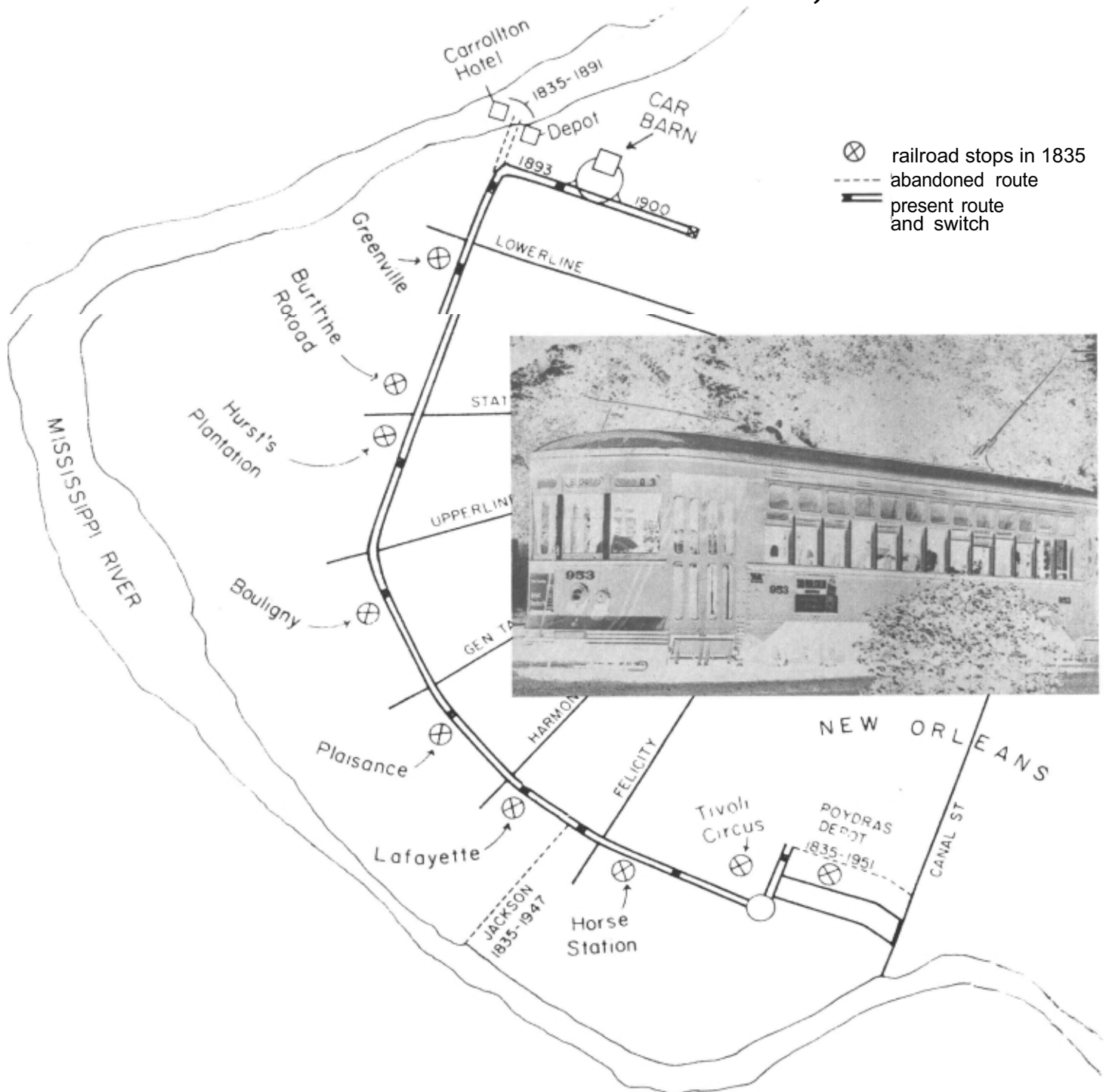


National Historic Mechanical
Engineering Landmark

St. Charles Avenue
Streetcar Line, 1835
Carrollton Streetcar Shop
New Orleans, Louisiana
December 9, 1984

American Society of
Mechanical Engineers
Regional Transit Authority

St. Charles Avenue Streetcar Line, 1835



The St. Charles Street Car line is the oldest continuously operating street railway in the world and was one of the first passenger railroads in the United States. The electric streetcars now operating on the route are typical of the transportation that played a major role in American cities in the first part of this century.

The line was incorporated as the New Orleans and Carrollton Rail Road Company (N.O. & C.R.R.) February 9, 1833. Capitalization was \$300,000, with \$100 shares payable in \$5 installments. The third railroad built in the Mississippi River valley, it was conceived primarily as a passenger line.

It was preceded by the Pontchartrain Rail Road Company, incorporated in 1830, which ran for five miles between the Mississippi River at New Orleans and a pier on Lake Pontchartrain at Milneburg, and the West Feliciana Rail Road, incorporated in 1831, which eventually ran between St. Francisville/Bayou Sara and Woodville, Mississippi.

Unlike the other two railroads, the N.O. & C.R.R. did not have a separate, private, right-of-way, but shared the streets with carts, drays, carriages, horses, and pedestrians. The trains were restricted to four miles an hour within city limits, and only a single track was permitted on Baronne Street.

The railroad was part of a sophisticated land development scheme. The real estate promoters realizing the need for "a certain speedy and easy transportation" to New Orleans if their new town was to develop, initiated the construction of a

passenger route "to use an English invention, the steam powered Locomotive, rolling on a road of iron rails." As the tracks crossed each plantation boundary, there was a slight curve to keep the line parallel with the river, forming a huge crescent shaped route. As New Orleans grew, new streets followed the curve of the railroad and river, rather than the usual grid of most American cities; thus New Orleans was called "Crescent City."

According to the *Street Railway Journal* of May 1894, the New Orleans and Carrollton railroad was "the pioneer street railway in the city...but not put in operation until 1834, only three years after the building of the Fourth Avenue, New York line, which was the first street railway proper in the world. The first section of the New Orleans & Carrollton Rail Road open for traffic extended from Canal on St. Charles Avenue to the corner of Jackson Avenue, and the rolling stock consisted of double deck cars which were drawn by two horses tandem."

On January 13, 1834, the horse car line to the town of Lafayette officially began service along St. Charles Avenue from Canal Street. Lafayette (now between Felicite and Harmony Streets) was the residential suburb of the Americans who had settled there in the 30 years since the Louisiana Purchase.

The 1¾ mile route was on Baronne, Triton Walk (now Howard), through Tivoli (Lee) Circle, Naiades (now St. Charles Avenue) and along Jackson Avenue to the river. The first cars were leased from the Pontchartrain Railroad Com-

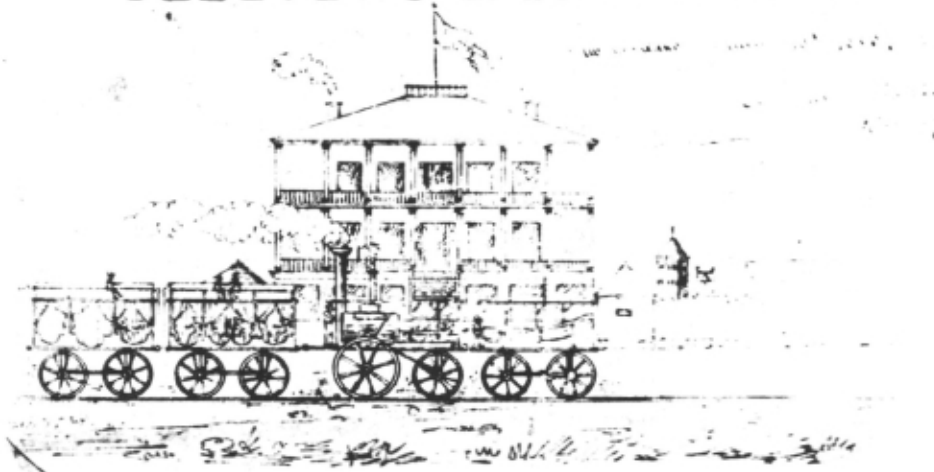
pany, and were 4' 8½" English standard gauge. The cars were pulled by horses, which used a wooden walkway between the rails.

Two steam locomotives, the "New Orleans" and the "Carrollton" were ordered from England, probably from Benjamin Hick & Company in Bolton, Lancashire. The "Fulton," a 2-2-0 type with outside inclined cylinders, had been built for the Pontchartrain railroad in 1834, and a second "New Orleans" for the N.O. & C.R.R. in 1837.

Construction of the roadbed went apace, and there was a special notice printed on the front page of the *Bee* newspaper throughout the month of August. "The New Orleans and Carrollton Rail Road Company, see with regret, that notwithstanding the police regulations of the Parish of Jefferson, a large number of animals are allowed to run loose upon their road, which have already caused and are still causing considerable damage to the road and the ditches on each side of it. Being on the eve of starting the Locomotive, it is apprehended that frequent accidents will result from this abuse if not immediately put a stop to. . . ."

The company stated its right to take all stray cattle found on its railroad and hold them at its depots for claim by the owners of the animals. The notice also said that "it is expressly forbidden to travel upon the road, either on horseback or in any vehicle whatsoever."

in CARROLLTON.



Earliest illustration of a N.O. & C.R.R. train, in front of the Carrollton Hotel. Drawing by C. Rothaas, Dec. 16, 1835. New Orleans Notarial Archives, Book 91, Folio 10.

On August 8, 1835, the *True American* newspaper mentioned that "the steam cars began running on the Carrollton Rail Road, on Thursday, and will run again this day. In a week, we understand, the road will be completed to Carrollton. The company expects a new engine out shortly. The price of passage is fixed at twenty-five cents."

However, the official opening was delayed until late September 1835.

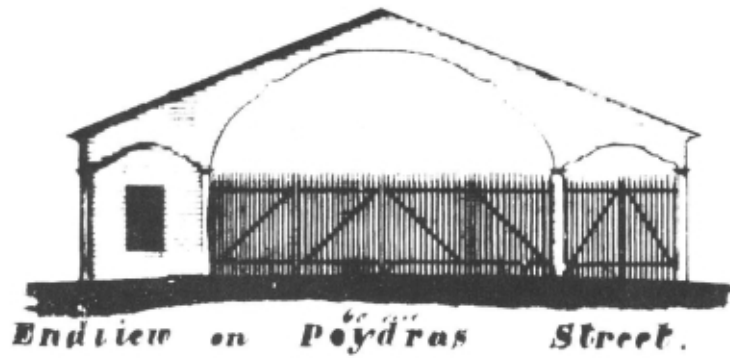
A month later, the *Bee* had some constructive criticism: "More punctuality must be observed in the hours of departure... It would be no harm also to attend to the flue of the engine; so that sparks might not burn the dresses of the passengers." Apparently sparks were a major problem, because a year later the Pontchartrain railroad offered to "pay the sum of 500 dollars, to the inventor or projector of a machine or plan to prevent the escape of sparks from the chimney of locomotive engines, burning pine wood, and which shall be adapted for use of the Company."

Patronage on the Carrollton line increased, requiring more frequent and reliable service. Two American built steam engines were ordered from William Norris of Philadelphia in 1836, and two more a year later.



By 1840 the population of New Orleans was 102,000, having more than doubled in 10 years, and briefly making the city the fourth largest in the country. Because of increasing complaints of congestion in the city, the LaCourse horse car line was discontinued. The stables known as "Horse Station," just off St. Charles Avenue (near Carondelet between Felicity and Polymnia Steets) remained in use for another 50 years. During peak business hours the Carrollton steam engines stopped at the Tivoli Circle station and passengers continued to Canal Street by horse power. On weekends and evenings, the steam engines ran through to Perdido Street. The Lafayette (Jackson Avenue) horse car line used the single track on Baronne for the three-quarters of a mile to Canal Street. The N.O. & C.R.R. expanded its suburban service on the double tracks from Tivoli Circle to Carrollton.

By the end of the Civil War the N.O. & C. was near bankruptcy because of its control by the U.S. Military Government during the war. The railroad was leased to General P.G.T. Beauregard and others for 25 years.



"The new lessees will abolish the use of locomotives and substitute horse cars, of which sixty have been ordered from Philadelphia. The lessees intend to apply to the City Council for the privilege of laying a double track on Baronne Street," according to the *Daily Southern Star* of April 11, 1866.

The added trackage from Canal Street to Howard Avenue was praised by the *Daily Picayune*. The old double-deck horse cars were being replaced by the new "bobtailed" cars. The new cars had a front vestibule for the driver, but only a rear step for the passengers, making the cars appear cut-off or "bobbed."

The company conducted an inventory June 1, 1867, of the steam rolling stock, which showed eight locomotives (the Orleans, Carrollton, Alabama, Florida, Lake, Union, May and Jefferson). Four 42-foot passenger cars had just been sold, leaving the company with ten 40-foot, and three 30-foot passenger cars. There was a 12-foot baggage car; eight 12-foot woodcars; four 30-foot box cars; fifteen 30-foot flat cars, and four railroad handcars, as well as six double and five single horse cars.

The N.O. & C., having installed new horse cars on the lower half of the road, from Napoleon Avenue to Canal Street, then considered what to do about the upper half, from Napoleon to Carrollton. An "Estimate for Completing Horse Car Lines to Carrollton" dated February 15, 1867, showed in detail the items needed for conversion of the railroad: 18 new horsecars at \$1,300 each, 163 mules at \$215 each, a new dwelling for employees (\$13,000) at the Napoleon Avenue property, and expansion of the stables. About \$25,000 was marked for track work and the wooden walkway between the rails. The total estimated cost was \$111,142, exceeding the available assets by about \$14,900.

Steam locomotives were undesirable for city use, but there was no practical

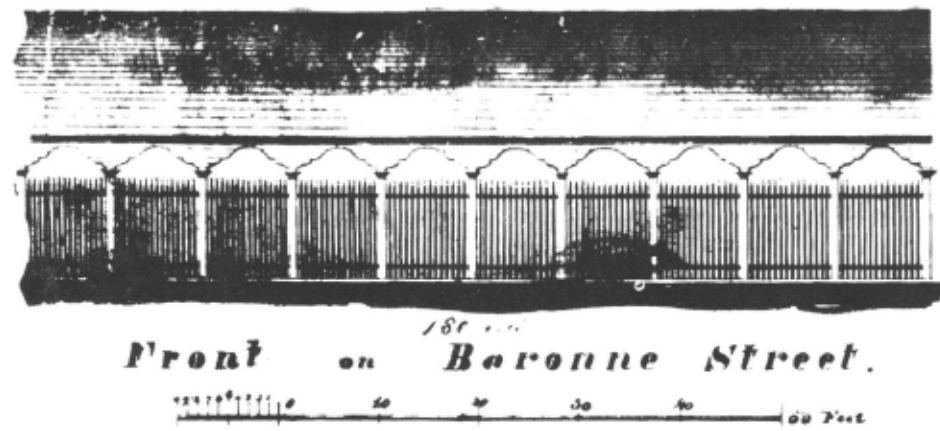
source of motive power other than the expensive horse or mule car. However, various experiments were tried. The first was an overhead-cable-powered railroad.

Overhead Cable

According to an 1887 English book, *A Treatise Upon Cable or Rope Traction as Applied to the Working of Street and Other Railways* by J. Bucknall Smith, C.E., in 1859 "Messrs. Foster and Brown, of the United States, proposed to employ an overhead endless traveling rope for working street tramway traffic. A suitable gripping appliance was devised for operating above the cars to catch or release the cable at pleasure. . . ."

In 1869 General Beauregard followed up Foster and Brown's proposed elevated cable traction systems, devising an ingenious cable grip or catch, for passing and clearing the overhead pulleys, by arranging the supporting arm and operating parts out of the vertical plane of the cable and gripping jaw. This gripping apparatus was for cases in which the supporting pulley was between the hauling rope and the vehicles on the lines. General Beauregard was issued U.S. Patent 97,343, November 30, 1869, for his "Machinery for Propelling Cars." Cable traction had been considered for the whole length of St. Charles Avenue but no action was taken on the proposal.

In 1870 General Beauregard formed the New Orleans Improved Car-Traction Company to try cable cars on a 2400-foot section of track on St. Charles Avenue. The May 1894 *Street Railway Journal* related that there had been an "experimental line around two or three blocks opposite to what is now Audubon Park." In this experiment, bracket poles supported the rope above the car. Two old locomotives at the end of the route moved the rope. The grip, located on the roof of the car, was operated from the front platform by levers. This experiment, proving



1834 design for a proposed depot on Baronne between Poydras and Perdido Streets. Courtesy of the New Orleans Public Library, Louisiana Division.

too expensive, was soon abandoned, although it served to identify the inventor as a pioneer in cable traction.

The apparent reason for the system's failure was that it did not decrease running expenses by the expected 30 to 50 percent. The experiment was estimated to cost \$2,500, but by March 29, 1872, the company had spent \$4587.50. In San Francisco, underground cables were used to replace horse power and the expensive system was a success on the steep hills.

By the end of 1870 New Orleans absorbed the upriver town of Jefferson, placing the new city limits at Upperline Street, and putting the Napoleon Avenue horsecar line within the city limits.

The railroad became strictly a passenger line with the discontinuing of freight cars on February 1, 1871. A letter to General Beauregard from the company's legal counsel, dated January 12, gave the opinion that while the 1833 Charter authorized the railroad to carry freight, the company was not obligated to do so. Freight receipts were \$480.50 while expenses had been \$675.25 for the previous year.

A problem with horse-power, besides continual food costs, stable and wooden walkway upkeep, was that the animals got sick. In December 1872, so many horses were sick that service on St. Charles Avenue had to be suspended. The *New Orleans Republican* reported the perseverance of the railroad during an "epizooty" epidemic (Epizootic Aphthae):

"Residents on upper St. Charles Street were somewhat amused and gratified yesterday to see cars on the track, which fact of itself was a notable one, but when it is explained that the car was pulled by four and pushed by two men, the reader can readily understand that every eye was turned toward the track. The car drivers on the Carrollton line, unable or unwilling to remain idle, applied to the company for the free use of two passenger cars, the applicants stating that they would join in

and propel the vehicle by hand power. The company granted the request, when the men attached two ropes in front and started from Napoleon Avenue for Canal Street, having a full load of travelers, each one paying twenty-five cents for the ride. The men tripped off quite lively and kept up a good pace down to Jackson Street, when they were compelled to slacken their speed. Still they traveled fast enough for those who rode.

"The first voyage was made in forty minutes, but little short of the time of a horse. The men rested at Canal Street about twenty minutes: when they started on a return trip, gathering sufficient currency to compensate them well. The movement would prove much easier on the men if they would run only down to Tivoli Circle, as the street from the point down to Canal Street is bad for men to walk over, it being paved with cobble stones. By adopting this plan the men would save themselves great labor, giving them an opportunity to make more trips. People would willingly walk up to or down from Tivoli circle. It is hoped drivers on other lines will follow the example." The following day the newspaper announced the horse disease had run its course.



Ammonia Power

The railroad company, having experience with horsepower, cable power, and human power, then turned its attention to ammonia power. But the new ammonia engines were not successful either. Dr. Emile Lamm's Ammonia Engines were mentioned in the *New Orleans Times* June 5, 1870. A trial trip originated at

Canal and Broad Streets, into Canal to the Clay statue, then out Canal to the Ridge Cemeteries, and returning to Broad Street. The estimated cost of a trip was \$1.76. The ammonia engine was similar to a steam engine, except that a solution of water and ammonia provided the motive power. Ammonia vapor from the cylinders was not vented but reabsorbed by the water to be reused. The "Ammoniacal Gas-Engine" was issued patent number 105,581, July 19, 1870. However, no sales were made to the N.O. & C.R.R. and experiments continued.

The ammonia engines were soon converted to steam, according to the *New Orleans Republican* of March 29, 1872. "Dr. Lamm, the inventor and perfecter of the ammonia street car propelling apparatus, seems to be devoting his entire existence to the discovery of a cheap and safe motor for street car propelling purposes. In his indefatigable pursuits, the doctor has recently applied steam or superheated water as it is preferred to be called by some, to the propulsion of street cars. The application assimilates with the ammonia process in this that the main apparatus is located at the car station, where each car is to be supplied with the superheated steam, according to necessity."

Although these transportation methods may have seemed somewhat bizarre, they had a realistic purpose—to lower the cost of mass transit. According to Charlton and Hennick's *Street Railways of New Orleans*:

"The potential worth of these inventions were weighty enough to call forth much capital and interest, especially on the part of the New Orleans & Carrollton R.R. Co. and Gen. Beauregard. For instance, the N.O. & C.R.R. Co. in 1872 conducted comparative trials to determine the ammonia locomotive's economies over animal propulsion. It was found that to operate the ammonia locomotive cost \$6.775 per day as compared to \$9.910 per car per day for animal traction."



Thermo-Specific Engines

May 27, 1872 saw the charter filed for the Ammonia and Then-no-Specific Propelling Co. of America. The estimated savings per year was \$14,671, a considerable sum in those days.

The Thermo-Specific engine was more practical. It used super-heated water in 18-inch diameter tanks located on the roof of the "motor" (it is not clear in newspaper accounts if a "dummy" or a standard mule car was employed.) Steam from the super-heated water propelled the engine. However, having to constantly replenish the tanks rendered the experiment unwieldy for tight street railway operation.

Lamm and Sylvester L. Langdon, of the New Orleans City Rail Road, formed the Lamm Fireless Engine Co. in 1874. Langdon had patented a spectacular mechanism for streetcar propulsion, which used dual overhead walking beams to drive a large rubber-tipped spoked wheel behind the car. However, the new company built only more conventional fireless locomotives. Several were bought by the Crescent City R.R. Co. and the New Orleans & Carrollton R.R. Co. Lamm's invention was also used in France. It was built under license in Paris and was used extensively on Paris street railways until World War I.

Maurice Kelly, a British author, in the book *Fireless and Other Thermal Storage Locomotives*, says that "the first successful application of these systems commercially was made by Emile Lamm during the 1870's. It has been stated in other places that the Germans were the

progenitors of fireless systems, but they were late in the field, cornering all the European patents in the late 19th and early 20th century. The true pioneer of the thermal storage system was Dr. Emile Lamm."

The first issue of the *Carrollton Sentinel*, October 4, 1873, had an article about Lamm locomotives on the Carrollton railroad. Noting that the horse cars had been inadequate for peak loads because it was costly to keep extra horses for use at such times, the article said:

"The remedy as used by the Carrollton Company now-a-days has proved a success. These cars are run from Napoleon Avenue to Carrollton, with ample power by a boiler of water heated at the station house. No fire is used in connection with the car, nor is there any noise or any escape of steam. Little room is occupied by the engine, and one man is able to act as driver and conductor, stopping the car by the brake, and starting without difficulty and as quick as the one drove with a horse. The steamer is capable of carrying two cars with ease. When at the station the steam is pumped in by a connection, and the car is ready for another trip. By this method there is no killing of valuable stock from overwork, and the only lack of liberality in companies would defeat abundant provision for all who might wish to ride even if it should prove that this plan would fail in the severest of our winter by a too rapid cooling of the steam—but our climate is not so severe. In such cases we could at least use it during such a season as the present, and avoid

the hardship which is imposed on the poor dumb brutes, who lack speech to plead their cause against exacting man. We have eight of these steamers in operation on the Carrollton Road."

By 1874, 10 Lamm Thermo-Specific locomotives had been received. The same year, the town of Carrollton was absorbed by New Orleans, putting the entire trackage of the N.O. & C.R.R. within the city limits.

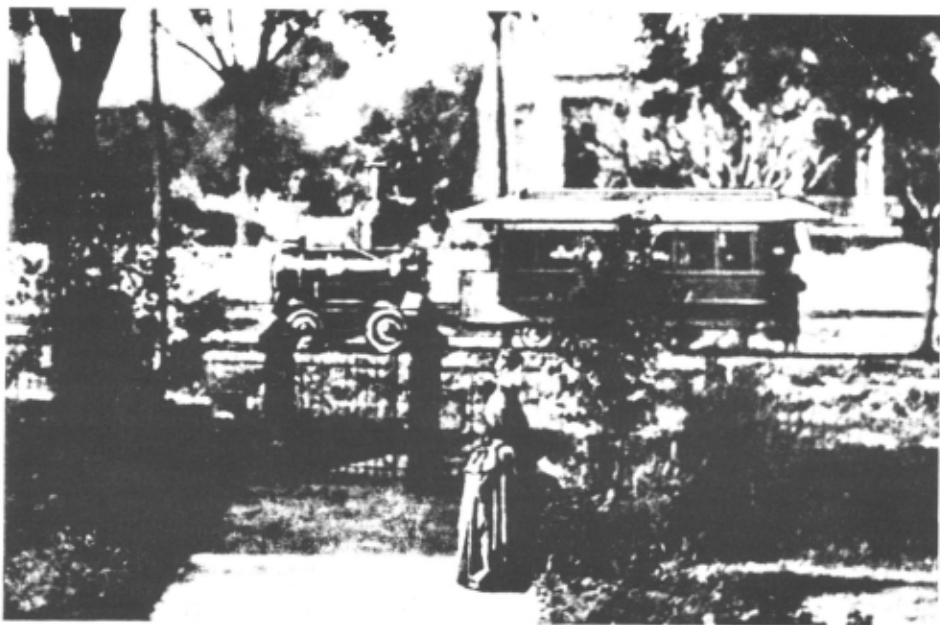


Electricity

The first practical use of electricity as motive power in New Orleans was at the World's Industrial and Cotton Centennial Exposition (December 1884-May 1885) where two electric railroads were demonstrated.

One was the patented invention operated by the Daft Electric Light Company. It was about 1,100 feet long, and used a center third rail for power. The line was more of an amusement ride than a true railroad.

The other was quite extensive, looping around and through the exposition grounds. It used trains consisting of a motor car with two open trailers, powered from an overhead electric wire. The Visitors Guide commented on "an electric railway 3 miles in length, this will be the longest electric railway in the United States, and will be well worth taking a ride on." The system was operated by a



Lamm fireless locomotive on St. Charles Avenue in 1889. Courtesy of Ray Samuel.

Belgian, C. J. Van Depole, who gave demonstrations at exhibitions and fairs until he could get financial backing to build a city street railway. He finally did so in Montgomery, Alabama, where its Court Street Line was electrified in 1886. The electrification eventually extended to 15 miles with 18 cars. Montgomery was the first city in the world with city-wide electric transportation replacing animal powered public transportation.

New Orleans waited seven years for its first successful electric street railway.



Storage Battery

The 1888 Annual Report of the N.O. & C.R.R. mentioned that "In the beginning of the year, the Company petitioned the Honorable City Council to be allowed to use Electric Motor Power, of the Sprague System, which is by overhead wires,—on small iron posts or pipes in centre of neutral ground, which is now being used in thirty odd cities; but in this we were unsuccessful. Subsequently an Ordinance was passed allowing the Storage Battery to be used, which so far has not proved successful and is much more expensive. This practically debars this Company from using electricity for quick transit and economy." The city council was opposed to overhead electric wires, apparently because of the danger of electrocution. Al-

though the N.O. & C.R.R. decided to use the Sprague system of electrification, which used a single overhead wire as a source and the rails as a return, other systems had been considered. One was the Short Electric Railway System, patented by Sidney Short in 1889. It used two parallel overhead wires as source and return. A small metalwheeled "troller" (or trailer) rolled on the wires, pulled by flexible electric cables from the street car. Because the wheeled pickup was trailed behind, much as a boat trolling a fish lure, the term "trolley" became a descriptive term for all electric street cars powered from overhead lines. The Short System was unsatisfactory because the trailer could not easily be switched, and it would fall between the electric wires, sometimes causing a short circuit.

In May 1889 steam dummies were discontinued. That year's annual report said "the dummy system, in conjunction with that of the mule, being unquestionably too expensive." Mules remained the only motive power on the N.O. & C.R.R. until electric cars were introduced on St. Charles Avenue four years later.

By 1889 other street railway companies were interested in electric power. The New Orleans City R.R. and the Crescent City R.R. companies jointly formed the Electric Traction and Manufacturing Company that year. The *Times Democrat* of August 9, 1890, announced that the Electric Traction Company had tested a battery-powered car, the first ever constructed in New Orleans, and it was "just

as good as any made up north."

The car seated 26, and could be operated 96 miles at a top speed of 15 miles per hour. Night time operation was enhanced by a powerful electric headlamp, as well as two interior lights.

A month later, the *Daily Picayune* published a conversation with President Joseph Hernandez of the N.O. & C.R.R. He announced that the company was again preparing to petition the city council for the right to operate a sample overhead wire electric railroad on St. Charles Avenue. He was opposed to the storage battery concept, and said that the only route was with the overhead wire. The newspaper also mentioned that representatives of the Edison General Electric Company, and Thomson-Houston Company said "there was no danger attached to the operation of the overhead system. Hundreds of men have time and again received shocks, but the current was so light that they were none the worse for it."

Opposition to electricity remained, and not only due to fear of electrocution. The *Times Democrat* of October 14, 1890, quoted Colonel Joe Walker, president of the New Orleans City R.R. company, who said "Electricity has been the subject of considerable experiment for the last four years without much, if any, improvement or success in the storage battery. There are only two places in the United States where the storage battery is operated. Nine cars are run on the Fourth Avenue and Madison Square (Vanderbilt's line) line in New York, and two in Indi-

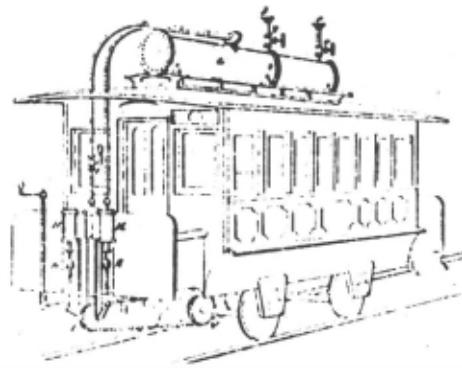


Tramway Galop written by J. Burgmeier about 1881. The N.O. & C.R.R. was using double deck cars on its shorter lines.

anapolis and the system is no further advanced today than it was three years ago. As far as the motor itself is concerned, it is a success, but as to economy...it is 100 percent more expensive than animal power. The overhead system has made considerable advancement, . . . but it is still more expensive than mule power. I contend that it costs 12 cents, whereas we operate the mule at a cost of a fraction over 5 cents per mile." Col. Walker listed the daily expenses of running a mule car, some of which were 23 cents worth of feed for 5½ mules per car, and the car driver at \$1.67. The total cost averaged over a year was \$7.94 per day.

The Colonel said, ". . . I cannot see the time anywhere near when the system will be such as can be adopted; in fact, that time is in the far future. The mule for many days will remain master of the situation." The Colonel was right about one thing; the economics of the battery cars. They were discontinued a year later, and the Electric Traction and Manufacturing Company was quietly shut down, putting 200 employees out of work.

The New Orleans City Council finally passed an ordinance on December 15, 1891, authorizing use of overhead electricity on the N.O. & C.R.R. Work began July 13, 1892. Tracks were extended out Carrollton Avenue two thirds of a mile to Jeanette Street. A new car barn and electric shops were built on Dublin Street between Jeanette and Poplar (now Willow) Streets one block off Carrollton Avenue, with a large electric power plant on Napoleon Avenue near the river.



Patent illustration of Dr. Emile Lamm's "Chloride of Calcium Engine" using superheated water dated March 12, 1872. It superseded the Ammonia Engines before a more conventional fireless locomotive was used.

The first trial runs were made at midnight January 25, 1893.

The new electric cars made by St. Louis Car Company were closed cars, with open platforms for the motorman. The single truck was for use on 4' x 8½" gauge track and 500 volt direct current. The February 2, 1893 *Daily Picayune* described the Carrollton cars as "elegantly made, and are furnished inside with carved cherry wood, with spring seats, and backs of woven bamboo. They will comfortably seat fifteen people on either side. The windows of plate glass are 2½ feet wide, and have adjustable brown shades, that raise or lower by pinching the double handles together. The roofs are of paper-

mache, decorated with conventional designs of brown and gold. No advertisements will be allowed, and the ventilator glasses are of pale green, with the road's name cut into the glass. In the center of the roof is a 3-cluster of incandescent lights. There is a single light at each end, and by each door a supplementary lamp in case of need. Over the door is a passenger indicator. The cars are comfortable, wide seated, healthy, and bright. Each platform is guarded or shut in by telescope gates. . . . The cost of a car complete, but without motor is \$1250. The new rolling stock of the road is about fifty-two cars, so the expense has been very considerable."

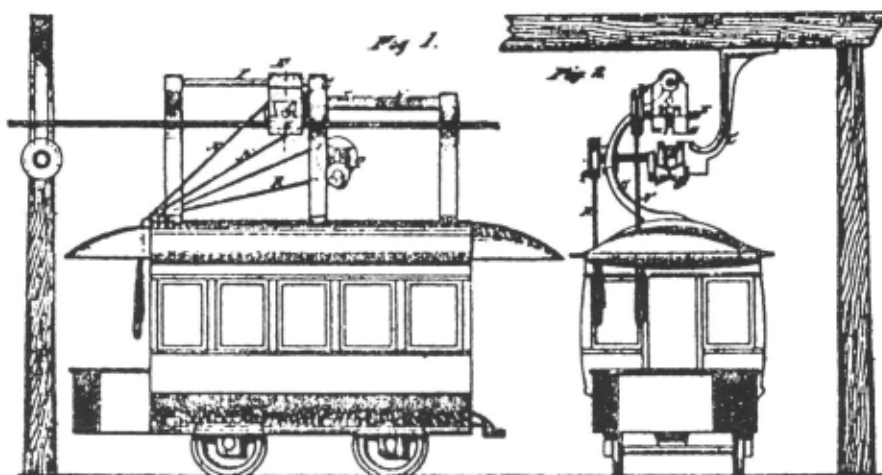
Each car cost \$2,949.20. There were green cars for the St. Charles Avenue line, yellow for Napoleon Avenue and red for the Jackson Avenue line.

The official opening of the electrified line was Wednesday, February 1, 1893. The line proved profitable. Company records for the spring of 1896 showed that the Carrollton route had about 30 cars with daily fare collections of \$23.90 per car. The average mileage was 151 miles per day with revenues of 15 + cents per mile. Total expenses (including electricity and office personnel) were 10 + cents, giving net earnings of 5 cents per car mile. The three lines of the N.O. & C. had typical receipts of \$30,956.44 per month. The Canal and Claiborne Rail Road, controlled by the N.O. & C.R.R., also installed new tracks in Canal Street at this time.

*G. T. Beauregard,
Car Propeller.*

No. 97343.

Patented Nov. 30 1869.



Patent illustration of General Beauregard's overhead-cable powered car, dated November 30, 1869.

Present Condition

The line is maintained by the Regional Transit Authority of New Orleans.

The streetcar line has about 15 miles of track (single track equivalent). There are nine crossovers for switching the streetcars to the other (parallel) tracks. The crossovers are used mainly during the carnival season, when parades cause an interruption of service. There is also a double crossover at the end of the line (Carrollton and South Claiborne), two switches at Willow and Jeanette to the carbarn, and a double track stub on Howard between Carondelet and Baronne. There are 104 passenger stops, and the 52-passenger cars have a 4½ minute headway during the morning and evening peak passenger travel, decreasing to 15 minute average in the evening.

The St. Charles Avenue route became New Orleans oldest railroad in the fall of 1954, when the last 1½ miles of track were removed from the old Pontchartrain Railroad route on Elysian Fields Avenue (the first railroad built west of the Appalachian mountains).

The St. Charles line became the last streetcar route in New Orleans when the Canal line was changed to buses May 30, 1964. The 900 series cars (with pneumatic doors) then replaced the older 800 series cars on St. Charles Avenue.

Still going on is a program of track and roadbed improvements on St. Charles and Carrollton Avenues. New, all-steel wheels and axles with roller bearings have been installed to help reduce side sway and give a smoother ride. Floors have been rebuilt and rubber resurfaced to provide more comfortable and secure footing. Roofs have been covered with aluminum for improved weather protection. Rebuilt all-metal doors and upper windows have been installed for longer life. Brighter lighting has been added to improve conditions for readers, giving the car interiors a more cheerful atmosphere.

This material is adapted from the book *The St. Charles Street Car or The New Orleans & Carrollton Railroad*, by J. L. Guilbeau, revised and reprinted 1977.

Landmark Designation

The St. Charles Avenue Streetcar Line is the 74th National Historic Mechanical Engineering Landmark to be designated since the ASME program began in 1973. In addition, 17 International and eight Regional landmarks have been recognized. Each represents a progressive step in the evolution of mechanical engineering, and each reflects its influence on society, either in its immediate locale, nationwide or throughout the world.

The Landmark program illuminates America's technological heritage and serves to encourage the preservation of the physical remains of historically important works. It provides an annotated roster for engineers, students, educators, historians and travelers. For further information about the program and a list of all landmarks contact the American Society of Mechanical Engineers, Public Information Department, 345 East 47th St., New York, N.Y. 10017.

**National Historic
Mechanical Engineering Landmark
St. Charles Avenue Streetcar Line
1835**

The St. Charles Streetcar line is the oldest surviving interurban-urban passenger rail transportation system in the United States. Originally incorporated as the New Orleans Carrollton Railroad in 1833, service began in 1835. A variety of motive power had been used including hores, mules, overhead cable, steam engines, and ammonia engines before electrification in 1893. The 900-series cars presently in service were designed and built Perley A. Thomas Car Company of High Point, North Carolina in 1923-24. They operate on the original 15-mile right-of-way with a 5'-2½" guage that was adopted in 1929.

The American Society of Mechanical Engineers—1984



The American Society of Mechanical Engineers
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