

1958

The Trolley Museum: Seashore Electric Railway on U.S. 1, Kennebunkport, Maine

Seashore Electric Railway

New England Electric Railway Historical Society

Follow this and additional works at: https://digicom.bpl.lib.me.us/railroad_pubs

Recommended Citation

Seashore Electric Railway and New England Electric Railway Historical Society, "The Trolley Museum: Seashore Electric Railway on U.S. 1, Kennebunkport, Maine" (1958). *Maine Railroad Publications*. 43.
https://digicom.bpl.lib.me.us/railroad_pubs/43

This Book is brought to you for free and open access by the Railroads in Bangor and Vicinity at Bangor Community: Digital Commons@bpl. It has been accepted for inclusion in Maine Railroad Publications by an authorized administrator of Bangor Community: Digital Commons@bpl.

The TROLLEY MUSEUM

Seashore Electric Railway
ON U. S. 1 IN ARUNDEL
Kennebunkport, Maine



THE WORLD'S OLDEST, LARGEST, AND MOST VARIED COLLECTION OF ELECTRIC RAILWAY CARS

PASSENGER CARS

No.	Type	Builder	Year	Trucks	Motors	Control	Former Owners
10	Horsecar	Brill	1880	Brill			Union St. Ry. (New Bedford)
12	Open Horse Car	Brill	1886				Fitchburg; Templeton; No. Mass.
925	Parlor car	Jones	1894	Brill 21E	2-GE86	K-28N	West End St. Ry.; Boston El.; MTA
60	20-ft. box	Laconia	1895	Brill 21-E	2-WH3	K-2	Manchester St. Ry.
City of Man- chester	Parlor Car	Briggs	1895	Brill 21-E			Manchester St. Ry.
31	12-bench open	Brill	1900	Brill 22-E	2-GE200	K-36J	Biddeford & Saco R. R.
396	25-ft. box	St. Louis	1900	Peckham 14B4	2-GE86	K-28G	Boston Elevated Ry.; MTA
615	15-bench open	Brill	1901	Standard O-50	4-GE80	K-35G	Connecticut Company
24	Duplex	Briggs	1901				Templeton St. Ry.
50	Railroad Roof Box	Laconia	1901			K-71	Haverhill, Plaistow & Newton, Mass. NE
475	26-ft. box	Newburyport	1903	Taylor LB	2-GE86	K-28N	West End St. Ry.; Boston El.; MTA
105	Cable	Mornington	1903	Cable		Grip	Mornington Boro; Dunedin City
3352	Steel Subway	Pressed Steel	1904	Baldwin MCB	2-GE69B	M, C18A	IRT; City of N. Y.
838	15-bench open	Jones	1905	Taylor SB	2-WH93A	K-6A	Connecticut Company
1160	Railroad roof box	Stephenson	1906	Standard O-50	4-GE80	K-6	Connecticut Company
521	Los Angeles Std.	St. Louis	1906	L. A. Ry. T-3	4-GE265C	K-35JJ	L. A. Ry.; L. A. Transit Lines
4547	Convertible	Jewett	1906	Bald. 185, Peck. 25	4-WH101B	K-28B	BRT, BMT, City of N. Y.
38	Interurban	Laconia	1907	Laconia 9B	4-GE80	K-28B	Manchester & Nashua St. Ry.
1267	Wire gate semi-convertible	Transit Supply	1907	TCL 9 Roller Brg.	4-GE203	K43F2	Twin City Rapid Transit Co.
5060	Type 2 Semi-convertible	Brill	1907	Brill 27	2-WH306CVD	M, C26C	Boston Elevated Ry.; MTA
225	Chicago Std.	Pullman	1907	Baldwin 150	4-GE216A	K-35C	Chicago Rys.; CSL; CTA
1391	15-bench open	Bradley	1910	Standard O-50	4-GE80	K-35G	Connecticut Company
1468	15-bench open	Bradley	1911	Standard O-50	4-GE80	K-35G	Connecticut Company
6618	Nearside center exit	Brill	1911	Brill 39E	2-GE201F	K-36J	Phila. R. T. Co., Phila. Transportation Co.
70	Coach-baggage	Wason	1912	Brill 27-MCB2	4-GE217	K-42A	Aroostook Valley R. R.
434	Stone & Webster Std.	American Car Company	1914	Brill 39E1	2-GE201	K-68A-LB	Dallas Ry. & Terminal Co.
40	Interurban	Laconia	1915	Baldwin AA	2-GE203	HL	Portland-Lewiston Ry.
8	Austerity	Wason	1917	Brill 21-E			Twin State Gas & Elec. Co.
5748	Brill Semi-Convertible	Brill	1917			K-35U2-LB	Un. Rys. & Elec.; Balto. Transit
4387	Convertible	Laconia	1918	Bav State 12C	4-GE247	PC5, CJ129A	Eastern Mass. St. Ry.
6270	M-U cent. entr.	Kuhlman	1918	Brill 77E	4-GE247	ABPC, 32A	Boston Elevated Ry.; MTA
80	Birney Safety	American Car Company	1919	Brill 78-M	2-GE264A	K-10A	Denver & So. Platte; York Utilities
82	Birney Safety	American Car Company	1919	Brill 78-M	2-GE258C	K-10A	Denver & So. Platte; York Utilities
610	Interurban	Ottawa	1922	Taylor MCB	4-WH306CVD	HL, 15B	Montreal & So. Counties
5821	Type 5 Semi-convertible	Brill	1924	Standard C-35P	4-GE264A	K-71A	Boston Elevated Ry.; MTA
39	Curveside	Cincinnati	1924				Wheeling Traction; Co-op. Transp.
144	Double deck tram	Blackpool Corp.	1925	Dick Kerr	2-BTH265C	B-510A	Blackpool (Eng.) Corp. Transport
88	Lightweight	Wason	1926	Brill 177-EIX	4-GE258C	K-35JJ-LB	East Taunton St. Ry.; York Utilities
4400	Deluxe lightweight	Bradley	1927	Brill 177-EIX	4-GE265	K-35KK-LB	Eastern Mass.; Boston El.; MTA
3284	Type 5 Open Deck	Laconia	1927	Taylor RH		K-71C-LB	Boston Elevated Ry.; MTA
118	Hi-speed interurban	Cincinnati	1930	Cinti. ABC74D	4-GE706A	PC10, CJ127	Cint. & L. Erie; Cedar Ran. & Ia. C.
6144	Peter Witt	Brill	1930	Brill 177-EIX	4-WH1422	VA, 29A5	Un. Rys. & Elec.; Balto. Transit Co.
621	Hi-speed interurban	Ottawa	1930	National	4-WH548C2	HLF, 15B2	Wind., Essex & LS; M. & S. C.
1030	Hi-speed interurban	American Car & Foundry	1931	Cinti. ABC 74-D	4-WH539A1	HL 189D	Indiana R. R., Lehigh Valley Trans.

(Continued on inside Back Cover)

TROLLEY MUSEUM

Kennebunkport, Maine

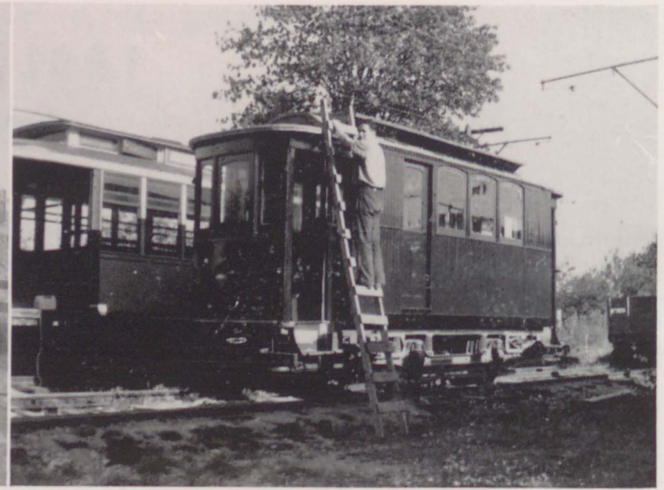
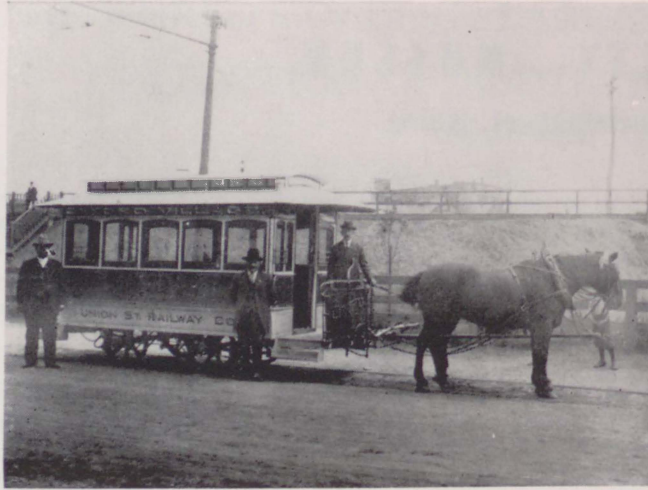
Since World War II, the trolley car has been vanishing so rapidly from the American scene that few members of the younger generation have ever ridden a streetcar—this despite the fact that nearly every one of our large cities was laid out around an electric railway system. Back in 1939, when the trend to other means of transport was already becoming irrevocably established, a dozen men in Boston undertook to preserve for posterity, a single open car from Biddeford, Maine. From this modest start has grown Maine's famous Trolley Museum, of which this is the official catalogue. Because the collection represents nearly every phase of car design and development, this booklet is also a history of the trolley from 1873 to 1931.

In all the annals of human endeavor, never has so large an enterprise grown and disappeared so swiftly as the traction industry. Less than 70 years have passed since 1888, when the first really successful electric car was placed in service. In 1921, the electric railway business was America's fifth industry, with 300,000 employees, a six billion dollar investment, and 15 billion riders—twelve times the number of passengers carried by the steam railroads in the same year. Yet today, but six interurban lines remain of the hundreds which once criss-crossed the nation, and a mere dozen cities in the United States and Canada are still served by streetcars. Most of these are of the silent streamlined type designed by the industry's Presidents' Conference Committee (PCC) in 1936 to meet auto and bus competition. A rare thing indeed is the sight and sound of an old time trolley. Soon, even these remnants will be gone. Only in a museum will it be possible to see and ride what was once the world's most important and certainly most interesting transport vehicle. Here, we hope to perpetuate for future generations, an operating trolley line, with original equipment, amid the surroundings of the era during which this country grew from a rural frontier into the industrial giant and world power that it is today.

HOW IT BEGAN — THE HORSECAR

Although horsecars got their start as part of the New York & Harlem Railway in 1832, their use did not become widespread until the 1850's. Their main advantage over stagecoaches or horse buses was that a horse can haul much more on smooth rails than over rutted roads or rough cobblestones. Stagecoach and horse bus bodies were made with narrow bottoms to go between the high wheels, and the sides curved outward to give more width at seat level. Although horsecars had no wheel clearance problems, they retained the narrow bottom and curved sides of the stagecoach. These curved sides were divided into two lengthwise panels, with the lower one nearly always painted a light yellow, cream, or straw color, which led to the nickname of "yellow-belly."

HORSECARS. — The Museum's two oldest cars both came from New Bedford's Union Street Railway. No. 10, left, was kept as an exhibit piece by the company even after electric cars had been replaced by buses. No. 34, right, was used as a mail car after it was electrified in 1902.



Horse buses and early horsecars had a door in the middle of the back, and seats facing inward on both sides. The driver sat on a high seat projecting from the front of the body, and received fares through a small door. Above this was a window through which he could watch the passengers. Brakes were operated by a foot pedal. An early horsecar of this type, built in 1855 and now in the Museum of the City of New York, has a rounded hump running the length of the roof and ending at the front in a small "eyebrow" window for the driver. Later horsecars, shown in a print in the same museum, have doors at both ends, opening onto platforms with dashes and side steps. The roofs have eyebrow windows at both ends and a small section of windows in the middle of each side, set deep under the raised edge of the roof hump. This was the earliest form of the monitor or deck roof.

When the high driving seat gave way to open platforms, the brake changed from the early foot pedal to the "stemwinder," a large upright crank at the driver's right hand. The crank operated the brakes by winding a chain and holding it with a ratchet. The brake retained the right hand location throughout streetcar history, until PCC cars brought back the foot pedal. Electric controllers were always operated by the motorman's left hand. Horsecars had a simple truck arrangement, consisting of four pillar boxes fastened rigidly to the underframe, with a coil spring in each, bearing on the journal.

The museum's oldest car, No. 34 of the Union Street Railway, New Bedford, Mass., belongs to the latter part of the horsecar period. Built by the Fiegel Car Company of New Utrecht, (now Brooklyn) N. Y., in 1873, it was electrified in the 1890's and rebuilt into a Railway Post Office in 1902. It still has some of its original windows, and its complete original roof, at each end of which is a short section of hump with an eyebrow opening. The windows in the side of the monitor contain glass of several colors, and run the entire length of the body. The main body structure was considered to be only that part between the end walls or bulkheads, and platforms were just something added on.

The second oldest car in the collection, No. 10 of the Union Street Railway, is a horsecar in its original condition. Built by the J. G. Brill Company of Philadelphia in 1880, it has a simple monitor roof that eliminates the hump sections at the ends.

During the 1880's, inventors were searching for a better form of motive power than the horse. Steam dummies and

cables were used on a large scale, and today's much publicized San Francisco cable cars are the sole survivors of the latter type, though cable cars ran until 1939 in Seattle, and until 1957 in Dunedin, New Zealand. The oldest surviving Dunedin grip car, No. 105, built in New Zealand in 1903 by the Mornington Borough Council, was presented to the museum when the service ended.



CABLE CAR, No. 105 was the oldest car left on Dunedin, New Zealand's Mornington Grip when service ended in March, 1957.

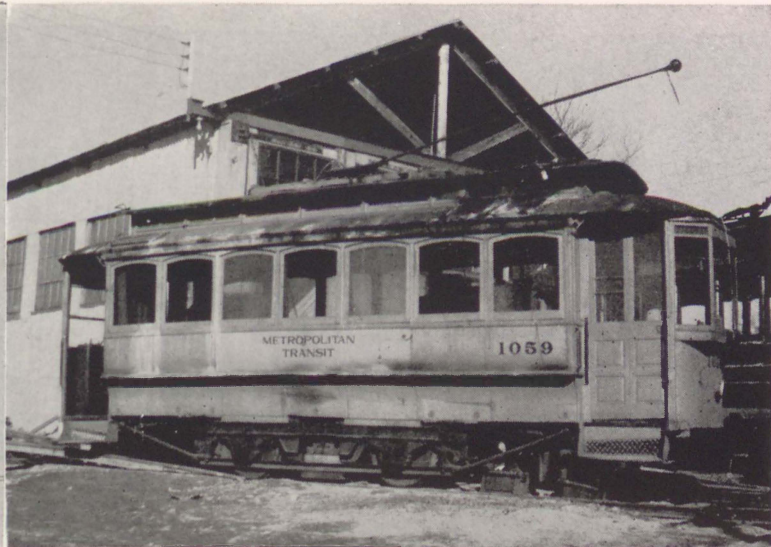
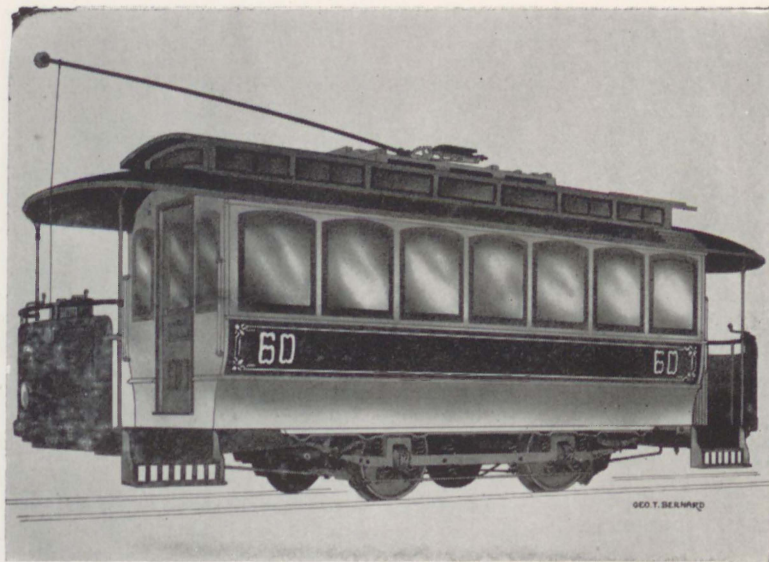
ENTER ELECTRIC POWER

Experimental electric cars were operated from storage batteries or overhead power wires. Vandepoele, Siemens and Halske, Edison, Thomson, Daft, and Sprague all built and operated electric cars. Elihu Thomson had invented the carbon brush that first made electric motors practical, but it was Frank Sprague who first equipped an entire street railway with electric power when he installed motors in 40 cars at Richmond, Va., in 1888. By 1890 the trolley car had definitely succeeded. Some 60 American cities had electric lines in operation or under construction before the end of that year. Largest of all was the Twin City Rapid Transit Co., of Minneapolis and St. Paul, Minn., with 130 Sprague cars in operation. Runner-up was Boston's West End Street Railway, with 127 Thomson-Houston cars. Both these companies are represented in the museum.

The early experimenters had adopted 450 volts D. C. because of the unsolved problems inherent in A. C. motor design, and because 450 volts was the highest voltage that could be safely handled with insulation techniques then known. This was gradually raised to 600 volts, but, as lines grew longer, even a 600 volt system required a power plant every few miles. A few early attempts were made to overcome this by using high voltage transmission lines and motor generator sets, and in 1895, the Lowell (Mass.) and Suburban Street Railway built an A.C. transmission system for its 15 mile Lowell-Nashua (N.H.) line. This system transmitted 600 kilowatts at 5500 volts, 30 cycles, and used rotary converters to produce 550 volts D.C. In 1897, the Twin City Rapid Transit Company undertook the first large scale application of such a system, using 13,200 volts A.C. in underground cables to transmit 4200 kilowatts to four 600 volt D.C. substations. While this set the pattern for most of the industry, a few companies in the early 1900's tried higher voltages on the trolley wire in an effort to reduce line losses and the number of substations required. This involved use of motors with high voltage insulation which had by that time been developed. Usually, as on Maine's Aroostook Valley Railroad, they were modified low voltage motors wired in series pairs for the higher voltage.

The cars of the 1890's were very much like the horse cars, but were larger and heavier. They had monitor roofs, yellowbelly sides, and open platforms. An electric controller was added at the motorman's left hand, and a trolley pole sprouted on the roof. Fairly elaborate trucks were introduced, with a place for the motors and an additional set of springs between the truck frame and the body.

The museum has four single truck cars of the mid 90's, two that are typical of cars in regular passenger service and two especially designed as deluxe parlor cars. No. 60 was built in 1895 for the Manchester, N. H., Street Railway by the Laconia Car Company. This builder was the principal industry in the New Hampshire town of the same name. The community problems faced by the townspeople following the company's collapse in 1928 have been the subject of several important economic studies. The car is typical of this period, retaining all the original features except that it has had closed vestibules substituted for the original open platforms.



TOONERVILLES. Drawing of No. 60, left, as it originally appeared, shows various features typical of early streetcars. No. 1059, right, has West End "Bay Window" vestibules, an early example of big company specialization.

Fontaine Fox, whose comic strip, "Toonerville Folks", started in 1908, was born in Louisville, Ky., in 1884. The idea for the trolley theme came when Fox visited Pelham, N. Y., where cars similar to No. 60 carried suburban residents. West End Street Railway No. 1059, built in the same year by the Barney & Smith Car Company of Dayton, Ohio, has similar features. No. 925 is a deluxe parlor car, built for the West End Street Railway by J. M. Jones and Sons of Troy, N. Y., in 1894. It was furnished like a Victorian parlor, with wicker chairs, thick carpet, and heavy drapes, and was used exclusively for charter service.

The City of Manchester, built for the Manchester Street Railway by The Briggs Carriage Company of Amesbury, Massachusetts, in 1895, was reserved for company officials. It has a small body with beveled plate glass windows and unusually large platforms with wrought iron railings. The original furnishings were light wicker chairs that could easily be moved out onto the platform. This is, incidentally, the only car in the museum that has never had an identifying number.

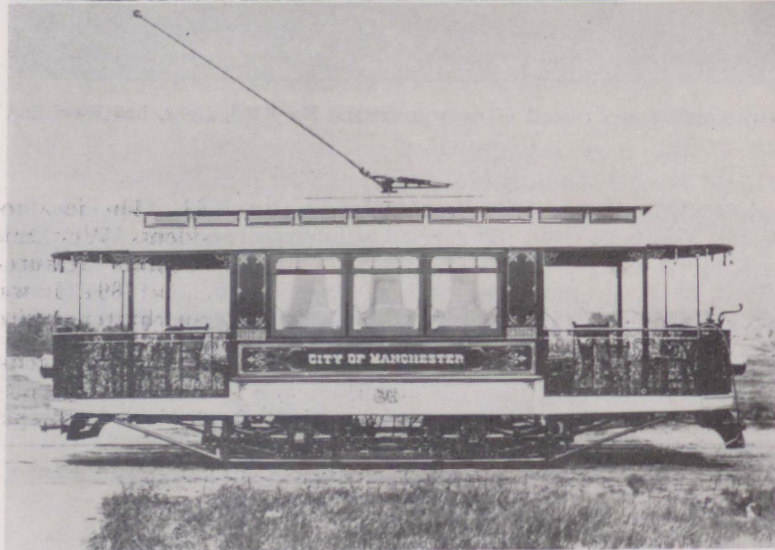


OPEN CARS FOR SUMMER

The open summer car got its start in the horsecar days, around 1880. It had end dashes and a roof copied from its closed companion. The roof was supported on posts at the sides, and the seats were cross benches with reversible backs. A running board along the side served as a step to the end of every seat. Open horsecars usually had seven benches or sometimes eight.

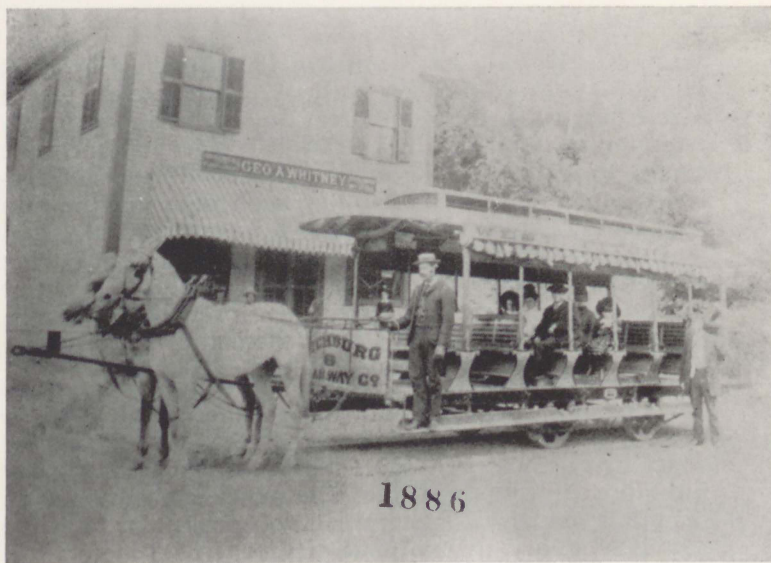
No. 12, built by Brill in 1886 as No. 8 of the Fitchburg, Mass., Street Railway, was later renumbered and electrified for operation on the Templeton Street Railway, which eventually became the Northern Massachusetts Street Railway. This is the most extensively restored car in the museum, with ail wooden parts replaced piece by piece.

Early electric models averaged one bench longer, and usually had at each end a bulkhead with a pair of benches back to back. No. 31, built by Brill in 1900 for Maine's Biddeford and Saco Railroad, illustrates typical open car details as well as the trend



PARLOR CARS.

These plush relics of the Gay '90's were among the first things given up by transit companies in the interests of economy. No. 925, above, became a tool car, and the City of Manchester, right, became a shed in the backyard of a private individual. The cuts of the City of Manchester and of the interior of 925 show deluxe features the society hopes in time to restore.

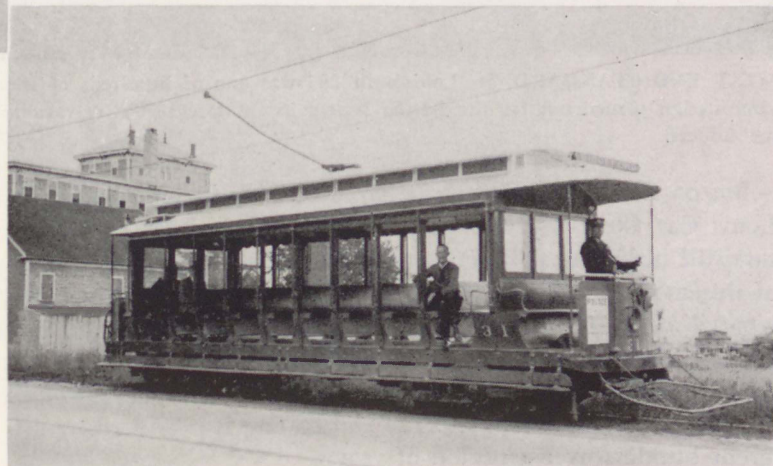


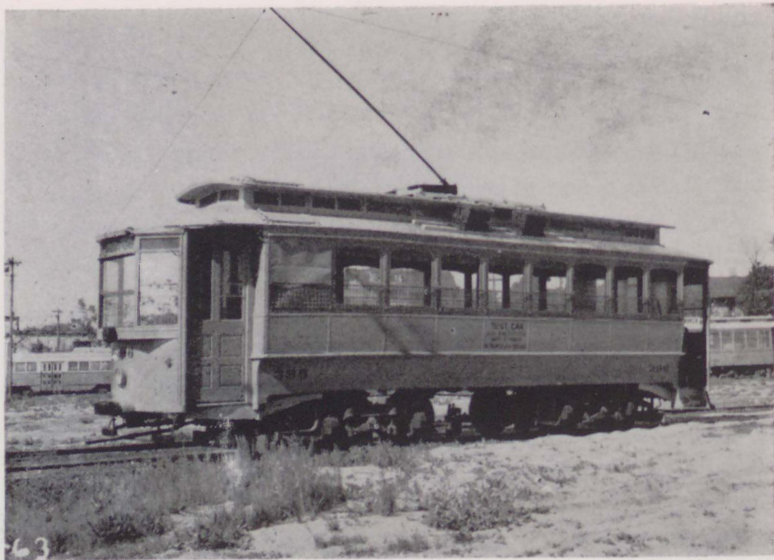
1886

to larger cars with double trucks. This car has twelve benches and “maximum traction” trucks, with most of the weight on the large motor driven wheels and only enough weight on the small pony wheels to keep them safely on the track. This allows the car to be driven by two large motors, which cost much less than the four smaller motors that would be needed to drive it as well if all axles carried an equal weight. This arrangement also permits the car floor to be several inches lower than that of a four-motor

car. This truck design was one of the many patents of the Brill Company, which could have been described as the General Motors of the streetcar industry, being the biggest car builder and supplier of parts, particularly trucks, to others who built only bodies. The company controlled patents on many car design features, and later came to control other builders as subsidiaries.

EARLY OPEN CARS. Horsecar No. 12, left, was originally Fitchburg No. 8. Biddeford & Saco No. 31, below, was the first piece of equipment ever to be preserved in a railway museum. Today there are 62 cars in this collection alone.





WEST END STANDARD. St. Louis-built 396 was one of hundreds of the same design turned out for the Boston system in the late 1890's by various carbuilders.

Boston Elevated Railway car No. 396, built in 1900 by the St. Louis Car Company, the only independent builder of electric cars still in business (1957), is typical of double-truck closed cars of the latter 90's. From 1895 to 1900, 750 cars of this type, designated as "25 ft. box No. 3" were built for the West End and for the Elevated after it leased the West End in 1897. This is believed to be the earliest example of a large railway system's designing their own standard car and having it produced by different builders over a period of years.

Car No. 50, built by Laconia in 1901 for the Haverhill, Plaistow, & Newton Street Railway, a predecessor of the Massachusetts Northeastern Street Railway, is also generally typical of this period. It has yellowbelly sides and one piece curved top windows like most early closed cars, but represents one of the earliest trolley applications of the railroad roof design, so called because it was traditionally used on steam railroad coaches. The monitor, instead of ending abruptly with the flat board or window that was a vestige of the horsecar eyebrow, continues over the vestibule, tapering down to the roof line at the end of the car.

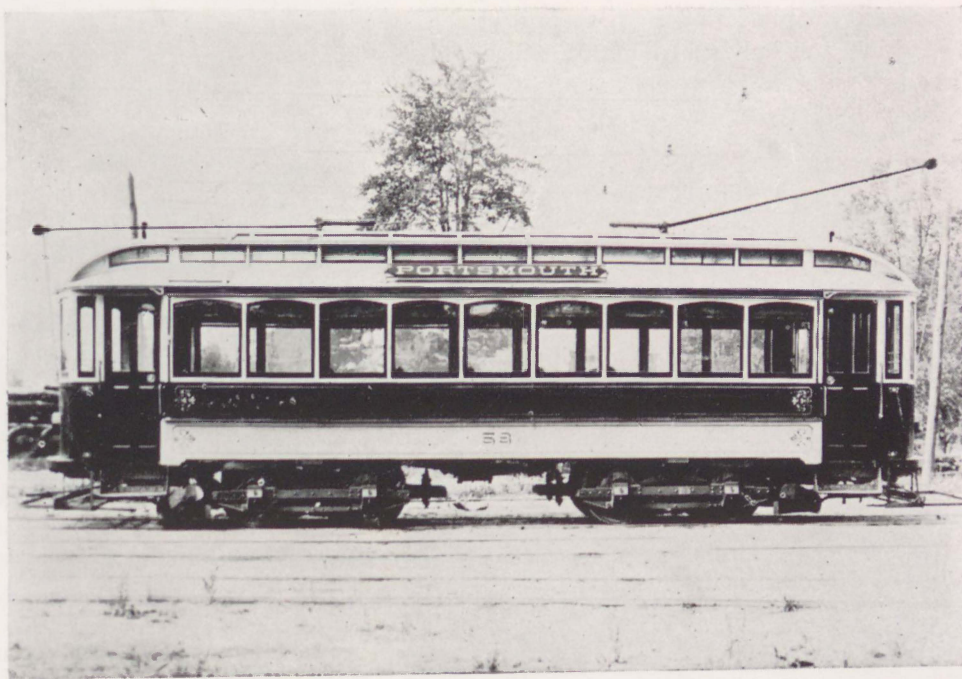
The early Sprague and Thomson motors were quite crude by later standards, and were rated at about 15 horsepower, but even one such motor on a car was a great advance over a horse. In 1891, the Westinghouse Company introduced history's first four pole motor, embodying most of the essential design features of presentday traction motors. One of only two pairs of these type 3 motors still known to be in existence is under car No. 60. In 1892, the Sprague and Thomson-Houston companies were merged with the Edison General Electric Company to form the General Electric Company, which in that year introduced the first fully enclosed cast steel frame railway motor, the type 800. A pair of these motors is used to power former horsecar No. 34. By the turn of the century, motors had become larger and more reliable. Forty horsepower was a very popular size, with two motors on most cars, as on No. 475, built by the Newburyport, Mass., Car Company in 1903 for the Boston Elevated Railway. This car belonged to the transition period; it still retained the monitor roof, side seats, and vestiges of the yellowbelly sides, but it had a longer body than No. 396, closed vestibules, and air brakes.

It also introduced the Boston front, a dash made of three flat panels that was a feature of all succeeding Boston designs until the advent of streamlining.

FIRST INTERURBAN

In the 1890's and early 1900's trolley lines grew rapidly, spreading out into the country and eventually linking cities until one could go by trolley from Waterville, Maine to Lancaster, Pennsylvania. Or with a couple of steam railroad "portages" in New York State, it was possible to travel from Maine to Wisconsin. The cross-country lines in the Atlantic seaboard states were nu-

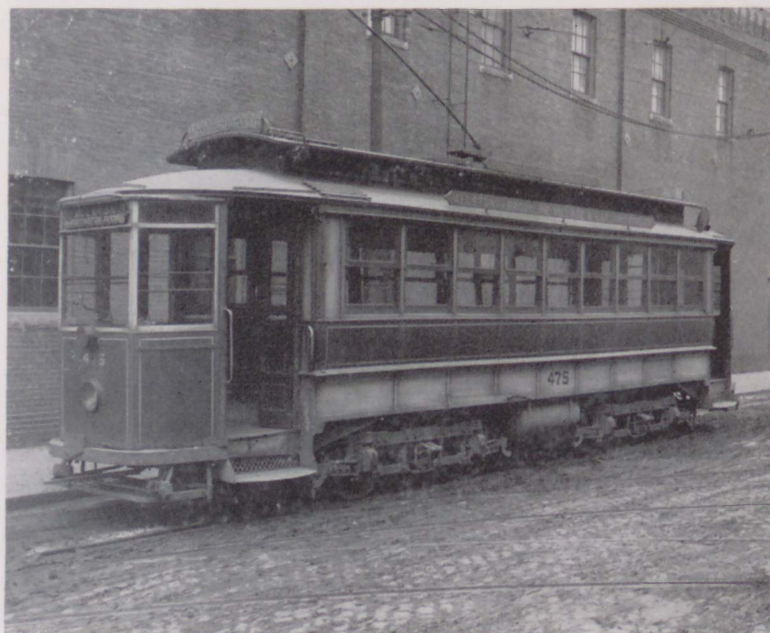
merous — Massachusetts alone had more than 2000 miles of trolley track—but most were lightly-built roadside affairs. The lines from New York state west were typically heavy interurbans. The name "interurban" originated with a ten-mile line between Minneapolis and St. Paul, Minnesota in 1890, and was applied in 1893 to the first segment of Ohio's famous Lake Shore Electric Railway. The term came in time to mean a line running in city and town streets, but having cross-country segments built to steam railroad standards. The longer routes and resulting higher speeds brought about several changes in car design. The



RAILROAD
ROOFER. Sister
car of the museum's
No. 50 shows early
effort to imitate
steam roads.

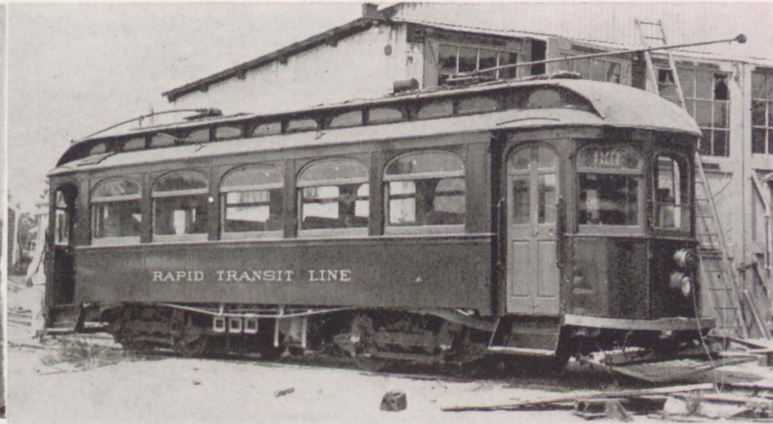
greater force of wind, rain and snow required enclosed vestibules in place of open platforms, both to protect the motorman and to shield the bulkhead door. Weather and the desire to imitate the steam roads may also have been responsible for the general shift from monitor to railroad roofs.

FIRST FOR THE ELEVATED. No. 475 was one of the first group of cars ever built for the Boston Elevated Railway Company in 1903, soon after it had taken over the West End Street Railway.



STAINED GLASS. Windows of No. 610 bespoke extra luxury for patrons of the Montreal and Southern Counties Railway.

The longer rides called for more comfortable cars. Cross seats with reversible backs replaced the lengthwise side seats. Heavier bodies to give smoother rides had flat sides covered with matched boards or slats instead of the curved yellowbelly sides which were the last vestige of the stage-coach. Cars were almost always equipped with four motors, geared to give a top speed of at least 30 miles an hour. Usually 40 horsepower motors were adequate, but sometimes 50 horsepower or even larger motors were used for



FAMILIAR CARS. Manchester No. 38, left, has picture windows, plush seats, Laconia Trucks, and details resembling cars of the Old Atlantic Shore Line. Connecticut No. 1160, right, is typical of closed cars in use all over New England early in this century. The picture shows early method of moving cars to the museum with short lowbed trailer.

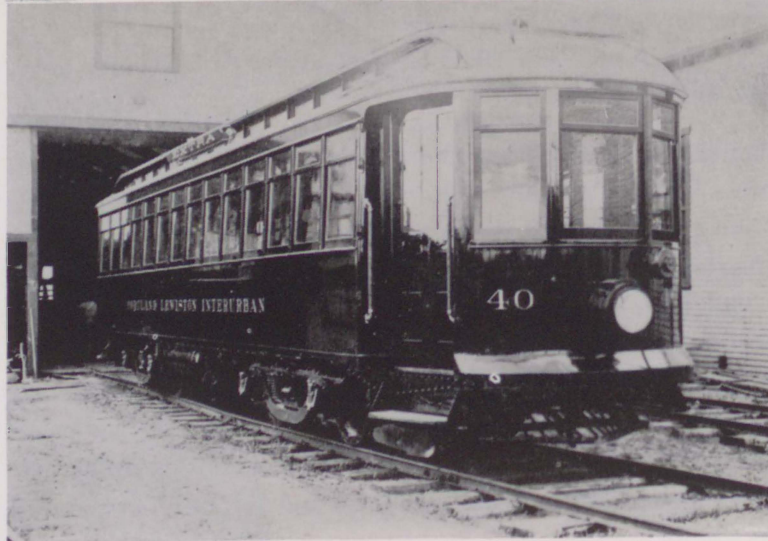
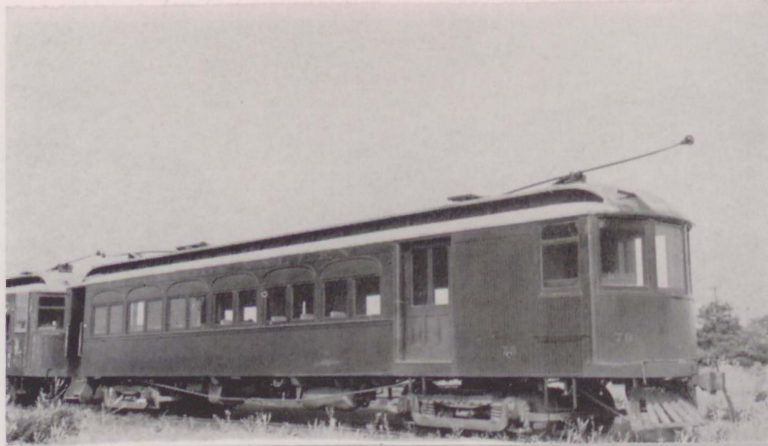
very heavy cars or higher speeds. The combination of larger wheels for high speeds, larger motors, and heavier underframes raised floors several inches higher above the rails. At this period air brakes came into general use on electric cars. Practically all new cars came equipped with air, and it was added to many older cars.

The museum's collection includes five generally typical closed cars of this period: No. 1160, built by John Stephenson Company of New York in 1906 for a predecessor of the Connecticut Company; No. 38, built in 1907 by Laconia for the Manchester and Derry, N. H., Street Railway (later part of the Manchester Street Railway); No. 70, built by the Wason Manufacturing Company of Springfield, Mass., in 1912 for the Aroostook Valley Railroad; No. 40, built by Laconia in 1915 for Maine's Portland-Lewiston Railway; and No. 610, built in 1922 for the Montreal and Southern Counties Railway by the Ottawa, Ont., Car Company. Each of these cars has its distinctive features: 1160 retains the lengthwise seats of earlier designs; 38 has double width windows, an early forerunner of today's picture windows, and seats with green plush upholstery; 70 is a coach-baggage combina-

tion, almost as large as steam railroad cars of the period, and has couplers and trucks of steam road design. It has four 50 horsepower motors, which were originally connected in series pairs for 1200 volts D.C.; 40 has later style windows similar to those on semi-convertible city cars and ran on the last built and fastest interurban line in New England; 610 was copied from and used with cars built two decades earlier. Stained glass in the upper sections of its windows conveyed an air of luxury to travel in an era when air conditioning and foam cushions were yet to be invented.

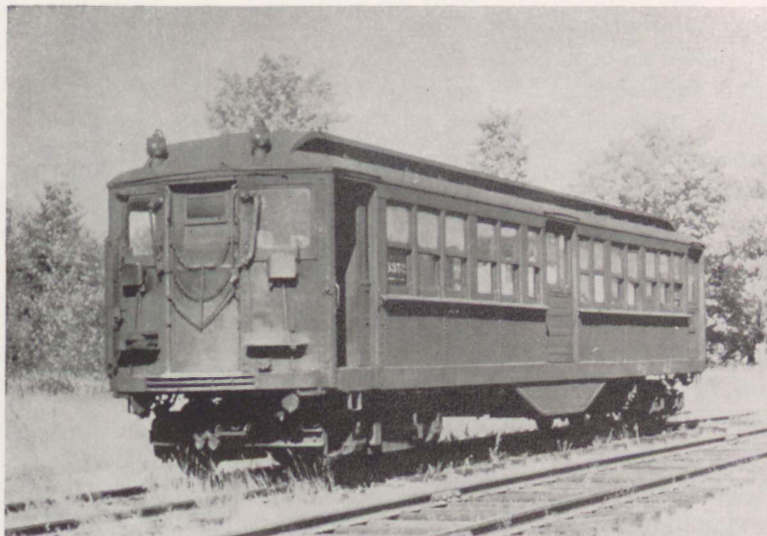
ELEVATEDS AND SUBWAYS

This was also the period in which rapid transit lines were developed for faster city transportation. These had their beginnings with the London Underground in the 1860's and the New York Elevated in the 1870's. Both used small versions of conventional steam locomotives and coaches, incorporating the English practice of having station steps were needed on the cars. Steam platforms at car floor level, so that no



INTERURBANS.
Aroostook Valley combine No. 70, top, has both coach and baggage sections. Suburban car No. 40, bottom, handled local service on the Portland-Lewiston Line.

power showered soot around the elevated and made a major ventilation problem in the underground, yet the lines prospered in their home cities and new elevateds were built in Brooklyn and Chicago. The advantages of electric power were recognized very early but experiments with electric locomotives in the 80's and 90's were not too successful. Meanwhile, Boston tried a new system for America's first subway, opened in 1897 to relocate existing trolley lines underground through the crowded downtown district.



ALL STEEL BODY.
No. 3352 was in the
train that opened New
York's first subway.

In Chicago in 1899, Frank Sprague equipped each car of an elevated train with motors controlled by magnetic contactors. These contactors operated simultaneously when the motorman in the head car turned his master controller handle. This was the first use of the power relay, a fundamental device of today's complex electrical and electronic systems. Sprague named his system "Multiple Unit Control"; it permitted a train of any length to be accelerated rapidly without a large and heavy locomotive. The power came from a third rail beside the track, avoiding the cost of overhead wire supports, and providing a low resistance path for the tremendous current required to accelerate a long train. The multiple unit system was adopted for a new elevated line in Boston in 1901, as well as to improve older elevated railways and steam railroad suburban routes.

Existing cars were converted by adding motor and control equipment, and the first electric rapid transit cars built new were little different in aspect from their steam-drawn predecessors. Some, however, like those ordered for New York's first subway in 1904, had enclosed vestibules with sliding doors in place of the open platforms previously used. Some time before the line

opened, officials of the Interborough Rapid Transit Company placed an order with Diamond Jim Brady's Pressed Steel Car Company of McKees Rocks, Pa., for fifty additional cars of a radical new design. Except for the roof, they were to be constructed entirely of rigid steel members. Many engineers were sure that, with no timbers to absorb shocks, the structure would soon shake to pieces.

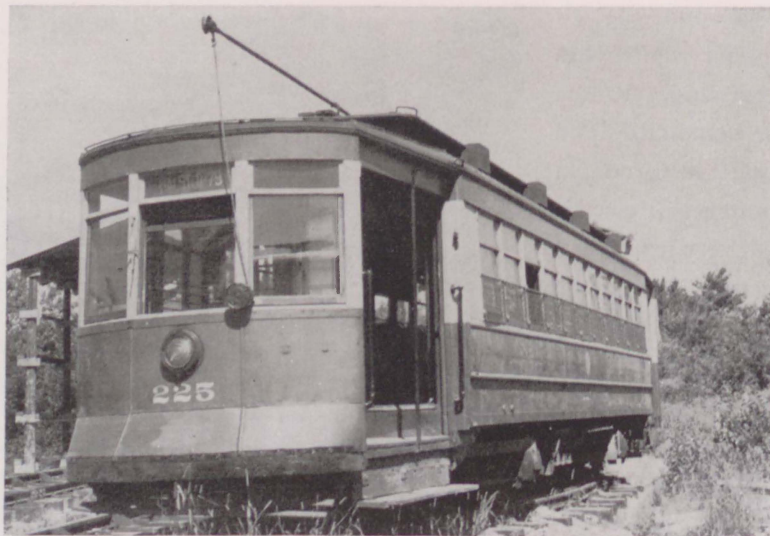
The first ten of these steel cars arrived before the wooden cars previously ordered, and were used to open the Broadway Subway on October 27, 1904. One of these, No. 3352, was in continuous daily service, except for overhauls, from that time until August 10, 1956, when it was withdrawn from service for

presentation to the museum by the City of New York. Still completely sound and serviceable, it provides a splendid example of a thing thought impossible until tried. As the oldest steel frame vehicle in existence, 3352 is the legitimate ancestor of nearly every railroad coach and automobile on the road today. Center doors for convenience, originally omitted for fear of weakening the structure, were added later to these cars and incorporated in subsequent models without adverse effect.

SPECIALIZED CARS FOR BIG CITIES

In this era, large systems often developed their own designs to meet what they believed to be their peculiar local conditions. Many of these designs incorporated PAYE (pay-as-you-enter fare collection). With this system, first introduced on the Montreal Tramways, the conductor collected fares as the passengers entered instead of going to them after they were seated.

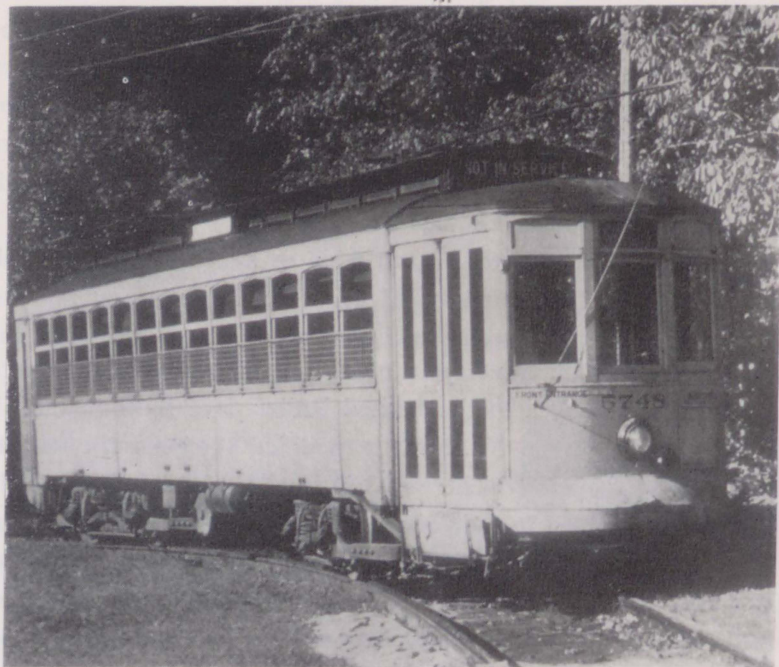
No. 225, built for the Chicago Railways by the Pullman Company in 1907, is a PAYE car with sliding doors that were supposed to be opened and closed by the conductor. As most Chicagoans still fondly recall, however, these doors were seldom shut,



RED RATTLER.
Built to endure, No. 225 and its sisters plied the streets of Chicago longer than any other type of car on the world's largest street-car system.

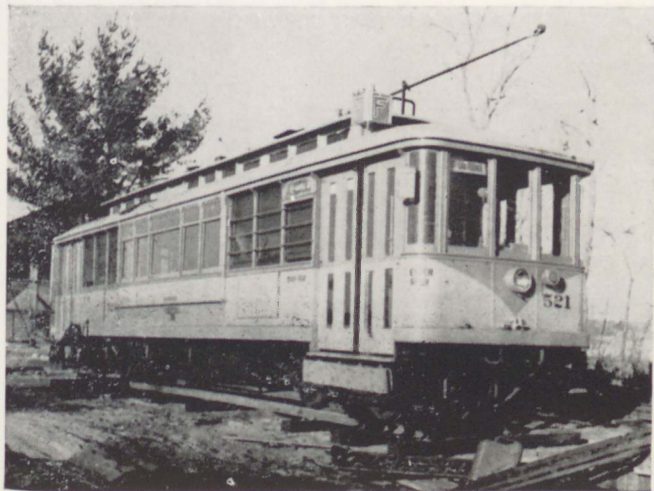
and full stops were made for the lame, halt, and blind only. The order for these cars specified that they were to have the best of everything, regardless of weight or cost. Although Chicago Railways and the Chicago City Railway were subsequently combined into Chicago Surface Lines, the largest privately owned street railway ever to exist, never again in hundreds of car orders was the "spare nothing" demand repeated. When the system, along with the elevated lines of the Chicago Rapid Transit Company, came under the control of the publicly owned Chicago Transit Authority in 1947, it had become obvious that streetcars would have to be eliminated. As the conversion proceeded, many cars far newer than the famous red rattlers, as they were affectionately known, were scrapped first. Only the PCC cars outlasted the 700 sturdy 1907 models.

Also in vogue was the semi-convertible window design in which large windows could open wide to approximate the fresh air of an open car. Most famous of these was that of the Brill Company, whose patented model had curved guides that allowed the sash to be put up under the roof, and gave the whole interior of the car a tapered pencil-sharpener shape. Although the patents covered only the window design, which was incorporated into many different types of cars, there was a standardized model which was widely used. The largest fleet of the classic Brill Semis belonged to the United Railways of Baltimore, so it is appropriate that the museum's specimen, No. 5748, should be from that system. No. 5060, a modified version built for the Boston Elevated in 1906, also has the Boston front, a railroad roof, window posts which leaned inward for better clearance in the subway, and large vestibules for PAYE fare collection. Although seldom used in train service, this car has multiple unit control, employed here as in many later single unit cars, to keep heavy power circuits and the accompanying danger of flashover safely away from the motorman. Although it was definitely a streetcar, 5060 exhibits many features of rapid transit cars of this period, perhaps because Boston was the first city in which surface, elevated and subway lines were all operated by one company. Besides multiple unit control, these rapid transit features included train air brakes, two motors in one truck and none in the other, and sliding air doors. These last were covered by patents of the Easy Access Car Co. of New York. Contending that the idea was not patentable, the Boston Company refused to pay royalties, and was upheld in the courts. The Boston semi-convertible series began with an experimental car in 1905, followed closely by three slightly different production models. No. 5060 is one of the second group, officially designated as the Type 2 Semi-Convertible.



BRILL SEMIS. Baltimore No. 5748, left, was part of the largest fleet of these cars. Interior of Boston 5030, right, shows famous pencil sharpener shape.

When Henry E. Huntington consolidated a number of small systems into the Los Angeles Railway, around the turn of the century, he ordered his engineers to design a new car that would give his patrons the best of everything. In 1902 they evolved what was to become the standard car of the system. These were "California" type cars, having both open and closed sections. The closed section in the center is much like conventional closed cars, while the open sections at both ends have window openings without glass. This car has curved glass corner windows, the earliest version of today's wrap-around windshields. By 1912, the road had acquired 747 of these cars, both by building them out of older cars and in a series of orders to eastern carbuilders. The first 390 Type B's, as these were designated, were completely unmodified from the 1902 design; this was the largest group



LOS ANGELES STANDARD. Henry E. Huntington's deluxe California cars featured wrap around windshields as early as 1902. No. 521 was built by St. Louis in 1907, and has been modified several times since then.

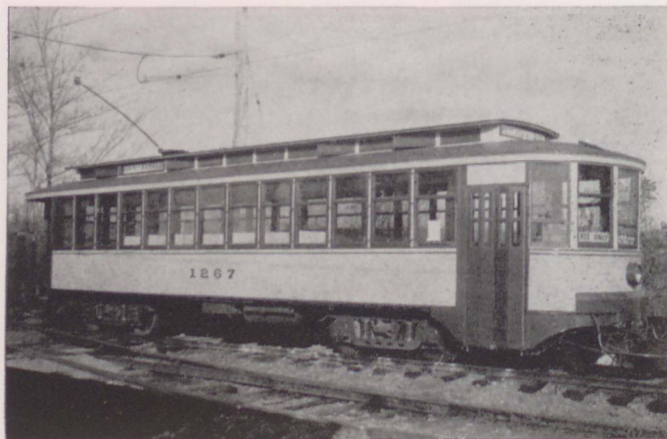
of a single class of car ever operated in the west. Later ones had longer platforms for PAYE fare collection. No. 521 was from a lot of 140 built by St. Louis in 1906, the largest single order on the non-PAYE type, all of which were ultimately lengthened and otherwise modified to match the newer cars. Hundreds of Los Angeles Standard cars, as they were universally known, were used by other West Coast systems as well. Their use in early movies, now being shown again in television, has made them familiar to millions.

No. 1267, built by the Twin City Rapid Transit Company in its own shops in 1907, is a single-end car, with controls on only one end and entrances on only one side, those in the rear consisting of wire gates instead of doors. The wide gates enabled many people to board quickly at stops, then enter the car and pay their fares to the conductor after the car was in motion. The Twin City Company bought its last outside designed car in 1896. In 1898, two cars very similar to 1267 were ordered from Pullman. From then on, the company built every car in its own shops until the first PCC cars were bought in 1947; 1234 of the gate

car type alone were built, some for other systems, to say nothing of other types of cars. All Twin City cars were over nine feet wide; 1267 was of the widest series ever built for street use anywhere, 9' 2-1/2" across the sills.

Philadelphia Rapid Transit Company No. 6618 was built by Brill in 1911 and designed by the Near-Side Car Company of New York. Although exactly similar cars were used in Chicago, Buffalo, Atlantic City, and Vancouver, B. C., many associated the Nearsides with Philadelphia, where they were until 1955 the predominating car type. Basically a single end Brill semi-convertible, this car has metal ventilators on a simple arch roof instead of the monitor used previously for decoration and ventilation. This is Seashore's oldest car with this roof type, and represents one of the earliest uses of the arch design, which later became the standard for the industry. No. 6618 has maximum traction trucks of a design greatly advanced from those under No. 31.

The patented nearside features consisted of placing the conductor by the front door alongside the motorman, there being no other entrance or exit except for a small emergency door at the rear. Thus the car could stop at the near side of a cross street to load and unload passengers. This was supposed to reduce waiting time for cross traffic and to provide greater safety, since



GATE CAR. Twin City Lines No. 1267 was the standard car type of the Minneapolis-St. Paul system, one of the industry's pioneers. Its big back platform speeded handling crowds.

the car would be moving slowly from a stop at most crossings. Later the emergency door was closed up and a center exit door was added, just in front of which the conductor sat and collected the fares.

Passengers entered at the front of the car and left at the center, paying whenever they went by the conductor. A car with this pay-in-the-middle system was named after Peter Witt, a Cleveland city official who conceived it as a way to speed rush hour traffic, since the fares of the passengers who rode in the rear half of the car could be collected during the run, with consequently less time lost at stops.

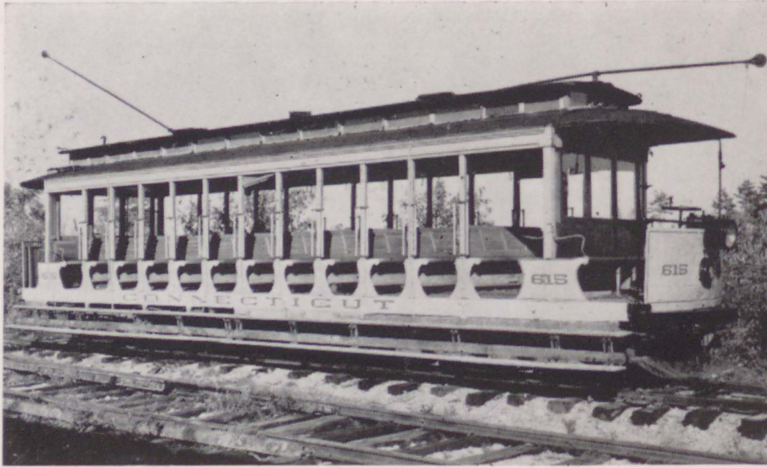
Still later, No. 6618 was fitted with special equipment to train motormen, and this particular car was chosen for presentation partly with this service in mind. It is the only special operator training car still in existence.

Double-deck cars were tried in several American cities, but never gained much favor. The narrow and twisting streets of Britain, however, precluded longer and wider cars, and a second story is the rule rather than the exception there. Blackpool Corporation No. 144, built in 1925, is typical of cars used from the early 1900's until quite recently in every British city. It is, of course, arranged for left hand street operation. The Blackpool cars were even shorter than most, and thus had little room beneath the body for airbrake equipment, so were equipped instead with dynamic electric braking. This system employed the motors as generators to stop the car. Though this system is universal on PCC streetcars and diesel locomotives, it was rarely used on equipment of this era, either here or abroad.

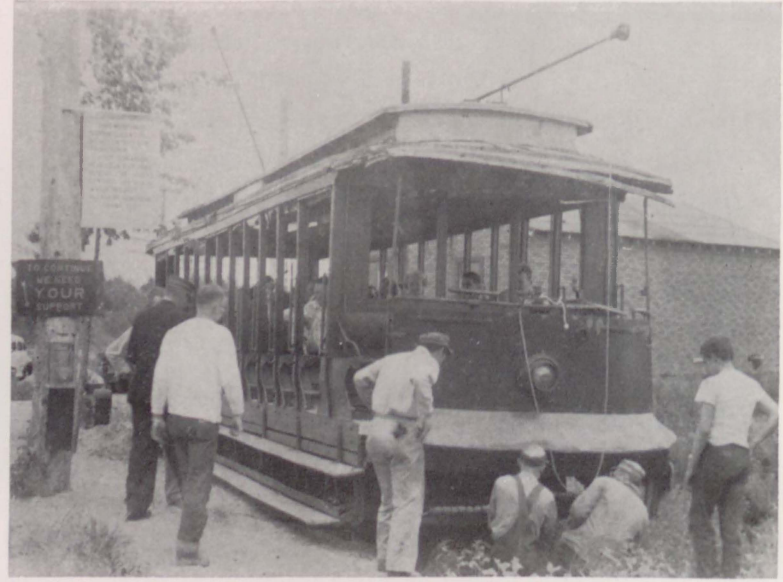
The open car kept its popularity in this period, and was usually built larger, heavier, and more powerful. Railroad roofs were common, but did not displace monitor roofs as widely as on closed cars. Seashore has four of these big 15 bench opens, all



NEARSHORE. These cars were designed by T. E. Mitten as part of his program to rebuild Philadelphia's transit system early in the century. No. 6618 contains special equipment used to train new operators.



THE YALE BOWL FLEET. Seashore has four of the 15 bench open cars kept for football game service until 1947 by the Connecticut Company. No. 615, above, was among the earliest large open cars. No. 1468, right, is some twelve years younger, though little different in design. As on any operating railroad, field repairs are occasionally necessary.



from the Connecticut Company's famous Yale Bowl Fleet: No. 615, built by Brill in 1901; No. 838, built by Jones in 1905; No. 1391, built by the Osgood-Bradley Car Company of Worcester, Mass., in 1910; and No. 1468, built by Osgood-Bradley in 1911. The Bradley Company later became the streetcar division of the Pullman Standard Car Company, and today shares the electric car market with the St. Louis Car Company.

No. 838 has a railroad roof and only two motors; the others all have monitor roofs and four 40 horsepower motors apiece. The coming of hobble skirts gave rise to state laws requiring these high cars to have double running boards added, while lower cars like 31 escaped.

HARD FACTS OF ECONOMICS

Even in the early days, however, the cost of buying and maintaining two sets of streetcars had been a drain on some of the more marginal companies. Some bought two sets of bodies and only one set of trucks, but others searched for a single type of



CONVERTIBLES. Barrel Car No. 24, left shows Briggs Duplex features with one section open and the rest closed. Note running board. Brooklyn No. 4547, right, had side panels that could be completely removed in the summertime.

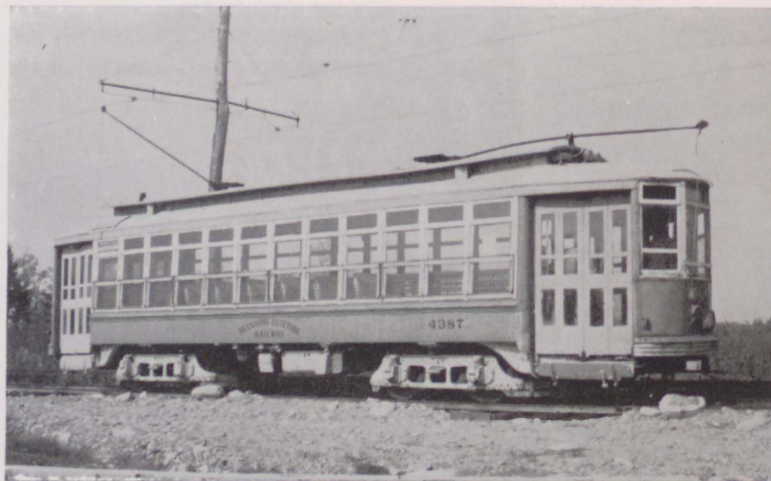
car that would have all the features of both types. The earliest and certainly the most comprehensive attempt was the Briggs Duplex Car, of which No. 24 built in 1901 for the Templeton Street Railway, is typical. Often called barrel cars because of their hoop-shaped body members, these cars had curved windows set above a series of slats like those in an old fashioned roll top

desk. In winter passengers entered from the ends of the car. In Summer, windows, slats, and all slid into the roof, running boards were lowered and it became a regular open car. However, flaws like winter draftiness and maintenance problems prevented widespread acceptance of the duplex cars.

Subsequent convertible cars had no running boards and were always entered from the ends, even when open. Most, like No. 4547, built for the Brooklyn Rapid Transit Company in 1906 by the Jewett Car Company of Newark, Ohio, had removable side panels which could be removed and replaced by a grille or screen in the summer.

The Brill semi-convertible was a modification of the duplex idea, but, as financial pressures from private automobiles and fly-by-night jitney competition forced even the larger companies to give up open cars, other semi-convertible designs were tried. Seashore's No. 4387, built by Laconia in 1917 for the Bay State Railway, has a monitor roof, large vestibules for pay-as-you-enter fare collection, and extremely large windows. It is officially classed as a prepayment convertible car, though actually it is an extreme of semi-convertible design, since the side panels are permanent and no grillework is ever substituted, as on a genuine convertible. The frame is of composite steel and wood construction; the bulkhead, which was the exposed end of the body on open platform cars, and which remained as a solid partition when vestibules were closed in, has practically disappeared.





SEMI-CONVERTIBLE. Windows in No. 4387 open wide to admit summer breezes. Inside view shows cutaway bulkheads.

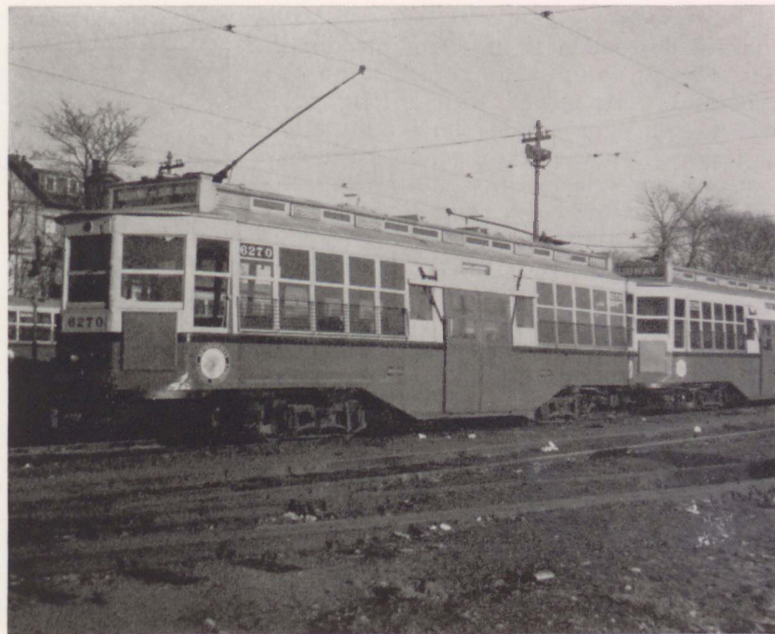
Center entrance cars started on the Denver Tramway, where the rear entrance was moved forward to allow passengers to turn either way after boarding. In 1912, the hobble skirt craze prompted Los Angeles Railway to rebuild a number of the Standards into a drop center model without end doors. The Boston Elevated designed its own version of drop center car, of which No. 6270, built in 1917 by the G. C. Kuhlman Company of Cleveland, is an example. It has the Boston front, the taper from window sill to roof, very wide sliding doors, and trolley poles in reversed position so that the conductor can handle them without leaving his post. The Boston Elevated had over four hundred cars of this design, three hundred of them equipped with multiple unit control and operated in trains of two or three cars. A newer design of smaller motors driving smaller wheels allows the car

floor to be closer to the rails. These smaller motors exert a smaller force at higher speed; with higher gear ratios they can give the same performance as older, larger designs. The Elevated had over two hundred trailers of similar design. These trailers were hauled by semi-convertible cars which differed radically from the first three classes that included 5060. These type 4 semi-convertibles had body lines like the center entrance cars but trucks and motors were of conventional design, and platforms, doors, and trolley poles were at the ends of the car. These cars were heavily built, using much more metal in the body structure than was common at the time, a feature that pushed the scrap price far beyond what the museum could afford when the last ones were retired. As a result, type 4's are now extinct, as are the trailers, nearly all of which were scrapped during the depression, when Boston, like other cities, abandoned this type of operation for the sake of economy.

Cars 4387 and 6270 have a modified form of multiple unit control known as "pneumatic cam." Instead of a number of separate contactors to switch the motor power, this

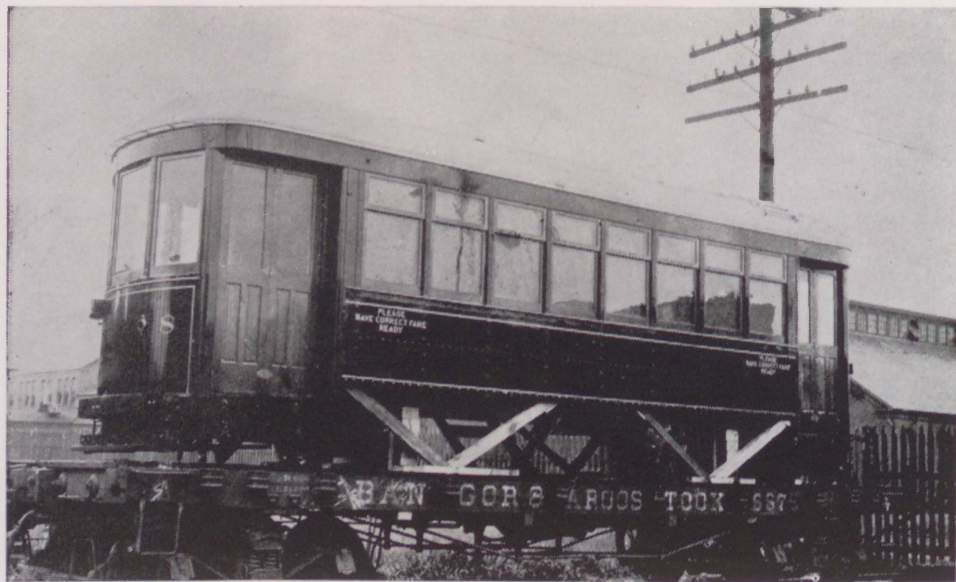
type of control has a single drum quite similar to that in a type K hand controller, but located under the car floor and turned by an air cylinder. The motorman's hand controller has only three positions, for lowest, intermediate, and highest speeds. When the handle is advanced, an electric valve admits air to the cylinder, and as the speed picks up, automatically advances the drum until the selected speed has been reached. This automatic acceleration control made it impossible to abuse the motors by starting too quickly.

Around 1910 to 1912, there was a swing back from railroad to monitor roofs. This may in part have been due to the introduction of roll signs, which can very conveniently go in the end of the monitor, as in cars 1267, 1391, 1468, 4547, and 6270. The earliest form of destination sign was simply lettering painted on the car, so that a car was tied to a single route. In the mid 90's,



CROWD EATER. The large, low center entrance of Boston Elevated 6270 handled rush hour crowds in record time.

four-sided wooden signs were introduced. These were mounted on brackets on the roof and were turned with a long pole. Often end signs would show destination and side signs the routing. On large city systems, a wooden strip would be lettered with the two ends of a route, one on each side, placed in a front window, and turned over at the end of the line. When a car was assigned to another line, it took only a moment to install the proper sign. Dash signs made of sheet metal were often used for destinations or auxiliary information such as "Express to City Line." More than half the Seashore cars have bars on which to hang dash signs. All Seashore passenger cars from 1911 on were built with roll signs, except Nos. 70, 8, and 610, which were used where no signs were needed. Nos. 38 and 521 were originally equipped with roof signs, and had small roll signs added later inside the windows. Nos. 475 and 5060 had large roll sign boxes cut into their original roofs.



AUSTERITY CAR, No. 8 lacks frills and used old trucks and motors to meet exigencies of war and competition.

CHARLES O. BIRNEY

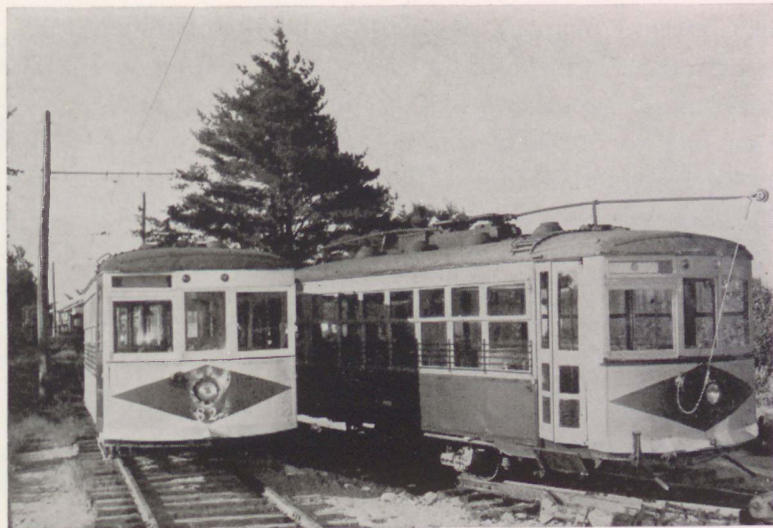
Another result of financial pressure was an attempt to design a standardized car which could be produced in quantity at low cost. The firm of Stone & Webster, then operating many streetcar systems, assigned Charles O. Birney of their staff to design such a car. The result was the Stone & Webster Standard Car, of which No. 434, built in 1914 for the Dallas Railway & Terminal Co. by the American Car Co. of St. Louis, is the sole survivor of hundreds built for use on the Stone & Webster properties. These cars had an improved maximum traction truck and a roof that was a combination of the older monitor and the

arch type soon to come. Introduced here for the first time was lightweight construction, in which the outer steel panels furnish a major part of the structural strength of the body. This principle, under the name of "stressed skin," was heralded as a wonderful new development in aircraft design a decade later. This was followed by a radically new design which was to make Birney's name a byword in the industry.

Some of the smaller companies had already reintroduced single truck cars, with arch roofs and a minimum of ornamentation, to keep weight and cost down. Twin State Gas & Electric No. 8 was built by Wason in 1917 for use on the utility's only traction property, the Brattleboro, Vermont, Street Railroad. It incorporated all the economies plus a few added austerity features resulting from World War I conditions. The truck was an 1890 model taken from an old car that had been scrapped, and had no provision for air brakes. These were among the last cars built with only hand brakes.

Observing this trend, Birney designed his famous safety car incorporating a completely new lightweight four wheel truck and two 25 horsepower motors. It was designed from the start for one man operation, made acceptably safe by such devices as dead man control and doors interlocked with brakes. Gone was the monitor roof as well as the distinction between platform and body, with only two doors used for the sake of compactness.

The Birney Car was introduced in 1915, hit a wave of popularity from 1918 to 1920, and then declined as rapidly as it had boomed. The museum has three Birneys, Nos. 80, 82, and 615. Nos. 80 and 82 were built in 1919 by American Car Co. as Nos. 1 and 2 of the Denver and South Platte Railway, which ran from Littleton, Colorado, to a connection with the Denver Tramway at Englewood. These were the only cars ever owned by the company, with the result that the museum owns the entire fleet



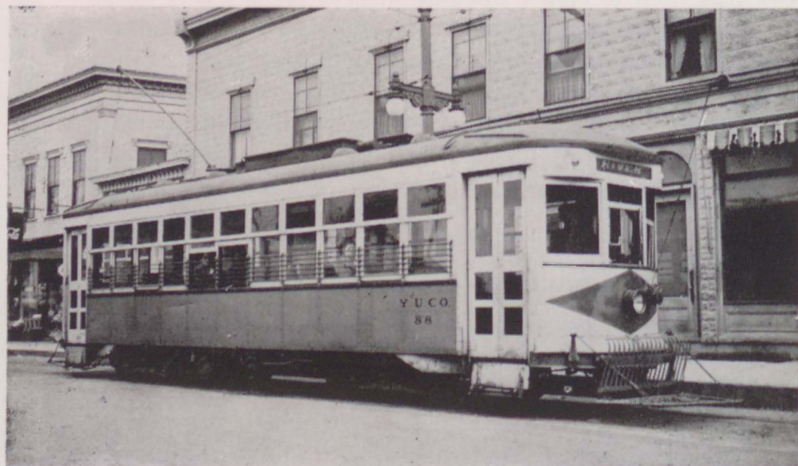
ALL TIME ROSTER. Birneys 80 and 82 were the only cars ever owned by the Denver & South Platte Railway.

of a streetcar company. About 1926, the York Utilities bought these cars, shipped them to Maine, and renumbered them. No. 80 is being kept in its original condition, but No. 82 has been modernized in the style used by the Eastern Massachusetts Street Railway, with deluxe leather seats, new headlining, and improved lighting fixtures. No. 615 was built by Wason in 1919 for the Portland Railroad and sold second hand to the Biddeford & Saco Railroad, which operated it with its original number and red, white, and blue paint scheme. The museum bought it as a body, and has since obtained a Birney truck from an old Connecticut Company sand car to use with it.

LIGHTWEIGHTS OF THE 1920's

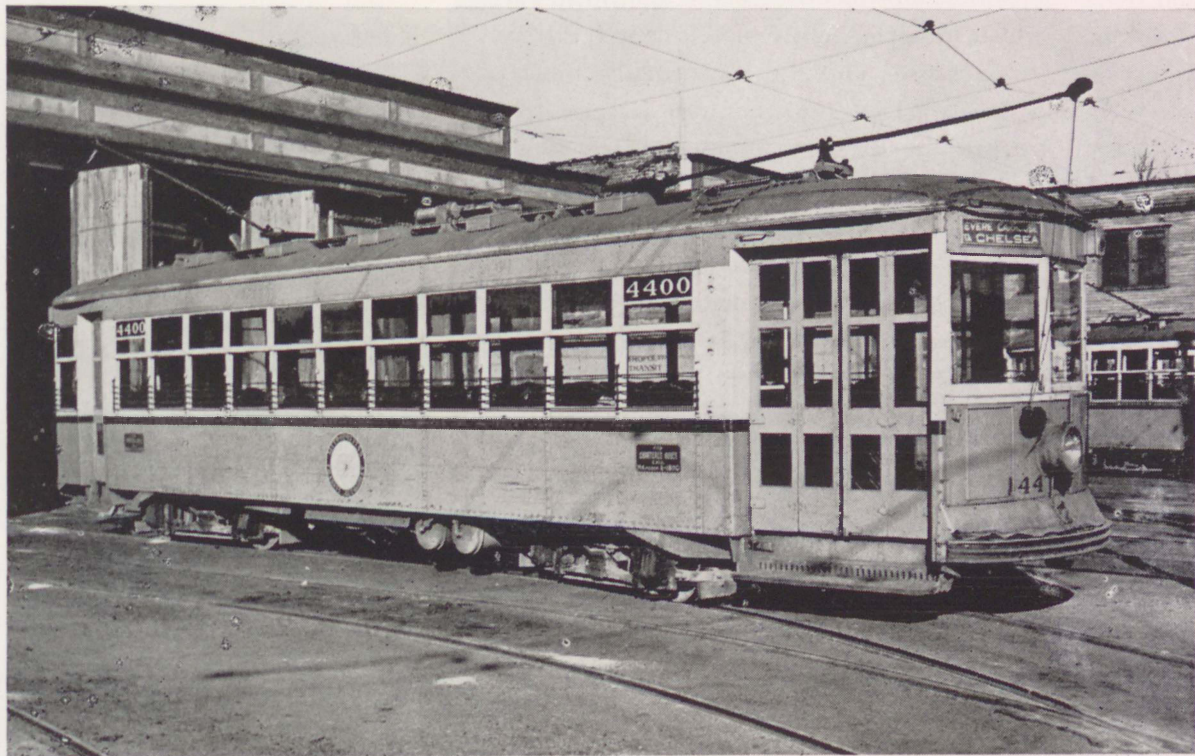
The Birney Car proved that a one man car was safe and practicable, but it was too small for most lines, and it could never give as comfortable a ride as a double truck car. Among the first to realize this was the Twin City Rapid Transit Company, which in 1916 built an experimental double truck lightweight car of all wood construction, using such materials as masonite to gain added strength. Though the design aroused considerable interest throughout the industry and a number of similar cars were built in the 20's for use both on the company's own line and for sale to others, the type was not a widespread success, except for the trucks, which had hollow axles, inside roller bearing journals, and band brakes; many of these features were later incorporated in the PCC truck. The company was so pleased with the roller bearings that it later put them on many of its older cars, including No. 1267.

The Twin City Lines 1916 model was followed in the 1920's by a variety of lightweight designs which copied the Birney's arch roof and lightweight steel construction. The museum has two of these, No. 88 of the York Utilities Company, built by



LIGHTWEIGHT. York Utilities 88 is similar to many built on Birney principle, but with double trucks and greater size.

Wason in 1926 as No. 12 of the East Taunton, (Mass.), Street Railway, which sold it to the Maine firm in 1930; and No. 4400 of the Metropolitan Transit Authority (Boston), built by Osgood Bradley in 1927 as No. 7005 of the Eastern Massachusetts Street Railway, and sold to the Boston Elevated as part of the Chelsea Division in 1936. The Boston Elevated Railway was reorganized as the MTA in 1947. Both cars seat 44 people, but No. 4400 has larger platforms and doors, deluxe leather seats, linoleum floors and four 35 horsepower motors. No. 88 has cane seats



DELUXE LIGHTWEIGHT. Car 4400 has lightweight features plus leather seats and fancy interior.

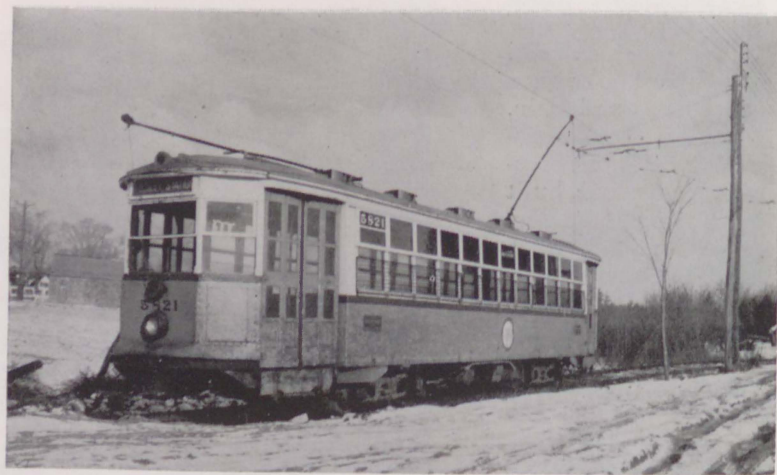
and four 25 horsepower motors identical to those used in Birneys.

The Boston Elevated Railway designed its own version of a double-truck lightweight car and bought a total of 471 from 1922 to 1928. The Type 5 Semi-Convertible has the Boston front and the inward taper from window sills to roof, but in most other details it resembles other cars of this period. It is one window longer than No. 4400 or 88. After a disastrous carhouse fire, the Reading, Pa., Street Railway got permission to divert an order which the Brill Plant had nearly ready to ship to Boston. They

and other companies subsequently ordered additional cars of the type, which, though slightly modified, were always known as "Boston Cars." This was, incidentally, the last purely Boston design before PCC cars were adopted. No. 5821, built by Brill in 1924, incorporates a few minor changes from earlier orders, principally that the window frames are metal instead of wood and that the front window frames and posts are smaller, forming a "vision front."

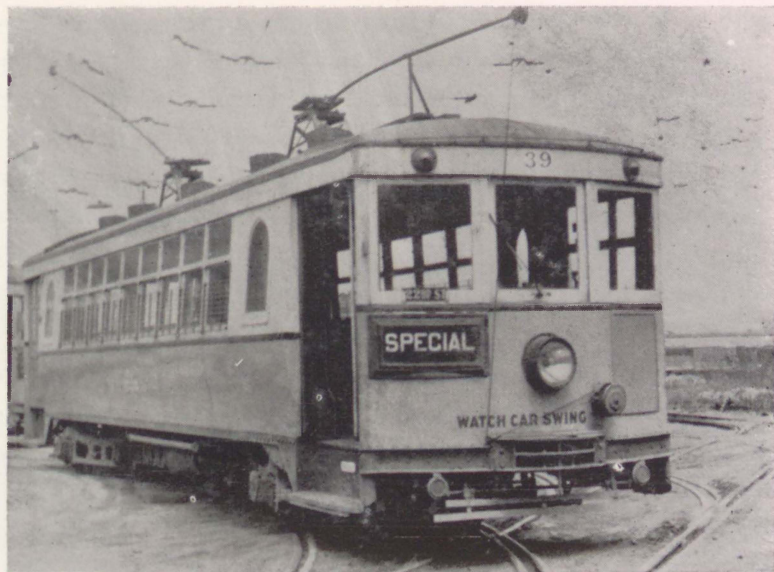
No. 3284, originally No. 5970, was the last of this series, and the last conventional Boston car. It was also the last car built by the Laconia Car Co. before it folded in 1928. In 1950, the MTA renumbered and completely rebuilt this car for subway line work, but it was never satisfactory, and saw little service before being retired in 1957. The car was purchased for spare parts, but its historic associations were such that many felt it should be saved. Because the modifications for line work had made the roof unrestorable, No. 3284 is being rebuilt into an open top excursion car of the type once used in Cincinnati and other large cities.

Unlike automobiles, types of trolley cars were seldom identified with particular builders. The most notable exception was the curveside car, built only by the Cincinnati Car Company. Although these cars were of lightweight steel construction, their lower body panels curved inward like the yellowbelly cars of the 1890's, supposedly imparting greater strength than a flat member. Most of the curveysides as well as many of the flat-sided Cincinnati Cars had sliding doors. The door pockets were covered by a large panel into which was set one small circular or round top window, a feature that made them instantly identifiable, even from a distance. No. 39, built in 1924 for the Wheeling, W. Va., Street Railway, later the Cooperative Transportation System, is the sole survivor of the hundreds of curveyside cars that once ran in the Midwest and South.

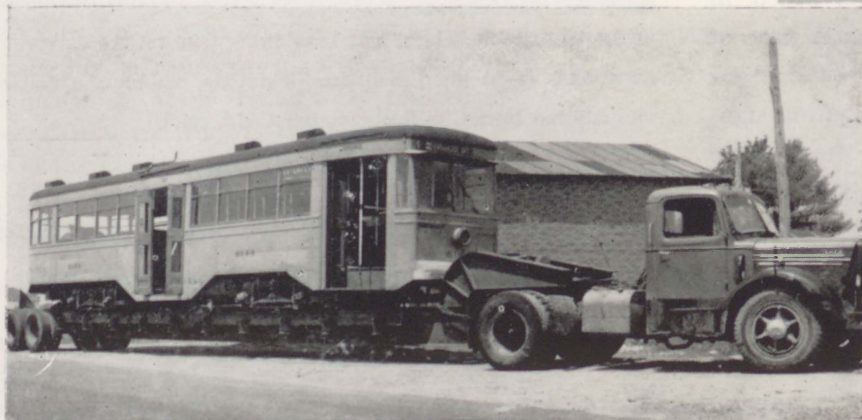


TYPE 5. No. 5821 is one of the last of Boston's conventional cars.

After a few early experiments with belts, chains, and axle armatures, the early pioneer settled on "nose-hung" traction motors. The arrangement has been likened to a wheelbarrow, with one end of the motor case attached by some kind of spring mounting to the truck frame, while the other end rides on the axle. Since the bearings on the axle are rigid, this maintains a positive relationship between the motor pinion and the driving gear. Except for some older and larger electric road engines, whose motors were so large that they had to be mounted in the carbody, there were no important departures from the nose-hung arrangement until the latter '20's, and today's electric and diesel electric locomotives still have nose-hung motors. Modern streetcars, however, do have their motors separately suspended. The PCC cars have their motor shafts at right angles to the axles, to which they are coupled by an automotive type hypoid drive. An earlier arrangement was the



LIGHTWEIGHT SPECIALIZATIONS. Curveside No. 39 has all classic Cincinnati features. Baltimore Peter Witt No. 6144 is shown arriving at the museum after an 800 mile trip on the society's special car moving trailer.



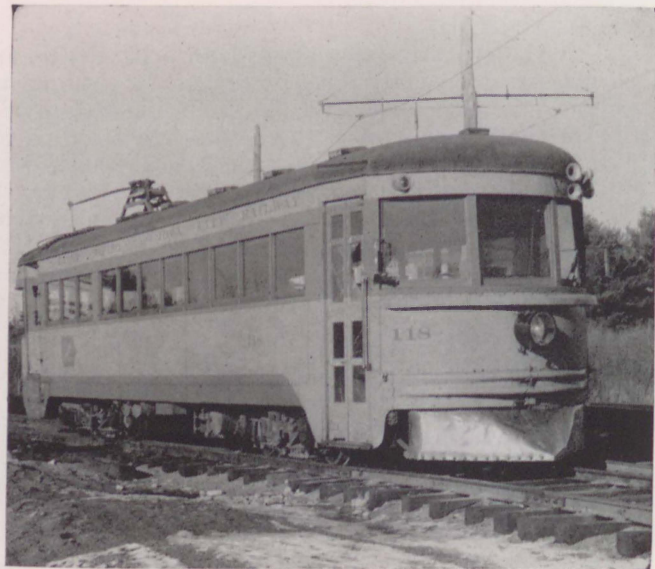
Westinghouse Company's W-N drive in which a motor parallel to the axle but independently hung, drives very small wheels through a double reduction gear box. The largest number of cars equipped

with W-N drive was ordered from Brill by a predecessor of the Baltimore Transit Company in 1930, and included No. 6144. Except for truck and motor equipment, these cars were the same as the earlier Baltimore Peter Witt cars, which, unlike Philadelphia 6618, were built originally with the pay-as-you-pass-the-conductor arrangement. These cars also had Westinghouse Variable Automatic Control, an advance over the pneumatic cam system in that the motorman could control the rate of acceleration as well as the final speed of the car.

TONIC FOR THE INTERURBANS

After the 1929 crash, a last attempt was made to consolidate and render profitable the vast interurban networks of the west. The two greatest of these consolidations were the Cincinnati & Lake Erie and the Indiana Railroad. In 1929, Cincinnati Car Company built for the C & LE a fleet of 20 radically new high speed lightweight cars with aluminum panels and four 100 horsepower motors, one of which, in 1930, raced with an airplane as a publicity stunt (and won). One of these is No. 118, sold after the collapse of the C & LE to the Cedar Rapids and Iowa City Railway, which removed the destination signs and replaced the aluminum sides with stainless steel, but altered little else, not even the number.

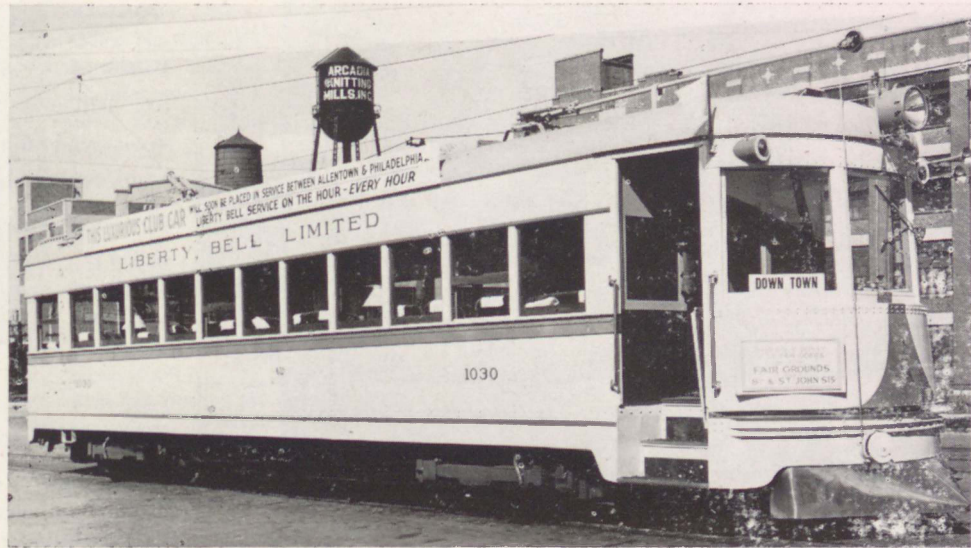
No. 621, built by Ottawa in 1930 for the Windsor (Ont.), Essex, and Lake Shore Railway is also a high speed interurban car. Its heavy steel construction, and its double folding doors suggest that it was designed to meet the rigors of a Canadian winter. When the Ontario road closed, shortly after these cars had been bought, they were sold to the Montreal and Southern



RED DEVIL, Cincinnati and Lake Erie's lightweights were the first high speed interurban cars. This one ran on the Cedar Rapids and Iowa City Railway after C&LE folded.

Counties Railway, where they ran until 1955. In 1931, thirty cars similar to those on the C & LE were built for the Indiana Railroad by American Car and Foundry and the Pullman Company. No. 1030 is one of those built by ACF at its Jeffersonville, Ind., plant, and, while on the Indiana Railroad as car No. 55, was for a time the private vehicle of receiver Bowman Elder, featuring such refinements as a refrigerator and a private telephone. The car was later sold to the Lehigh Valley Transit Company for its Philadelphia - Allentown Liberty Bell Route. This company had already purchased some of the C & LE cars and bought this car to replace one of them which had been demolished in a fire. When the museum bought this car from the junkman, he had already sold its trucks. By coincidence, those bought to replace it were from the very C & LE car that had won the famous airplane race.

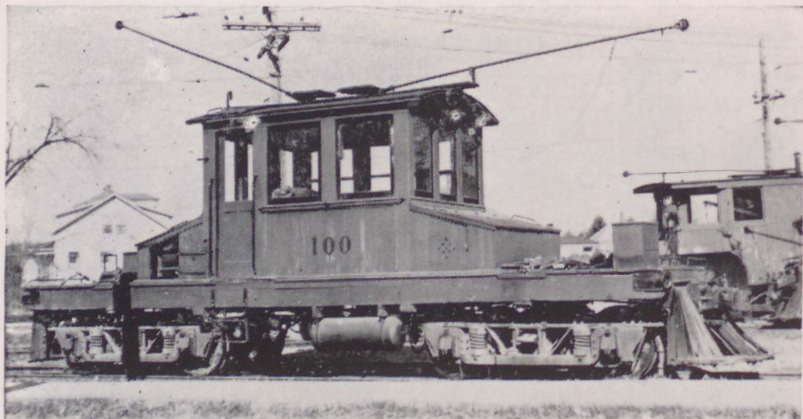
Bus substitutions and the depression cut trolley building to almost nothing in the early 1930's. Then came the PCC car, too late to give the streetcar industry a new lease on life.



LIBERTY BELL. Car 1030 of the Lehigh Valley Transit was formerly Indiana RR No. 55, the private vehicle of receiver Bowman Elder.

TROLLEY FREIGHT

The development of cross country trolley lines led to trolley freight service, including mail and express, to reach points not served by steam railroads, and even on competing routes. The museum's oldest freight car is No. 8 of the Mousam River Railroad, a single truck trailer built in 1893 to carry mail, baggage, and express to Sanford and Springvale, Maine, from the railroad station which lay between those two towns. It was hauled by a single truck passenger trolley similar to No. 60. No. 8



JUICE JACKS, Steeple Cab No. 100, left, was built to haul steam road freight cars. Box Motor No. 52 often served for a snow plow and express car as well.



has journals in rigidly mounted pillar boxes, like a horsecar. This line also had a small trolley locomotive which switched carload freight between the railroad and the Sanford mills. In the early 1900's the Mousam River Railroad was merged with a new line, the Sanford & Cape Porpoise, which bought coal direct from coastwise barges to the mills at much lower cost than by railroad from Boston or Portland. Locomotive No. 100 was built by Laconia in 1906 for this service. It has a steeple cab and four 40 horsepower motors geared down for pulling heavy loads at low speeds. Another car of the same period is No. 108, built by Laconia in 1902 as a railway post office for the Portsmouth, Dover, & York Street Railway, which, along with the Sanford & Cape Porpoise, later became part of the Atlantic Shore Line Railway, running from Portsmouth, N.H., to Biddeford, Maine.

The museum now owns the old roadbed of this line from Kennebunkport to Biddeford, and hopes in time to relay the tracks over the entire section.

When the Atlantic Shore Line failed, the York Utilities Company took over part of the system, and bought No. 108, which had been rebuilt into a line car, from the P.D. & Y. bondholders. It spent its later years on the original Mousam River route at Sanford.

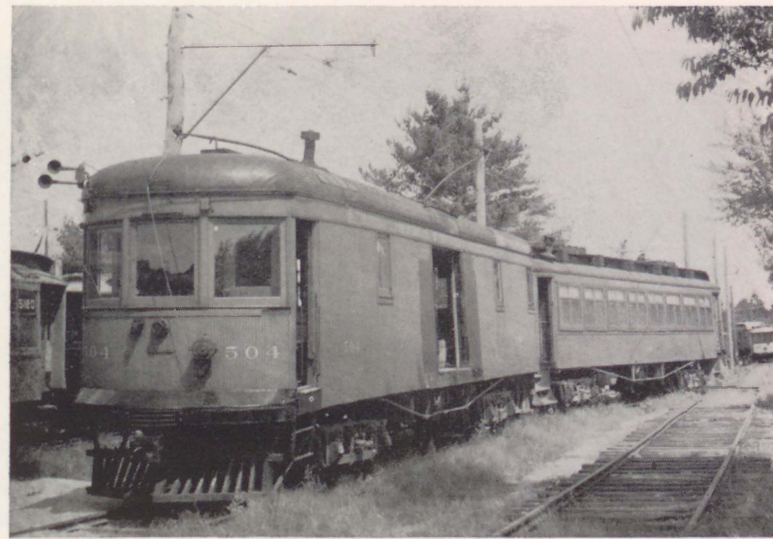
No. 52, built by Brill in 1909 for the Aroostook Valley Railroad, was designed as a combination freight locomotive, express car, and snow plow. Like No. 108, it resembles a steam railroad baggage car. Equipped with multiple unit control and four 75 horsepower motors wired for 1200 volts, it handled road freights for a fifteen mile line.

Montreal & Southern Counties No. 504 is an express motor car built by Ottawa in 1924. It had multiple unit control for use with passenger cars such as No. 610. Together, they constitute the only multiple unit train in a museum.



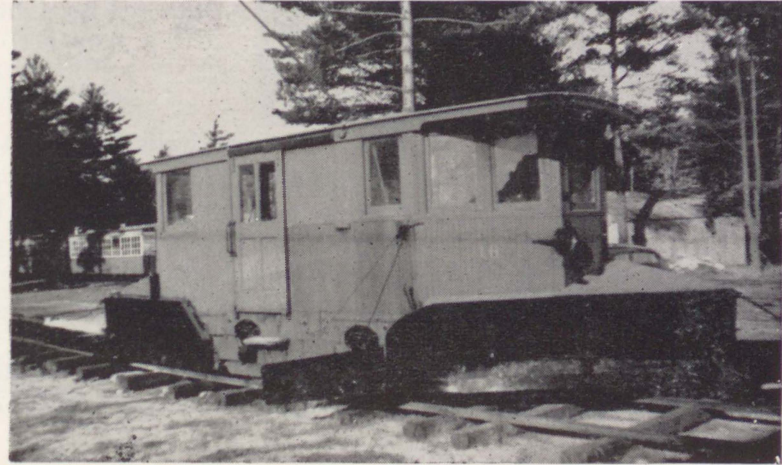
EXPRESS CARS.
Railway Post
Office No. 108, left,
became a line car
in later years. No.
504, right, was
equipped to run
multiple unit with
passenger cars like
610.

SHEAR PLOW.
The Wason Com-
pany was famous
for small snow
plows like No. 16.
This one pushed all
the snow to one
side,



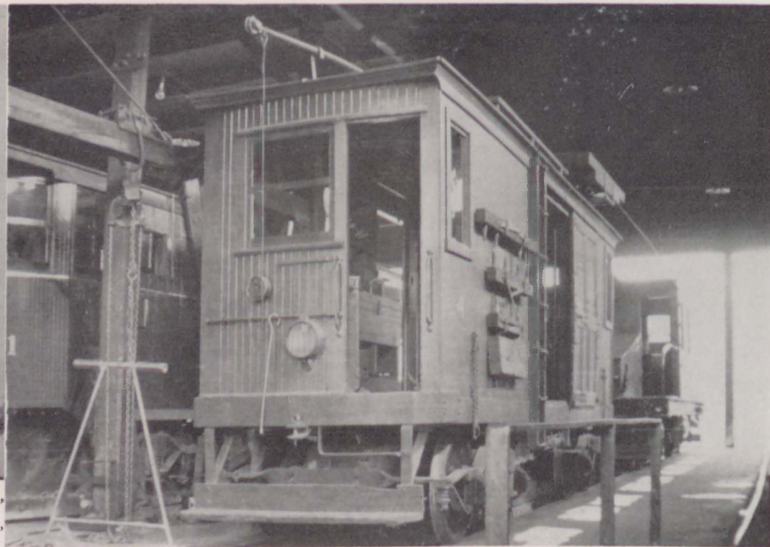
WORK CARS

Work cars, especially snow equipment
and crane cars, were sometimes built for
specific jobs, but most work equipment was
rebuilt from outmoded passenger cars. Nos.
60, 108, 396, 475, 925, 1059, 1160, 3284,
4547, and 5060 were all work cars in their
later years of service, and were thus pre-
served when others their age were scrapped.
Other museum work equipment includes
No. 16 of the United Electric Railways,

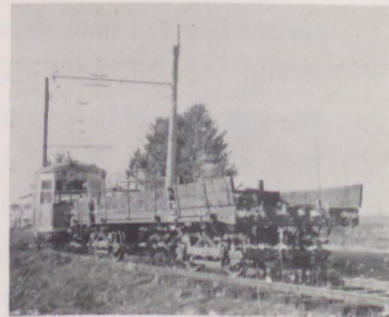




HOME PRODUCTS. Bay State line car No. S-71, above, was once a plow, while the Claremont Railway made their No. 4, right, and flatcar No. 1, below, from old passenger equipment.



Providence, R. I., a single truck snow plow built by Wason in 1916. It is a shear plow, which pushes the snow to the right, as opposed to a nose plow, which divides the snow to both sides. No. S-71 of the Eastern Massachusetts Street Railway is a single truck line car built by the predecessor Bay State Street Railway in 1915. It is reputed to have been built from a Taunton snow plow body on a passenger car truck. No. 038, a single truck motor flatcar from the Worcester Consolidated Street Railway, is said to be the floor and truck of an open car. Flat car No. 1 and line car No. 4 of the Claremont (N.H.) Railway were made respectively from a combination car and a single truck open car; flatcar 0357 was made from a Connecticut Company crane. No. 2016 of the Metropolitan Transit





CRANE CARS. Big hook 3246, left, and center crane 2016, right, are indispensable to many construction and maintenance projects.



Authority, a double truck motor flatcar, has cabs at both ends, and a crane in the center for handling rail, frogs, wheels, motors, and other parts weighing up to a ton apiece. Built in 1912 by the Boston Elevated Railway, this is a more finished looking job than many home made work cars. Automatic grinder No. 3234, built by the Goldschmidt Thermit Co., of New York in 1913, twenty-ton electric crane No. 3246, built by the Industrial Works of Bay City, Michigan, in 1916, and side-dump car No. 3608, built by the Differential Dump Car Company of Findlay, Ohio, in 1926, are all examples of commercially built special-purpose equipment as used on the Boston Elevated.

ABOUT THIS SOCIETY

The Trolley Museum is wholly owned and operated by the New England Electric Railway Historical Society, a non-profit educational foundation incorporated under the laws of the State of Maine. The entire project has been built and financed principally by society members, most of whom are people with ordinary incomes and personal obligations who have given such money and labor as they could afford. Regular Membership Dues have been kept low in the hope that no interested person would be

excluded from participation for financial reasons. Youngsters have found the experience especially valuable; every year, the museum gives away free, technical training no school could duplicate for any reasonable cost.

Since dues and revenue from visitors barely pay operating costs, new exhibits and plant improvements must be financed by donations. In recent years, many transit companies and municipalities, recognizing the worthiness of the project, have given cars and equipment. Even so, car moving costs are very high, even when the moving can be done with the society's own highway equipment. The members who do this moving are among the most skillful riggers in the country, and are regarded by many as the world's leading authorities on the movement of railroad equipment over the road.



SIDE DUMP. The Differential Dump Car Company still makes equipment like this for use on mining roads.

As of December 31, 1957, the museum collection contained 62 cars from all over the U. S., Canada, and Great Britain, a living record of the fabulous traction industry from 1873 to 1930. There are still many cars that ought to be preserved. Those we now have need maintenance and storage facilities. How much it is possible to do depends entirely on how much support we get. We invite all who find this booklet interesting to join us, and better still, to work on and contribute to a project whose rewards in satisfaction and accomplishment are, we feel, without equal anywhere.

WORK CARS

No.	Type	Builder	Year	Trucks	Motors	Control	Former Owner
34	Railway Post Office	Fiegel	1873	Maguire	2-GE800	K-2	Union St. Ry. (New Bedford)
8	Box trailer		1893	Portland			Mousam; A. S. L.; Y. U. Co.
1059	20-ft. box, grinder	Barney & Smith	1895	West End	2-GE86	K-28N	West End St. Ry.; Boston El.; MTA
108	Line car	Laconia	1902	Standard C-50	4-GE70	K-28D	P.D. & Y.; A.S.L.; Y.U.; S. & E.
1	Flat trailer	Laconia	1903	Laconia			Claremont Railway
16	Snow Plow	Wason	1905		2-GE80	K-35LL	United Electric Rys. (Providence)
100	Locomotive	Laconia	1906	ALCO	4-GE80	K-35G2	Atlantic Shore; Y. U.; S. & E.
52	Freight motor	Brill	1909	Brill 27-E1½	4-GE205	M, C-71	Aroostook Valley R. R.
038	Motor flat	Worc. Consolidated	1912	Bemis		K-12	Worcester Consolidated St. Ry.
2016	Motor flat with hoist	Boston Elevated Railway	1912	Standard O-50	4-WH101B	K-28G	Boston Elevated Ry.; MTA
3234	Automatic grinder	Goldschmidt	1913	Angle Iron	3-GE5B	CR	Boston Elevated Ry.; MTA
S-71	Line car	Bay State Railway	1915	Peckham	2-GE67	K-10, K-12	Eastern Mass. St. Ry.
3246	Electric crane	Industrial	1916	Industrial	4-WH306V	HL, 15B	Boston Elevated Ry.; MTA
615	Birney (Office)	Wason	1920	Bradley	2-GE264A	K-63BR	Portland R. R.; Biddeford & Saco
504	Express Motor	Ottawa	1924	Taylor MCB	4-WH306CVD	HL, 15B	Montreal & So. Counties
0357	Flat	McGuire-Cummings	1925	Wason AB			Conn. Co.; Branford; Warwick Ry.
3608	Side dump	Differential	1926	Taylor HLB	4-WH306	HL, 15B	Boston Elevated Ry.; MTA
4	Line car	Clare. Railway				K-12	Claremont Railway

The use of pictures supplied by the following is acknowledged with thanks. John E. Amlaw: 5748; Roger Borrup: 8, 31, 88, 100; Henry B. Brainerd: 60; John W. Coughlin: 4; Osmond R. Cummings: 50, 521; G. Ditchfield: 105; Joseph B. Doherty: 38, S-71, 80, 82, 225, 504, 610, 838, 1391, 3352, 3608; Charles A. Duncan: 16, 40, 396, 6618; J. B. W. Gwinn: 39; H. Lincoln Harrison: 12; George King: 10; Metropolitan Transit Authority: 475, 925, 4400, 5060; Howard Moulton: 108; Foster M. Palmer: 118, 144, 434, 621; C. David Perry: 24, 1468; Theodore Santarelli de Brasch: 1, 34, 52, 70, 615, 1059, 1267, 2016, 3246, 4387, 5821, 6144; Clayton D. Sargent: City of Manchester; Howard P. Sell: 1030; Edward B. Watson: 4547; Richard L. Wonson: 6270.

Copyright 1958,

by NEW ENGLAND ELECTRIC RAILWAY HISTORICAL SOCIETY INC.,

Kennebunkport, Maine, U. S. A.



Every summer, thousands of visitors (front) relive a vanishing era on the old open cars.

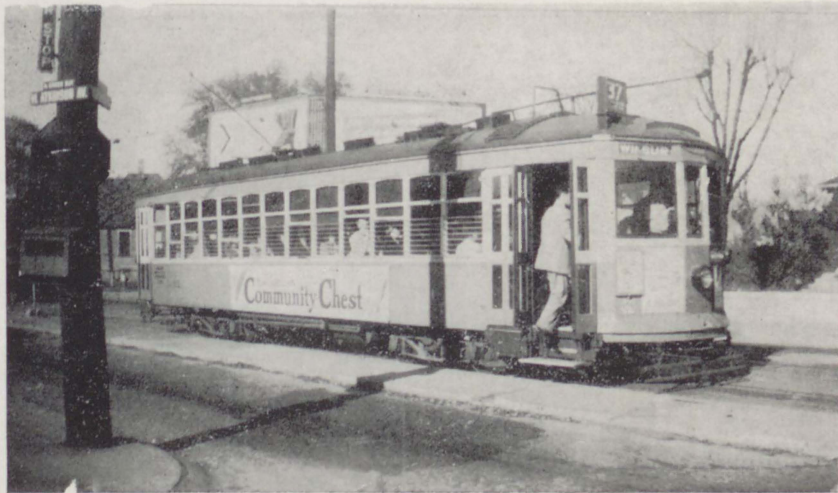
Diversity of the equipment on display (left) is shown by Stone & Webster car 434 from Texas, double-decker 144 from England, and high speed interurban 621 from Canada.

This streamlined doubledecker represents the latest type of British tram. Narrow streets and close clearances forced the compact construction. The finest of modern mechanical and design features make this entirely comparable to the P.C.C. car as currently used in the U.S.A. and Europe. No. 293 was built by the Liverpool Corporation Passenger Transport at their Edge Lane Works in 1939. When their services were given over entirely to busses, this tram was decorated for the final run in Liverpool, 17th September 1957. British friends assisted in obtaining the tram for Seashore.



No. 293, modern double deck British tram.

SUPPLEMENT - - - Acquisitions since this catalog was printed.



No. 861, LIGHTWEIGHT CITY CAR. The Milwaukee version of city transport, modern in the 1920's.

The Milwaukee & Suburban Transport Company, successor to The Milwaukee Electric Railway & Light Company, saved No. 861 for Seashore at the time of final abandonment in March 1958. With a few mates in other museums, it survived to the end of an especially distinguished city and interurban system.

No. 861 was built in 1920 by the St. Louis Car Company. It is an adaptation of lightweight design to the tastes of a large system. The narrow center end window has the operator close behind it. The wide oblique windows on both sides of this give wrap-around vision without the expense of curved glass. The combination of wide and narrow doors, and the slightly arched tops of the window sashes are also peculiar to the "T.M.E."



No. 3, SMALL SWITCHING LOCOMOTIVE WIDELY USED IN INDUSTRIAL PLANTS.

Our ten ton switching locomotive is named "The Dragon" for its donor, the Dragon Cement Company of Thomaston, Maine. It is a typical small internal combustion switching locomotive for industry and contractors. It was built at the Plymouth Locomotive Works, Plymouth, Ohio. Former electric lines have used these to maintain switching services after closing of passenger operations and de-electrification.

As well as being an interesting exhibit, The Dragon is very useful for work trains and to rescue passenger cars in power failures.

No. 71, AROOSTOOK VALLEY RR (CPR)

On page 12 is a picture of AVR No. 70, interurban combine. When Seashore acquired and shipped no. 70 and no. 52 in 1946, a member took no. 71 and had it accompany the other two cars to storage at the North Billerica shops of the B&M RR. Except for interior damage from a fire, no. 71 is identical to no. 70. When it was signed over to Seashore, it was shipped to Seashore on the Society's rig.

Replacement of interior trim and seats will be done with materials removed from parlor cars recently scrapped by the Pullman Company or railroads who took over the cars.

Copyright 1959 by the New England Electric Railway Historical Society, Incorporated, owner of the

SEASHORE **ELECTRIC RAILWAY**

The Original **TROLLEY CAR MUSEUM**

KENNEBUNKPORT, MAINE



Seashore Electric Ry.

Chicago Surface Lines 225 represents the most famous car type on history's largest street railway. Now at THE TROLLEY MUSEUM, Kennebunkport, Maine.

PLACE
STAMP
HERE

POST CARD

Address

Published by Arundel Color Lab., Kennebunkport, Maine



Young and old alike find joy on the old open cars at
THE TROLLEY MUSEUM
Kennebunkport, Maine

PLACE
STAMP
HERE

POST CARD

Address

Published by Arundel Color Lab., Kennebunkport, Maine

S16032



A Double-Decker Street Car from Blackpool, England.
One of many trolleys now operating at the Seashore
Electric Railway, on the Biddeford Rd., 1½ miles east
of Route 1, North Kennebunkport, Maine.

Color photo by Arthur Albrecht

GENUINE COLOR CARDS by Eastern Illustrating, Inc., Belfast, Maine

PLACE

STAMP

HERE

POST CARD



UNITED STATES MAIL
RAILWAY POST OFFICE

34

34

SEASHORE ELECTRIC RAILWAY

New Bedford Mail Car, rebuilt from 1873 horse car, is the oldest exhibit at THE TROLLEY MUSEUM, Kennebunkport, Maine.

PLACE
STAMP
HERE

POST CARD

Address

Published by Arundel Color Lab., Kennebunkport, Maine



SEASHORE ELECTRIC RAILWAY Trolley Museum

U. S. Rte. 1, S. of Biddeford, Me.

No. 838, Former New Haven, Conn. 15 bench open trolley built for the Consolidated Ry. of Conn. (Later the Conn. Co.) by J. M. Jones' Sons of Watervliet, N. Y. in 1905 This car is among the several operated daily at the museum during the summer months.

Pub. by Diversified Photographics, Berlin, Germany

POST CARD

.
PLACE
STAMP
HERE
.

Photo by Joseph M. Williams

26800-B PRINTED
IN
U.S.A.

MADE BY
DEXTER
WEST BRACE, N. Y.