam locomotives, the shrouding that covered vital parts was removed. It was scrapped in 1949.



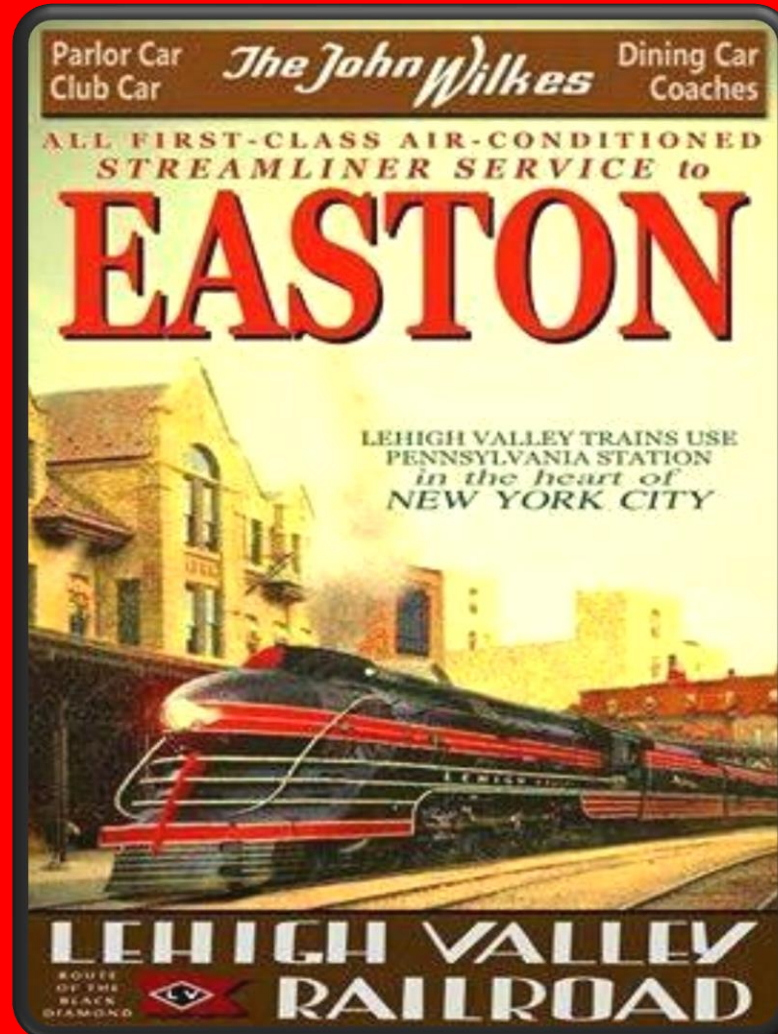
# Otto Kuhler's design for the Lehigh Valley in 1939.



© Mark Karvon

"The John Wilkes"  
K5B 4-6-2 Streamlined Pacific  
Lehigh Valley Railroad 1939

# Lehigh Valley advertising for the *John Wilkes*





# The Union Pacific's 49er; 1937-1941

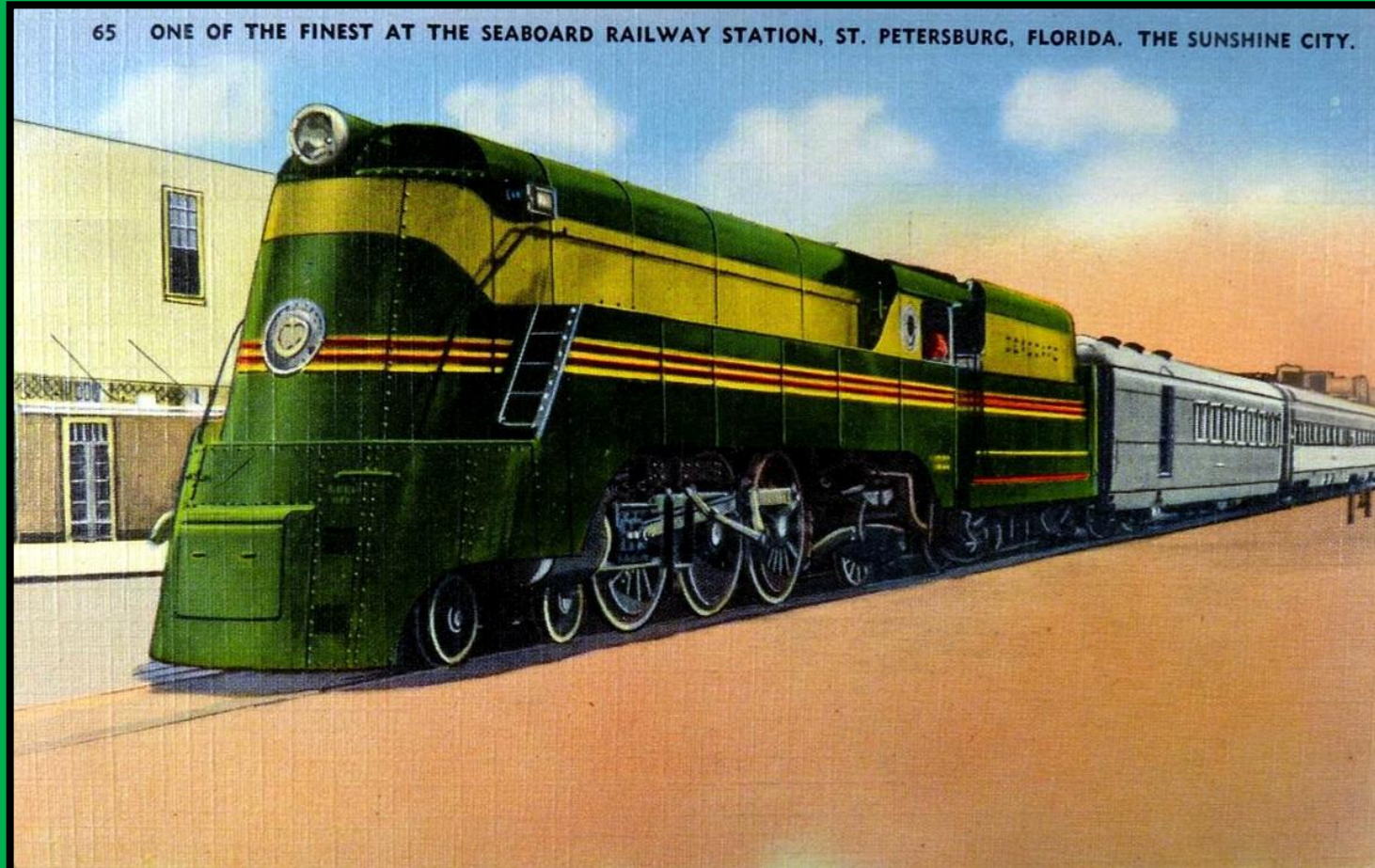


# Santa Fe's Blue Goose of 1937





# Seaboard Airline RR.





Brochure for the New Haven's new streamlined steam locomotives, 1937.





# Brand-new I-5 at the Baldwin Locomotive Works

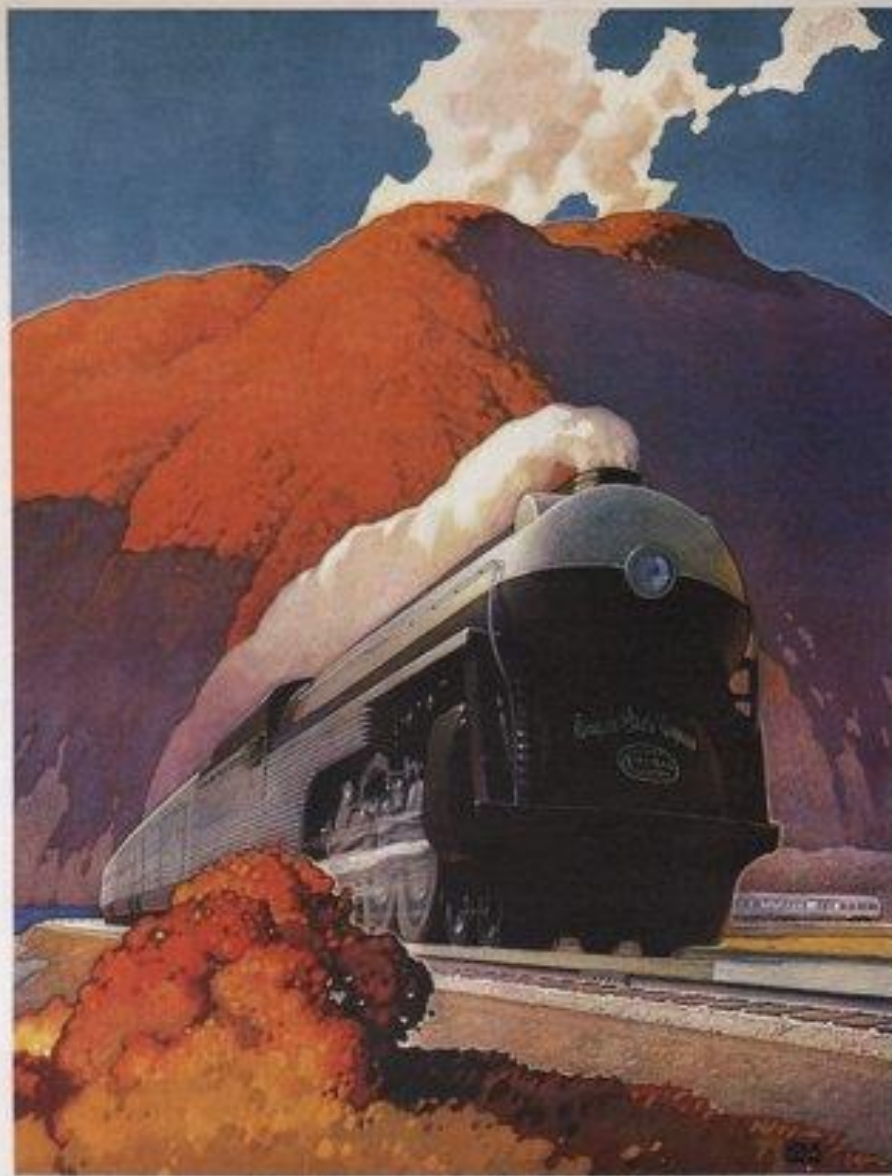


# I-5 in South Station, Boston; 1937.





*In December of 1941 the New York Central introduced the all-new streamlined Empire State Express designed by Henry Dreyfuss. It operated between NYC and Buffalo.*



*The New* **EMPIRE STATE EXPRESS**  
NEW YORK CENTRAL SYSTEM

# The all-new *Empire State Express*



New York Central's Empire State Express, fiftieth anniversary edition, December 1941.  
Scan and recomposition by Paul F. Doering from a NYC publicity photo



# Unfortunately, the trains' introduction on December 7, 1941 was overshadowed by other events.

## Japan Declares War on United States, Great Britain

EXTRA

Washington C.H. Record-Herald

EXTRA

FULL ASSOCIATED PRESS LEASED WIRE NEWS SERVICE

VOLUME SIXTY-TWO TO, 362 Business Office Phone—2212 Editorial Dept.—4791

WASHINGTON C. H., OHIO SUNDAY, DECEMBER 7, 1941

THREE CENTS

# JAPAN OPENS WAR ON U. S.; HAWAII IS ATTACKED, BOMBED

## 350 Killed At Air Base In Honolulu

NEW YORK, Dec. 7.—(P)—Japanese warplanes killed 238 men at Hickam Field and set fire to the U. S. Battleship Oklahoma today in a sudden raid on Pearl Harbor and Honolulu, an NBC observer reported direct from the scene today.

Two other ships in the harbor also were attacked, he reported. The first news of the attack came about 8 A. M. Honolulu time, (1:30 P. M. EST), he said.

This was when a private plane owner reported he was giving a salute of machine gun bullets to the Japanese planes. His craft was damaged but he managed to land.

Several of the attacking planes, which came from the south, were shot down, the observer said. The observer, standing on the roof of the Advertising Building in Honolulu, said the planes, undoubtedly Japanese, made the raid unexpectedly. His report was suddenly broken off.

Before its interruption, his report said:

"We have witnessed this morning the attack of Pearl Harbor and a severe bombing of Pearl Harbor by Army planes, undoubtedly Japanese."

"The city of Honolulu has also been attacked and considerable damage done."

"This battle has been going on for nearly three hours."

"One of the bombs dropped within 50 feet of the G. I. tower."

"It is no joke, it is a real war."

"The public of Honolulu have been advised to keep in their homes and away from the Army and Navy. There has been severe fighting going on in the air and on the sea."

At this point, the broadcast was interrupted.

## FDR Calls Emergency Meeting War Message Is Expected To Come Soon

WASHINGTON, N. Dec. 7.—(AP)—The President decided today after Japan's attack on Pearl Harbor to call an extraordinary meeting of the cabinet for 8:30 P. M. tonight and to have Congressional leaders of both parties join the conference at 9 P. M.

Mr. Roosevelt, the White House said, "is assembling all the facts as rapidly as possible and in all probability he will, as quickly as possible, make a full, informative report to Congress, probably in the form of a message."

At the time of his decision for a special meeting of the cabinet and congressional chieftains, Mr. Roosevelt was conferring with his war and navy chief.

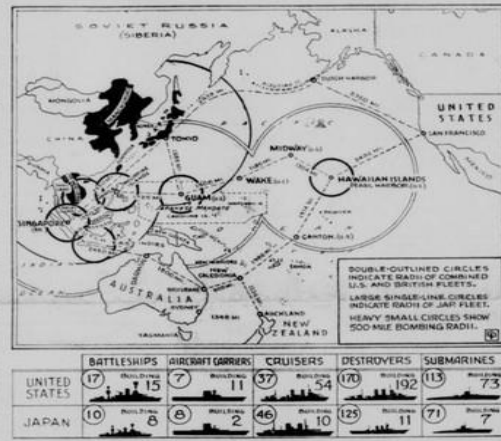
President Secretary Stephen Early said that the meeting would emphasize international affairs, rather than military strategy. He emphasized that for the time being Mr. Roosevelt was not calling in chairmen of the Senate and House military and naval committees.

Invited to the White House from Capitol Hill tonight were Vice President Wallace, Speaker Rayburn, House Majority Leader McCormack, House Republican leader Martin, Chairman Bloom of the House Foreign Affairs Committee, Representative Eaton (R-N.J.), a high-ranking minority member of the same committee; Senator McNary of Oregon, the Republican leader; Senator Austin of Vermont, the assistant Republican leader; Chairman Connally (D-Tex.) of the Senate Foreign Affairs Committee; Senator Barkley of Kentucky, the majority leader, or in his place, a acting leader, Senator Hill.

Early said that so far as the President's information went at 7:30 a. m. were still in progress at Manila and in Hawaii. In other words, he said, "we don't know that the Japanese have bombed and left."

He went on to say:

LINEUP OF PACIFIC WAR STRENGTH



## NAVAL BATTLE FOLLOWS-U. S. CURBS ENEMY

Japanese Strike Without Warning From Behind Screen of Peace Negotiations—Hitler's Conquest Flares Suddenly and Violently Into World Conflict

BULLETIN  
TOKYO, Monday, Dec. 8.—(AP)—Japanese Imperial headquarters announced at 6 P. M. today that Japan had entered a state of war with the United States and Britain in the Western Pacific as from dawn today.

(By the Associated Press)

Japan attacked the United States today, striking by air at the great Pearl Harbor naval base at Honolulu and at Manila, and latest reports indicated that the United States had won the first battle in the new World War.

"The Army and Navy, it appears, now have the air and sea under control," said an NBC broadcast from Honolulu, a few hours after the Japanese opened the assault.

Adopting Adolf Hitler's surprise tactics of striking over the week end—ignoring President Roosevelt's personal last-hour appeal for peace to Emperor Hirohito last night—the Japanese attacked the two keystones to American defense in the Pacific approximately 9:20 A. M., Honolulu time (3:30 P. M. E. S. T.).

The war that Adolf Hitler started in September 1939 exploded into a world conflict today as Japanese bombers, striking without warning, attacked the United States.

## Guam Naval Base Also Is Attacked

Followed by a swarm of reporters and photographers, the two Japanese finally escaped into an elevator.

Hull had been at his desk since 9:45 A. M. At 10 o'clock Secretary of War Stimson and Secretary of the Navy Knox entered and were closeted with him for three full hours.



**Streamlining even entered the world of the interurbans  
such as the North Shore Line's famous Electroliners of 1941.**





# Restored Electroliner at The Illinois Railway Museum





# Nearing the end of streamlined steam.

**PRR T1**



**Southern Pacific GS-4**

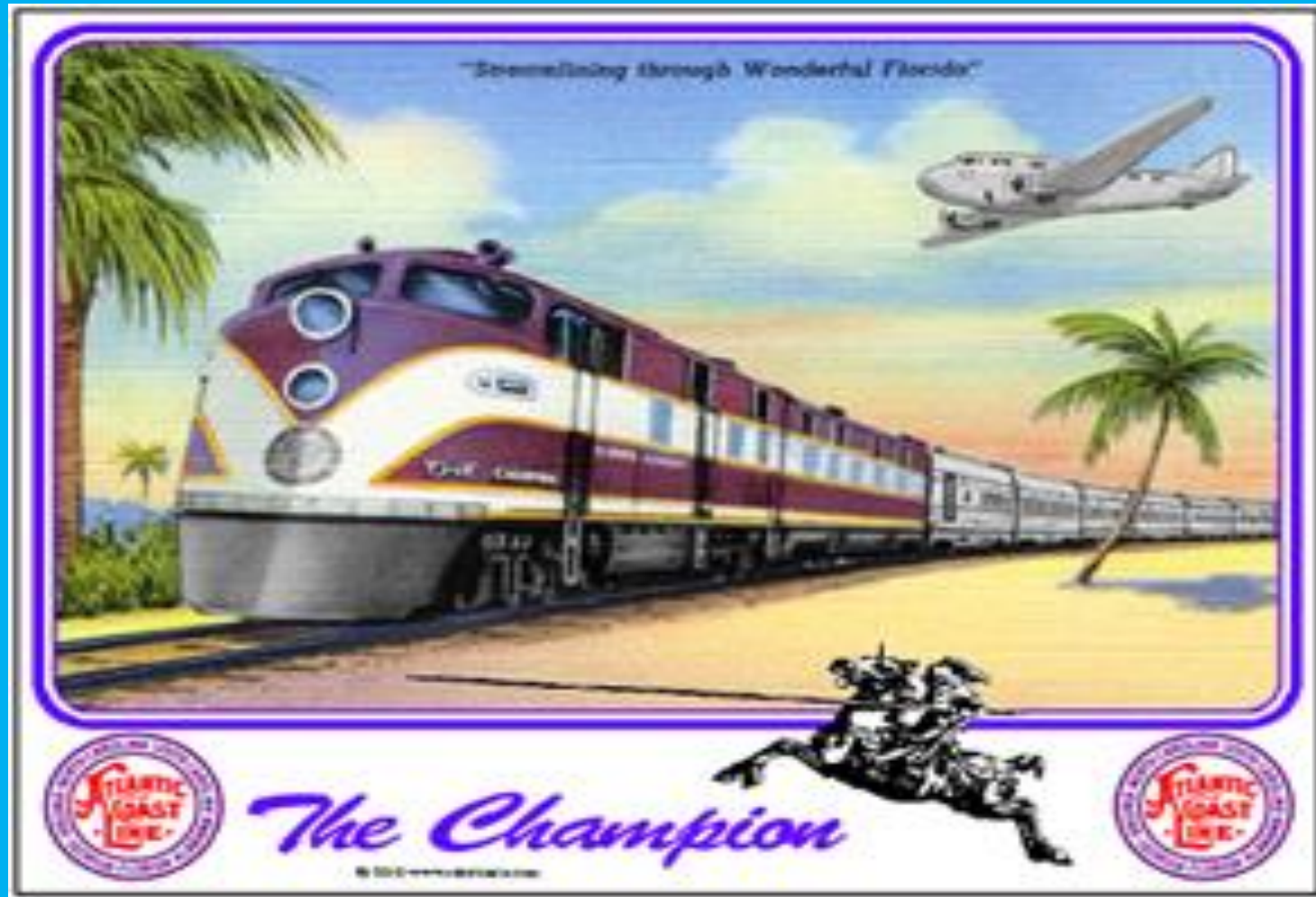


*Diesels began replacing steam in 1939.*



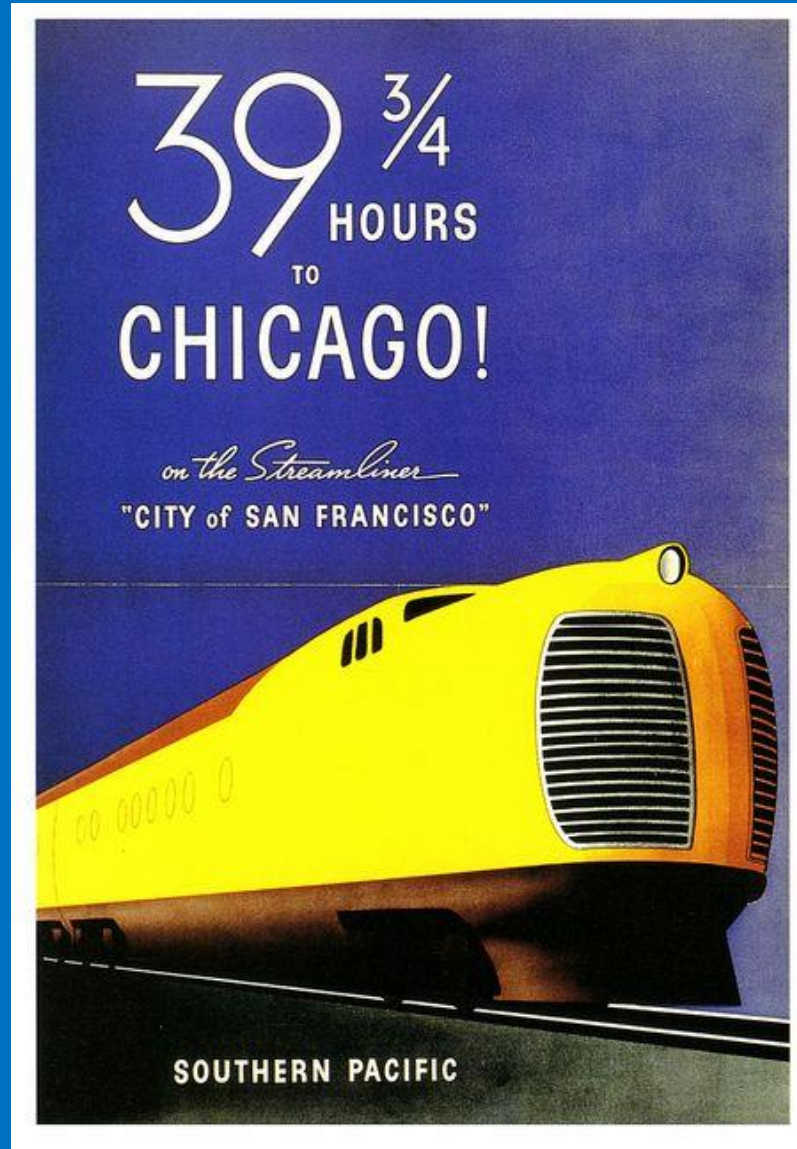


# Atlantic Coast Line's, *The Champion*





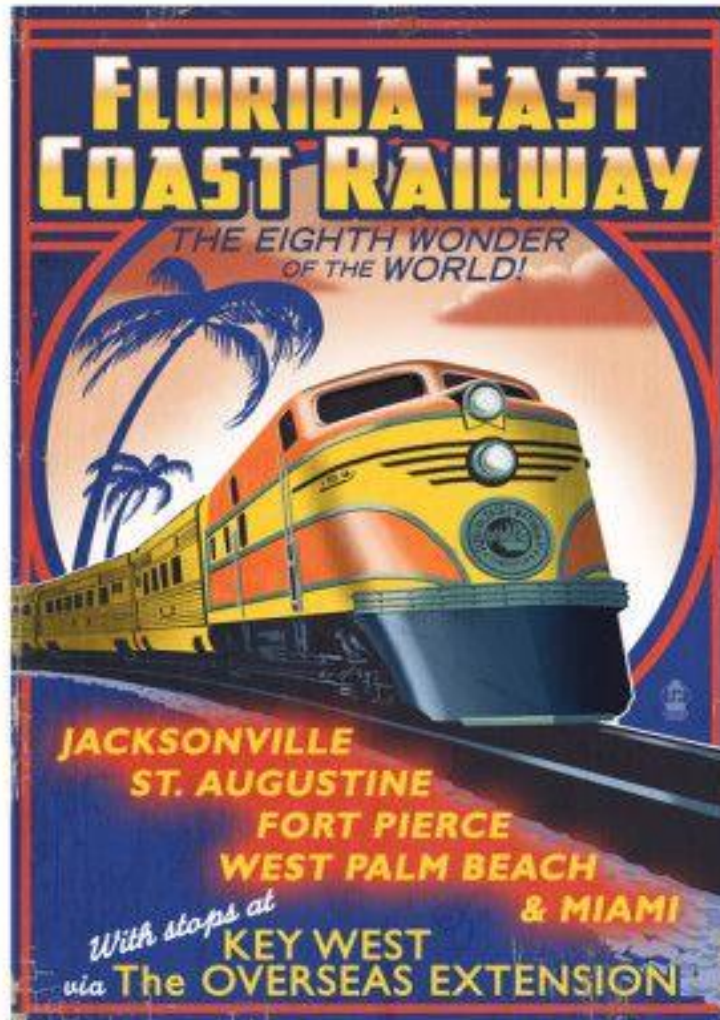
# The City of San Francisco



# ILLINOIS CENTRAL GREEN DIAMOND



# Florida East Coast Ry. 1939.





**BY THE END OF WWII,  
RETURNING SERVICE  
PERSONNEL WANTED NEW  
CARS. . .NOT TRAINS.  
ONCE AGAIN REVENUES  
BEGAN TO FALL. THE  
RAILROADS THOUGHT  
WHAT WORKED IN THE  
1930S COULD WORK AGAIN.**



# Talgo Train

**New Haven's John Quincy Adams**



# Train-X

**New York Central's Xplorer**





# GM *Aerotrain*



# New Haven's Roger Williams



RRPictureArchives.NET Image Contributed by EDWARD J. OZOG

*Except for the Roger Williams, all of these concepts were dismal failures and did not allure people back to the rails.*

*The American passenger train was dying!*

The Amtrak logo features a stylized red and blue chevron pointing right, followed by the word "Amtrak" in a bold, black, sans-serif font. The chevron is composed of two parallel lines, one red and one blue, with a white space between them. The word "Amtrak" is positioned to the right of the chevron, with the "A" and "M" being slightly larger than the other letters.

# Amtrak

The Trend was totally reversed with the creation of Amtrak beginning in 1971.





The Acela trains which were introduced in 2000 have done a marvelous job of bringing travelers back to the rails.



The new Acela, scheduled to enter service late 2021.





# New Acela test train in Bridgeport, CT.





An illustration of a steam locomotive, the Comet, in profile, facing right. It has a grey body with a dark blue stripe along the bottom and a lighter blue stripe above it. The name 'THE COMET' is written on the side. A small logo for 'The New York, New Haven and Hartford RAILROAD CO.' is visible on the side of the engine. The background is a light blue sky with white clouds. The locomotive is on a track, and the bottom of the image is a solid yellow background.


*Will they follow in the foot steps of their  
1930s brethren?*

*Only time will tell. . .*



**“COMET”**





The end

*Thank you!*