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The Constituents of Value

In its decision denying the application of the bondholders' committee of the Third Avenue Railroad for approval of a proposed plan of reorganization, the New York Public Service Commission, First District, touches on the subject of value. While the opinion of the commission in this case affects directly only one company, except so far as its position may or may not establish a precedent upon which a future course may be based, any definite expression of views from this source in relation to values would necessarily be of importance. The attitude of the commission on this subject receives, of course, only incidental attention, but it seems unfortunate that the question of what constitutes value in this, or any other case, was not given the thorough discussion, or, at least, the mention, which its serious character warrants. Perhaps the commission did not lose sight, in its allusions to this feature of the decision, of the undoubted truth that a property of this nature comprises assets of extreme value which are not visible to the naked eye, but if so, it did not make that point clear. No matter in what language assets of this character may be described, their existence is too plain to admit of argument. The commission appears to be dealing rather loosely with fundamental problems when it states in a document issued for general distribution that "it must be just to all, remembering that when an issue of bonds is approved the public believes that they represent actual propery, physical in most part or in whole." Whether or not the commission would have bonds represent "actual property, physical in most part or in whole," and stock represent the other large amounts of money which are reasonably invested in a property is not so material a matter as the point that there are honest values in the creation of public utility properties which, although not physical, may justly be capitalized. Excessive over-capitalization is bound to result in trouble sooner or later, but capitalization and net physical value in public utility plants in large cities can rarely, if ever, be identical.

A New England Increase of Fare

Another New England company, the Hartford & Springfield Street Railway, has decided to increase its unit of fare from 5 to 6 cents as a result of serious concern regarding the higher costs of operation. The long list of companies which have been forced to take this step increases as time goes on, and no evidence is at hand to indicate that the course of fares on many systems will be other than upward.

The economic reasons which justify advances in rates of fare in various cases are understood so plainly that it is repetition to introduce them again into these columns, but the fact is that the causes which make present revenues unsatisfactory are ignored frequently. The effects of these causes, as pointed out clearly in the circular of the Hartford & Springfield Street Railway, are evident in the higher costs of supplies and larger wages paid to trainmen. In addition, an important cause for well-founded anxiety lies in the fact that expenditures to meet the ravages of time grow larger and larger as each year of operation of the street railway passes. The circular of the Hartford &

Springfield Street Railway declares that the "experience of this company with these conditions has been similar to all the rest."

Observers of the electric railway situation are familiar with the extent of the movement for higher fares, and the Hartford & Springfield company, in its circular letter of announcement to the traveling public regarding the change which it is to make effective on Nov. 1, shows the names of other companies in Massachusetts which have made similar advances to 6 cents in the unit of fare. For the year ended June 30, 1908, after paying interest, taxes and expenses, this company had a surplus of little more than $1,800 applicable to dividends or surplus, and in the ensuing year, after providing for the same expenditures, a deficit of $257; and the company, recognizing that its patrons may be surprised to learn of this situation, proceeds to give a list of the Massachusetts properties which have taken the same action respecting fares. It was advisable to attract the attention of patrons in this manner to properties with which they might have some degree of familiarity. Because of the short distances at which the Massachusetts properties are located from the territory served by the Hartford & Springfield road, its patrons, at least in part, may reasonably be expected to have knowledge of the widespread advances in fares which have attracted so much attention on the Massachusetts lines. If the management of the Hartford & Springfield road had been so inclined, it might have extended the list by reference to properties in other parts of the country which, beset by a similar state of affairs, have been led to take action designed to increase the gross revenue per passenger.

Various urban as well as interurban lines are suffering from increased cost of operation and from the failure to take into account in the past the inevitable result which time surely exerts upon the efficiency of equipment. The wisest course which any company can follow if it finds itself confronted with a condition where the utmost effort fails to protect the money reasonably invested in the property, and to earn a fair rate of return thereon, is to take immediately such steps as lie within its power to improve its unit earnings.

Current Clocks and Coasting Registers

It seems anomalous for a railway company to spend many thousands of dollars in station equipment to secure a slight saving in the cost of generating power or to reduce the weight of its cars to a minimum by making costly changes, only to have many times the estimated saving wasted on the road through the carelessness or incompetency of its motormen. The loss of power is not the only evil connected with inefficient operation of cars. Every watt-hour consumed to make a given run over that actually required must be dissipated as friction, resulting in useless wear on the brake shoes and wheels. Much has been written on this subject, but little has been accomplished in practice. Recording wattmeters have been tried, and in most instances abandoned because of their delicacy and lack of reliability when subjected to the rough handling received on the cars. The Metropolitan West Side Elevated, of Chicago, and the Philadelphia elevated railroad, among others, have tried to educate their motormen as to where to use current and where to coast, and have installed signposts along the structure to serve as guides or reminders of the instructions issued. This expedient has had a beneficial effect, but it lacks the one essential feature of preserving a comparative record of obedience to the instructions issued. Without such a record it is almost impossible to pick out the careless or deliberately disobedient motorman for discipline and the loss of current may go on unchecked for a long time.

Two other methods have been tried, the current clock and the coasting register, one abroad and the other quite recently in this country. The former has been employed extensively throughout Germany, and while it records the number of hours or minutes during which current is used instead of watt-hours, it has had a remarkable influence in reducing the energy consumption of cars. The figures from Berlin, published recently in this paper and confirmed by personal observation of car operation in that city, show that in the less congested districts of the German capital the motormen have attained astonishing ability in floating their cars to the stopping points with only light application of the brakes. Here, as elsewhere, the principle of coasting had been taught to the motormen, but only the presence of a reliable automatic watchman on the cars made the men apply their knowledge in practice. The use of these current clocks has also had a noticeable effect in reducing brake-shoe wear and minimizing accidents due to ineffective braking in short distances. It might be expected that the encouragement of coasting would lengthen the running time between terminals, but the men made so much better time after the clocks were installed that the average schedule speed has been increased 10 per cent.

The coasting register designed for use on the Manhattan Elevated Railroad in New York, which is described elsewhere in this issue, operates on a diametrically opposite principle to that of the current clock. It is arranged to record the time during which the car or train coasts without power and with the brakes off rather than the time during which current is used, on the theory that the chief desideratum is to operate the trains without power for the maximum time before retardation begins. The chief advantage of the coasting register over the current clock is that it affords a check both on the efficiency of controller manipulation and braking. The maximum permissible coasting time during a run with predetermined limits of acceleration and deceleration can be determined easily. If the maximum is exceeded in an effort to make a good showing it is *prima facie* evidence of severe braking and short stops. If the maximum coasting time is not reached, then the motorman has either fed the motors too slowly or "fanned" the air brakes. With automatic accelerating relays such as are used in modern multiple-unit control equipments, the first stage of the cycle of acceleration, coasting and braking are to a large extent taken out of the hands of the motorman. His skill, therefore, can be shown by his coasting distance and his handling of the brakes.

In the application of either current clocks or coasting registers to single cars having the ordinary drum controllers and straight air or hand brakes, proper manipulation of the controller and of the brakes of course must be assumed; otherwise the records made by different motormen would not be comparable.

Illinois Central Terminals and Electric Operation

The popular point of view regarding electric operation of railroad terminals is illustrated by the widespread protest which has arisen in Chicago over the conclusion of the stockholders of the Illinois Central Railroad to defer electrification until further studies can be made.

The first action of the stockholders of the Illinois Central Railroad on the subject of electrification was taken at their annual meeting in October, 1908, when a resolution was adopted committing the management to the conversion of the company's Chicago terminals from steam to electric operation "with all reasonable dispatch." At the stockholders' meeting held in Chicago last week a strongly adverse report on electrification was read by the president of the railroad, J. T. Harahan. Following the presentation of this report a resolution was adopted declaring that "electrification at this time is impracticable," and that there was a necessity for "deferring a determination as to electrification until such time as a continued study of the subject can intelligently determine the proper line of procedure."

Mr. Harahan's report to the directors of the company, which is reprinted elsewhere in this issue, concludes with four reasons why electrification should not be undertaken at the present time. First, that in the present state of the art electric operation of large freight terminals such as those of the Chicago railroads is impracticable. Second, that electric operation would not result in economies sufficient to pay an adequate return on the additional investment required. Third, that electric operation is demanded on the ground of smoke prevention, and that by the use of coke as fuel for locomotives and the adoption of self-propelled gasoline motor cars for suburban service, smoke can practically be eliminated. Fourth, that the adoption of any of the existing systems by one railroad in Chicago at the present time might seriously interfere with the interchange of cars and equipment with other roads in the city, which might in the future adopt a different system.

Naturally, there will be dissenting opinions from these reasons, not only from those who urge electrification at any expense, but from others who, recognizing the difficulties, still predict that electric operation is the solution, although the public, of course, will have to pay the cost.

The first conclusion advanced by Mr. Harahan is that the electric operation of large freight terminals is as yet without a precedent. With this statement no one can disagree. The yards at the entrances to the Sarnia tunnel are jointly operated with steam and electricity, but this cannot be considered as a typical terminal problem. The New Haven is soon to begin its first experiments with electric locomotives designed to haul freight trains, and it will probably carry on exhaustive tests before taking definite steps to abolish altogether steam locomotives for hauling and switching freight on its main line sections or in its terminal yards in the Bronx. Similar experiments were made by all the railroads long before the real work of converting the passenger terminals in New York to electric operation was begun.

The statement of expenditures and returns from electric operation of suburban trains alone, on which the second conclusion is based, shows an estimated annual deficit of $624,947, as compared with an assumed annual net revenue under steam operation of $109,712. The cost of converting the suburban tracks only for electric operation is estimated at $8,000,000, which would carry with it annual fixed charges, including interest and depreciation, of 10 per cent, or $800,000. On the basis of an assumed operating ratio of 82.9 per cent for steam and 66 per cent for electricity, the annual saving in operating expenses due to electrification is stated to be $175,053. It does not appear, however, to be assumed that there would be any extraordinary growth in the traffic and gross revenue following the change. It is plain that, considering the figures as presented, a very large increase in traffic would be necessary to pay the fixed charge on the new investment required.

No mention is made in the report of comparative costs of overhead and third-rail conductors, nor is any clue given as to which system the engineers had in mind in arriving at their total estimated cost of converting the suburban tracks to electricity.. On a basis of 52 miles of suburban trackage, the cost per mile figures out approximately $150,000, which would indicate that there had been included in the estimate the cost of a very large power station, the most expensive type of distribution system, and ample rolling stock equipment. The unit cost for complete electrification of the 325 miles of track within the terminal district, based on the engineers' total estimate of $20,000,000, is $60,000 per mile. Enormous contributory expenses for station alterations, grade crossing elimination and the like, would explain in part the great increase over the estimate published last year at the time the first public announcement was made that the railroad company was studying the problem. These early estimates varied from $4,000,000 to $6,000,000, and it was in contemplation of spending this sum that the stockholders consented to electrification.

The use of coke as locomotive fuel and of gasoline motor cars for suburban service are both in the nature of experiments. These improvements cost much less to install, and their experimental introduction involves little or no risk of interruption to the present service.

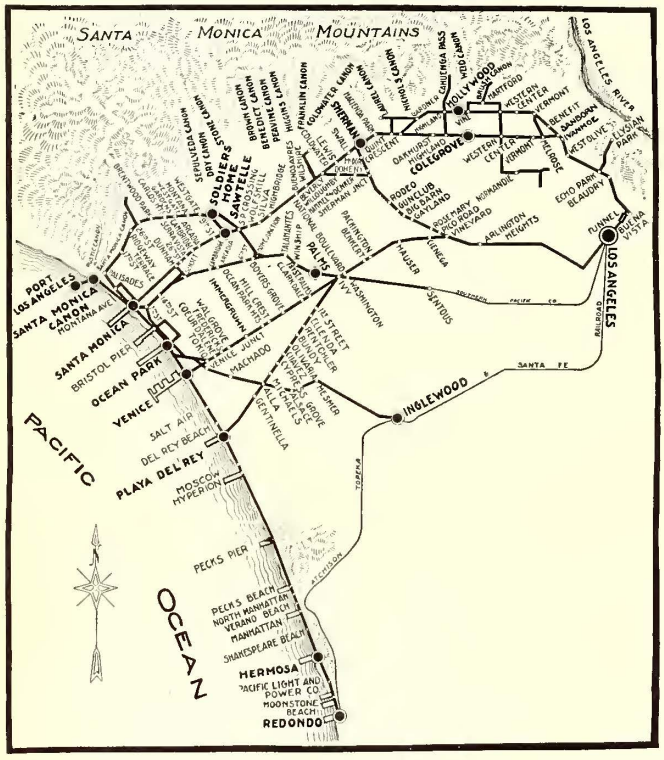
Mr. Harahan's last conclusion, that it would be inadvisable for any one railroad in Chicago to begin electric operation at this time independently of the other railroads, because it might retard rather than promote future development seems to be less a financial argument than one based on the contemplation of future difficulties of operation which, after all, might not prove to be insurmountable. It would be unfortunate if all the advantages of electric operation should be denied indefinitely to one road pending a decision to electrify or the ability to raise the necessary money to electrify by one or more of the connecting railroads.

Since Mr. Harahan's report does not contain any detailed estimates of first cost or cost of operation with electric traction, it cannot be compared with the known results of operation in existing installations, where, under conditions that are admittedly different, commercial practicability has been demonstrated. It is evident that there is no express disposition on the part of the Illinois Central to abandon altogether the long-discussed electrification of its Chicago terminals. The time that will probably intervene before definite action is taken will permit further study of the important installations already made or projected in the great passenger terminals of New York City.

RECONSTRUCTION AND IMPROVEMENTS OF THE LOS ANGELES PACIFIC COMPANY

BY P. H. ALBRIGHT, ENGINEER

The Los Angeles Pacific Company is one of the large interurban electric properties on the Pacific Coast owned by the Harriman interests. It operates between Los Angeles, Hollywood, Colegrove, Sherman, Sawtelle, Soldiers' Home, Port Los Angeles, Santa Monica, Ocean Park,



Los Angeles Pacific Company—Map of Interurban Lines

Venice, Palms, Playa Del Ray, Hermosa Beach, Redondo Beach and intermediate stations in California. This road does a general passenger and freight business, and also operates an express and mail service. The passenger business consists principally of an interurban traffic between Los Angeles and the above-mentioned towns and cities. Local passenger traffic in Los Angeles and the other cities served is an important item, but does not compare in volume with the interurban traffic.

The interurban business is handled by electric trains of from one to six cars. The cars are of the half-open type, 51 ft. in length and weigh 75,000 lb. They are equipped with the type-M General Electric multiple-unit control system, four 75-hp motors and Westinghouse schedule AMM air brakes with graduated release. The speed of the trains sometimes exceeds 60 m.p.h. between stations on straight track.

ROUTES AND SERVICE

The six routes between Los Angeles and the beaches over which this company operates through interurban trains are shown on the map. The regular schedule for through trains to the beaches is as follows: One train on the Palms division every 20 minutes; one train on the Sawtelle division every 30 minutes; one train on the Hollywood division every 30 minutes; one train on the Redondo division every 30 minutes; one train on the Westgate division every hour. On the old Santa Monica branch of the Southern Pacific Railway cars run from Santa Monica to Port Los Angeles every 30 minutes, but from Ivy to Santa Monica the service is principally made up of special trains, as the regular schedule calls for but two trains each way per day. The frequency of trains, however, is increased on all the above routes as the traffic requires.

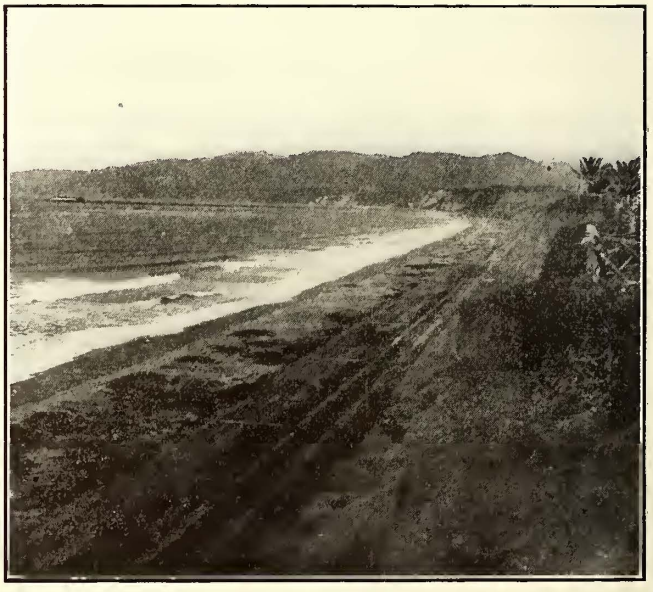
The traffic between Los Angeles and the beach resorts is exceptionally heavy on Sundays and holidays. Frequently, the service on the Palms division, which carries the greater portion of the holiday traffic, is increased to one train of four to six cars every 7½ minutes regularly. An accompanying engraving shows the type of trains operated in this service.

Other interurban schedules include 30-minute service between Los Angeles and Colegrove; 10-minute service between Los Angeles and Laurel Canyon by way of Hollywood; 15-minute service between Sawtelle and Playa Del Rey by way of Santa Monica, Ocean Park and Venice, and two trains per day between Santa Monica and Inglewood. All of this traffic is handled by single cars, with the exception of the Laurel Canyon trains marked "Flyer." The "Flyer" service is run during the morning and evening rush hours between Hollywood and Los Angeles with trains made up of two and three cars.

The local passenger traffic is confined to within the city limits of Los Angeles, Hollywood, Sawtelle, Santa Monica and Ocean Park. Cars used in this service are the half-open type, 40 ft. long and weighing 44,000 lb. They are equipped with two 57-hp motors, Westinghouse K-28 controllers and Westinghouse straight air brakes.

FREIGHT SERVICE

The freight business is exceptionally heavy on this road, as it serves exclusively all that country to the west and southwest of Los Angeles. Freight is handled in carloads as well as in smaller lots. The greater portion of the freight is hauled between midnight and morning. This is done for two reasons. First, to keep the freight out of the way of the passenger trains, thereby avoiding delay. Second, to economize on power. The economy in power is



Los Angeles Pacific Company—Scenic Route from Santa Monica to Port Los Angeles

made by using a supply of purchased electrical power capacity that would be a loss unless used for the transportation of freight, as the passenger traffic is light during these hours.

Crushed rock from rock quarries located on the line, oil from the Sherman oil district, which is served by this company; cargoes of lumber from the Long Wharf at Port

Los Angeles and other carloads of freight are handled in trains of from 4 to 15 cars.

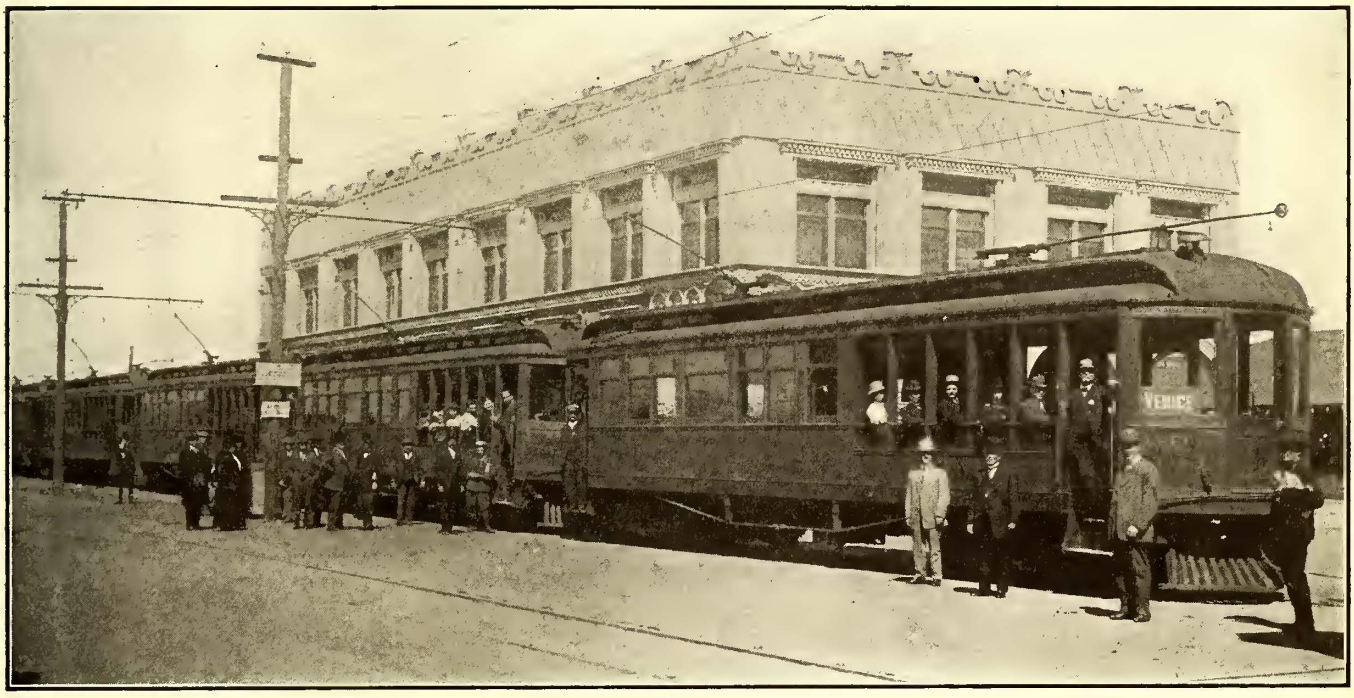
Outside the regular freight and passenger traffic, the "Balloon Route" excursions are conducted by this company. During the summer and winter tourist seasons an average of 10,000 people per month are carried over the "Balloon Route." For this service the company operates

ROLLING STOCK

The rolling stock owned and operated includes 405 cars, consisting of 144 passenger cars, 6 parlor cars, 17 electric locomotives, 221 freight cars, 5 mail and express cars and 12 service cars.

REHABILITATION

Perhaps no other road in the West has undergone such

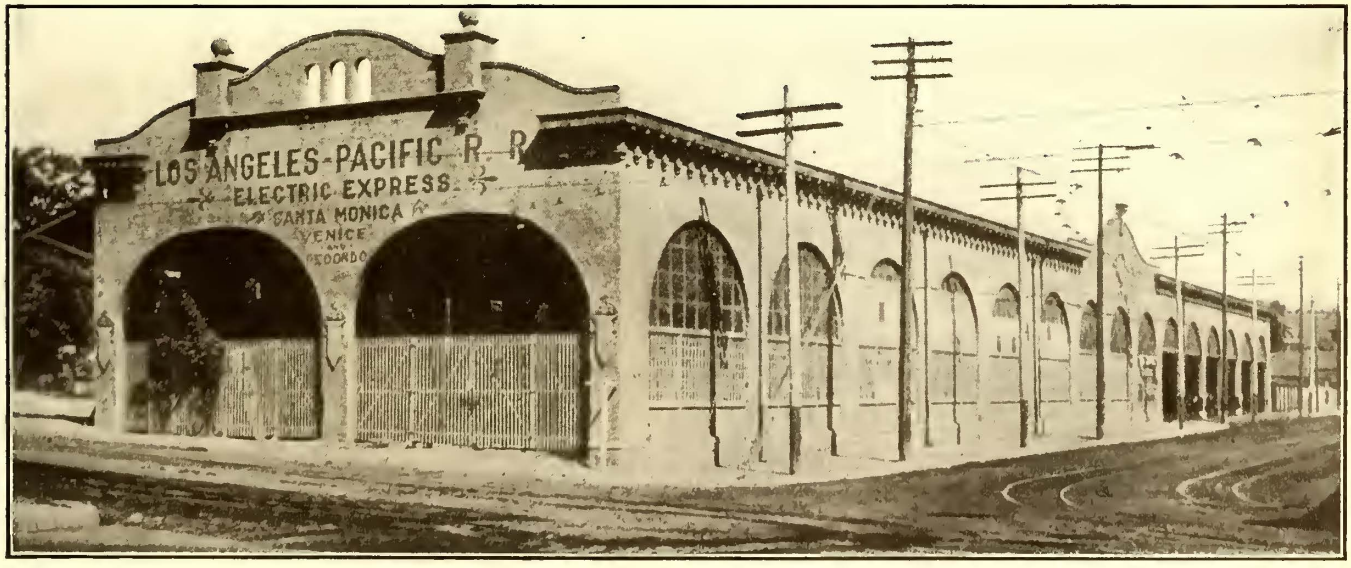


Los Angeles Pacific Company—Five-Car Train at Venice, One of the Beach Resorts

attractive parlor cars. Two new parlor cars specially designed for this excursion traffic are being constructed at the present time in the company's shops at Sherman.

The Los Angeles Pacific Company files all freight and passenger tariffs with the Interstate Commerce Commission and the State Railroad Commission. Joint freight tariffs

a general reconstruction and thorough improvement as the railway of the Los Angeles Pacific Company. Improvement work was started in the summer of 1906 and has been carried on continuously since that time. This has involved a general reconstruction of all operated tracks; the leasing of the old Santa Monica branch of the Southern Pa-

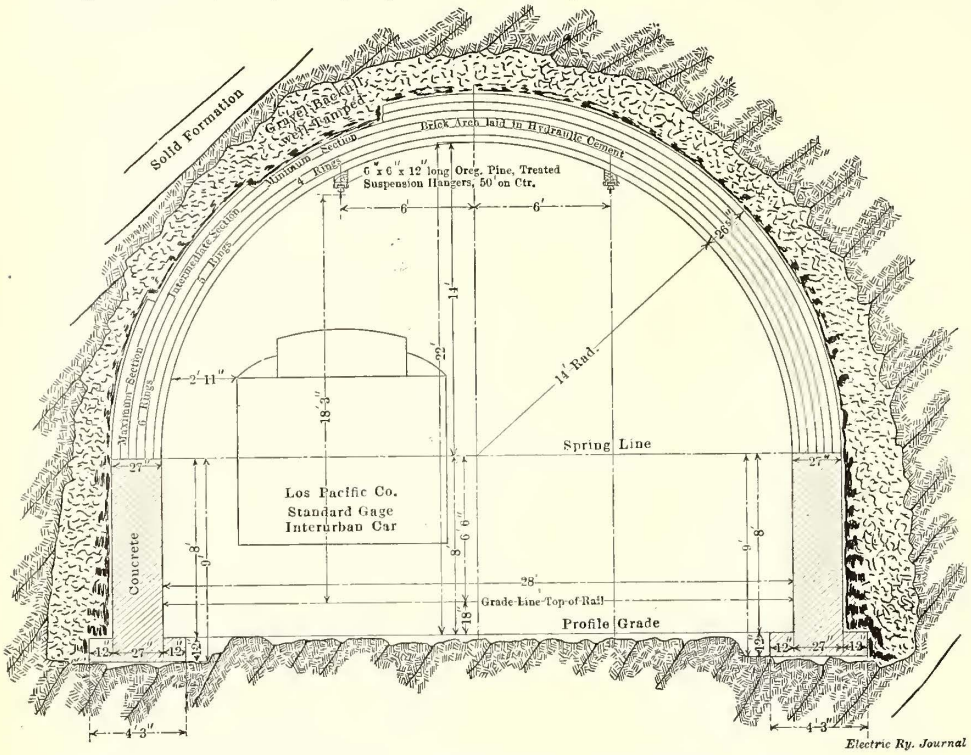


Los Angeles Pacific Company—Buena Vista Freight Depot

are now published in connection with the different steam lines entering Los Angeles. The express business is handled by the Wells-Fargo Express Company. Specially designed electric cars are used in the express and mail service.

cific Company; constructing new track; making extensive improvements and additions to the company shops; constructing the new Hill Street cutoff, and increasing the electrical equipment both in the generating and distributing plants.

The total mileage of tracks in the spring of 1906 was 170.03 miles, of which 12.91 miles were standard gage, while the gage of the remaining 157.22 miles was 3 ft. 6 in. Practically the entire road was unballasted. The rails in use weighed from 40 to 70 lb. per yard, the major portion, however, weighing less than 60 lb. The ties were 6 in. x 8 in. x 6 ft. in size.



Los Angeles Pacific Company—Cross Section of Hill Street Cut-Off Tunnel

At the present time the mileage of tracks is 213.5, and 1000 gross tons of new 60-lb. A. S. C. E. rail, 200 gross tons of 61.5-lb. Southern Pacific rail, 1000 tons of 70-lb. A. S. C. E. rail, 1030 tons of 72-lb. Lorain No. 331 rail and 2500 tons of 75-lb. A. S. C. E. rail have been laid since the spring of 1906. The entire roadway has been standardized, this work including ballasting, putting in new ties and changing over to 4-ft. 8½-in. gage.

Los Angeles Pacific Company—South Portal, Tunnel No. 2

The ballasting and laying of new ties were done during the years 1906 and 1907, except on the Hollywood and Colegrove divisions, which were ballasted and converted to standard gage this year. Ballasting was done with canyon gravel and crushed rock. The new ties are 6 in. x 8 in. x 8 ft., of redwood, Japanese oak and a small proportion of Oregon pine.

The changing of all tracks except on the Hollywood and Colegrove divisions to standard gage was done during the spring of 1908. On account of the interlacing of the tracks and the numerous crossings with other companies in the city of Los Angeles and the heavy traffic, which would not permit the discontinuance of car service, the change to standard gage offered a great many novel problems both to the engineering and operating departments. However, the work was accomplished by laying a third rail in some places, and in others by laying two "outside" rails, while in still other places, where the car service was less frequent, the cars were dispatched over one track while track forces were spreading the rails on the other. Temporary special work layouts were placed where necessary prior to or at the time of making the change, but were replaced as rapidly as possible after the narrow-gage cars were removed from the service. The permanent special work is the hard center type built up of 100-lb rail.

The Santa Monica branch of the Southern Pacific Company was leased on July 1, 1908. This line consists of 25.17 miles of track, including the Soldiers' Home line, the Long Wharf at Port Los Angeles, freight and passenger station buildings, yards, pumping plants, a roundhouse and all other accessories. The work of electrifying was done prior to the date of the lease, making it possible to operate this property from the date of the lease. No material changes were made outside of the electrical equipment of the steam track.

The Long Wharf, 4300 ft. in length, is probably the largest ocean wharf in the world operated exclusively by an electric railway company. It supports a two-story station building with 15,750 sq. ft. of floor space and the large coal bunkers built by the Southern Pacific Company at the time when this was the only coaling station on the coast off Los Angeles. There are 2.75 miles of track in the yards on the wharf. Vessels exchange passengers and

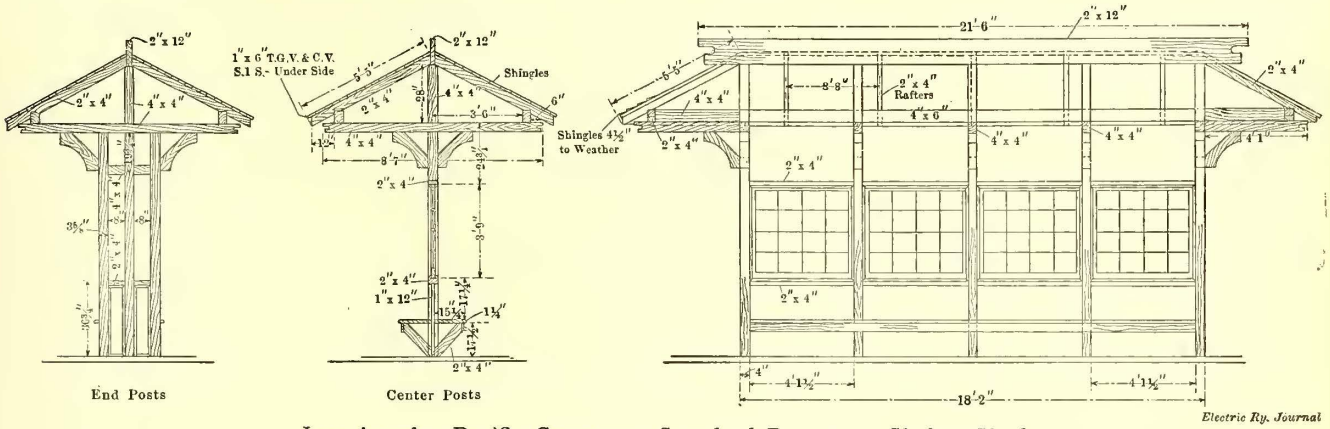
Los Angeles Pacific Company—Depot at Beverly

freight here with the Los Angeles Pacific Company for the towns tributary to its lines.

During the past three years the attention of this company has been directed toward the reconstruction and standardization of operated lines more than toward extensions, therefore the 31.11 miles of new track constructed is not a fair index of the improvement made in the roadway. The new mileage includes passenger and freight lines, yard and terminal tracks, commercial sidings and oil spurs. The new passenger and freight lines were for the most part built as extensions, branches or spurs from the main operated lines and in territories previously developed.

BUILDINGS AND TERMINALS

The improvement of yard and terminal facilities was made chiefly at the Buena Vista freight depot, the Hill Street terminal and at Sherman yards in connection with the Sherman shops. A large amount of local freight is carried out of Los Angeles from the Buena Vista freight depot. On account of the rapidly increasing number of cars used in hauling this freight, it became necessary to design and install a track layout that would utilize to the best advantage the property available for this purpose. In the new yard the minimum radius used on curves traversed by freight cars is 100 ft.



Los Angeles Pacific Company—Standard Passenger Shelter Shed

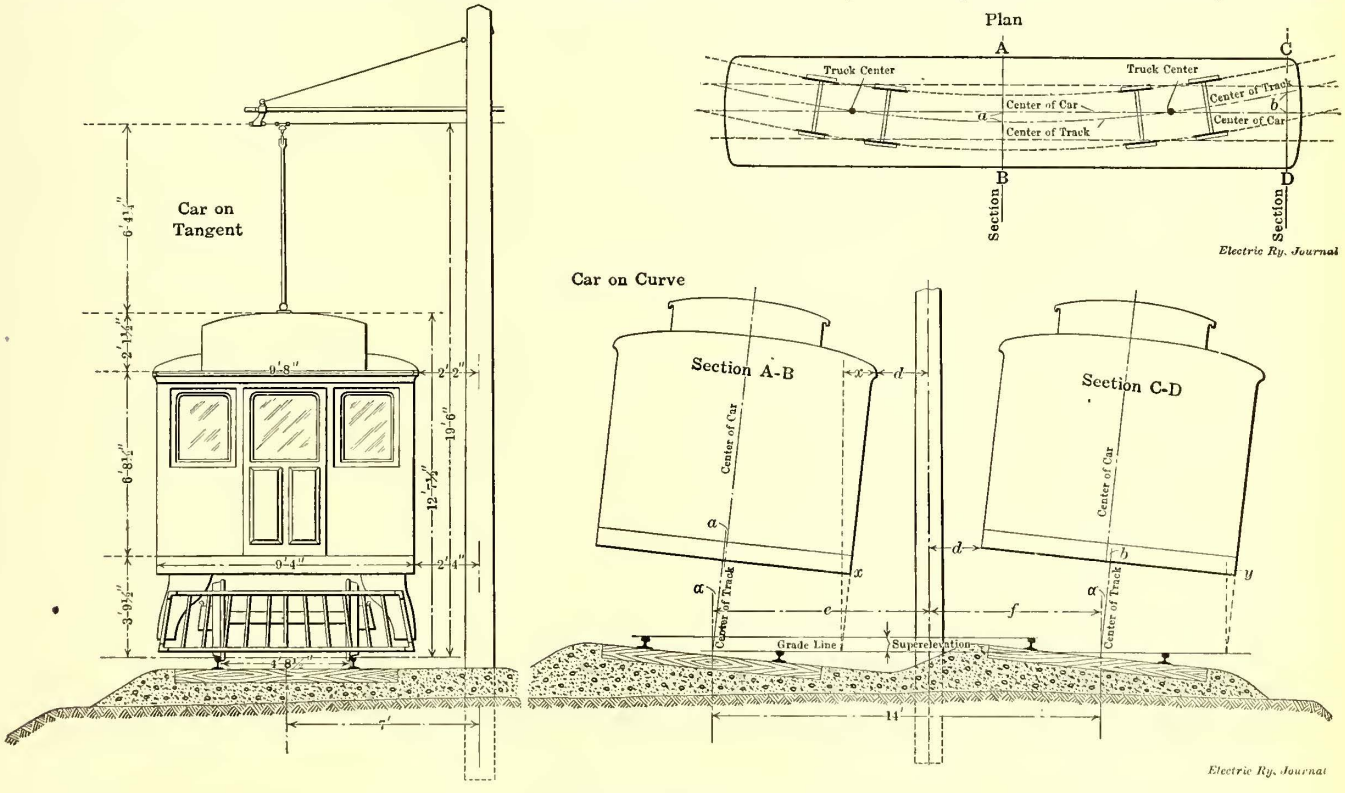


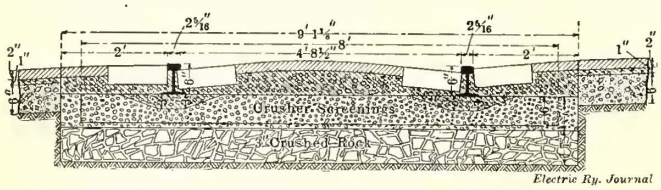
TABLE OF DISTANCES

D.	S. Elev.	α	a	b	x	y	Overhang AB	Overhang CD	d	e	f
1°–00′	0′–1½″	1°–31′–20″	0′–0¼″	0′–0 15/16″	0′–3 1/32″	0′–1 5/16″	0′–3 11/32″	0′–0 3/32″	2′–1 5/16″	7′–3 5/32″	6′–8 7/32″
2°–00′	0′–3″	3°– 2′–40″	0′–0 5/32″	0′–0 3/32″	0′–6 1/16″	0′–2 3/32″	0′–7 5/32″	0′–1 3/32″	2′–0 1/16″	7′–5 3/32″	6′–0 3/32″
3°–00′	0′–4½″	4°–34′–10″	0′–0 3/32″	0′–1 5/16″	0′–10 1/16″	0′–3 3/32″	1′–0 5/32″	0′–2 5/16″	1′–10″	7′–0 5/32″	6′–5 7/32″
4°–00′	0′–6″	6°– 5′–10″	0′–0 31/32″	0′–1 3/32″	1′–1 7/16″	0′–4 3/32″	1′–2 5/32″	0′–2 1/16″	1′–8 3/32″	7′–9 5/32″	6′–2 7/32″

NOTE.—Maximum high speed curve, 4°–00′; maximum super-elevation, 0′–6″; maximum curve with center poles, 5°–00′.

Los Angeles Pacific Company—Standard Clearances on Straight and Curved Track

Formerly the passenger station in Los Angeles was on Fourth Street between Hill Street and Broadway. All cars were switched and loaded in the street. This was extremely unsatisfactory to the railway company and to its patrons, as considerable delay was caused by blockades and insufficient switching facilities. In April, 1908, a new terminal was completed on Hill Street between Fourth and Fifth Streets, on the site of the proposed Fourth Street subway terminal. As it will have to be removed from this



Los Angeles Pacific Company—Standard Track Construction in Paved Streets

location when work on the subway is commenced, the Hill Street station is called a "temporary" terminal. The yard comprises 0.40 mile of track, laid with 75-lb. A. S. C. E. rail, and hard-center special work of 100-lb. A. S. C. E. rail. The depot is a 30-ft. x 150-ft. brick structure, with stucco finish.

In addition to the brick station buildings at the Hill Street terminal and at the Buena Vista freight yards, there are brick depots at Santa Monica, Ocean Park, Beverly, Playa Del Rey, Hermosa Beach, Hollywood, Sawtelle and Sherman. Frame depots have been built at Port Los Angeles, Santa Monica, Palms, Soldiers' Home, Ocean Park, Venice and Redondo. Passenger shelters are placed at the intermediate stations.

Additional facilities at the Sherman shops have been built as shown on the accompanying plan, with the exception of the paint shop and transfer table, which have not yet been built. The brass and iron foundries formerly stood on the present site of the carpenter shop, but were removed and rebuilt in the location shown on the plat. A temporary track layout was installed at the time of the con-

Los Angeles Pacific Company—Substation at Plaza del Rey

struction of the completed buildings, and has not yet been replaced with the permanent layout. This will probably be done in the near future.

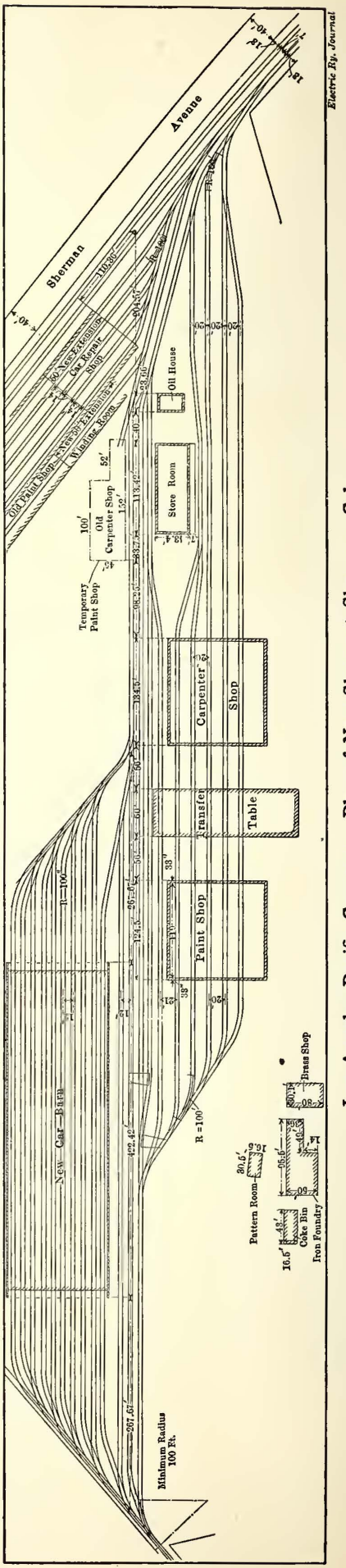
TUNNEL CUT-OFF

One of the best examples of this company's progressive policy is the recently completed Hill Street cut-off. The Hollywood and Colegrove cars were formerly brought from Buena Vista Street to the Los Angeles terminal over the tracks of the Los Angeles Railway Company. Owing to the congested condition of the streets along this route, much delay and inconvenience were encountered in getting the cars in and out of the downtown district. In order to avoid congested streets and operate over a shorter, quicker and more economical route, a cut-off line was built along Hill Street and a private right-of-way. This cut-off involved the building of 0.81 mile of double track and tunnels No. 1 and No. 2, respectively 546 ft. and 976 ft. in length.

The track construction in the street is in accordance with the company's standards, and consists of 72-lb. 6-in. rail (Lorain section No. 331), 6-in. x 8-in. x 8-ft. redwood ties spaced 24 in. on centers and an 8-in. base of crushed rock. The base was prepared by rolling first the dirt, then a 7-in. layer of 3-in. crushed rock, with a 12-ton steam roller. Next, the track was laid, and later brought to grade by tamping up with a 1-in. layer of crusher screenings. The rail joints were welded with thermit.

The track construction in the tunnels consists of 75-lb. A. S. C. E. rail with Atlas joints, 6-in. x 8-in. x 8-ft. Japanese oak ties spaced 24 in. on centers, and a 6-in. base of 3-in. crushed rock.

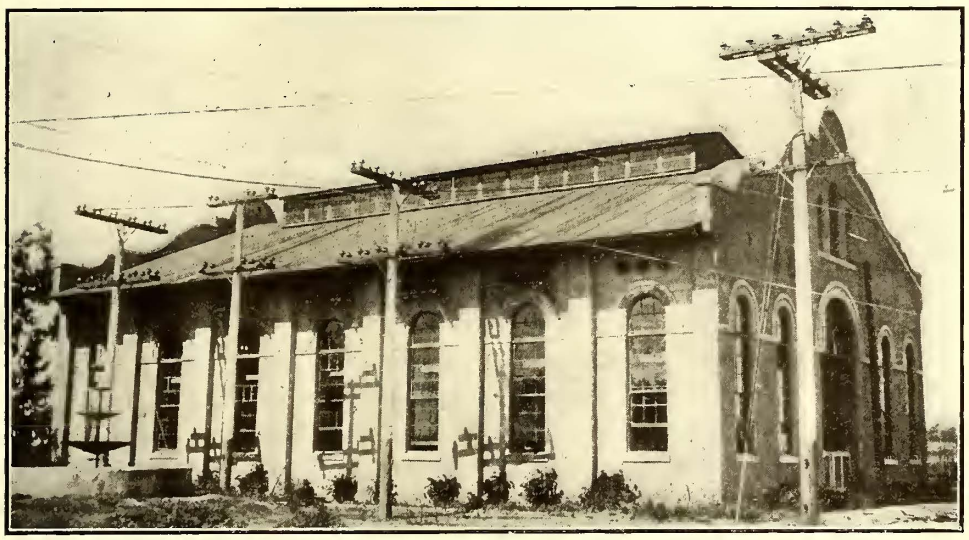
Tunnels No. 1 and No. 2 were both driven by the method of tunneling recently designed and used by the Southern Pacific Company in driving five tunnels on the Bay Shore cut-off into San Francisco. Work on tunnel No. 2 was commenced dur-



Los Angeles Pacific Company—Plan of New Shops at Sherman, Cal.

ing June, 1908, and completed in December, 1908. Work was commenced on tunnel No. 1 in December, 1908, and completed Aug. 31, 1909. Cars were operated over this cut-off beginning Sept. 15, 1909.

The tunnel cross-section was designed for a double-track electric railway with overhead trolley wires. The track centers are 12 ft. The cross-section shows 8-ft. concrete bench walls and a brick arch having a radius of 14 ft. Thus the height of the tunnel at the center of the arch is 22 ft., and the width between bench walls is 28 ft. The portals and retaining walls are all of concrete. Special reinforced concrete construction was placed under California Street, adequate to support the wagon and street railway traffic on that thoroughfare.



Los Angeles Pacific Company—Substation at Ivy

A novel engineering method was employed in constructing the south portal and retaining wall of tunnel No. 1. On account of the heavy character of the dirt and its tendency to slip, the portal and retaining wall were constructed before the dirt was excavated from the south approach. This was done by sinking a 6-ft. x 8-ft. shaft, through which the dirt was raised and construction materials lowered by an electric hoist. Thus, when the dirt on top of the portal and the wall was terraced off and the approach excavated, the completed tunnel was revealed.

Both tunnels No. 1 and No. 2 are drained by a 6-in. vitrified tile drain laid along the center lines of the tunnels 3 ft. below the track grade. Concrete sumps are placed along this line at 100-ft. intervals, with intermediate sumps in the wet portions of the tunnels. Open tile drains of 3-in. pipe are placed along each side of the tunnels, with concrete sumps opposite the sumps in the center. Four-inch and 6-in. lateral vitrified tile drains carry the water from the side to the center sumps.

Plans and specifications are completed and assessments are being made by the city of Los Angeles to construct a tunnel adjacent to tunnel No. 1. The east bench wall of tunnel No. 1 was constructed to the spring line of the city's tunnel so as to be used jointly by the city and the railway company. The contract for constructing the city tunnel will be let within a short time.

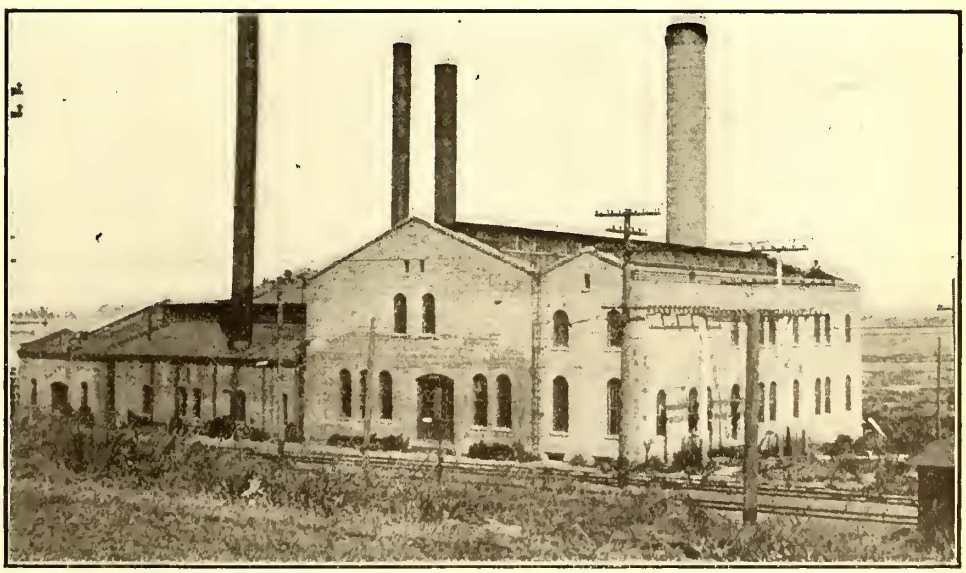
POWER IMPROVEMENTS

The improvement in the electrical department has been in keeping with the improvements made in the other departments. All power stations have been enlarged both in electrical capacity and, with two exceptions, in the size of the buildings, since the spring of 1906. The electrical department has carefully planned all stations for future additions to the electrical capacity as well as for an adequate supply for present needs.

The electrical equipment comprises one central power station at Vineyard, substations at Bush Street, West Olive, Ivy Park, Playa Del Rey, Hermosa Beach, Ocean Park, Sherman and one portable substation.

The Vineyard power station has been reconstructed and enlarged to allow the installation of additional boilers, a large transformer room and a high-tension switch gallery. To the units previously installed, consisting of one 600-kw, one 800-kw, and one 1200-kw direct-connected, 2200-volt, 50-cycle a.c. generators, a 2750-kw Westinghouse-Parsons steam turbine has been added. An electric crane for handling and installing machinery and for repair work also has been put in.

The Bush Street substation, situated on West Sixteenth Street in Los Angeles, contained one 250-kw induction motor-generator set and one 200-kw synchronous motor-generator set. These have been removed and replaced by one 400-kw and two 600-kw induction motor-generator sets. A transformer annex has been added to the building, and a part formerly occupied by the storage battery has been reconstructed, the storage battery removed and its enclosure added to the main transformer room.



Los Angeles Pacific Company—Vineyard Power Station

The West Olive Street substation, situated on the Holly-

wood division in the city of Los Angeles, contained one 300-kw and one 400-kw synchronous motor-generator set. The smaller set has been replaced by a 1000-kw synchronous motor-generator set. In the reconstruction work the main station building was turned into a transformer and high-tension switch room, and another building was erected adjoining the former. The latter structure now is the main station. Room has been left in it for the future installation of another 1000-kw motor-generator set.

Los Angeles Pacific Company—Passenger and Freight Depot at Sawtelle

Ivy substation, located at the junction of the Palms and Redondo divisions at Ivy Park, contained one 300-kw synchronous motor-generator set, to which has been added a 1000-kw induction motor-generator set. The entire station equipment was moved into a new and larger building, allowing ample room for transformers and high-tension switches and buses, and also allowing room for the addition of two more generator sets.

Del Rey substation, located at Playa Del Rey, near the junction of the Lagoon and Redondo divisions, had one 300-kw synchronous motor-generator set, to which a 250-kw induction motor-generator set has been added.

The Hermosa substation, located on the Redondo division at Hermosa Beach, contained one 200-kw synchronous motor-generator set, to which another set of the same capacity has been added.

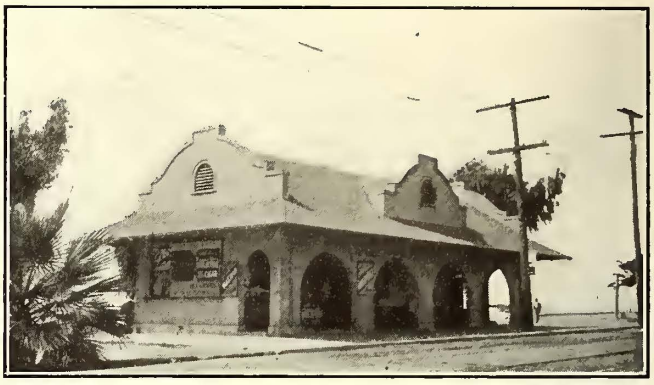
Ocean Park substation contained one 250-kw induction motor-generator set and one 250-kw synchronous motor-generator set, to which one 1000-kw synchronous motor-generator set and a 1000-kw induction motor-generator set have been added. The building has been reconstructed and enlarged, and a transformer and high-tension switch room have been added.

The Sherman station, which was a steam plant, contained a 225-kw and a 300-kw belted railway generators; also one 400-kw, direct-connected 600-volt generator. The two belted units have been removed and replaced by one 1000-kw synchronous motor-generator set. The building has been enlarged and reconstructed.

The portable substation which has been built consists of a 400-kw induction motor-generator set, mounted on a standard flat car and boxed in on the sectional plan, so that any of the various sections either can be repaired or removed without disturbing the other parts.

The buildings for the power stations are of brick and, with the exception of the Vineyard power house, are finished in stucco. The design is such as to give the California "Mission" effect. Particular care was taken in the arrangement of the doors, windows and louvres to allow for the free distribution of light and air, and at the same time keep a perfectly dry interior during rainy weather. The interiors are painted white from the roof to a line about 6 ft. above the floor. The portion of the wall below this line is painted a buff color.

The buildings are picturesquely located in grounds which are laid out with flowers and shrubs. The effect is made more pleasing by artistic cooling fountains situated where they will add to the general attractiveness of the grounds. The flowers are selected from the California varieties which bloom the year round.



Los Angeles Pacific Company—Passenger Depot at North Beach, Santa Monica

COMBINED UNDERGROUND AND ELEVATED RAILWAY IN HAMBURG

The Allgemeine Elektricitäts Gesellschaft and Siemens & Halske are building for the municipality of Hamburg, Germany, a combined underground and elevated railway, which will be opened for service early in 1911. The line is being built in the form of an oval around the Alstersee, a body of water in the center of Hamburg and its suburbs. Short branches from this ring will run to Ohlsdorf, Eimsbüttel and Rotenburg's Ort. The length of the system will be about 17.4 miles of double track, of which 4.15 miles will be underground, 3.41 miles on a viaduct and the balance continued as a surface railway. There will be 33 stations, of which three are finished for the subway station. One subway station passes under the main steam railroad terminal, to which stairways are being built for every platform. The maximum grade is 4.8 per cent, and the shortest curve is over 231 ft. radius. The subway section is being built as a reinforced concrete tunnel, with central steel columns and with its roof as close to the street level as possible. The tracks will be laid on wooden ties in rock ballast. The subway station walls are being rather plainly finished in enameled brick, but the elevated structure will be very elaborate and in its roadbed features will follow Berlin practice. The rolling stock, which will be designed for 800-volt, d.c. third-rail operation, will also be closely patterned after the Berlin subway-elevated cars. The joint contractors are also building a power station, where turbines will generate alternating current at 6000 volts only, on account of the short transmission distances. The two outside substations will probably be equipped with motor-generator sets. The fares will be partly on the zone system, with a minimum third-class fare of 10 pf. (2½ cents) for five stations, or 2.4 miles; the second-class fare for the same distance will be 15 pf. (3¾ cents). The highest third-class fare will be 20 pf. (5 cents), but this will not necessarily include all the stations, since there will be no need to ride more than part of this ring route in any event.

ACTION OF PUBLIC ACCOUNTANTS ON CORPORATION TAX LAW

The American Association of Public Accountants has issued a pamphlet addressed to members, discussing the corporation tax law and including copies of letters between the accountants and the Attorney-General of the United States in relation to this measure. The introductory letter is as follows:

Since the enactment of the short-lived income tax law of 1894, perhaps the most important Federal legislation in its bearing upon the accountancy profession is found in the corporation tax law passed at the last session of the Congress. In view of the necessity of every public accountant familiarizing himself with the provisions of this law, so that he may assist and advise his clients relative thereto, and especially because of the somewhat vague phraseology and altogether unusual provisions of the act, your executive committee has decided to address each member of the association in the hope that a careful study of the law may be promoted, and possibly some interest developed looking to an amendment of the act during the early weeks of the Congress that assembles in December next.

Important legislation is usually enacted by Congress only after careful consideration and full discussion in both the House and Senate, and frequently upon the stump and by the press. The corporation tax law did not run the gantlet in this manner. In a few short weeks after its first appearance as an amendment to the tariff bill it became a part of the law of the land. Even in the brief time devoted to its consideration but little attention seems to have been paid to the provisions of the law relative to the method of determining the amount upon which each corporation is to be assessed. Lack of time, no doubt, prevented trade, economic and accounting bodies from making themselves heard upon the subject, but it is gratifying to note that a number of the prominent members of our association did promptly address the attorney-general, calling his attention to the difficulties that would be encountered in administering the act. The correspondence thus begun did not effect any material change in the then proposed law, but it did serve to bring into a clearer light the intentions of the framers of the bill. Because of its importance in this respect, the entire correspondence, together with the text of the corporation tax law, is attached hereto.

It should be noted that the members of the association who addressed the attorney-general did so in their private capacities, only because it was impracticable to get action taken by the American association officials in time to reach Washington before the passage of the bill. The president of the association was in Europe, and other members of the executive committee were away on vacations, therefore, after full discussion, it was decided to present the matter to the attorney-general at once in the only form available.

It is evident that the corporation tax law was passed by Congress without sufficient consideration having been given to it to insure a proper regard for the business, economic and accounting principles involved. The constitutionality of the act will no doubt be determined by the courts in due course, but in the meantime as members of a professional body, representing very extensive business interests that are affected by this law, we may properly object to and urge the amendment of any feature of the law that is ambiguous, or which makes the law impracticable. Such is evidently the case in the second paragraph of section 38, viz.: "all the ordinary and necessary expenses actually paid within the year out of income in the maintenance and operation of its business and properties." This requirement necessarily brings up questions of inventories which are very serious. It will be impossible to comply with the law as it reads, and estimates must necessarily be introduced of the cost of stock bought for expense purposes as against capital purposes.

The corporation tax law as elucidated by the attorney-general is a curious blending of the archaic and modern. Accounts prepared under rules of court in this country are quite generally stated upon a basis of cash receipts and disbursements, and a survival of this ancient method is found in many governmental accounts. The receipt and payment of cash is, however, only one process in the course of business transactions, and the commercial world has long since passed the time when an account prepared upon this basis can be accepted as a complete statement of financial position or results. It is true that the act (and the attorney-general in the correspondence referred to) does not use the term "cash," and it can be argued ingeniously that the words "received" and "actually paid" as found in the law refer not necessarily to cash, using that term in its ordinary commercial sense, but to a transfer of an asset or the assumption of a liability. In that case the theory of the act would be in accordance with that laid down by the accountants and the question remaining would be merely one of lucidity. The attorney-general, however, states in his letter of July 12: "You contend that this should be changed to read 'expenses incurred.' * * The words 'actually paid' were used advisedly. The theory of the framers of the bill in this respect differs from that which you advocate."

In the light of present information, therefore, it may be assumed that the return to be made by corporations for purposes of taxation under this law must be based upon cash receipts and disbursements, taking into consideration the purely modern item of depreciation and other matters specified in the act.

It is interesting to note that this method of determining a basis of taxation is apparently original with the framers of this law. Taxes are assessed in numerous ways, but we believe this law is the only one in any English-speaking country that attempts to levy an income tax upon the difference between cash receipts and disbursements. It is common enough to assess corporations upon their gross earnings or upon their net income or profits. The income tax law of 1894, and we believe its predecessor of 1862, assessed gains, profits and income, and the income tax law of Great Britain also assesses upon the basis of profits.

The corporation tax law is therefore different in this important respect from any of the laws that might be expected to serve as a pattern. The attorney-general does not advance any reason for this radical departure further than that the framers of the bill adopted a theory different from that followed in well-known precedents.

It is obvious that the peculiar provision relative to the basis of taxation found in the corporation tax law places a great and altogether needless burden upon the corporations of the country. In their letter to the attorney-general under date of July 21 the accountants show clearly some of the difficulties that will be met with from the corporations' standpoint. There is, however, another effect that should receive the attention of members of Congress, and that is the certain loss of revenue to the government that will result from this form of assessment. The difficulties placed in the way of making a correct return will very naturally in all cases of doubt be resolved by honest corporation officials in their own favor, while unscrupulous men will find it an easy matter to make a return that will enable them to evade the payment of the tax in whole or in part.

Taxes upon incomes have always proved to some extent difficult of collection, but the history of the income tax in England proves conclusively that so far as corporations are concerned, an income tax law can be framed and administered in a manner that is equitable to the government and not unreasonably burdensome to the corporation.

It is therefore the judgment of your executive committee that members of Congress should be urged to give favorable consideration to amendments to the corporation tax law, and if steps are taken promptly to this end, it ought to be possible to secure the passage early in the Congress which meets in December next of such amendments as would remove the present objectionable basis of taxation and put in its place the proper method of a tax upon net profits or income.

We believe that in the interests of the public the members of our association should use every effort to arouse a sentiment throughout the business community in favor of the modifications above suggested.

Will you, therefore, give this subject your thoughtful consideration, and if you agree that the corporation tax law should be amended, kindly co-operate by urging these views upon your senator and representative in Congress, and by bringing the matter to the attention of your clients and business acquaintances?

We would also be glad to have from you an expression of your views as to any further action you think should be taken by the association or its officers.

By order of the executive committee,

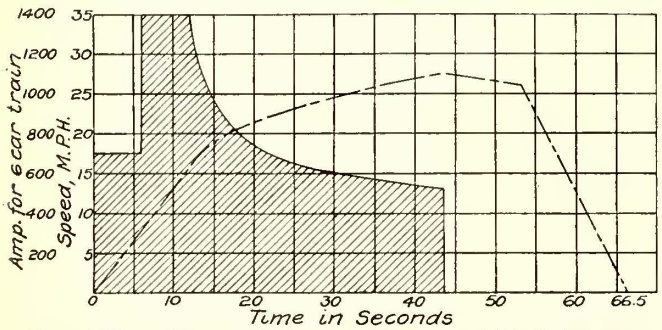
J. E. Sterrett,
President.

T. Cullen Roberts,
Secretary.

COASTING REGISTERS ON THE MANHATTAN ELEVATED

It is well known that there is a wide variation in the expertness of motormen operating cars or trains under similar conditions. The possibilities for effecting economies in current consumption by improving the general average efficiency of the motormen have always been attractive. If a simple efficient record system could be devised for distinguishing between efficient and inefficient motormen a more uniform and economical consumption of current could be maintained. Attempts have been made at various times and by various means to equip cars with current-registering devices, and efforts have also been made to reduce the current used in train movements by installing signals along the line, designed to indicate to the motormen where current should be shut off, how far to coast, and where to apply brakes. These attempts, however, have generally been found unsatisfactory in practice. The ordinary recording wattmeter has also been tried on cars, but has been found to be unreliable and too delicate an instrument to be used under the conditions of rough handling encountered in car service.

Theoretically, the maximum economy in the operation of trains is obtained through the use of successive uniform

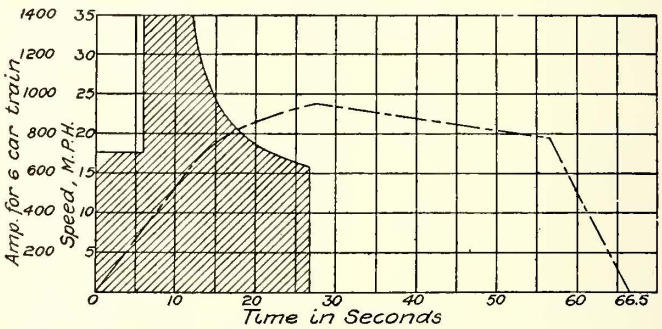


Speed-Time Curve of Average Run on Third Avenue Elevated Before Applying Coasting Register

cycles of acceleration, coasting and deceleration, or braking. The maximum rates of acceleration and deceleration are limited by the mechanical strength of the car equipments and the comfort of the passengers. With the maximum rates of acceleration and deceleration fixed, there is then a maximum possible period of coasting to maintain a given through schedule from terminal to terminal. In general, the nearer this maximum coasting period is approached the less total amount of current will be consumed in making the run.

During the past two years the Interborough Rapid Transit Company of New York has been conducting experiments with a device termed a "coasting register," which is designed to measure coasting time of trains, and also to determine the comparative efficiency of motormen. The use of this device on the first experimental train equipped has demonstrated the practicability of maintaining a given schedule with greatly increased periods of coasting over those originally obtained. In the elevated service of the Interborough Rapid Transit Company the maximum initial rate of acceleration is about 1¼ m.p.h.p.s., which may be increased, however, after the train has started. The maximum initial rate of deceleration for comfortable stops is 2 m.p.h.p.s., but this must be decreased toward the end of the stop to prevent jerking. On the Third Avenue elevated division, where the experimental train was first operated, the schedule time for the run from Bronx Park to City Hall is 51 minutes. The time consumed in coasting during this run, as determined from the average of a number of runs by ordinarily expert motormen, was 6.1 minutes. By careful manipulation of the controller and the brakes, this coasting time, as indicated by the coasting register, was increased to 18.45 minutes, without increasing the total scheduled running time. In other words, it was shown to be possible to operate trains over this line in the same running time with an increase in the total time of coasting of approximately 12 minutes, or an improvement of 200 per cent. There was a corresponding large reduction in current consumption without any undue strain on the apparatus or disturbance of the comfort of passengers.

The coasting register consists of a time-recording apparatus very similar to the shop recording time clocks manufactured by the International Time Recording Company, Endicott, N. Y., which is electrically interlocked with the air brake and the electrical control apparatus. The control circuits are shown in one of the diagrams. One circuit is made through contact *R*-3 of the multiple-unit control system; the other is made through the piston of the brake cylinder, which closes the circuit when the piston is in the off position. Both of these circuits must be closed to allow the clock to run. In other words, the device becomes operative only during the period in which



Speed-Time Curve of Typical Run on Third Avenue Elevated After Applying Coasting Register

current is shut off from the motors and before the application of the brakes. An automatic record of the time during which the clock runs is printed on a strip of paper contained within the case of the clock. In practice each motorman will be provided with a key of distinctive design. When this key is inserted in the clock case at the beginning of a run it will stamp the paper record in the clock with the motorman's distinguishing number or mark. The clock does not begin to run, however, until the car begins to coast, and it stops each time that the car ceases to coast. At the end of the run the motorman removes the key inserted in the clock at the beginning of the run, and by so doing stamps the final time on the paper slip, together with his distinguishing number or mark. The paper record, showing the total coasting time during the run, can then be detached by the motorman and handed in with his time card. The amount of clerical work, which on the Interborough is a very important item, is therefore reduced to a minimum, as are also the possibilities of error. For convenience in calculating, the clock registers unit periods of 100 minutes instead of the usual hourly unit of 60 minutes.

It is interesting to note in this connection that a simple

clock, very similar to those adopted in Berlin, was tried on the Interborough two years ago. The amount of clerical work involved in making up the records with this device was considered excessive and the present apparatus was devised to give a totaled record.

The results with the experimental coasting registers on the Third Avenue division were so satisfactory that it was recently decided to equip all of the trains on the Second Avenue division with these devices. In equipping the Second Avenue line the coasting registers will be installed on

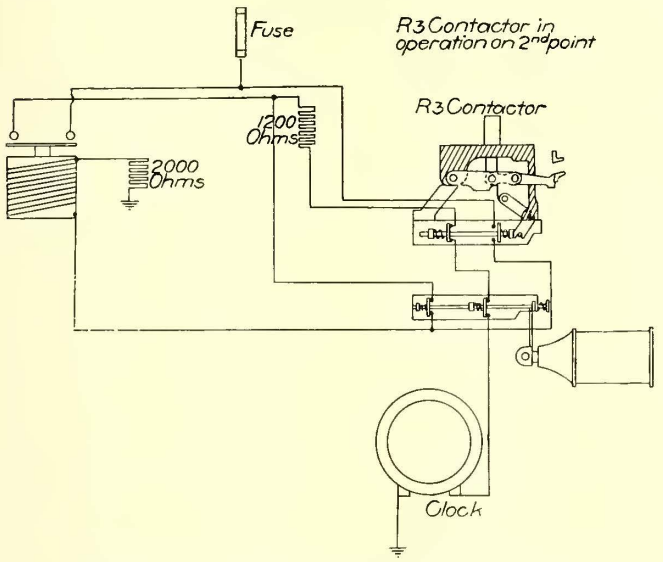


Diagram of Connections of Coasting Register

the trailer cars, instead of the motor cars, in order to reduce the number required, as the company operates only one-half as many trailer cars as motor cars.

The coasting register was developed through the joint efforts of Frank Hedley, vice-president and general manager of the Interborough Rapid Transit Company, and J. S. Doyle, superintendent of car equipment, of the same company.

FORM OF GENERAL BALANCE SHEET STATEMENT FOR INTERSTATE STEAM ROADS

A pamphlet issued by the Interstate Commerce Commission contains the form of general balance sheet statement prescribed for steam roads as of July 1, 1909. Prof. Henry C. Adams, in charge of statistics and accounts, states in an introductory letter "to carriers concerned" that the form of general balance sheet statement "will be incorporated in the forms for annual report of carriers to the Interstate Commerce Commission for the year ending June 30, unless modified by an order of the commission before that date." Professor Adams continues:

In any case, carriers whose current accounts are kept in such a manner as to enable them to report on the balance-sheet statement herewith promulgated will be able to make any balance-sheet statement which the commission may finally accept as satisfactory.

There will shortly be issued a special report series circular calling for the adjustment of assets and liabilities as of June 30, 1909, to the form of balance-sheet statement promulgated under the present order, with a view of testing its practicability and of collating all difficulties incident to its use. Any modification, should modification be thought desirable, will be made as the result of this test.

The accounts are as follows:

ASSETS.

PROPERTY OWNED AS INVESTMENT:
- I. Physical Property Owned—
  - 1-A. Road and equipment to June 30, 1907—
    - (a) Road.
    - (b) Equipment.
  - 1-B. Road and equipment since June 30, 1907—
    - (a) Road.
    - (b) Equipment.
    - (c) General expenditures.
- II. Securities Owned—
  - 2. Securities of proprietary, affiliated and controlled companies—pledged.
    - (a) Stocks.
    - (b) Funded debt.
    - (c) Miscellaneous.
  - 3. Securities issued or assumed—pledged.
    - (a) Stocks.
    - (b) Funded debt.
    - (c) Miscellaneous.
  - 4. Securities of proprietary, affiliated and controlled companies—unpledged.
    - (a) Stocks.
    - (b) Funded debt.
    - (c) Miscellaneous.
- III. Investments—
  - 5. Advances to proprietary, affiliated and controlled companies for construction, equipment and betterments.
  - 6. Other permanent investments—
    - (a) Physical property.
    - (b) Securities.

WORKING ASSETS:
- 7. Cash.
- 8. Marketable securities.
  - A. Securities issued or assumed—unpledged—
    - (a) Stocks.
    - (b) Funded debt.
    - (c) Miscellaneous.
  - B. Other marketable securities—
    - (a) Stocks.
    - (b) Funded debt.
    - (c) Miscellaneous.
- 9. Loans and bills receivable.
- 10. Net traffic, car mileage and per diem balance.
- 11. Net balance due from agents and conductors.
- 12. Miscellaneous accounts receivable.
- 13. Materials and supplies.
- 14. Other working assets.

DEFERRED DEBIT ITEMS:
- 15. Advances—
  - (a) Advances to proprietary, affiliated and controlled companies.
  - (b) Working funds.
  - (c) Other advances.
- 16. Insurance premiums paid in advance.
- 17. Taxes paid in advance.
- 18. Discount on securities issued—
  - (a) Discount on stock.
  - (b) Discount on funded debt.
- 19. Property abandoned, chargeable to operating expenses.
- 20. Cash and securities in sinking and redemption funds.
- 21. Cash and securities in insurance and other special funds.
- 22. Cash and securities in special trust funds.
- 23. Items in suspense.

DEFICIT:
- 24. Profit and loss—balance.

LIABILITIES.

STOCK:
- 25. Capital stock—
  - (a) Common stock.
  - (b) Preferred stock.
  - (c) Debenture stock.
- 26. Receipts outstanding for capital stock.
- 27. Stock liability for conversion of outstanding securities of constituent companies.
- 28. Premium realized on capital stock sold.

MORTGAGE, BONDED AND SECURED DEBT:
- 29. Funded debt—
  - (a) Mortgage bonds.
  - (b) Collateral trust bonds.
  - (c) Plain bonds, debentures and notes.
  - (d) Income bonds.
  - (e) Equipment trust obligations.
  - (f) Miscellaneous funded obligations.
- 30. Receipts outstanding for funded debt.
- 31. Premium realized on funded debt sold.
- 32. Receivers' certificates.
- 33. Obligations for advances received for construction, equipment and betterments.

WORKING LIABILITIES:
- 34. Loans and bills payable.
- 35. Net traffic, car mileage and per diem balance.
- 36. Audited vouchers and wages unpaid.
- 37. Miscellaneous accounts payable.
- 38. Matured dividends, interest and rents unpaid.
- 39. Matured mortgage, bonded and secured debt unpaid.
- 40. Working advances due to other companies.
- 41. Other working liabilities.

ACCRUED LIABILITIES NOT DUE:
- 42. Dividends declared and interest and rents accrued, not due.
- 43. Taxes accrued.

DEFERRED CREDIT ITEMS:
- 44. Operating reserves—
  - (a) Reserves for replacement of property.
  - (b) Reserves for other purposes.
- 45. Liability on account of special trust funds.
- 46. Items in suspense.

APPROPRIATED SURPLUS:
- 47. Surplus reserves—
  - (a) Reserves invested in sinking and redemption funds.
  - (b) Reserves invested in insurance and other special funds.
  - (c) Reserves not specifically invested.
- 48. Additions to property through income since June 30, 1907.

FREE SURPLUS:
- 49. Profit and loss—balance.

The Municipal Board of St. Petersburg, Russia, is planning to extend electric operation of the street railway system in St. Petersburg by rebuilding immediately 43 miles of horse-car lines at an expenditure of more than $10,000,000. When this work is completed the entire street railway system of the city will be operated electrically.

ILLINOIS CENTRAL RAILROAD DEFERS ELECTRIC OPERATION OF CHICAGO TERMINAL

At the annual meeting of the stockholders of the Illinois Central Railroad, held in Chicago, Oct. 20, a report from J. T. Harahan, president of the railroad, recommending delay in the adoption of a plan for converting the Chicago terminals to electric operation, was unanimously approved. The text of Mr. Harahan's report follows:

The subject of the electrification of the Chicago terminals of your company has received most careful and thorough investigation during the past year.

There are no precedents at the present time where electric operation has been applied to the handling of freight traffic in large freight terminals, such as exist in Chicago. Up to the present time the use of electricity in heavy railway service has only been attempted where peculiar physical restrictions, such as the operation through tunnels, has been encountered. No such physical restrictions exist in the Chicago terminals.

The existing electric installations on steam roads cover principally the movement of passenger trains, such as the cases of the New York Central and New Haven roads in and near New York City, and in a few instances the movement of freight and passenger trains for short distances through tunnels, such as the cases of the Baltimore & Ohio at Baltimore and the Grand Trunk at Sarnia.

Installations also have been made in some instances for the handling of suburban traffic, where such traffic extends over limited distances and is of sufficient volume to justify frequent service in small train units, but even in such cases the interest on the heavy cost of electric installation and depreciation has exceeded any economy derived from electrical operation.

The practicability of applying electricity to the operation of large terminals, such as exist in Chicago, has not as yet been demonstrated nor satisfactorily worked out. The conditions which obtain on the Chicago terminals of your company, as well as those of other Chicago roads, are peculiar in themselves and offer greater difficulty to the practicability and successful adoption of electric operation than anywhere else in the world.

The Chicago terminals involve the handling of mixed traffic, consisting of freight, passenger and suburban trains using, largely, tracks in common, which is further complicated by heavy interchange of freight traffic between the various roads, causing frequent and complex switching movements on main lines and in yards.

Our suburban traffic at Chicago is the only service which would in any degree be adapted to electric operation, but even in this particular service it can readily be shown to be unjustifiable at the present time.

I submit below a statement of the results which are estimated to accrue if the entire suburban service were electrified, compared with the present steam operation:

Results of Operation of Suburban Business at Chicago by Steam Locomotives for Fiscal Year Ended June 30, 1909.

Gross earnings		$1,056,446
Operating expenses (82.9 per cent)	$872,307	
Taxes (7 per cent)	74,427—	946,734
Net revenue		$109,712

Estimated Result Under Electrification.

Gross earnings		$1,056,446
Operating expenses (66 per cent)	$697,254	
Taxes (7 per cent)	74,427—	771,681
Net revenue electric operation		$284,765
Net revenue steam operation		109,712
Increase		$175,053
Estimated cost of electrifying suburban service		$8,000,000
Interest at 5 per cent per annum		400,000
Depreciation at 5 per cent per annum		400,000
Total fixed charges account electrification		$800,000
Saving in operation under electrification		175,053
Annual deficit in operation under electrification		$624,947

Our suburban traffic is not of sufficient density to warrant the expense necessary to electrify these lines, and it is evident from the above figures that even under electrification there would not be an increase in traffic sufficiently large to offset the annual loss from operation. It simply proves that under present conditions of the cost of electrification of steam railways, where it means a replacement of a plant already installed and serving the purpose, it is not justifiable to electrify either in whole or in part your Chicago terminals at this time.

There is even at the present time great variance of opinion among the ablest electrical engineers as to the merits of the respective systems of electricity in use. The rapid development in the art of electric traction doubtless will result in the future in the adoption of standard methods and practices, such as have been developed in steam operation, and in a great decrease in the cost of its application to heavy railway service, which at the present time makes the use of electricity absolutely prohibitive.

The elimination of smoke has been advanced as the prime object of the electrification of steam railroads in Chicago. We have greatly reduced the making of smoke in our locomotives during the past year by the use of a superior quality of coal, care in firing and discipline among our men. We have also experimented with coke to replace soft coal and are at the present time engaged in building coke ovens to produce a quality of coke that will be almost entirely free from smoke when used in locomotives. We also are negotiating with a view of securing a type of self-contained motor car for use on our suburban lines.

The use of coke on our terminals in such classes of service where it would result in reducing annoyance from excessive smoke with soft coal as fuel would make a considerable increase in operating expenses of Chicago terminals.

We are not unmindful of the rights of the public to be free from the annoyance caused by excessive smoke from locomotives, but if these results can be secured by practical means, without the sacrifice of large expenditures on electrification, all reasonable demands will be met.

On Oct. 14, 1909, the Mayor of the city of Chicago, with a delegation of city officials, called on me and submitted a proposition that the Illinois Central Railroad Company make a start on the electrification of its terminals by installing at an early date electric operation on its local suburban trains, on the two westerly tracks between Randolph Street and Sixty-third Street, a distance of eight miles, with the understanding that any further extension of electrification would not be urged beyond a reasonable extent. The city officials suggested that such a course would carry on the work gradually, but that if the city were obliged to enforce its right to require electrification by law it might involve the electrification of all tracks within prescribed limits at a large expenditure.

I pointed out to the Mayor and the city officials that while a moderate installation, such as they requested, might satisfy the present city administration, such action would not be binding on future administrations of the city, and, therefore, we would be at the mercy of succeeding city officials. They requested, however, that their proposition be submitted to your board of directors, which I agreed to do, with the understanding, however, that it would be submitted without recommendation.

In answer to the proposition made by the city of Chicago, I can only urge the same arguments as set forth above, and to state further that the matter of a partial installation, such as is requested by the city, has been carefully investigated and the conclusion reached that it would not be justified, for the reasons that the expenditure would not be warranted on account of the lack of density of traffic in the local suburban service, and that we hope to accomplish all reasonable demands that can be made in the elimination of smoke by the use of coke or other smokeless fuel, or a self-contained motor car.

The mutual relation existing among the various railways at Chicago, owing to the extensive interchange of traffic and the use of facilities in common, which has no parallel at any other large terminal in this country, nor in the world, will make it imperative that any change in the methods of operation, such as electrification will impose, shall be planned and executed with the joint co-operation of all

the railways, in order that a system may be evolved which is practicable, and, of necessity, interchangeable in its operation and use.

Attention has been frequently called to the electrical installations on the New York Central and New Haven roads in New York, pointing to the success of these experiments. While the operation, independently, of the two systems may be successful, as far as operation is concerned, yet the fact remains that the two systems are not mutually interchangeable. It is impossible to-day for the New York Central locomotives and cars to go upon the tracks of the New Haven road, and it has only been made possible for the electric locomotives of the New Haven to go upon the New York Central tracks after introducing complications and experiencing much difficulty and expense.

It is just such difficulties as are now encountered between the New York Central and New Haven in New York City that must be avoided by the railways in the Chicago terminals, and from the experiences of the New York Central and New Haven roads we have learned the valuable lesson that there must be co-operation among the various railroads in this important matter before a practicable and successful electrical operation is assured.

The elevation of tracks cannot be compared with the electrification of Chicago railways, as in the former each company could proceed independently, while in the latter there must be united action on whatever systems or methods are adopted, otherwise it would make impossible the operation of the railways in the interchange of their traffic.

After the most careful consideration of the entire subject, and frequent conferences with officials who have given the matter the closest study, I have reached the conclusion that the electrification of the Chicago terminals of your company is not justified at the present time for the following principal reasons:

First—The art of electric traction applicable to the operation of large terminals has not progressed beyond the experimental stage sufficiently to justify the large expenditure necessary for its application on your Chicago terminals, and that it would be impracticable to operate the large freight terminals of Chicago railroads, with their interchange of freight traffic and switching movements, with electric traction, as developed at the present time.

Second—The large expenditure necessary to install electric traction in your Chicago terminals would involve fixed charges in interest and depreciation that would greatly exceed any economy that might result from electric operation.

Third—The elimination of smoke, to meet all reasonable public demands, can be accomplished without the use of electric traction.

Fourth—It would be inadvisable at this time for any one railway in Chicago to undertake the electrification of its line, independently, before a comprehensive plan has been developed through the joint co-operation of all the lines, in order that no precedents might be established which might retard rather than promote a possible future development.

The board of directors of the railroad company adopted the following resolution in connection with the report from the president:

Whereas, In the report submitted by the president to the board of directors mention is made of the very complete and exhaustive investigation into the subject of electrifying the Chicago terminals, and special attention is called to the suggestion from the city authorities that the local suburban service be electrified with a view to demonstrating the advisability and practicability of a further extension of the system to the balance of the terminals; and,

Whereas, The report of the experts who have been engaged in the study of the entire problem for the past year or more develops that, in view of the complications brought about by the necessity of providing for suburban and through passenger traffic, through freight, transfer and switching movements, as well as interchange between railroads which deliver business to our line in Randolph Street yard, and the necessity for delivering a large part of our business into other railroad yards, via Sixteenth Street and Forty-third Street, electrification at this time is impracticable, hence the necessity of the greatest possible study in order that intelligent prudence shall form the basis for an expenditure of a very large sum of money. The study and investigation up to this time have developed a decidedly complex situation, distinctly different from that which pertains wherever electrification has been applied; and,

Whereas, The general public is more concerned in the elimination of the smoke nuisance than it is in a change of motive power, and the interest of the public, as well as that of your stockholders, will be conserved by extending the use of coke or other smokeless fuel to engines in the Chicago terminal as rapidly as possible; therefore, be it

Resolved, That this board feels the necessity for deferring a determination as to electrification until such time as a continued study of the subject can intelligently determine the proper line of procedure.

Following the making public of this report and resolution, steps were taken by city officials to compel the Illinois Central to live up to its promise, made last year, to begin electric operation "with all reasonable dispatch." An ordinance has been introduced in the City Council and referred to the committee on local transportation, invoking the police powers of the city to abate a nuisance and making it mandatory on all railroads within the city to abandon the use of steam locomotives, or any motive power giving off noxious odors, after Jan. 1, 1912. It is said that a bill will be introduced at the special session of the Illinois Legislature to be called this winter which will specifically confer upon the city the right to compel the railroads to make a change in their motive power.

B. J. Arnold is quoted in the Chicago *Evening Post* as saying that at least three of the railroads in Chicago could advantageously convert their terminals to electric operation. He did not favor mandatory legislation, as such a step would be most unfair to many of the roads entering the city. He said:

It is an engineering fact, now well established, that our great railway terminals, where traffic is constant, switch engines are shunting back and forth and suburban trains run at frequent intervals, can be operated more economically by electricity than by steam.

On the lines of the Illinois Central conditions apparently exist which are most favorable to this change. To install electrical equipment you incur large fixed charges, but with constant use a large economy is effected. Heavy freight trains running at long intervals provide a poor field for electrification.

The experience of Eastern roads in the abandonment of the steam locomotive has demonstrated the possibility of economy, but it has not as yet been fully realized. The maximum use is not now being obtained on the New York Central or on the New York, New Haven & Hartford. When it is, the full economy will become apparent.

Samuel Insull, president of the Commonwealth Edison Company, of Chicago, made an address on Oct. 20 before the Electric Club of Chicago on the subject of "The Sale and Distribution of Electric Energy in Chicago." Mr. Insull stated in the course of his address that the cheap electricity available in Chicago should have an important bearing upon the agitation in relation to electrifying the terminals of the steam railroads. There were, of course, vast problems to be settled before this electrification could be accomplished, and it was well for all who were not steam-railroad men to treat these problems with respect. But so far as the current-producing side of the argument was concerned, it was a mistake to say that electrification was impossible because of the cost of electric energy. If this objection was based on a knowledge of the cost of electric energy used for the electrification of steam-railroad terminals around New York, it was based on false premises if it was contended that the same cost of electric energy must apply in Chicago. It was a fact that electric energy could be bought in Chicago considerably cheaper than it

was now being produced by the two great traffic lines with electrified terminals in New York.

After the conclusion of his address, Mr. Insull was asked whether in case the railroad companies in Chicago should decide to electrify their terminals, using current purchased from the Edison company, it would be necessary for that company to build new generating stations to care for this demand. Mr. Insull answered that his company could take care of any two railroad terminal electrifications in Chicago, based on the present consumption of current by the roads running into Grand Central Station in New York, with the present capacity of the Edison stations. With additional equipment, which had been ordered to go into service within a year, two additional terminals of like capacity could be served.

PAMPHLET ON STANDARDIZATION OF ROLLING STOCK IN BROOKLYN

The Brooklyn Rapid Transit Company has reprinted for distribution among the salaried employees of the mechanical department of the company the articles on the standardization of the equipment in charge of that department which have appeared in recent issues of the Electric Railway Journal. Standardization of the equipment of the surface and elevated divisions of the company was undertaken under a well-defined program on Jan. 4, 1904, and it has therefore taken 5½ years to complete the work, at a cost of $4,000,000. The reprint contains 62 pages, and is inclosed in a cream-color illuminated cover printed in blue, with the emblem of the company embossed in gold. The publication is officially known as Bulletin No. 1087, and is introduced by a communication from William G. Gove, superintendent of equipment of the company, addressed to the superintendent of the Fifty-second Street surface shop, superintendent of the Thirty-ninth Street elevated shop, foreman of the Southern division elevated shop, foreman of the Eastern division elevated shop, foreman of the Eastern division inspection shed, foreman of the Fresh Pond inspection shed and the foremen of the surface car house shops. In referring to the completion of the work of standardizing the equipment, Mr. Gove says:

There are a number of points which must be given careful and concentrated thought, for the management, who have expended large sums from time to time upon the reconstruction of the equipment, expect to see this reflected in the condition of our cars and equipment, which are now second to none in point of appearance and efficiency; it will also be expected that these results be maintained at the least possible cost. To do this, it is obvious that one of the first moves is to obtain the longest period between inspections and overhaulings that will be possible without endangering the efficiency of the equipment, which is reflected in the "Run-in" list published monthly for your information and distributed so that it may be placed before all interested, both in the mechanical and transportation departments.

A co-ordination of shop methods, rules and regulations makes uniform the practices at all locations, and the operation of the surface, elevated and freight equipment can be made most successful by the hearty and enthusiastic support of each superintendent or foreman in direct charge of the work, and who will follow schedules, plans and instructions of every sort without question, excepting where, in his judgment, there can rightfully be raised a legitimate point as to their practicability, in which case we must be immediately advised of full details, when a prompt decision will be rendered.

We may rightfully feel proud of the results reflected today in the cars of both our surface and elevated lines, as compared with six years ago, but with the elimination of construction and reconstruction work there is greater opportunity for caring for the finer points which, under pressure of busy times, might be termed "refinements," but which, though many in number, are really the fundamental features to be kept up for the proper maintenance of the equipment, especially that portion that is designated in the Classification of Accounts as "Repairs and Renewals of Electrical Equipment of Cars."

PROGRESS OF REHABILITATION IN CHICAGO

Under date of Oct. 1, the Chicago Railways Company reported to the Commissioner of Public Works of the city of the Chicago the progress made during the past season in the work of rehabilitation of its property as required by its ordinance. Work on the various car houses and machine shops, substations and other buildings is rapidly nearing completion. The Lawndale car house and depot at Ogden Avenue and Twenty-second Street, which will have a total storage capacity for 233 cars, is estimated to be about 55 per cent completed. The Kedzie Avenue car house, at Kedzie Avenue and Jackson Boulevard, which is to be 457 ft. long by 451 ft. wide, and which will have a total ultimate storage capacity of 372 double-truck cars, is about 60 per cent completed. Excavation on the site of this car house was begun on Jan. 20 of this year. The Limits car house, on North Clark Street, which will have a capacity of 86 cars, is practically completed. Substations at Lill and Sheffield Avenues, Twenty-fifth and Leavitt Streets, and Grand Avenue and Fortieth Street are completed, as are also a new storeroom at Racine Avenue and Center Street and a repair shop at Thirteenth Street and Ogden Avenue. A new mill and paint shop, at Lake Street and Harding Avenue, is about 50 per cent completed. The paint shop at Fortieth Street and Park Avenue is entirely completed, as is also the new car house at Lincoln and Wrightwood Avenues.

During the present season the Chicago Railways Company has built a total of 95 miles of single track. Last year the company built 75 miles of track, so that to date it has completed approximately 170 miles. The number of men employed this season in reconstructing tracks has averaged between 2500 and 3000. From 8 to 10 separate forces of men have been engaged on this work at the same time.

Up to Jan. 1, 1909, the company had laid 261 miles of single duct conduit. From Jan. 1 to Oct. 1 of this year it laid 296 miles, making a total to date of 557 miles, which is 75 per cent of the requirements. It installed in ducts this year 169 miles of cable feeders, which, in addition to the 22 miles installed up to Jan. 1, 1909, makes a total of 191 miles to date, or 80 per cent of the requirements. Trolley wire has been renewed or newly erected over 122 miles of track, and 63 miles of overhead feeder cables have been put up. A total of 83 miles of auxiliary cables has been laid between tracks.

According to *Electrical Engineering*, of London, trial runs are being made with a trolley omnibus on an experimental road at Hendon, England. The car has two 25-hp motors driving countershafts through bevel gears. A two-wire overhead construction is used, and, contrary to practice in Continental Europe, the frame of the car is electrically connected to the earthed negative trolley wire. A device to warn the driver if the car becomes connected with the positive wire is provided. As an alternative a three-wire line may be employed. The two sets of trolley wheels are mounted on the same head at the end of a double pole, and means are provided to counteract the side pressure when the car deviates from the center of the road.

PARKED STREET RAILWAYS IN GERMAN CITIES

The numerous boulevards which have been laid out through the newer sections of Berlin, Germany, are so wide that the street railway strip is practically free from other traffic. This enabled the Grosse Berliner Strassenbahn to secure permission in 1904 to lay a stretch of track in Charlottenberg covered with grass sod instead of paving with asphalt or Belgian blocks. The experience with this experimental section was so satisfactory both to the city authorities and the railway company that the practice is being extended to other thoroughfares. Berlin now has 5 km (3.1 miles) of double track covered with grass, and more is to follow. Continental tramway managers who have seen the work are enthusiastic over its possibilities. The

Parked Tracks in Bismarck Street, Charlottenberg

Parked Tracks in Hardenburg Street, Charlottenberg

example of the Berlin company is now being followed in Cologne, Frankfort-on-Main and Dresden, while Brussels, Paris and Nürnberg have the subject under consideration. The originator of the sodded tracks is Arthur Busse, chief engineer of way and construction, Grosse Berliner Strassenbahn.

The handsome appearance of several of the parked streets in Berlin is shown in the accompanying half-tones. It will be noted that the grass is allowed to grow right up to the rail. It was first proposed to lay a single row of headers along each rail. By careful cutting, however, the grass never grows high enough to touch the head of the rail so as to impede braking. The roots of the later plantings are deep enough to extend below the base of the rail head, so that a firm sod is developed before any mowing is necessary. It has also been determined to grow flowers to within a few inches of the tracks, thus adding to the beauty of the right-of-way and having it in keeping with the adjoining parts of the boulevard.

The general public is greatly pleased with this novel street railway gardening. The ugliness usually associated with a surface railway is largely eliminated by the sod

Another View of Parked Tracks in Bismarck Street, Charlottenberg

and foliage and the deep grass acts as an excellent noise absorbent. The latter effect is easily noted on certain sections, where asphalt, Belgian block and grass follow each other in order. The asphalt is noisiest, the block less so, and the grass least of all.

It is hardly necessary to state that the railway company prefers the inexpensive grass to the costly asphalt. Repairs at joints can be made with no other preliminary work than the removal of a few square feet of sod, which can be easily replaced when the work is done. The offensive odors of burning asphalt and the noise of the cumbrous steam roller are abolished. The satisfaction which the municipal authorities have found with the work has been of great assistance to the company in obtaining rights to operate over other residential streets in the western suburbs.

FIBER BRAKESHOE USED ON THE LONDON UNDERGROUND RAILWAYS

Shortly after the first tube railways began operation in London it was discovered that many slight fires and minor interruptions were caused by dust from the cast-iron brake shoes penetrating the connection boxes. An attempt was made to correct this evil by using lignum vitæ blocks, but while they gave a fair measure of success, they were soon superseded by a fiber shoe, which has now been in service for nearly four years. This shoe is composed of cotton or jute fibers which are hydraulically compressed into layers of ⅜ in. thickness. As first made, the laminations, which aggregate a thickness of 3¼ in. to 3½ in., were held together only by some adhesive mixture. This method did not prove successful in practice, but was easily corrected by driving pegs of jarrah wood through all the layers. The complete fiber part forms the insert of a cast-iron shell which fits into the brake-shoe head by means of four wood screws. The total weight of the insert and shell is 19 lb. 2 oz. The shell usually outlives two or three inserts before it is scrapped. The fiber, however, may be said to have no scrap at all, for after a shoe has been worn down to the last ⅜-in. lamination, the latter can be joined up to other old or new pieces, as all the peg holes are punched to templets.

Hitherto the fiber shoe could be used to advantage only on the Piccadilly, Charing Cross and Bakerloo tube lines, which are under cover for the greater part of their routes. Several trials were made on the semi-open Metropolitan & District Railway, but it was found that in wet weather the binder of the fiber had a tendency to gum, thereby causing flats and bad stops. The manufacturer, however, is now making the inserts with a new binding solution, which not only overcomes this defect, but even improves the braking effect on wet rails. The new inserts are now being applied as fast as cars come into the shops for brake shoe renewals.

Since the universal adoption of the fiber shoe on the tube railways there has not been a single short-circuit in any connection box, and examination of many trucks and third-rail shoes at the shops showed very little iron dust indeed. It is the experience of the companies, also, that the wear on tires is materially reduced through this kind of shoe.

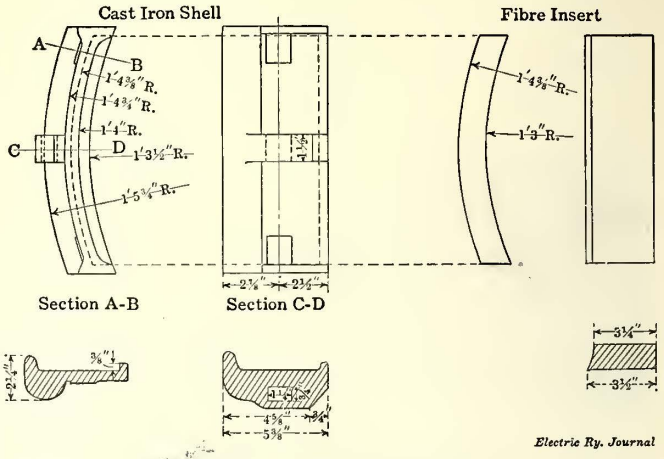
Perhaps the most important point of the fiber shoe is its great economy. The cast-iron shoe formerly used cost 36 cents per 1000 car-miles, whereas the cost of the fiber shoe averaged only 24.4 cents per 1000 car-miles, as shown in the accompanying table for the last six months, ended June 30, 1909:

BRAKE SHOE DATA ON LONDON TUBES

Company	Mileage of first 6 mos. of 1909	Cts. cost per 1000 car-miles.
Great Northern, Piccadilly & Brompton	3,671,512	29.48
Baker Street & Waterloo	1,918,562	16.74
Charing Cross, Euston & Hempstead.	3,037,858	23.10
Combined Companies	8,627,932	24.40

The costs given in the foregoing table include the fiber inserts, the cast-iron shell, the pegs, wood screws and the labor of building up, but do not include the labor of installation under the car. The cost per 1000 ton-miles is given at 0.84 cent for the six months ended June 30, 1908. The average life of an insert, as determined on the Charing Cross line, is about 14,000 miles.

The fiber shoe was developed for the United Underground Railways of London by Herbert Froob & Company, Chapel-en-le-Fritch, England. Fiber shoes are also used on the London motor omnibuses.



Details of Fiber Brake-Shoe

LONDON UNDERGROUND ELECTRIC RAILWAYS

STATEMENT OF BRAKE BLOCK SHELLS AND FIBER INSERTS USED DURING 1909

DESCRIPTION	No. in Stock..day of..... 1909	No. Purchased during..... 1909	No. in Stock.... day of... 1909	No. Issued	No. in Sub-Store	No. Used
Brake Shells....						
Fiber Inserts....						
Screws.....						

PARTICULARS OF HOW USED ON ROLLING STOCK

	Brake Shells	Fiber Inserts	Screws
Motor Cars.....			
Trailer Cars.....			
Total.....			

.....*Storekeeper*

.....*General Foreman*

Form for Keeping Record of Fiber Brake-Shoes

The system of tramways operated by the Compagnie de Tramway et d'Eclairage Electriques des Tientsin, a Belgian company, has, by extending its lines about Tientsin, opened up to traffic between eight and nine miles of double track, thus providing a direct route between the foreign settlements and the native quarter of that city.

PACIFIC COAST TRAIN PARTY IN CALIFORNIA

The party of street railway delegates, including the officers of the American Street & Interurban Railway Association, which is traveling on the special train of the Massachusetts Street Railway Association, left Portland on Tuesday of last week and arrived in San Francisco on Thusday morning, Oct. 21. Last week San Francisco celebrated with an elaborate festival the discovery of the Bay of San Francisco by Gaspar de Portola in 1769. Historical pageants, athletic sports and other forms of entertainment were provided every day from Oct. 19 to Oct. 23. The street railway tourists had an opportunity of witnessing a number of the most interesting events of the week, including the civic parade and illumination of the city on Oct. 21 and the athletic sports on Oct. 22. Through the courtesy of the United Railroads of San Francisco reserved seats were provided for the party on the grandstand erected on Market Street, near Valencia Street, for the parade on Thursday. Trips around the city in automobiles and sight-seeing cars were also provided by the street railway company. Each member of the party on the arrival of the train in San Francisco was supplied with a book of tickets good for transportation on any of the electric cars. The weather while the party remained in San Francisco was perfect, and this added greatly to the pleasure of the visit. Advantage was taken by many of the members of the party to inspect the novel engineering features of the San Francisco system. While in the city, the members of the party were lavishly entertained by the officers of the United Railroads of San Francisco, including Thornwell Mullally, assistant to the president; Thomas Finigan, purchasing agent; J. H. Handlon, claim agent; B. P. Legare, engineer maintenance of way; J. H. Stott, engineer of steam equipment, and W. T. Bivins, engineer of electric equipment. The special train left San Francisco Friday evening en route for Santa Barbara. A telegram was sent to Mr. Mullally after the party left, expressing appreciation of the hospitality extended and complimenting the United Railroads of San Francisco on the expeditious manner in which the festival crowds of Portola week were handled.

The train reached Santa Barbara Saturday at 11 a. m. It was met at the station by a brass band and G. W. Wilder, general manager; C. A. Merritt, superintendent, and R. H. Cates, electrical engineer of the Santa Barbara Consolidated Railroad. The guests were taken by special cars to Ocean Beach, where a number took advantage of the opportunity to bathe in the surf of the Pacific. Later in the afternoon a visit was made to the historical mission in Santa Barbara. After the train left Santa Barbara a telegram was sent to the railroad company, thanking its officers for their attentions and courtesies extended to the party.

The delegates were met in Santa Barbara by two members of the reception committee representing all of the Los Angeles electric railway companies. This advance guard included D. A. Munger, general passenger agent of the Pacific Electric Railway, and C. H. Burnett, manager of the Los Angeles-Redondo Railway. They accompanied the party to Los Angeles and distributed tastefully printed programs of the entertainment planned for the guests in Los Angeles, and other literature. The programs were illustrated with maps of the city and numerous views of the principal points of interest. The train reached Los Angeles at 7:30 p. m. on Saturday and was met at the station by a reception committee headed by H. M. Littell, assistant to the general manager, Pacific Electric Railway, and composed of 30 of the leading electric railway officials in Los Angeles and vicinity. Special cars were waiting to convey the members of the party to their hotels.

Sunday was devoted to a trip over the lines of the Pacific Electric Railway system. Early in the morning special cars were run to the foot of the Mt. Lowe incline and the delegates were then taken to the top of the mountain, where they enjoyed the magnificent view. From Mt. Lowe the special cars were run to Pasadena and later to the estate of H. E. Huntington, president of the Pacific Electric Railway Company. At noon an elaborate luncheon was served at the Hotel Maryland, Pasadena, during the course of which President Shaw made a brief address. In the afternoon special cars carried the party to Long Beach, which is a popular ocean resort near Los Angeles, reached over the four-track line of the Pacific Electric Railway. Los Angeles was reached on the return trip about 5 o'clock in the afternoon. President Huntington and other officials of the Pacific Electric Railway accompanied the party on the entire trip.

On Monday the party inspected the systems of the Los Angeles-Pacific Railway and the Los Angeles & Redondo Railway. A special 3-train car left the depot of the Los Angeles-Pacific Railway in Los Angeles at 8:30 a. m., and E. P. Clark, president of the company, accompanied the party, which visited Ocean Park, Venice and Redondo Beach. The ride along the ocean shore was particularly enjoyable. Before luncheon was served in the pavilion at Redondo Beach some of the members of the party visited the power station of the Redondo Light & Power Company, while others took a swim in the large bathing pool on shore or in the ocean surf. At luncheon James F. Shaw, president of the American Association; C. H. Burnett, manager of the Los Angeles & Redondo Railway; H. C. Page, general manager of the Worcester (Mass.) Consolidated Street Railway, and Charles C. Peirce, General Electric Company, Boston, Mass, spoke. The representatives of the Los Angeles railway companies expressed great interest in the work of the American Association, while the visitors gave voice to their appreciation of the hospitable entertainment provided for them in all the cities which they had visited. The party returned to Los Angeles on a 3-car special train over the lines of the Los Angeles & Redondo Railway. Late in the afternoon, a visit was made to the shops of the Los Angeles Railway Company, and then an automobile trip was taken through the residential district of the city, stopping at the Chamber of Commerce.

On Tuesday morning, special cars were provided to take the guests from their hotels to the Southern Pacific Railroad station, from which the train left for El Paso at 10 a. m. Before leaving Los Angeles it was announced that H. E. Huntington, president of the Pacific Electric and the Los Angeles & Redondo Railways, had agreed to have these two companies become members of the American Street & Interurban Railway Association. The Los Angeles Railway is already a member of the association. President Shaw received assurances of a large increase in associate membership from among the officers of the Los Angeles railway companies.

E. E. Potter, manager of the Seattle Electric Company, joined the party at San Francisco, and will return to Boston on the special train. The train was two days behind schedule in leaving Los Angeles, and if the original itinerary is followed for the remainder of the trip, the return to New York and Boston will be delayed until the morning of Nov. 4.

WEIGHTS PER PASSENGER OF PREPAYMENT AND OTHER CARS

The Third Avenue Railroad Company, New York, has recently prepared the accompanying detailed table of weights of the several parts of its standard convertible pay-as-you-enter cars. It appears from this table that the dead weight carried per passenger is only 753 lb. in winter and as low as 736 lb. in summer when the panels are removed. This car was the first cross-seat convertible type made for prepayment service, and the principal features of its design were described in the Electric Railway Journal of Jan. 23, 1909. A characteristic feature which has been of great importance in keeping down the weight of this design is the use of platforms only 6 ft. long. It was the belief of the company's engineers that a longer platform was unnecessary for New York conditions, and experience in operation has justified them therein.

DETAILED WEIGHTS OF ONE CONVERTIBLE P. A. Y. E. CAR AND PARTS.

	Lb.	Lb.
Car body with sand boxes, hand brake and panels (800 lb.)	16,192	16,192
Electrical Equipment:		
2 G. E. K 27 controllers, brackets and handles	476	
1 set main cables, complete with all leads	245	
2 G. E. circuit-breakers	56	
2 Westinghouse fuse boxes, complete with covers, etc	100	
16 heaters, complete with brackets	214	
Heat, light and trolley wire	67	
½-in., ¾-in., 1-in. and 1¼-in. conduit and fittings	300	
2-in. conduit and fittings	313	
Main junction boxes	160	
Cleats	23	
3 G. E. rheostats and hangers	281	2,235
Brake Equipment:		
Compressor, National A4	600	
Cradle	160	
Reservoir, 16 x 48-in.	210	
Cylinder, 8 x 12-in., with plunger, but no jaws	156	
Slack adjuster	47	
Governor	41	
2 levers and tie rod	60	
2 pull rods	86	
2 motorman's air valves	26	
Air pipe	113	
Air fittings	29	1,528
Motors:		
2 G. E. 210, with gears and gear cases	6,622	6,622
Trucks:		
2 Brill 39 E, with plow attachment, but without plow or gears	9,400	
Plow, complete	67	9,467
Miscellaneous	90	90
Total		36,134
Car weight per passenger	753	

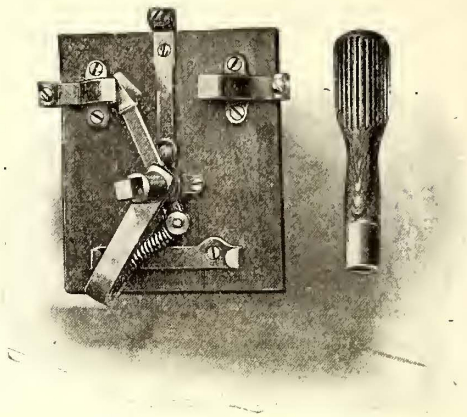
The Metropolitan Street Railway Company, New York, operates two types of closed pay-as-you-enter cars, both of which are equipped with longitudinal seats. The first car weighs about 1140 lb. per passenger and the second only 810 lb. per passenger. The chief points of the later Metropolitan design were presented in the Electric Railway Journal of Dec. 5, 1908. Another low weight pay-as-you-enter car is the Cleveland type, described in the Electric Railway Journal of Oct. 24, 1908, which weighs 833 lb. per passenger. The heaviest pay-as-you-enter cars are those operated in Chicago and Buffalo, which weigh from 1325 lb. to 1330 lb. per passenger. The latest Chicago car was described in the Electric Railway Journal of Nov. 7, 1908.

Statistics from other cities, where prepayment cars are not in use or where the old double-truck cars have been modified slightly for platform fare collection, show weights per passenger varying from 940 lb. to 1180 lb. These figures are higher than those mentioned for the New York cars and prove that pay-as-you-enter operation does not necessarily imply any appreciable increase in the dead weight to be transported per passenger.

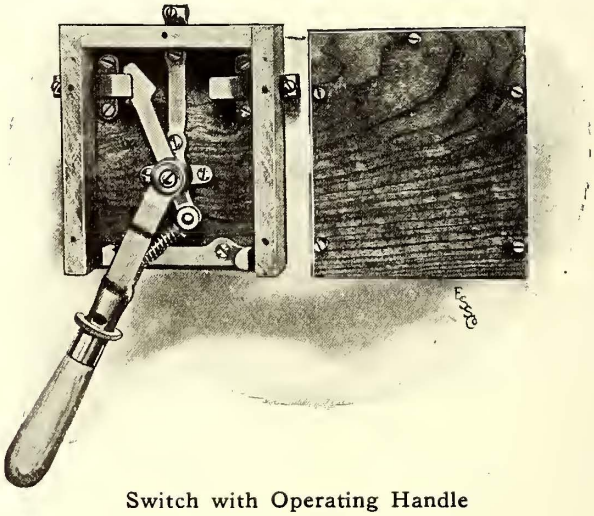
On Oct. 1 the Lancashire & Yorkshire Railway commenced electric service between Liverpool, England, and Aintree. The line will be extended to Maghull.

IMPROVED SIGNAL SWITCH

Two forms of trouble have been experienced with various types of signal switches, one because the contacts were so close to the handle that the hand of the operator was very often burned, and the second because the switch often became centered so that it was ineffective. The Electric Service Supplies Company has recently designed a signal switch to overcome both of these troubles. The switch is double-throw, especially intended for operating hand block signals, and will satisfactorily break 600 volts. A spring is so fitted between the switch blade and handle that it gives a quick break, making the switch very positive in action and impossible to be held on a dead center. The illustrations show the interior of the switch, the contact points being at the top of the switch and separated from the handle as far as possible.



Switch Operated with Key



Switch with Operating Handle

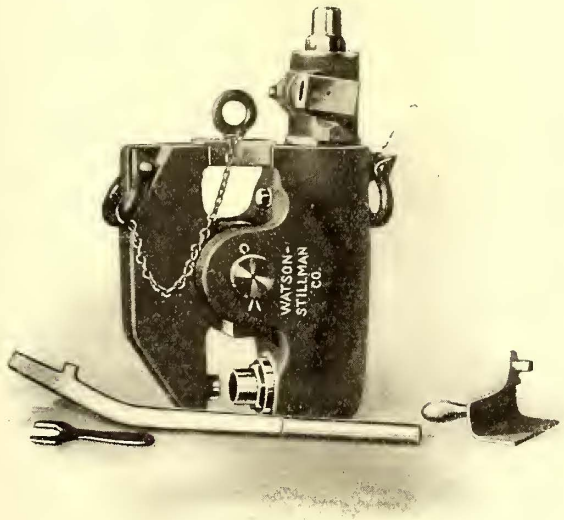
This switch is made in two types, with either a permanent handle extending below the switch, or with a special key. The special key type of switch has the particular advantage that it can only be operated by a person having the proper key.

HYDRAULIC RAIL BOND COMPRESSOR FOR T-RAILS

The accompanying illustration shows a hydraulic rail bond compressor for T-rails, which was built by the Watson-Stillman Company, New York, for the special conditions of the Interborough Rapid Transit Company of the same city. On the lines of the railway mentioned the heading of the bonds is hindered for two reasons—first, the rail is situated between guards which closely limit the working space, and, second, the train frequency demands

that the compressor be placed, operated and removed in the shortest possible time. To comply with these conditions a hydraulic pump was substituted for the slower and less powerful hydraulic screw.

In using this tool the gage at the right is first placed over the rail with the pin in the hole through which the bond end is to pass. The rail is then marked on top so that the compressor can be set without having to hunt for the hole. A sleeve surrounding the ram is forced out by a spring to limit the spread of the bond head under pressure, thereby compelling a closer contact of the bond with the rail. The block between the upper ends of the jaws is proportioned so that when it is removed the jaws will slip over the rail head, and when it is in place the bond can be headed with a very short ram action. It should be noted that when the compressor is being held by the two handles and the block is out the jaws are open to slip on or off the rail easily. The jaws open up to a width of 3½ in. and to a height of 3½ in. above the center of the ram. This compressor is made in the capacities of 25 tons and 35 tons, respectively.



Hydraulic Rail Bond Compressor

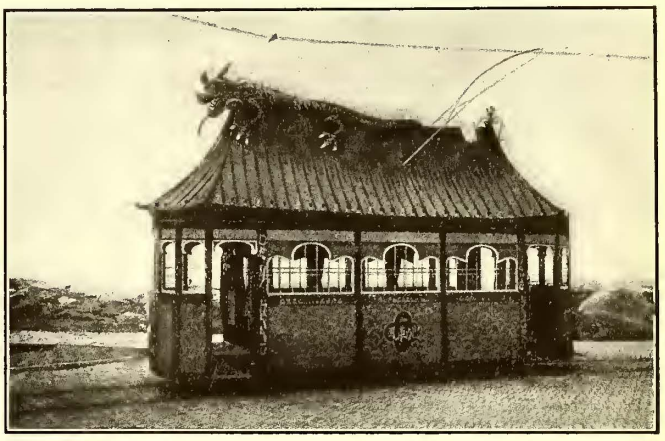
ELECTRIC RAILWAY PROGRESS AND THE GROWING INFLUENCE OF THE ASSOCIATION

Under this title the American Street & Interurban Railway Association has reprinted in pamphlet form the address of President James F. Shaw, read at the annual convention of the association in Denver, Colo., Oct. 5. This address was the subject of so much favorable comment that it was decided to print 5000 copies of the pamphlet, which will be distributed generally.

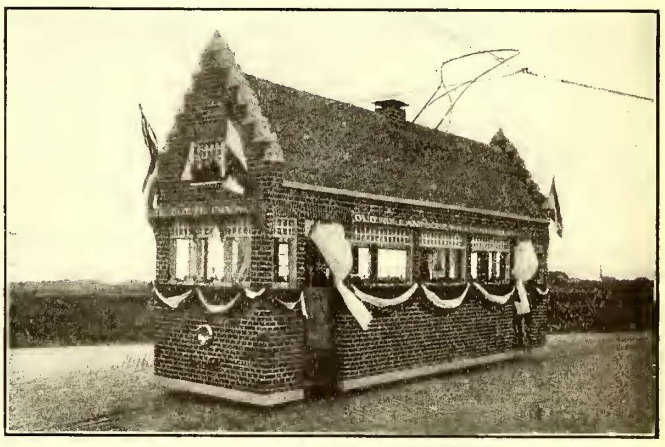
When electricity was substituted for horses in the operation of street railway lines in Berlin, the railway company claimed it was entitled to a rebate from the city for the difference in the cost of repairing the pavement between tracks, which, under its charter, it was obliged to fully maintain. The company pays contractors 11.9 cents per square meter for keeping asphalt pavement in repair and 14.25 to 16.6 cents per square meter for wood pavements, and the city allows the following rebates annually: For single-track lines in asphalt pavement, 20.5 cents per linear meter, double-track line, 37 cents. For wood pavement, 20.5 cents and 37.8 cents per linear meter.

DECORATED CARS IN HOLLAND

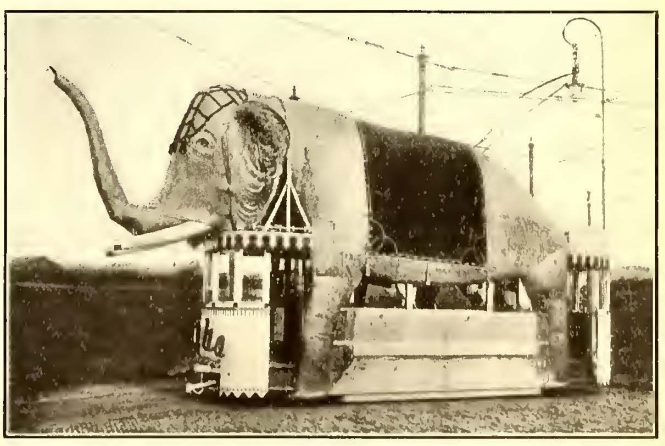
During the celebration at Hague recently in honor of Queen Wilhelmina's birthday the Haagsche Tramweg-Maatschappy designed and operated a number of very novel and decorated cars, which attracted wide attention. One represented a mounted elephant astride a car; another a steam railroad train crossing a bridge built on the deck of the car and a third an old Dutch house of brick with chimneys and tile roofing through which the bow on the current collector projected. Other subjects were a grotto, a Chinese temple surmounted by a dragon and the four seasons. Some of these cars are shown in the accompanying engravings.



Chinese Temple Float



Old Dutch Waffle Bakery Float



Elephant Float

News of Electric Railways

Hearing on Boston & Eastern Electric Railroad Plans

The Massachusetts Railroad Commission and the Boston Transit Commission, sitting as a joint board at the request of the Legislature of 1909, gave a public hearing at the State House, Boston, on Oct. 20, on the proposed Boston & Eastern Electric Railroad, a high-speed line seeking the right to build between Boston, Lynn and Salem, with extensions to Beverly and Danvers. The company's case was conducted by Moorfield Storey of Boston, general counsel, and Chief Engineer John H. Bickford, of Boston. The Boston & Maine Railroad was represented by William H. Coolidge, and the Boston & Northern Street Railway by Bentley W. Warren, general counsel. Corporation Counsel T. A. Babson of the city of Boston, represented that municipality, F. E. Snow the Boston Elevated Railway, and Woodward Hudson the New York Central lines. The joint board is to report on the advisability of the project early in January, 1910.

Counsel Storey, in opening the case, stated that the road would not cut into the earnings of the existing roads, but would tend to increase them.

Mr. Bickford submitted an exhaustive argument discussing transportation questions in the northern suburban district in particular and showing the relations of this class of travel to existing and future facilities on the steam railroads and the street railways and rapid transit lines of Boston. He stated that there was a demand for an entirely different type of railroad to handle suburban traffic than is represented by existing systems. A separation of traffic was absolutely necessary for proper handling, in such a thickly populated territory. The steam railroads would like to be rid of their suburban traffic, according to President Tuttle of the Boston & Maine and President Mellen of the New York, New Haven & Hartford roads. Joint operation and interchange of steam and electric equipment were impracticable. Neither were the permanent way clearances of the present elevated and subway structures sufficient to accommodate standard multiple-unit equipment of the modern type for suburban service, with cars about 10 ft. wide and 60 ft. long. Mr. Bickford stated that the company planned to use steel cars in trains of from two to six cars, each according to the traffic, with multiple-unit control, express and local service. The frequency of trains would vary from four to eight per hour and an all-night service would be provided. Fares had been established on a basis of 1.25 cents per mile, with a 5-cent minimum. Nineteen stations had been located along the 22 miles of roadway. Express trains making stops at Lynn and Salem would run from Boston to Beverly in 23 minutes; local trains, with eight stops, would make the trip in 30 minutes. Danvers would receive a similar service. The schedule had been prepared on the zone principle and no train would make more than eight stops in a single run. The Post Office Square station had been designed for a traffic of 15,000 passengers per hour without congestion. A footway from this terminal would be provided to connect with the Milk Street station of the Washington Street tunnel. Complete detailed estimates of the cost of construction and operation (about $11,000,000) had been made and verified by William Barclay Parsons of New York and J. R. Worcester of Boston. The average speed of express trains would be about 45 m.p.h. and of locals, 30 m.p.h. The total population served was estimated at 230,000, exclusive of Boston, and per capita earnings of $7 were figured. The density of population in this territory was 3300 per square mile and the average increase in population had been 2.31 per cent per year for the past five years. The territory was growing 88 per cent faster than Boston and 63 per cent faster than the State as a whole.

Mr. Bickford then discussed the spheres of through express service on steam railroads, suburban service, street car and rapid transit facilities, pointing out the limitations of each class. He stated that the street railways had attempted with little financial success to carry the neglected traffic of the steam roads in addition to the very large and legitimate short-haul traffic which they had created.

The possible electrification of the steam railroads in the Boston district was next considered. Mr. Bickford emphasized the slowness of the railroads in electrifying their suburban service and pointed out that the substitution of electric for steam locomotives would not meet the situation. In such a case the roads would be burdened with a larger fixed charge without obtaining the requisite increase in traffic to counterbalance it. The smoke nuisance would be eliminated, but the public would not gain the flexible and additional facilities demanded. If electric locomotives were adopted for the through trains around Boston and multiple-unit car equipments chosen for the suburban travel it would call for a duplication of the main trackage for a considerable distance from Boston on each important division, resulting in a very large additional fixed charge, which in part only would be offset by an increase in suburban traffic. The public would gain a much improved service, but could look for no voluntary reduction in fares. A rotating schedule of fast and frequent train units could not be maintained on the present two-track lines, and not except at a sacrifice of the movement of freight traffic during the same hours in most cases, even if the main trackage was doubled. The suburban passenger who had included in his fare to-day a terminal charge of four or five cents in each direction was paying a very large proportion of the expense of maintaining terminals the size and cost of which were unnecessary for his purpose and unsuited to his needs. For an equal volume of subway traffic less than half this amount would support the best-designed and equipped subsurface electric railroad terminal in Boston, including tunnel or subway approaches of the requisite length to reach points where conditions would admit of open construction.

Discussing the Boston system of elevated, subway and surface lines, Mr. Bickford said that there was a uniform fare of five cents on the rapid transit lines with liberal transfer to and from surface lines, which meant that only a part of this fare of five cents was applicable to expense and profit, if any, on the strictly rapid transit lines. On a dual system like this, where the combined average speed of the surface and rapid transit lines did not exceed 10 to 11 m.p.h., the average fare per passenger mile should not fall below 1.5 cents. The rapid transit lines, however, did not earn this rate per passenger mile, as they had not the power to originate short-haul riders in the required proportion. The ratio of gross earnings to capitalization was steadily falling. Being in large part a terminal for the surface lines they constituted to a great degree a fixed charge upon the net earnings of the latter; that is, the operating expenses and rentals paid partook of the nature of a terminal charge, similar to that carried by the steam railroads at their large urban terminals. Assuming that 1.5 cents was the minimum rate per passenger mile, the average haul for five cents on the combined system should not exceed 3.33 miles. If the original purpose of these lines is departed from and extensions made that would cause the average haul to exceed the limits given, it was questionable whether the present rate of dividends could be maintained, and a continued extension must decrease them materially. The public should become acquainted with these facts and give them due consideration when it clamored for unreasonable extensions at the prevailing rate of fare. Mr. Bickford said that if the rapid transit lines were extended to new areas the congestion would become serious, forcing the riders from the immediate suburbs to stand. Improvements must provide for the future and extensions should not be made unless the service in its entirety would benefit. The establishment of a new transfer station at the end of an extended rapid transit line might relieve congestion temporarily at the original station, but the growth of traffic would soon reproduce the undesirable conditions at the end of the line.

Mr. Bickford then discussed the proposed route of the Boston & Eastern Railroad with reference to the East Boston district. Regarding the suggestion that the Boston & Eastern would interfere with the profits of the East Boston tunnel, he stated that if the present East Boston tunnel should be extended to form a through rapid transit route to Bellingham Square, Chelsea, there would be no danger from competition. The extension would be somewhat indirect, but the time of transit would be sufficiently short to be acceptable. The Boston & Eastern right of way is suited to four-track construction when the traffic demands it. The plan is to build a second tunnel under the harbor at Boston when conditions require. The safe, practical capacity of each track in the tunnel at a speed of 30 m.p.h. is 40 trains per hour. Three minutes will be allowed in the terminal for each train to unload and adjust itself to any slight deviation from the schedule. On each track 240 cars per hour can easily be run, giving a seated capacity of 15,000 passengers per hour in each direction. Loading and unloading traffic will be separated. He then discussed the service on the present Boston, Revere Beach & Lynn Railroad, and argued that the proposition to electrify that road and turn its trains into the Boston & Eastern tunnel was not objectionable so far as the year-around traffic is concerned, but is decidedly disadvantageous so far as the summer pleasure business affects the situation. About

one-third of this road's total traffic per year is the recreation beach service, and is carried within a three-months' period. Fifty per cent of its equipment is idle eight or nine months in the year. The added fixed charge on an equal idle electrical equipment of two or three times greater cost, including a proportionate part of the power-plant installation, would more than offset any saving from decreased operating expense.

In conclusion Mr. Bickford emphasized the inability of existing facilities to handle the suburban traffic and the value of the electric railroad as such for this class of work. He reiterated that the present companies would be benefited by the road, and that the street railways would profit from increased lateral feeding business on the short-haul principle. The question of fares would adjust itself gradually as these two types of transportation reached working agreements. The public must bear in mind that if it was to have these improved and additional facilities it must pay reasonable fares; that is, it could not expect to ride 10 miles for 10 or 12 cents on a high-speed electric road and then ride from 0.5 to 2 miles farther into the suburbs on the street railway at no additional cost. It should be willing to pay the extra fare for the time saved on the long leg of the journey. It could choose between this and riding the entire distance for 10 cents on the street railway. The public was mistaken in the idea that because the Boston Elevated Railway Company could take over many millions of dollars worth of subways in Boston and operate them in addition to its surface lines without extra fare and with little or no curtailment of its transfer privileges, the same thing would hold good in the suburbs for indiscriminate distances. The fact was that the public had pressed this matter so far in Boston that the elevated had announced its inability to assume additional obligations in this direction for at least five years. The electric railroads should not attempt to do a general freight business in Massachusetts. They could not afford to provide the necessary terminals in the metropolitan district. On account of their inability to give free transfers to the urban system, the electric railroads should not attempt to handle distinctly local urban traffic to any extent. Each type of road should be managed by those best acquainted with the class of service to which it catered, and the most permanently satisfactory developments were those based on individual initiative.

Preceding cross-examination by Counsel F. E. Snow, for the Boston Elevated Railway Company, Mr. Bickford stated that as a result of the competition of electric car service, trains on the Boston & Maine Railroad in 16 municipalities or stations within about 20 miles of Boston had been reduced in large proportions as to intervals; in some cases the number of trains per day had increased slightly, but in others from 3.9 to 100 per cent decrease had been noted within the past 15 years, while the population had in practically all cases increased. Mr. Snow cross-examined the witness on the cost of the proposed tunnel under Boston Harbor, the estimated earnings, in the territory and the success of the Aurora, Elgin & Chicago Electric Railway in entering the city over the existing elevated structure. Mr. Snow then stated that the conditions at Sullivan Square would be greatly improved soon by changes at the station, and that that terminal would be much better suited to receive traffic from outside roads than ever before.

Boston, Lowell & Lawrence Electric Railroad Hearings Continued

Hearings upon the proposed Boston, Lowell & Lawrence Electric Railroad were resumed by the Massachusetts Railroad Commission on Oct. 12 and the cross-examination of James C. Boyd, consulting engineer of Westinghouse, Church, Kerr & Company, was continued. Mr. Boyd stated that a third turbo set would be installed in the power house of the railway company as a reserve unit, two machines being sufficient to carry the load as indicated during the preceding hearing. Replying to questions by City Solicitor Kaan, of Somerville, Mr. Boyd said that the average daily number of passengers which the road expected to deliver at the Sullivan Square terminal of the Boston Elevated Railway was about 4000. About three years would be required for the road to commence operation after permission to build it had been received. It was not anticipated that this volume of traffic would make any serious difference in the conditions at Sullivan Square. Every elevated train in the country was crowded during the rush hours and carried standing passengers. The operation of 8-car trains by the Boston Elevated Railway would do much to improve conditions. Changes in the station design at Sullivan Square were contemplated which would improve the traffic conditions.

Under cross-examination by Bentley W. Warren, for the Boston & Northern Street Railway, Mr. Boyd stated that the estimated cost of the Lawrence branch of the new road was $776,900, excluding real estate, power house, substations, transmission lines, car houses, repair shops, and rolling stock. The total cost of the branch, exclusive of real estate, was estimated at $1,202,800, pro-rated. The actual cost might easily be quite different. Gross earnings should be about $1,000,000 per year, after three years of operation, for the entire railway. It was estimated that the revenue derived from travel between Lowell and Lawrence would be about $160,000 per year. The traffic between local stations alone would be a small proportion of the total. On the Lackawanna & Wyoming Valley Railroad there was an increase of approximately 50 per cent in traffic the second year and 20 per cent the third year over the second. The company expects to operate between Boston, Lowell and Lawrence for 50 per cent of the gross receipts, in the third year after the commencement of the service. The Lackawanna & Wyoming Valley Railroad operated for 51.7 per cent of its gross earnings (1907), the Boston & Worcester for 51.2 per cent (1907), the Aurora, Elgin & Chicago for 54.6 per cent in 1907, the Grand Rapids, Grand Haven & Muskegon for 53.7 per cent in 1908, the Indianapolis, Columbus & Southern Traction Company for 56.5 per cent in 1907, and the Scioto Valley for 52 per cent in the same year. Mr. Boyd said that there was no connection whatever between Westinghouse, Church, Kerr & Company and the Westinghouse Electric & Manufacturing Company, other than a possible interest of George Westinghouse in each.

A long discussion then took place between the witness and Mr. Warren in regard to the financial results on several roads quoted as examples for the comparison of passenger revenue. Mr. Boyd stated that in using any road as a basis for the number of passengers to be carried elsewhere, the point as to the making or losing of money has nothing to do with the situation. He stated that there had never been a road built by his organization which had not at least come up to the estimates of earnings. Mr. Warren contended that the Lackawanna & Wyoming Valley was not a suitable road for proving the financial prosperity of the proposed line to Lowell and Lawrence. He stated that his view was that no road could be operated for 50 per cent except for a short time when new, and pay interest on its bonds and dividends, at the outside.

Continuing under cross-examination, Mr. Boyd stated that a 600-ft. viaduct would be required to connect the road with the elevated station at Sullivan Square. Exclusive of general expenses, the cost of this would be about $38,360. Counsel W. H. Coolidge for the Boston & Maine Railroad then undertook the cross-examination. Mr. Boyd said that Vice-President C. F. Conn of the Lackawanna & Wyoming Valley Railroad had stated that road had no so-called rush hours, as it did not do any suburban business of consequence, but that travel between 4 and 7 p. m. was somewhat heavier than during the forenoon. A large amount of created business was anticipated by the projectors of the Boston, Lowell & Lawrence line. Mr. Coolidge then asked the witness if the Boston & Maine Railroad should be electrified between Boston and Lowell, as well as between Lawrence, Salem and Boston, what would be the need of a new electric railroad in the territory. Mr. Boyd stated that even with two new tracks it was doubtful if the Boston & Maine could handle trains into the present terminals with the frequency which the Boston, Lowell & Lawrence planned. The North Station was not fitted at all to handle this class of business. The cost of electrifying the Boston & Maine Railroad to Lowell and Lawrence would be enormously greater than the cost of the Boston, Lowell & Lawrence line.

Answering inquiries of Mr. Hight, counsel for the Lexington & Boston Street Railway Company, Mr. Boyd stated that it was his belief that the short-line haul business of the street railway would be increased sufficiently by the new road to offset any diminution in through patronage which it might sustain. Mr. Hight stated that 12½ per cent of the passenger receipts of the Lexington & Boston consisted of fairly constant through travel, as indicated by the sale of ticket books, and the witness admitted that this business would probably be taken by the new road. Mr. Boyd said that in his opinion the operation of through street railway facilities for distances of 25 miles and upward on running times of two hours and over was an out-of-date transportation method. He did not consider a subway through Somerville a commerical proposition. The estimated cost of operation per car mile for the Boston, Lowell & Lawrence was 15.3 cents. The subdivided estimate of operating cost was: Maintenance of way and structures, $46,900; maintenance of equipment, $120,000; operation of power plant, $84,000; conducting transportation, $234,000; miscellaneous and general expenses, $50,000; total, $534,900. These figures were obtained by taking an estimate per mile

of track for maintenance of way, and figuring the balance on car-mile cost, with a service of 3,500,000 car-miles. Mr. Boyd stated that in his opinion the shortest practicable headway to-day on the Boston Elevated rapid transit lines was 1.5 minutes.

In re-direct examination the witness stated that the project would be a financial success, even if the operating ratio rose above 50 per cent. The possibilities of operating economy arise from the absence of track maintenance in paved streets, the absence of grade crossings, absence of heavy peaks on the traffic from hour to hour and throughout the day, and the moderately steady load anticipated upon the power house. The use of turbo units would tend toward further economies, and, in addition, the company would have the benefit of high speed and resulting low platform labor. All consideration of the freight traffic possibilities had been dropped from the line. The clearances and structural designs were not arranged for such service. It was out of the question for the road to consider competition with the Boston & Maine in the freight business. Mr. Boyd concluded with a short discussion of the possibilities of created traffic in the territory, and cited as an extreme instance of what may be done by newly established high-speed electric facilities the growth of traffic 25-fold on the Detroit, Ypsilanti & Ann Arbor Electric Railroad, which operates out of Detroit to Ypsilanti and Ann Arbor and parallels the Michigan Central Railroad.

Transit Affairs in New York

It is very unlikely that the bids for the proposed new subways in New York will be asked before Jan. 1, 1910. The Board of Estimate in July, 1909, authorized the Public Service Commission to advertise for bids according to the plan permitted by the amended statutes of New York, and the engineers of the commission have completed specifications for the Broadway and Lexington Avenue road and the Canal Street line in Manhattan, for the two elevated extensions to the Broadway-Lexington Avenue route in the Bronx, and for the Broadway-Lafayette Avenue route and the extensions to the Fourth Avenue subway in Brooklyn, but the work of preparing the several forms of contracts has progressed slowly on account of the large amount of detail which has to be covered. Bids are to be asked for construction, equipment and operation by private capital; for construction and equipment and operation alone, by private capital; for municipal construction and private operation, and for construction by private capital with the title invested in the city and operation by private capital. All of the forms of contracts must be submitted to the Corporation Counsel of New York for approval, and it is expected that it will take the Corporation Counsel at least three weeks to consider the documents. Before the contracts are let they must be advertised for three weeks, at the end of which a public hearing on the forms of contracts must be held. After the contracts have been awarded by the Public Service Commission the Board of Estimate must give its approval before work under them can be begun.

The decision of the Court of Appeals on the question of the debt limit of New York City was handed down at Albany on Oct. 21, and, according to the decision, the opinion of General Benjamin F. Tracy, who acted as referee, that the city had a borrowing capacity on June 30, 1908, of $106,000,000, is lowered to $52,000,000. As the city has since earned against that amount $2,553,933.92, the debt limit on June 30, 1908, was in round numbers $54,500,000. After the date in question, however, the assessment rolls for 1908 went into effect. These showed an increase in the real estate valuations of the city of $481,915,187, adding to the borrowing capacity the sum of about $48,000,000. Of that amount approximately $10,000,000 has been expended, leaving the debt limit at present about $92,000,000. In the summer of 1908 Controller Metz of New York contended that the borrowing capacity of Greater New York had been reduced to $1,500,000, and Jefferson M. Levy, a taxpayer, secured an injunction restraining the Board of Estimate from approving the contracts for the construction of the Fourth Avenue subway in Brooklyn. Under the decision of the Court of Appeals the city has ample money to construct the Fourth Avenue and the Broadway-Lafayette Avenue subways, and to institute many other improvements.

Four proposed amendments to the constitution of the State of New York are to be voted on at the general election on Nov. 2. The proposed amendments will be numbered 1, 2, 3 and 4 on the ballot, but the nature of each amendment will be set forth only in a brief paragraph opposite blank squares, in which the voter is expected to register his approval or disapproval. The fourth amendment, known as the "debt limit amendment," is designed chiefly to extend the borrowing power of the City of New York by permitting the city, under control to be prescribed by the Legislature, to exclude from the computation of the debt limit bonds issued exclusively for rapid transit and dock improvements so long as such bonds are self-sustaining and self-extinguishing.

By a decision of the Court of Appeals it has been determined that when the City of New York undertook by suit to declare that the franchise for the Steinway, or Belmont tunnel, as it is now called, had lapsed, and to take possession of the franchise it was interfering in a matter in which it had no concern. The suit it instituted was carried to the Court of Appeals, and that court now holds that the franchise under which the tunnel was built was a gift, under certain conditions, of the people of the State of New York. Under this decision the matter is taken back to the conditions as they existed prior to the beginning of the city's suit. The trustees who have been holding the property since the decision of the Appellate Division must retire, and the directors of the Interborough Rapid Transit Company can take possession again. Another suit may be begun to establish the legal status of the present holders of the franchise, but if it is, it must be by the State. Chief Justice Cullen, who wrote the opinion, in commenting on the situation, says that the statement of facts before the court was inadequate to enable it to render any judgment on the rights of the defendants and present legal status of the holders of the franchise.

The Court of Appeals of New York has rendered a decision in the case of the Jamaica Bay Water Supply Company against the State Board of Commissioners which is expected materially to assist in fixing franchise values in New York State. In the Jamaica Bay case it was laid down that from the gross earnings of the company the operating expenses and 6 per cent interest on the capital must be deducted. The franchise tax will then be assessed on the capitalization of what remains of the earnings and the value of any real estate owned by the corporation. This may be taken as a basis for a compromise in cases now pending so as to avoid further litigation. The only companies in New York City which have so far paid their franchise taxes are the Manhattan Railroad and the New York Edison Company, both of which have paid the city, subject to the final decision of the claims against them by the courts.

Cleveland Traction Situation

On Oct. 19, after the matter had been brought to his attention, Judge Tayler announced that the acceptance of the new ordinance by the Municipal Traction Company, the Forest City Railway, the Low Fare Railway and the Central Traction Company, all organized for different purposes during the movement for 3-cent fares, would be necessary and that their decision must be made known before the work of valuation proceeded. He said that the slightest possibility of the settlement being held up by the refusal of any one of these companies to accept the ordinance should be removed so that the work he is about to undertake shall not be rendered valueless. Mayor Johnson said that he would do all he could to secure the consent of the companies to the acceptance of the ordinance in advance. He recommended that the Cleveland Railway write the companies, asking for their acceptance. Horace Andrews, president of the Cleveland Railway, has said previously that he did not desire to write the companies, as such action might jeopardize the company's advantage in other matters by recognizing the corporate existence of the low-fare companies.

During the taking of testimony on Oct. 19 Mayor Johnson said he would accept the Goff-Johnson valuation of cars if Mr. Andrews would waive overhead charge claims. Judge Tayler asked the Mayor if he would accept the schedule of car values if nothing is added to the item of overhead charges. The Mayor replied that if Mr. Andrews accepted the schedule it would settle the matter. Judge Tayler characterized the proposition as dickering, and the Mayor then said he would offer no more trades. Testimony was taken on the car schedule in the afternoon, A. B. DuPont, Warren Bicknell, receiver of the Cleveland Railway; W. T. Cook, superintendent of the Cleveland Railway, and others being questioned. Mayor Johnson contends that at least $500,000 should be deducted from the total amount of the schedule of $2,600,000. Special attention has been given to depreciation in the value of motors in an effort to reduce the value of the cars.

The directors of the Cleveland Railway voted on Oct. 20 to accept the ordinance as formulated by City Solicitor

Baker, the clauses entrusted to Judge Tayler for settlement to be filled in later.

It has been agreed to count the passengers riding in and out of East Cleveland, so that Judge Tayler can use the information in considering the East Cleveland franchise and rate.

On Oct. 20 the directors of the low-fare companies agreed to submit their differences with the Cleveland Railway to Judge Tayler for adjustment. These differences include the legal status of certain claims that the Forest City Railway is making for its original stockholders, who are now stockholders of the Cleveland Railway, claims of the Municipal Traction Company on its guaranteed stock and some other matters which have not yet been decided by the Federal Court. Subsequently the judge said that the points which the low-fare companies wish him to consider should be submitted to him in writing in detail.

In the second letter to Judge Tayler from the low-fare companies the following statements appear:

"By reason of the use of unhappy and inadequate language in our letter to you of yesterday, it now appears that the purpose and meaning of that letter are not clearly expressed. We, therefore, beg leave to state that by it we intended to agree to accept the ordinance now pending in the Council which is to be passed when amended by the insertion of your findings upon the four questions submitted to you as arbitrator. We further intended to submit on our behalf the determination of the extent to which the claims against the Municipal Traction Company referred to are morally binding and of such character that provision should be made for meeting them, and also the method of making such provision.

"We have not at any time considered requesting you to decide the other questions referred to in our letter, our purpose and wish being to waive them all by accepting the ordinance and making possible a complete settlement of the street railroad question without any arbitration of or judicial determination of those questions. The recital of them was for the purpose of showing that in our view it might well be thought that from the various transactions which gave rise to those contentions, the particular moral obligations of the Municipal Traction Company should be treated as a public obligation, and so provided for. This is the only question we desire to add to those already submitted to your determination by the Council and the Cleveland Railway."

Judge Tayler stated that he would accept the proposals in this letter and pass upon the moral obligations after hearing statements and arguments from both sides. The second letter omitted the requests made in the first and stated that the franchise will be accepted.

The examination of witnesses on the car schedule proceeded on Oct. 22. The principal points were whether it is more economical to use large cars than small ones, the wearing effect on the tracks and equipment and the power required. Most of the testimony was in favor of the large cars with cross seats.

Offer from Edison Company to Supply Power for New Subways in New York

The New York Edison Company, through J. W. Lieb, Jr., third vice-president, on Oct. 20 addressed a letter to the Public Service Commission of the First District of New York, in which an offer is made to submit bids for supplying the current necessary to light and operate the new subways in New York, and in which the suggestion is made that the specifications for the new subways be so drawn as to permit those who equip the new lines, whether the city itself or a private concern, to obtain current by purchase instead of by the erection and maintenance of power plants. The letter from the New York Edison Company follows:

"We understand that the Public Service Commission for the First District has under consideration plans and specifications for the new Broadway-Lexington Avenue subway and other subways and connecting lines to be constructed or already constructed, but for which no arrangements for operation have yet been made.

"The New York Edison Company respectfully requests an opportunity at the proper time to present bids for the supply of electric current for the lighting of the subways and tunnels and also for the supply of electric power necessary for the operation of the cars and trains. We beg leave, therefore, to offer the suggestion that where specifications provide for the construction of a power plant they be so drawn that they will also permit the contractor, who may assume the operation of the subways, to propose an alternative arrangement under which he may obtain the supply of power from a properly equipped electricity supply company.

"Should it appear to be to the advantage of the city and the operators of the subways or tunnels to purchase power for lighting and traction in preference to making the large investment necessary for the construction and operation of a special generating plant exclusively for that purpose, the contractor should have the option of providing for the necessary current by contract with a company in the business of supplying electricity for lighting and power.

"The generating plants of the Edison Company are of large capacity, provided with adequate reserve in every part and equipped with the latest and most improved types of apparatus for the economical generation of electrical energy. It is prepared to supply any lighting or power service, existing or prospective, for street railways, subways or other means of transportation, however extensive the service may be.

"With the already large current output from the existing plants, the opportunity for taking advantage of the diversity factor in the demands for the various industries to which power is now being supplied, the considerable margin of capacity always available, and the possibility of providing a reserve held in common instead of its unnecessary multiplication should place this company in a position to provide adequate power supply under most advantageous terms, reducing to a large extent the investment which would otherwise have to be made for a special generating plant. We, therefore, believe that it will be found alike to the advantage of the City of New York and the contractors for the construction and operation of the subways and tunnels to contract for their power service rather than to make the large investment that may be necessary to provide a special power plant."

New Member Companies and Associate Members of the A. S. & I. R. A.

Secretary Swenson, of the American Street & Interurban Railway Association, reports that between Oct. 1 and Oct. 26, 1909, nine new member companies were enrolled and that for the same period 53 new applications for associate membership were received. These additions make the total of active railway member companies of the association 327 and the total of associate members 873. Lists of the new member companies and the associate members, arranged alphabetically by name in the case of the companies and alphabetically by cities, and then by name in the case of associate members, follow:

MEMBER COMPANIES

Albia Interurban Railway Company, Albia, Ia.
Asheville & East Tennessee Railroad, Asheville, N. C.
Coast Counties Light & Power Company, Santa Cruz, Cal.
Denver & South Platte Railway Company, Denver, Col.
Indianapolis, Crawfordsville & Western Traction Company, Indianapolis, Ind.
Lincoln Traction Company, Lincoln, Neb.
New York & North Shore Traction Company, Roslyn, L. I., N. Y.
Portsmouth Street Railroad & Light Company, Portsmouth, Ohio.
Tama & Toledo Electric Railway & Light Company, Toledo, Ia.

ASSOCIATE MEMBERS

Altoona, Pa.—B. F. Wood.
Amagasaki, Settsu, Japan.—S. Misaki.
Boston, Mass.—A. G. E. Anderson, Edgar Warren Bright, Frank R. Coates, Nugent Fallon, C. E. Learned, H. E. Reynolds, James W. Rollins, Jr., Maurice P. Spillane, H. L. Wilson.
Buffalo, N. Y.—J. C. Calisch.
Cambridge, Mass.—S. E. Whiting.
Camden, N. J.—F. G. Grimshaw.
Charleston, W. Va.—J. C. Rockwell.
Chicago, Ill.—D. I. Cooke, George S. Davis, H. A. Johnson, H. M. Sloan.
Cleveland, Ohio.—W. B. Brady, Charles H. Clark.
Denver, Col.—J. H. Hardcastle.
Evansville, Ind.—L. C. Shipherd.
Fort Collins, Cal.—Frederic A. DeLay.
Fort Wayne, Ind.—C. D. Emmons.
Green Bay, Wis.—R. M. Howard.
Johnstown, Pa.—J. L. Replogle.
Kobe, Japan.—Y. Okitsu.
Los Angeles, Cal.—A. W. Arlin, W. S. Heaton, W. C. White.
Marinette, Wis.—W. R. Putnam.
Michigan City, Ind.—L. M. Sheldon.
New York, N. Y.—David Murdock, A. J. Vasselman.
Norfolk, Va.—T. B. Ogle.

Philadelphia, Pa.—Walter S. Adams, W. P. Barba, J. Clifford Rosengarten.
Pittsburgh, Pa.—Harry H. Farren.
Pittsfield, Mass.—Frank J. Dolan.
St. Petersburg, Russia.—Alexandre Kogan, A. Voronoff.
San Francisco, Cal.—C. M. Bliven.
Schenectady, N. Y.—A. H. Armstrong, H. N. Ransom.
South Framingham, Mass.—M. V. Ayres.
Springfield, Mass.—Henry C. Page.
Syracuse, N. Y.—W. K. Archbold, W. B. Rockwell.
Texarkana, Ark.—R. G. Stewart.
Toronto, Can.—H. C. Small.
Webb City, Mo.—E. J. Pratt.

New Texas Road Opened.—The Marshall (Tex.) Traction Company has placed 4 miles of electric street railway in operation in Marshall.

New Idaho Line Opened.—The Boise Valley Railway, Boise, Idaho, has placed its line between Boise and Nampa in regular operation.

Loss at Havana from Storm.—The reports published in the daily newspapers of the damage done at Havana, Cuba, by the cyclone on Oct. 11, 1909, were greatly exaggerated. The total loss to the Havana Electric Railway from the storm amounts to about $5,000.

List of Expiring Grants in Detroit.—The Corporation Counsel of Detroit has prepared a list of streets covering 66 miles of line of the Detroit (Mich.) United Railway on which, in his opinion, the rights of the company to operate will expire on Nov. 14. A resolution providing for indeterminate rights on these streets has been prepared for introduction into the Council pending the settlement of the extension by the Council of the franchise rights of the company.

Meeting of Technical Publicity Association.—The first monthly meeting of the Technical Publicity Association for 1909-10 was held on the evening of Oct. 14 at the headquarters of the association in New York. An informal dinner preceded the program. The only extended address was that of George French, editor of "Advertising and Selling." Howard M. Post discussed plans for a systematic, analytical study of tracing results from trade-paper advertising. Mr. Post was made chairman of a committee to outline this study work for the association. Mr. French discussed the psychological and artistic aspect of advertising. The association will meet again on Nov. 11.

Request for Valuation of Omaha Property Denied.—The Nebraska State Railway Commission has replied to the request of the City Council of Omaha for a physical valuation of the Omaha & Council Bluffs Street Railway. The secretary of the commission informs the Council that the State law demands the physical valuation of railroads first, and that until such valuation is completed the commission would not be permitted to expend any of the State appropriation for the valuation of any other than a steam road; but that if the city of Omaha desires to intervene in the complaint of Howell and others against the street railway, a complaint dealing with capitalization and rates, the railroad commission would be pleased to hear what its experts have to say, and might use its own expert accountant in addition to the evidence placed before the commission by the city. The cost of valuing the property of the Omaha & Council Bluffs Street Railway by an expert chosen from outside sources would not, in the judgment of the commission, exceed $2,500.

Resolution to Consider Philadelphia Agreement.—Both branches of the Philadelphia Councils passed the following resolution on Oct. 21 to appoint a committee to consult with the City Solicitor regarding the steps that can be taken to annul or modify the agreement between the city and the Philadelphia Rapid Transit Company: "*Whereas*, Questions have arisen as to the real intention of the parties to the contract between the city and the Philadelphia Rapid Transit Company, known as the Retail Merchants' plan; and whereas, certain political interests, in order to further their own personal ends, have so exaggerated and exploited these differences as to render any fair businesslike adjustment of them difficult; therefore be it resolved, that a joint committee (five members to be appointed by the president of each chamber) be constituted to consult with the City Solicitor and report as soon as possible what steps can be taken to annul the said contract, or to so amend it as to take the transportation question entirely out of politics, or to suggest such modifications as may be more satisfactory to public demand." Resolutions offered before the Council in behalf of the committee of 15 demanding the restoration of the six-for-a-quarter tickets have been referred to the committee which is to consult with the City Solicitor.

Financial and Corporate

New York Stock and Money Market

October 26, 1909.

The stock market during the last week has been easily influenced by the condition of the money market and the volume of trading has been considerably reduced. Although the quoted rates for money to-day were no higher than yesterday, the tendency of the market almost from the opening was to sag, and the losses for the day were practically equal to the gains of yesterday. Uncertainty is felt by traders as to the future and bankers are much more conservative. Rates to-day were: Call, 3½ to 4¼ per cent; 90 days, 5 per cent.

Other Markets

After indicating some tendency toward recovery earlier in the week Chicago Subway declined to-day to a new low level, selling as low as 6 and closing at 6¼. Other issues were neglected.

In the Boston market, Massachusetts Electric and Boston Suburban have been traded in to some extent during the week. Prices for the former issues remained about stationary while those of the latter have shown a tendency to advance.

In Philadelphia there has been quite a marked revival of activity in Rapid Transit trading. There has been considerable pressure to sell and prices have declined 2 points within the week. Union Traction has also been weaker.

As usual, there has been no trading in the Baltimore market in traction issues, except in the bonds of the United Railways Company.

The following traction securities were sold in New York last week at the regular auction sales: 1200 shares Brooklyn City Railroad Company, 194⅛ to 195⅛; $10,000 Metropolitan Street Railway Company collateral trust 5s, 78⅜.

Quotations of various traction securities as compared with last week follow:

	Oct. 19.	Oct. 26.
American Railways Company	a46	a45½
Aurora, Elgin & Chicago Railroad (common)	a45	a45
Aurora, Elgin & Chicago Railroad (preferred)	a95	a95
Boston Elevated Railway	130½	130
Boston & Suburban Electric Companies	15	*18¼
Boston & Suburban Electric Companies (preferred)	73¼	*75
Boston & Worcester Electric Companies (common)	a11½	a12
Boston & Worcester Electric Companies (preferred)	a54	a54
Brooklyn Rapid Transit Company	78¾	74½
Brooklyn Rapid Transit Company, 1st pref., conv. 4s	86⅝	85
Capital Traction Company, Washington	a140	*139
Chicago City Railway	a190	a180
Chicago & Oak Park Elevated Railroad (common)	*2	*2
Chicago & Oak Park Elevated Railroad (preferred)	*10	*10
Chicago Railways, ptcptg, ctf. 1	a110	a105
Chicago Railways, ptcptg, ctf. 2	a37	a36
Chicago Railways, ptcptg, ctf. 3	a25	a24
Chicago Railways, ptcptg, ctf. 4s	a10	a10
Cleveland Railways	a84	*84
Consolidated Traction of New Jersey	a77	a76½
Consolidated Traction of N. J., 5 per cent bonds	a106½	a106
Detroit United Railway	a68	a67
General Electric Company	164	161
Georgia Railway & Electric Company (Common)	a99½	a99½
Georgia Railway & Electric Company (preferred)	a88½	a88
Interborough-Metropolitan Company (common)	17½	18
Interborough-Metropolitan Company (preferred)	49⅞	49¾
Interborough-Metropolitan Company (4½s)	83⅜	82½
Kansas City Railway & Light Company (common)	a40	a40
Kansas City Railway & Light Company (preferred)	80¾	a82
Manhattan Railway	a142	140½
Massachusetts Electric Companies (common)	17¾	16¾
Massachusetts Electric Companies (preferred)	81	80
Metropolitan, West Side, Chicago, (common)	a18	a17
Metropolitan, West Side, Chicago, (preferred)	a53	a51
Metropolitan Street Railway	a24	a24
Milwaukee Electric Railway & Light (preferred)	*110	*110
North American Company	a80	77½
Northwestern Elevated Railroad (common)	a20	a20
Northwestern Elevated Railroad (preferred)	a69	a70
Philadelphia Company, Pittsburg (common)	a48½	a48½
Philadelphia Company, Pittsburg (preferred)	a44½	a45
Philadelphia Rapid Transit Company	a28	a25½
Philadelphia Traction Company	a90	a90
Public Service Corporation, 5 per cent col. notes	a100⅞	a100⅞
Public Service Corporation, ctfs.	a95	a97
Seattle Electric Company (common)	a114¾	114⅛
Seattle Electric Company (preferred)	a104	104
South Side Elevated Railroad (Chicago)	a52	a52
Toledo Railways & Light Company	a10	8
Third Avenue Railroad, New York	21	19⅜
Twin City Rapid Transit, Minneapolis (common)	109	107½
Union Traction Company, Philadelphia	a53¼	a52
United Rys. & Electric Company, Baltimore	a14	a13¼
United Rys. Inv. Co. (common)	43	40
United Rys. Inv. Co. (preferred)	72½	68¼
Washington Ry. & Electric Company (common)	a47	*47
Washington Ry. & Elec. Company (preferred)	a93⅜	*94
West End Street Railway, Boston, (common)	94	93
West End Street Railway, Boston (preferred)	103	103½
Westinghouse Electric & Manufacturing Company	86	*86
Westinghouse Elec. & Mfg. Company (1st pref.)	140	a140

aAsked. *Last Sale.

Quarterly Reports of New York City Companies

The New York Public Service Commission, First District, has issued a statement compiled by A. F. Weber, chief statistician, giving a summary of the reports for the quarter ended June 30, 1909, of the railroads and street railways operating in New York City. The principal figures in relation to the results of operation for a number of the properties and the totals for all the companies reporting are as follows:

Name of Company	Gross earnings from operation	Operating expenses	Net earnings from operation
Total—Interborough Rapid Transit Company	$6,816,849.76	$2,656,315.49	$4,160,534.27
Subway	3,180,639.96	1,129,292.20	2,051,347.76
Elevated	3,636,209.80	1,527,023.29	2,109,186.51
Total — Brooklyn Rapid Transit System	$5,258,125.08	$3,480,663.09	$1,777,461.99
Total Elevated Division	$2,026,708.02	$1,154,850.16	$871,857.86
Brooklyn Heights Railroad	1,829,936.53	1,292,263.61	537,672.92
Brooklyn, Queens County and Suburban Railroad	328,261.44	241,500.57	86,760.87
Coney Island and Gravesend Railway	12,421.39	10,937.27	1,484.12
Nassau Electric Railroad	1,060,797.70	781,111.48	279,686.22
Dry Dock, East Broadway & Battery Railroad	139,968.80	112,277.10	27,691.70
Forty-second Street, Manhattanville & St. Nicholas Ave. Railroad	366,001.20	198,770.63	137,230.57
Third Avenue Railroad, Kingsbridge Railway	752,947.41	449,618.16	303,329.25
Metropolitan Street Railway	3,246,493.91	1,930,571.40	1,315,922.51
Central Park, North & East River Railroad	149,623.74	110,903.75	38,719.99
Second Ave. Railroad	218,496.23	211,430.20	7,066.03
Twenty-eighth & Twenty-ninth Sts. Crosstown Railroad	6,046.65	7,913.97	*1,867.32
New York City Interborough Railway	43,991.73	35,724.29	8,267.44
Union Railway	528,499.62	350,572.77	177,926.85
Westchester Electric Railroad	97,747.15	104,102.60	*6,355.45
Coney Island & Brooklyn Railroad	409,550.76	248,912.66	160,638.10
Long Island Electric Railway	44,376.70	33,236.33	11,140.37
New York & Long Island Traction Co	88,430.50	53,425.86	35,004.64
New York & Queens County Railway Co	262,911.02	156,512.64	106,398.38
Richmond Light & Railroad Co.	84,270.86	77,699.63	6,571.23
Staten Island Midland Railroad	64,411.65	44,740.53	19,671.12
Grand Total—Street Railways reporting	$18,614,016.75	$10,320.003.43	$8,294,013.32
Grand Total — All companies reporting	$18,851,101.86	$10,494,152.57	$8,356,949.29
Hudson & Manhattan R. R. (†)	$196,049.10	$107,997.31	$88,051.79

*Deficit.
†The Hudson & Manhattan Railroad is excluded from the "total of all companies."

Annual Report of Quebec Railway, Light & Power Company

The annual report of the Quebec Railway, Light & Power Company for the year ended June 30, 1909, shows gross earnings of $724,648 and operating expenses of $444,300. The net earnings of $280,348 compare with a corresponding result of $238,461 in the preceding year. From the net earnings for the year just ended there were deducted the following amounts: Interest on bonds, $125,000; city percentage on earnings, $10,684; interest, etc., paid and accrued, $10,239; dividends on preferred stock, $44,124; dividends on common stock, $50,000; a total of $240,046. The surplus of $40,302 remaining from the operations of the year, added to the surplus on hand, made a total in that account of $462,948.

W. G. Ross, the president, states in his annual report:

"The gross earnings increased during the year, $68,815, or 10.49 per cent; the operating expenses, $26,381, or 6.31 per cent, and the net earnings $41,887, or 17.57 per cent.

"The increase in gross earnings of 10.49 per cent compares favorably with the increase of 1907-08, which was 8.59 per cent. The operating expenses during the year 1908-09 were 61.31 per cent of the gross earnings, as against 63.72 per cent the previous year, or a decrease of 2.41 per cent. The fixed charges, however, exclusive of the dividends on the common stock, have increased $38,652, or 25.53 per cent. This increase is due to the dividend upon the additional preferred stock, which was issued last year for the new power developments."

The report of Edward A. Evans, general manager, says in part:

"The total number of passengers carried upon the city division was 6,859,679, an increase of 810,476. The average fare per passenger was 4.19 cents as against 4.22 cents; the income per capita of the population increased from $3.55 to $3.65 (the income per capita in 1899 being $2.04). The operating expenses show an increase of $12,653, principally due to increased wages, etc. The car mileage was 1,394,744, an increase of 62,434 miles.

"The total number of passengers carried upon the Montmorency division was 1,442,327, an increase of 43,982; the average fare per passenger was 10.28 cents. Upon the elevator 266,814 passengers were carried, an increase of 26,904. The operating expenses have increased $1,719.52, principally due to increase of wages. The business upon this division is increasing rapidly and it will be necessary to purchase additional electrical machinery and rolling stock to effectually handle the traffic upon this division.

"The earnings from the power division have increased 15.55 per cent. The cost of generating and distribution has increased 14.19 per cent; a large proportion of this can, however, be considered an extraordinary expenditure, consisting of the re-winding of the motor generators in the substation, very considerable renewals to the pole and distribution lines, etc., all of which have been charged to operating for this year, instead of distributing the same over a number of years. The re-modeling and fire-proofing of the power house has been completed, and as a consequence, this building may now be considered as modern and fireproof.

"All the rolling stock, plant and equipment of the company have been kept in a thorough state of repair."

Coney Island & Brooklyn Railroad, Brooklyn, N. Y.—At the annual meeting of the stockholders of the Coney Island & Brooklyn Railroad on Oct. 18 the annual report of the company for the year ended June 30, 1909, was presented. The income account of the company for 1909 compares as follows with the previous year: Gross receipts for 1909, $1,479,173, as compared with $1,557,456 for 1908; operating expenses for 1909, $1,007,285, as compared with $1,246,255 for 1908; net earnings from operation for 1909, $471,888, as compared with $311,201 for 1908; receipts from other sources for 1909, $12,767, as compared with $4,605 for 1908; gross income for 1909, $484,655, as compared with $315,806 for 1908; interest and taxes for 1909, $208,921, as compared with $210,402 for 1908; balance for 1909, $275,734, as compared with $105,404 for 1908; rent of leased lines for 1909, $100,000, as compared with $100,000 for 1908; surplus for 1909, $175,733, as compared with $5,404 for 1908. The Public Service Commission has approved the sale by the company of $107,000 of 4 per cent bonds at not less than 80, the proceeds, about $85,000, to be applied to track reconstruction work in Franklin and De Kalb Avenues and Smith Street.

Grand Junction & Grand River Valley Railway, Grand Junction, Col.—On page 886 of the Electric Railway Journal of Oct. 16, 1909, mention was made of the filing by the Grand Junction & Grand River Valley Railway of a mortgage for $2,000,000 in favor of the Colorado Title & Trust Company, as trustee. Of this $2,000,000 authorized, $850,000 bonds have been sold and the proceeds will be used to cover the purchase of the property of the Grand Junction Electric, Gas & Manufacturing Company and the property and franchise of the Grand Junction Electric Railway, operating 3 1-5 miles of street railway in Grand Junction. The Grand Junction & Grand River Valley Railway has also provided funds for the construction of 20 miles of interurban railway between Grand Junction and Fruita and has placed contracts for the material to be used in constructing the line. A permanent location on a private right of way has been secured, and the construction of the line will be begun in November or December. The bonds are secured by a first mortgage which bears interest at 6 per cent., with sinking fund and redemption clauses.

Interstate Railways, Philadelphia, Pa.—It is stated that the delay in declaring the reorganization plan of the Interstate Railways operative is due to offers made for the purchase of the property. Some of these offers are said to be for part of the system while one is understood to be for the entire property. It is announced that interest will be paid on Nov. 1, on the bonds on which interest was defaulted on Aug. 1, 1909.

Otsego & Herkimer Railroad, Oneonta, N. Y.—The Otsego & Herkimer Railroad, successor to the Oneonta & Mohawk Valley Railroad, which was previously the Oneonta, Cooperstown & Richfield Springs Railway, has applied to the Public Service Commission of the Second District of New York, for authority to issue $1,500,000 in common capital stock, for consent to issue first, second and third mortgages and for authority to issue $500,000 first mortgage bonds, $300,000 in second mortgage bonds and $700,000 in third mortgage bonds.

Traffic and Transportation

Circular Announcing Increase in Fares of Hartford & Springfield Street Railway

The circular announcement to the traveling public, issued by the Hartford & Springfield Street Railway, to which brief reference was made in last week's issue, is as follows:

"Beginning with Nov. 1, 1909, until further notice, the unit of fare on the Hartford & Springfield Street Railway will be six cents instead of five cents as heretofore. All fare limits and transfer privileges will remain the same.

"The decision to increase the unit of fare to six cents was authorized by the board of directors only after the most careful consideration of the subject and after every other reasonable alternative had been exhausted.

"The management and directors of the Hartford & Springfield Street Railway recognize their responsibility, not only to the stockholders of the community, but to the traveling public as well, and hence take this opportunity of giving a brief history of the company, the conditions under which it is operated at the present time and why, in their judgment, the increase of unit of fare from five to six cents at this time is justified.

"For the last two or three years every street railway company in New England has been laboring under very adverse circumstances, due to the rapidly increasing cost of operation. This increasing cost is primarily due to the continued rise in price of all commodities entering into the operation of these companies, such as higher wages to motormen and conductors, increased cost of fuel, oil and supplies generally. Furthermore, most of the street railways have now been in operation so many years that the roadbed, equipment and cars are beginning to wear out, and the cost of repairs, new equipment and the amount necessary to be set aside for depreciation is growing larger and larger each year. The experience of this company with these conditions has been similar to all the rest.

"The Hartford & Springfield Street Railway system consists of some 45 miles of interurban street railway, connecting the Hartford Street Railway system with the Springfield Street Railway system on both the east and west side of the Connecticut River, with branches from Warehouse Point to Rockville, and from Thompsonville to Somers. The original main line on the east side of the Connecticut River and the Somers branch were constructed some eight years ago and the west side line and the Rockville branch more recently.

"The capital stock of the Hartford & Springfield Street Railway consists of $500,000 of common stock and $285,000 of the 6 per cent preferred stock, all paid for in cash. The combined sums represent the actual cost of the property above its bonded indebtedness. The only dividend paid on the common stock was one of 2 per cent paid about six years ago, and no dividends have been earned or paid on the preferred stock for the last two years.

"The most direct way to get at the operating conditions of this company is by examining its annual report made to the State Board of Railroad Commissioners, which by law is required to be sworn to by the officers of the company, and comparing this report with the reports furnished by the other street railways in Connecticut to the same board. All of these reports are furnished on similar blanks and show not only the receipts but all the expenditures of each street railway in great detail.

"In examining this report, the first question presented is the question of the capitalization of the company. From the report of 1908 it appears that the average amount of bonds and stocks of all the street railways in Connecticut amounts to $99,156 per mile of track operated. The capitalization of the Hartford & Springfield Street Railway, adding both stocks and bonds together in the same way, is only $38,843 per mile, showing that the company is not overcapitalized.

"To show the total receipts of the Hartford & Springfield Street Railway as well as the cost of operation, in comparison with the other street railways in this State, the following table, taken from the Railroad Commissioners' report for the year ending June 30, 1908, will be of interest. The report for the year ending June 30, 1909, has not yet been published.

Name Year ending June 30, 1908.	Total receipts per mile operated	Operating expenses per mile operated
Bristol & Plainville Tramway Company.....	$6,801.06	$4,419.89
Connecticut Company.....	8,990.92	5,785.62
Danbury & Bethel Street Railway.....	8,013.44	5,801.51
Farmington Street Railway.....	4,745.38	4,152.85
Groton & Stonington Street Railway.....	5,420.26	2,703.18
The Hartford & Springfield Street Railway....	4,107.06	2,647.84
New London & East Lyme Street Railway....	4,106.38	2,937.38
Norwich & Westerly Railway.....	3,116.09	2,999.98
Providence & Danielson Street Railway.....	3,587.93	3,299.07

"Taking first the question of operating expenses, you will note the fact that the Hartford & Springfield road is operated for less cost per mile of track than any other road in the State of Connecticut, thus settling beyond question the fact that this road is not extravagantly operated. It might be here stated that in every instance the operating expenses given do not include salaries to officers, interest on bonds, taxes paid to the State, allowance for accidents and depreciation of the property, which must be added to these figures. The only salaries paid by the Hartford & Springfield Street Railway are those paid to the general manager and treasurer, which are very moderate. All the other officers of the company give their time and attention to its best interests without any remuneration whatever.

"Taking up the question of income upon reference to the above table it will be found that there are three roads in this State which have less income per mile of track operated than the Hartford & Springfield road. They are the Norwich & Westerly Street Railway, now in the hands of a receiver; the Providence & Danielson Street Railway, which has never earned the interest on its bonds and the New London & East Lyme Street Railway, which is just barely coming out even.

"On the other hand it will be noted that whereas the Hartford & Springfield company has total receipts of a trifle over $4,000 per mile of track operated, the Connecticut Company shows earnings of over $8,000 per mile, the Danbury & Bethel Street Railway also over $8,000 per mile, the Bristol & Plainville Tramway Company over $6,000 per mile, etc.

"For the year ending June 30, 1908, according to the sworn report furnished the Railroad Commissioners, the Hartford & Springfield Street Railway, after paying its operating expenses, taxes, and interest on bonds, had left a little over $1,800 applicable to dividends and surplus.

"For the year ending June 30, 1909, according to the sworn report furnished the Railroad Commissioners, the Hartford & Springfield Street Railway, after paying its operating expenses, taxes, and interest on bonds, showed a deficit of $257. If a proper amount had been charged off for depreciation the deficit would have been still greater.

"During the last year the Hartford & Springfield Street Railway collected more than three million five-cent fares and yet, after paying expenses, it showed a deficit for the entire year's business of $257. This showing not only allows no dividend on either the preferred or common stock, but it fails to enable the company to keep up the physical condition of its property. It therefore must be plain to everyone that the earnings must be considerably increased if proper and satisfactory service is to be provided for the public in future, and a fair return made on the investment.

"Those not familiar with the street railway business may be surprised to learn of the present situation of this company. We are, however, not the only company that has faced this crisis recently. In Massachusetts similar conditions are producing similar results, and already 14 of the street railroads in that State have been compelled to raise their fares from five to six cents. These roads are as follows: Boston & Worcester Street Railway; Connecticut Valley Street Railway; Portsmouth & Exeter Street Railway; Newton Street Railway; Newton & Boston Street Railway; Lexington & Boston Street Railway; Natick & Cochituate Street Railway; Middlesex & Boston Street Railway; Westboro & Hopkinton Street Railway; Blue Hill Street Railway; Brockton & Plymouth Street Railway; Concord, Maynard & Hudson Street Railway; Taunton & Pawtucket Street Railway; Western Massachusetts Street Railway.

"It is perfectly apparent that no public service corporation can furnish the public with improved and up-to-date facilities unless such company can earn enough money to cover at least the actual cost of such service.

"Due to the rapidly increased cost of living and the increase in price of all commodities in general the operating expenses of this company will unquestionably continue to increase in the future rather than decrease, and it is the opinion of the management and directors of the Hartford & Springfield Street Railway that the company cannot continue to operate and furnish satisfactory service to the public unless the fare is increased.

"The only alternative would be to endeavor to reduce the operating expenses by reducing the wages of the motormen and conductors and by allowing the property to deteriorate still further. This, the management and directors do not feel justified in doing, as it would not be fair to the company's employees, its stockholders, or to the traveling public in general.

"The above are the reasons why the management and directors have decided to make the unit of fare on the Hartford & Springfield road six cents on and after Nov. 1, believing that the public would prefer to have good serv-

ice, good cars, well kept up, and a 6-cent fare, rather than pay five cents for an unsatisfactory service."

The circular is signed by Francis R. Cooley, Thomas C. Perkins, and Chauncey Eldridge, comprising the executive committee of the board of directors.

Hearing on Heating Cars in New York

A hearing was held before the Public Service Commission of the First District of New York on Oct. 25 to determine why an order substantially in the form of the following, directing the heating of closed electric and horse cars should not be made by the commission:

"ELECTRIC CARS

"Heating Regulations

"1. All closed cars (except horse cars) in service for the transportation of passengers between Oct. 15 and April 15, in each year, shall be equipped with suitable apparatus for heating by electricity.

"2. All companies shall, during the period above named, maintain in all closed cars in service for transporting passengers, an inside temperature of not less than 45, nor more than 65 deg. above zero (Fahr.), unless the company is temporarily prevented from so doing by storm, accident or other controlling emergency for which it is not responsible and which is not due to any negligence upon its part.

"3. This order, in approved form, together with a thermometer indicating the temperature, shall be displayed conspicuously in each closed car.

"HORSE CARS

"Heating Regulations

"1. All closed horse cars in service for the transportation of passengers between Oct. 15 and April 15, in each year, shall be equipped with suitable heating apparatus.

"2. All companies shall, during the period named, maintain in all closed horse cars in service for transportating passengers, an inside temperature of not less than 45, nor more than 65 deg. above zero (Fahr.), unless the company is temporarily prevented from so doing by storm, accident or other controlling emergency for which it is not responsible and which is not due to any negligence upon its part.

"3. This order, in approved form, together with a thermometer indicating the temperature, shall be displayed conspicuously in each closed horse car, not nearer than within 6 ft. of the heating apparatus."

Representatives of railway companies to which the communication of the commission was addressed were in attendance and several of them were called upon by Commissioner John E. Eustis to state their objections to the proposed order. James L. Quackenbush for the Interborough-Metropolitan Company said that there was no real objection to complying with the proposed order of the commission so far as elevated and subway lines were concerned, but that he felt that the minimum temperature of 45 deg. was somewhat too high and ought to be reduced to at least 40 deg. He also said that the communication of the commission had only been before the Metropolitan Street Railway for a few days and that the officers of that company had not really had sufficient time to consider the proposed order in detail, but that in the course of a week they would be prepared to present their objections to the commission.

W. S. Menden, assistant general manager and chief engineer of the Brooklyn Rapid Transit Company, said that his company would be perfectly willing to comply with the spirit of the order, but that it would be almost impossible to meet all the regulations at all times, and that he considered 45 deg. too high a minimum temperature. He particularly objected to Clause 3 of the order, which stipulates that the approved form of the order together with a thermometer indicating the temperature, shall be displayed conspicuously in each car. Mr. Menden said that some years ago the Brooklyn Rapid Transit Company experimented with thermometers on cars and found them most unsatisfactory, and that in the course of a week or 10 days he would be prepared to place before the commission the results of the use of thermometers by his company. Heating in Brooklyn is regulated from the central office of the company, an employee in each barn appraising conductors by a printed sign of the amount of heat that shall be turned on in each car.

The representatives of the Coney Island & Brooklyn Railroad, the Second Avenue Railroad, the Central Park, North & East River Railroad and other companies, all stated that they had scarcely had time properly to consider the proposed order, and it was finally decided to postpone the hearing until Nov. 4.

Smoking on Platform in Los Angeles.—The City Council of Los Angeles has passed an ordinance calling upon the electric railway companies in Los Angeles to issue orders permitting smoking only on the back platform of cars.

Ordinance Passed Fixing Speed in San Francisco.—The Board of Supervisors of San Francisco has passed an ordinance restricting the speed of street cars to 15 m.p.h. within limits comprising the business and most thickly populated sections of the city.

Conductor Charged with Stealing.—The Toronto (Ont.) Railway has caused the arrest of another conductor for stealing fares from the fare boxes. The man was held for trial before the higher court when arraigned before the police magistrate.

Limited Service During Winter Between Allentown and Philadelphia.—The Lehigh Valley Transit Company, Allentown, Pa., which last summer placed in operation a limited service between Allentown and Philadelphia, has decided to continue the service during the winter. This unusual decision was reached because the patrons of the company requested the company to continue the service and because the summer season was one of the most successful of the company. Under the winter schedule for the Liberty Bell route, as the line between Allentown and Philadelphia is known, there are two round trips between the cities every day.

Increase in New York Subway and Elevated Service.—The Interborough Rapid Transit Company, New York, N. Y., on Oct. 25 put into effect a new schedule on its subway and elevated lines which increases the service 14 or 15 per cent. The company has extended the rush-hour service for another hour both morning and evening, and during those hours as many trains are run as the physical limitations of the tracks and stations permit. Side doors on side-door trains are used all day, and the operation of trains over the Third Avenue line of the elevated railroad in the morning rush hour has been expedited by the omission of the first stop at Chatham Square for South Ferry trains.

Suit by Commission to Compel Transfers.—The Public Service Commission of the First District of New York has instructed its counsel to begin a proceeding in the Supreme Court either by mandamus or injunction, to compel the Staten Island Midland Railway and the Richmond Light & Railroad Company to exchange transfers at three points in West New Brighton as claimed to be required by law and as ordered by the commission. Complaint was made to the commission early in 1909 that the companies refused to exchange transfers at several places where their lines intersect. On June 4, the commission, upon an opinion rendered by Commissioner William McCarroll, ordered the companies to exchange transfers at the three designated points.

Illinois Traction System.—The Illinois Traction System was the subject of a very interesting article in the St. Louis *Republic* for Oct. 3, 1909, entitled "St. Louis's New Gateway to the Trade of Illinois," in which the lines of the company and its plans for operating into St. Louis from East St. Louis over the new bridge across the Mississippi River were described. A map was shown of the territory served and a diagram was published of the route of the road in St. Louis from the approach to the bridge across the Mississippi River to the terminal station and train shed on Gay Street, between Twelfth Street and Thirteenth Street. Illustrations were also published of the interior of the Decatur car shops, a standard limited car, the interurban bridge over the Sangamon River and a typical passenger station. The text also contained brief biographical sketches of William B. McKinley, president of the company, and H. E. Chubbuck, general manager.

Preparing for Pay-as-You-Enter Service in Detroit.—The Detroit (Mich.) United Railway, which proposes soon to place pay-as-you-enter cars in operation on its Woodward Avenue line, has prepared a poster instructing passengers in the use of the car which will be hung in each car, and a four-page leaflet of which 50,000 copies have been printed to be placed in small boxes in the cars. The poster is introduced with a diagram showing the passengers where to get on and off of the cars, the direction of travel being indicated by arrows. Passengers are requested to remember the following: "1. Have your fare ready on boarding car. 2. Board car at the *rear* end only. 3. Deposit cash or ticket in fare box in front of conductor. 4. Unfold transfer and hand to conductor; do *not* place it in fare box. 5. Pass into body of car immediately on paying fare. 6. Leave by front door." The company has also issued a book of rules for the guidance of conductors and motormen operating the pay-as-you-enter cars. It is also proposed to make the public familiar with the new service by advertisements in the daily newspapers.

Personal Mention

Mr. F. W. Darlington has resigned as electrical engineer of the Denver & Interurban Railroad, Denver, Col.

Mr. R. M. Howard has resigned as general manager of the Green Bay (Wis.) Traction Company and is succeeded by Mr. John T. Huntington.

Mr. John T. Huntington, formerly connected with the Topeka (Kan.) Edison Company, has been appointed general manager of the Green Bay (Wis.) Traction Company to succeed Mr. R. M. Howard, resigned.

Mr. C. L. Haynes, vice-president of the East St. Louis & Suburban Railway, East St. Louis, Ill., was given a chest of silver by the employees of the company at the time of his silver wedding anniversary.

Mr. Adrian H. Joline, receiver with Mr. Douglas Robinson of the Metropolitan Street Railway, New York, N. Y., has resigned as chairman of the board of directors and as president of the Missouri, Kansas & Texas Railway.

Mr. Theodore P. Shonts, president of the Interborough Rapid Transit Company and the Interborough-Metropolitan Company, New York, N. Y., has been elected a member of the executive committee of the Chesepeake & Ohio Railroad.

Mr. Wesley W. Sargent has been elected president of the Fitchburg & Leominster Street Railway, Fitchburg, Mass., to succeed Mr. Henry A. Willis, resigned. Mr. Sargent has been general manager of the company since its organization in 1892 and will continue to act in that capacity.

Mr. C. N. Wilcoxon, who has assumed the duties of general manager of the Chicago, Lake Shore & South Bend Railway, Michigan City, Ind., was tendered a reception at Maple Cliff Villa recently, by the officers of the Cleveland, Southwestern & Columbus Railway, from which he retired to accept the position with the Chicago, Lake Shore & South Bend Railway.

Mr. E. L. Kasemeier, auditor of receipts of the Ohio Electric Railway, has been appointed auditor, effective on Nov. 1, to succeed Mr. M. W. Glover, who, as stated elsewhere, has resigned to become assistant to the traffic manager of the Illinois Traction System. Mr. Kasemeier was auditor of disbursements of the Seaboard Air Line Railway prior to his appointment as auditor of receipts of the Ohio Electric Railway.

Mr. William V. Polleys has been appointed superintendent of construction in charge of a contract which Stone & Webster, Boston, Mass., have with the Jacksonville (Fla.) Electric Company for reconstruction and extension work. Before becoming connected with Stone & Webster, Mr. Polleys was resident engineer and manager of construction for Westinghouse, Church, Kerr & Company on 40 miles of double-track electric railway in the Ohio Valley. Previous to that he was a member of the R. H. Tingley Company, engaged in general railway and miscellaneous engineering and construction work. Mr. Polleys has also been connected with the Dominion Iron & Steel Company and the New York, New Haven & Hartford Railroad.

Mr. Henry A. Willis has resigned as president of the Fitchburg & Leominster Strcet Railway, Fitchburg, Mass., and Mr. Wesley W. Sargent, general manager of the company, has been elected to succeed him. Mr. Willis has been connected with street railway affairs in Fitchburg for 20 years. He was president of the Fitchburg Street Railway, which was organized in 1886, and when the Fitchburg Street Railway and the Leominster Street Railway were consolidated in 1892 as the Fitchburg & Leominster Street Railway, Mr. Willis was elected president of the company. Mr. Willis retired from the company because his other business interests demanded so much of his time that it became impossible for him to give to street railway matters the attention which their importance demanded. Mr. Willis has also retired as a director of the company, and Mr. Walter B. Clifford has been elected to succeed him in this capacity.

Mr. William F. McCoy has resigned as master mechanic of the Hartford & Springfield Street Railway, Warehouse Point, Conn., to become master mechanic of the Pittsfield (Mass.) Electric Street Railway. Mr. McCoy was master mechanic of the Hartford & Springfield Street Railway for six years. Before becoming connected with the Hartford & Springfield Street Railway he was chief engineer and master mechanic of the Beaver Valley Traction Company, Beaver Falls, Pa., and for two ycars was chief engineer of the Syracuse, Lakeside & Baldwinsville Railway, Syracuse, N. Y. Before entering railway work Mr. McCoy was connected with Barber Brothers, Syracuse, N. Y., for 16 years as a machinist. When he left the employ of the Hartford & Springfield Street Railway Mr. McCoy was presented by the management and the employees with a Masonic ring set with diamonds. Mr. H. S. Newton, general manager of the Hartford & Springfield Street Railway, gave Mr. McCoy a watch as a token of personal esteem.

Mr. W. R. Morrison, general superintendent of the Wichita Light & Railroad Company, Wichita, Kan., and Mr. A. J. Crow, superintendent of transportation of the company, were the guests of honor at a banquet given by the members of the operating and transportation departments of the company in Wichita, on Oct. 20, as a surprise to both gentlemen. Officials of the company and employees representing the motormen, conductors, shop employees and linemen attended. The menu was printed on a card in the form of a pay-as-you-enter car and at the top was the legend, "Eat, drink and be merry for at five o'clock you work again." Both Mr. Morrison and Mr. Crow responded to toasts in the course of which they spoke in appreciation of the honor conferred on them and expressed their gratification at the efficiency of the service of the company. Other heads of departments also made short addresses.

Mr. J. J. Riley has been appointed general inspector of the Brooklyn (N. Y.) Rapid Transit Company in charge of the operation of surface cars through lower Fulton Street, Brooklyn, and over the Brooklyn and Williamsburg bridges, and will report to Mr. William Siebert, superintendent of surface lines of the company. Following the death of Mr. Martin Wulstein, who was district superintendent of the surface lines of the company in the eastern district, the positions of district superintendents were abolished. Assistant superintendents at the different car houses will hereafter report to and receive their instructions direct from Mr. Siebert, superintendent of surface lines. For administration and control the Halsey Street car house has been withdrawn from Ridgewood and attached to the Bergen Street car house. Assistant superintendents at the different car houses have been reassigned as follows: Mr. F. O'Keefe to Ridgewood, vice Mr. H. Bongard; Mr. C. Hogberg to East New York, vice Mr. F. O'Keefe; Mr. C. W. Roe to Crosstown and Maspeth, vice Mr. E. Gilchrist; Mr. E. Gilchrist to Fifty-eighth Street, vice Mr. C. Hogberg; Mr. H. Bongard to Bergen and Halsey Streets, vice Mr. C. W. Roe; Mr. H. Muller to Ninth Avenue, vice Mr. M. Cornell; Mr. M. Cornell to Flatbush Avenue, vice Mr. H. Muller; Mr. F. Brush to Carnarsie.

Mr. M. W. Glover has resigned as auditor of the Ohio Electric Railway, effective on Oct. 31 and has been appointed assistant to the traffic manager of the Illinois Traction System with headquarters at Springfield, Ill. Mr. Glover began his first railroad work on Dec. 1, 1889, in the local freight office of the Southern Carolina Railway, then in the hands of a receiver. He was transferred later to the auditor's office and there handled the freight and passenger as well as other accounts. The property was purchased by the Southern Carolina & Georgia Railroad and the receivership terminated prior to July, 1895, when Mr. Glover was appointed traveling auditor. In May, 1899, the road was absorbed by the Southern Railway and Mr. Glover remained as traveling auditor for that company until June, 1901. At that time he was advanced to the position of chief traveling auditor of the Southern Railway, from which he resigned in June, 1903, to accept the position of chief clerk to the auditor of the Atlanta & West Point Railroad and the Western Railway of Alabama. On July 1, 1906, Mr. Glover resigned from that position to accept the position of auditor of the lines now comprising the Ohio Electric Railway, Cincinnati, Ohio. He has now resigned from that position to become assistant to the traffic manager of the Illinois Traction System. Mr. Glover was active in the formation of the Central Electric Accounting Conference and has been its president since the organization was effected in 1907.

OBITUARY

James Thomas Nelson, formerly treasurer of the New York & Sea Beach Railway, now part of the system operated by the Brooklyn (N. Y.) Rapid Transit Company, is dead.

The effect of the operation of the Hudson & Manhattan Railroad under the Hudson River between New York and New Jersey on the ferries was strikingly shown by the testimony presented recently by C. C. Hubbell, assistant auditor of disbursements of the Delaware, Lackawanna & Western Railroad before the State board of equalization of taxes, which is hearing an appeal by the railroad from the assessment levied by the Board of Assessors of Hoboken. Mr. Hubbell testified that the total receipts from the ferries operated by the Delaware, Lackawanna & Western Railroad for the fiscal year ending June 30, 1908, were $7,317,372.94, and that the number of passengers carried, exclusive of railroad passengers, was 37,777,696. He said that 58 per cent of ferry traffic was local, and that the opening of the Hudson & Manhattan Railroad had made a decrease of 30 per cent in the traffic.

Construction News

Construction News Notes are classified under each heading alphabetically by States.

An asterisk (*) indicates a project not previously reported.

RECENT INCORPORATIONS

North Chicago Railways, Chicago, Ill.—Application for a charter has been made by this company, as the successor of the Chicago Consolidated Traction Company, to be taken over on terms arranged by the reorganization committee.

***Decatur (Ill.) Belt Railway.**—Incorporated by interests connected with the Illinois Traction System, Champaign, to build an electric railway in Decatur. Incorporators: George M. Mattis, W. H. Carnahan, Charles Zilly, B. E. Bramble and C. E. Cox, all of Champaign.

***Edwardsville (Ill.) Belt Railway.**—Incorporated by interests connected with the Illinois Traction System, Champaign, to construct an electric railway in Edwardsville. Incorporators: George M. Mattis, W. H. Carnahan, Charles Zilly, B. E. Bramble and C. E. Cox, all of Champaign.

Lawton & Fort Sill Electric Railway, Lawton, Okla.—Incorporated to build an electric railway from Lawton to Fort Sill, Medicine Park and other points in Comanche County. The estimate length of the railway is 20 miles, and the estimated cost $140,000. Headquarters, Lawton. Capital stock, $200,000. Incorporators: Simon Smith, Oklahoma City; W. H. Pattie, D. L. Sleeper and J. H. Miller, Tulsa, and J. B. Sleeper, Lawton. [E. R. J., Sept. 18, '09.]

***Coffeyville-Nowata Railway & Power Company, Nowata, Okla.**—Incorporated to build a standard-gage electric railway from Coffeyville, Kan., to Nowata, Okla., a distance of 23 miles. The railway is estimated to cost $25,000 per mile. Headquarters, Nowata. Capital stock, $200,000. Incorporators: J. C. Denton, W. V. Thraves and J. A. Tillotson, Nowata; John B. Pollard, Kansas City, Mo., and W. P. Brown, Coffeyville, Kan.

***Altoona, Hollidaysburg & Bedford Springs Electric Railway, Altoona, Pa.**—Incorporated to build a single-track electric railway from Altoona to Bedford Springs, 50 miles distant. John G. Burns, Thirty-first Street and Liberty Street, Pittsburgh, president. Surveys are being made by F. W. Patterson, Altoona, engineer.

***Philipsburg & Susquehanna Valley Railroad, Philipsburg, Pa.**—Incorporated to take over the properties of the Philipsburg Railroad, the Center & Clearfield Street Railway, the New Steam Company and the Philipsburg Electric Light, Gas, Power & Heating Company. A bond issue of $2,000,000 has been authorized. Incorporators: Thomas F. Barrett, New York, N. Y., president; Howard M. Van Court, Philadelphia, treasurer; Charles H. Rowland, Philipsburg, assistant and first vice-president; George W. Zeigler, secretary; W. W. Cole, second vice-president and electrical engineer, and J. O. Reed, general manager.

FRANCHISES

San Francisco, Cal.—The Board of Supervisors has granted to the Stockton Street Railway a franchise to construct a street railway over Stockton Street from Market Street to North Beach. The plans of this company includes a tunnel under Bush, Pine and California Streets. Frank D. Stringham is said to be interested. [E. R. J., July 10, '09.]

Macon, Ga.—C. C. Foor, Jesse B. Hart and Frederick Kauffmann, of the Macon Traction Company, have petitioned the City Council for a franchise to build an electric railway over certain streets of Macon. [E. R. J., Oct. 16, '09.]

Humboldt, Kan.—The Kansas Southern Electric Railroad has been granted an extension of time by the City Council to extend its electric railway into Humboldt. The amended franchise provides that construction shall be under way within a year, and completed within two years after the adoption of the franchise.

Everett, Mass.—The Boston & Northern Street Railway has petitioned the Board of Aldermen for permission to relay its tracks in Everett. A hearing will be given Nov. 1.

Winona, Minn.—The La Crosse & Winona Traction Company has petitioned the City Council for a 50-year franchise to build an electric railway through Winona. The company proposed to build an electric railway from La Crosse, Wis., to Winona, via Galesville and Sparta, Wis. W. J. Ferris, president of the Winona Railway & Light Company, is said to be interested. [E. R. J., Oct. 23, '09.]

Auburn, N. Y.—The Auburn & Syracuse Electric Railroad has petitioned the City Council for a franchise to extend its East Genesee Street route from Seward Avenue east to the city limits.

Fulton, N. Y.—The Common Council has determined to grant the franchise for the right to build an electric railway across Hannibal Street near West First Street and across Walradt Street applied for by the Syracuse, Lake Shore & Northern Railroad. The sale of this franchise was authorized to take place on Nov. 9 at the City Hall. The company proposes to build an extension from Syracuse through Oswego to Fulton, 20 miles distant.

***Ontario, Ore.**—D. G. Sutherland, Ontario, has applied to the City Council for a franchise to construct an electric railway or steam railway on any and all streets of Ontario. The proposed railway is said to extend throughout the Snake River Valley section.

Easton, Pa.—The Stroudsburg & Water Gap Street Railway, Stroudsburg, has applied to the Town Council for a franchise to extend its railway to the borough limits. The company will extend the railway from Easton to Portland.

McKeesport, Pa.—The Pittsburgh, McKeesport & Westmoreland Railway has been granted a franchise to operate a street railway in McKeesport. The railway will connect McKeesport and Westmoreland, 19 miles, and is to be in operation in McKeesport within a year.

Memphis, Tenn.—The Memphis Street Railway has applied to the City Council for a franchise to lay track on South Third Street for a new cross-town railway. E. W. Ford, superintendent.

***Dalhart, Tex.**—W. J. Blair and associates have been granted a franchise by the Council to build an electric railway in Dalhart.

***Colonial Beach, Va.**—J. R. Benton, representative of a Philadelphia syndicate, has applied to the Municipal Council of Colonial Beach, asking for certain concessions in furtherance of a plan to build an electric railway from Colonial Beach to the nearest point on the Richmond, Fredericksburg and Potomac Railroad, which is Quantico, a distance of 22 miles. The power plant is to be built at Classic Shore.

Seattle, Wash.—The Supreme Court has rendered a decision in favor of the Seattle Electric Company, which intervened in the hearing of an injunction secured by Edwin C. Ewing against the City Council to prevent the issuance of a street railway franchise to this company covering a route over Rainier Boulevard.

Mannington, W. Va.—The Fairmont & Mannington Traction Company has been granted a franchise by the City Council to connect with the Morgantown & Dunkard Valley Electric Railway, which has also been granted a franchise and will build from Mannington to Blacksville, W. Va.

Milwaukee, Wis.—The Milwaukee Western Electric Railway has petitioned the Railroad Rate Commission for a certificate of convenience and necessity to change its route over certain streets of Milwaukee.

TRACK AND ROADWAY

British Columbia Electric Railway, Vancouver, B. C.—This company expects to place contracts in a few weeks for constructing a 2½-mile single-track extension in North Vancouver and a 7-mile suburban system east from Vancouver through Burnsby.

***Burbank, Cal.**—L. C. Brand has made a proposition to the citizens of Burbank to build an electric railway from Burbank along Fourth Street to Grandview Avenue, easterly to Brand Boulevard, Glendale. Mr. Brand's plan provides that a bonus of $40,000 be raised and right of way given along the route mentioned. The fare between the two points is to be 10 cents each way. Construction will be started within six months after the bonus is raised and right of way obtained.

Peninsular Railway, San José, Cal.—The electric railway extension from Palo Alto to Stanford University has been completed and is in operation. This extension is owned by Stanford University, but will be operated and maintained by the Peninsular Railway. W. H. Yount, manager of this division.

Grand Junction & Grand River Valley Railway, Colorado Springs, Col.—E. A. Sunderlin, vice-president and general manager, announces that this electric railway to connect Grand Junction, Fruita and Clifton, 20 miles distant, has 3 miles of the line completed, and 17 miles under construction. The company will operate ten cars and will furnish power outside of Grand Junction. The power station and shops will be located at Grand Junction. Headquarters, Mining Exchange Building, Colorado Springs, and superintendent's office, Grand Junction. Capital stock, authorized, $2,000,000; issued, $1,000,000. Bonds, authorized, $2,000,000; issued, $850,000. Officers: Thos. E. Curtis, Colorado Springs, president; Orson Adams, secretary and treasurer; Thos. L. Harvey, superintendent and electrical engi-

neer, and E. L. Mooley, chief engineer, Grand Junction, and S. M. L. McSpadden, purchasing agent. [E. R. J., Oct. 9, '09.]

City & Suburban Railway, Brunswick, Ga.—This company advises that its electric railway, extending 6 miles in Brunswick, is completed and in operation. The company operates four to six cars by the overhead system. The power station and repair shops are located at Brunswick. Officers: F. D. Strachan, president; Albert Fendig, vice-president; George H. Smith, secretary and treasurer, and J. M. Armstrong, general manager and electrical engineer. [E. R. J., June 26, '09.]

Macon (Ga.) Traction Company.—The survey for this proposed electric railway from East Macon to Recreation Club, a distance of 5 miles, has been started. Jesse B. Hart and Frederick Kauffmann are said to be interested. [E. R. J., Oct. 16, '09.]

Woodstock & Syracuse Traction Company, Chicago, Ill.—Charles A. Spenny, 709 Tacoma Building, Chicago, secretary, advises that 20 miles of grading have been completed to connect Woodstock, Franklinville, Marengo, Genoa and Sycamore, 36 miles distant. The company recently contracted for 16 miles of rails and will commence at once the laying of track, having 5 miles of ties laid. B. Armstrong, Sycamore, chief engineer.

Belleville & Mascoutah Transit Company, Mascoutah, Ill.—G. J. Scheve, secretary and treasurer, confirms the report that the grading on this electric railway from Mascoutah to Belleville, via Rentchler Station, has been started. Officers: Adolph Knobeloch, president; E. R. Haguist, vice-president, and David O. Thomas, general manager and superintendent. [E. R. J., Aug. 28, '09.]

Murphysboro Electric Railway, Light, Heat & Power Company, Murphysboro, Ill.—This company expects to place contracts, during the next 90 days, for constructing about ¾ of a mile of track and a bridge across the Big Muddy River. C. H. Clay, manager.

Indianapolis, Columbus & Southern Traction Company, Columbus, Ind.—This company is taking down about 40 miles of 00 round trolley wire between Indianapolis and Columbus and putting up in its stead 40 miles of 0000 grooved trolley wire. The company will also reconstruct its high-tension line from Greenwood to Reddington, a distance of about 45 miles. The present construction is with one insulator on the top pole pin and two on a cross arm below, giving a triangular spacing of about 30 in. The high-tension wire is aluminum, and owing to the stretching of the wire it will be necessary to install a new two-pin arm about 13 in. below the present arm, making the triangular separation between the three wires about 45 in.

Delphi, Flora & Burlington Traction Company, Delphi, Ind.—E. W. Bowen announces that this company has petitioned the County Commissioners for subsidy elections to be held in Deercreek, Monroe and Burlington Townships for constructing the electric railway to connect the cities named in the title. The company intends to operate gasoline cars. [E. R. J., Oct. 16, '09.]

Indianapolis, New Castle & Toledo Railway, New Castle, Ind.—The Union Trust Company, Indianapolis, receiver for this company, has awarded the contract for the construction of several bridges to the National Concrete Company, Indianapolis. The company is building 30 miles of electric railway; all material has been purchased.

Albia (Ia.) Interurban Railway.—This company expects to build next year a 9-mile extension from Albia to Buxton. W. E. Gant, manager.

Des Moines & Sioux City Railroad, Des Moines, Ia.—The officers of this company, given on page 925 in the issue of the Electric Railway Journal of Oct. 23, 1909, were inadvertently reported wrong. The correct officers are: J. W. Reed, president; M. H. Miller, vice-president and general manager; J. W. Russell, treasurer; M. F. Coons, secretary, and C. E. Russell, auditor.

New Orleans Railway & Light Company, New Orleans, La.—Preliminary arrangements are being made by this company for the sale of $5,000,000 of 5 per cent bonds, of which $3,000,000 will be used for improvements.

North Jersey Rapid Transit Company, Paterson, N. J.—According to an announcement, this electric railway, which is to connect Paterson, Glen Rock, Ridgewood and Hohokus, will be in operation some time in 1910. Later the railway will connect Waldwick, Allendale, Ramsey, Mahwah and Suffern, and it is to be extended south from Paterson to Jersey City to connect with the Hudson & Manhattan Railroad at Marion. Malcolm R. McAdoo, Montclair, vice-president.

***Northern New York Construction Company, Vineland, N. J.**—This company has been organized here to build an electric railway between Vineland and Bridgeton. George E. Stevenson is president of the company and B. F. Patterson, New York, and Frank Parvin, vice-presidents; T. H. Coggey, New York, secretary, and H. C. Bartlett, treasurer. A survey is being made and the right of way solicited by the company.

Syracuse, Lake Shore & Northern Railroad, Syracuse, N. Y.—It is the intention of this company to award the contract for constructing its proposed extension between Syracuse and Fulton early next month. The right of way has been all secured.

Ardmore, Okla.—It is announced that M. T. Forsythe, engineer, has started the survey of the proposed electric railway from Ardmore to Chickasha, Duncan and Fort Sill, a distance of 170 miles. Oscar Ayres, promoter. [E. R. J., June 26, '09.]

Coos Bay & Inland Railroad, Portland, Ore.—At a meeting of the Coos County and Douglas County railroad committees with Frederick D. Kuettner and Charles Ringler, representing this company, in Roseburg, the contract between the committees and the company was signed, providing that the company shall deposit with the committees as trustees the sum of $100,000, half in stock of the company, to secure the performance of the company's agreement. The company agrees to complete the electric railway which is to extend from Marshfield to Roseburg via Coos Bay within three years after the preliminary survey is completed. [E. R. J., Oct. 16, '09.]

Lehigh Valley Transit Company, Allentown, Pa.—R. P. Stevens, president of this company, has awarded a contract to George H. Hardner involving an expenditure of about $50,000 for the regrading and straightening of 21 miles of this electric railway from Allentown to Slatington.

Canonsburg & McDonald Railway, Canonsburg, Pa.—Right of way for this electric railway has been obtained. Promoters will meet in Pittsburgh this week to organize and apply for a charter. J. B. Holland, Cecil, is said to be interested. [E. R. J., Sept. 25, '09.]

Huntingdon, Lewistown & Juniata Valley Traction Company, Huntingdon, Pa.—This company has filed a mortgage of $1,500,000 to the Empire Trust Company, New York, to be used for the construction of its electric railway from Huntingdon to Lewistown and Mount Union. [E R. J., Oct. 23, '09.]

Pittsburgh, Monongahela & Washington Railways, Pittsburgh, Pa.—This company expects to place contracts, within a few weeks, for laying ¾ of a mile of track and grading and constructing a street railway on Park Avenue. J. W. Bridge, general manager.

South Dakota Interurban Railway, Centerville, S. D.—It is reported that the survey on this proposed electric railway to extend from Sioux City, Ia., to Bijou Hills, S. D., a distance of 160 miles, has been started on the Sioux River in Union County, Ia. William E. Miller, Centerville, is said to be interested. [E. R. J., May 15, '09.]

Beaumont (Tex.) Traction Company.—This company expects to place contracts, within a few weeks, for constructing about a mile of track in paved district with 90-lb. 7-in. T rail. C. H. Kretz, manager.

Bryan, Tex.—A bonus of $10,000 has been subscribed for the electric railway between Bryan and the State College, 5 miles. J. T. Maloney, Mayor, and others are interested. [E. R. J., Aug. 28, '09.]

San Angelo (Tex.) Street Railway.—This company expects to place contracts within six weeks for the construction of a 2-mile extension. The company has on hand the necessary steel and trolley wire, but will need the other material.

Twin City Light & Power Company, Chehalis, Wash.—This company is said to be endeavoring to secure a contractor to build the electric railway connecting Chehalis and Centralia. The plans and specifications are all ready and are being figured on by the company. C. L. MacKenzie, Colfax, is said to be interested. [E. R. J., May 29, '09.]

Waterville (Wash.) Railway.—This company has been organized to build an electric railway from Douglas Station, on the Great Northern Railroad extension from the Columbia River, to Waterville, 5 miles distant. Capital stock, $100,000. Officers elected: C. A. Granis, president; F. C. Kennedy, vice-president; George C. Wiley, secretary and treasurer, and A. L. Rogers, chief engineer. The company will furnish passenger transportation, but will handle all of its freight in the freight cars of the Great Northern Railroad which it will receive and deliver at Douglas. The company has asked for bids for the grading of the right of way, and expects to lay rails in about six months. [E. R. J., Oct. 9, '09.]

Merrill (Wis.) Street Railway.—This company has completed the relaying of track over its entire system. The improvement involved an expenditure of about $15,000.

SHOPS AND BUILDINGS

British Columbia Electric Railway, Vancouver, B. C.—This company expects to place contracts within a few weeks for constructing an extension to its car house shops.

Grand Junction & Grand River Valley Railway, Grand Junction, Col.—This company expects to place contracts during the next six months for constructing a car house. General office, Colorado Springs.

Chicago, Ottawa & Peoria Railway, La Salle, Ill.—This company has leased a room in the Hillenbrand Building at 111 East Hickory Street, Streator, to be used as a station. This station will include the ticket office, passenger waiting room and baggage room.

Fort Wayne & Wabash Valley Traction Company, Fort Wayne, Ind.—This company has begun the construction of a car house on the Bluffton division at the Smith gravel pit 3 miles south of Fort Wayne. The building will be made as near fireproof as possible.

Indianapolis, New Castle & Toledo Electric Railway, New Castle, Ind.—G. W. Milliken has the contracts for the construction of a car house and repair shops for this company.

Springfield (Mass.) Street Railway.—It is stated that this company will build two storage car houses, to be located on Westfield Street, West Springfield, at a probable cost of about $20,000. These buildings will be used to relieve the congestion of the Hooker Street car house.

Cape Breton Electric Company, Sydney, N. S.—This company has placed contracts for the erection of a one-story stock room and freight shed, 45 ft. x 60 ft. A. F. Townsend, manager.

Hummelstown & Campbellstown Street Railway, Hershey, Pa.—This company has lately completed the construction of a car house 56 ft. x 183 ft.

Quebec Railway, Light & Power Company, Quebec, Que.—This company expects to place contracts early next year for the construction of a car house.

POWER HOUSES AND SUBSTATIONS

British Columbia Electric Railway, Vancouver, B. C.—This company has let contracts for the construction of five reinforced concrete substations along the 60-mile extension through the Fraser Valley. The company has purchased and is installing in its power plant at Vancouver a second 2000-kw, 60-cycle, six-phase rotary converter.

Grand Junction & Grand River Valley Railway, Grand Junction, Col.—This company expects to place contracts within the next six months for constructing a substation and for new equipment. The company has purchased a steam turbine, two 250-hp boilers and a 500-kw generator.

Peoria (Ill.) Railway Terminal Company.—This company expects to place contracts within the next three months for two generators, two turbines and other necessary equipment.

Binghamton (N. Y.) Railway.—This company has commenced work on the addition to its State Street power plant for the installation of additional equipment and the construction of a new smokestack. The cost will be approximately $40,000.

Durham (N. C.) Traction Company.—This company expects to place contracts, within a few weeks, for a 500-hp cross-compound Corliss engine, direct connected to a three-phase, 60-cycle, 2300-volt generator, or for a 500-kw turbo-alternator. If the engine and generator are purchased the engine will be run condensing.

Mahoning & Shenango Railway & Light Company, Youngstown, Ohio.—This company has purchased from the Heine Boiler Company two 500-hp boilers.

Hull Electric Company, Aylmer, Que.—This company has placed contract for the steel work for bulkhead on its power house at Deschenes.

Whatcom County Railway & Light Company, Bellingham, Wash.—The alterations in the power plants of this company, mentioned on page 638 of the Oct. 2, 1909, issue of the ELECTRIC RAILWAY JOURNAL, are to be made by the Stone & Webster Engineering Corporation, Boston, Mass. In the Nooksack Falls water power plant an impulse wheel will be substituted for the present 3300-hp Francis turbine. The York Street power station will be enlarged to accommodate a new 1500-kw turbo-generator with boilers, condensers and other steam and electrical auxiliaries.

Manufactures & Supplies

ROLLING STOCK

Illinois Traction System, Peoria, Ill., is in the market for four double-truck express car bodies.

Louisville (Ky.) Railway has placed an order with the Cincinnati Car Company for 33 city cars.

Central Railroad of Brazil is contemplating the purchase of 100 closed motor cars for extra wide gage.

Denison & Sherman Traction Company, Denison, Tex., has ordered two cars from the American Car Company.

Columbus, Marion & Bucyrus Railway, Marion, O., is reported to be planning the purchase of two interurban cars.

Beaumont (Tex.) Traction Company is in the market for three or four double-truck, semi-convertible cars, complete.

T. N. Motley & Company, New York, N. Y., will be in the market soon for about 15 combination baggage and passenger cars.

Aurora, Elgin & Chicago Railroad, Wheaton, Ill., will place an order soon for five single-truck cars and one interurban express car.

Municipal Traction Company, Cleveland, Ohio, placed an order several days ago with the G. C. Kuhlman Car Company for 25 city cars.

Toledo Railway & Light Company, Toledo, Ohio, is reported to have placed an order for 20 city cars with the G. C. Kuhlman Car Company.

Atchison Railway, Light & Power Company, Atchison, Kan., is in the market for five semi-convertible cars 18 ft. 6 in. long inside and having 5-ft. vestibules.

Chippewa Railway, Light & Power Company, Eau Claire, Wis., expects to purchase two pairs of trucks for 45-ft. interurban cars within the next six weeks.

Rockland Railroad, Nyack, N. Y., it is reported will purchase 23 cars in the next three or four months for interurban passenger purposes. This road is under construction.

Olympia Light & Power Company, Olympia, Wash., is considering the purchase of two closed, convertible or semi-convertible, small double-truck cars with complete equipment.

Grand Junction & Grand River Valley Railroad, Colorado Springs, Col., will buy two combination passenger and baggage cars and one passenger car during the next six months.

Los Angeles-Pacific Railroad, Los Angeles, Cal., through the Southern Pacific Railroad, will purchase 84 all-steel passenger motor cars for use on the Santa Monica branch of the Southern Pacific Railroad, which is electrically operated.

Wabash & Northern Indiana Traction Company, Warsaw, Ind., mentioned in the ELECTRIC RAILWAY JOURNAL of Oct. 23, 1909, as expecting to buy its rolling stock from The J. G. Brill Company, it is learned is in the market for nine 50-ft. interurban cars.

Visalia (Cal.) Electric Railroad has placed an order for two 50-ft. car bodies with the Moran Shipbuilding Company, Seattle, Wash. These cars are to be of the three-compartment type, the compartments to have the following lengths: Baggage, 12 ft.; smoking, 14 ft.; passenger, 24 ft.

Rock Island-Southern Railroad, Monmouth, Ill., has ordered from Haskell & Barker, Michigan City, Ind., 75 gondola coal cars of 80,000 lb. capacity and 50 box cars of 60,000 lb. capacity, to be used in hauling coal between the Gilchrist and Matherville mines and Davenport. They are to be delivered early in 1910.

Michigan United Railways, Lansing, Mich., is rebuilding nine interurban cars to be used between Jackson and Kalamazoo and from Lansing to Jackson. Three of these car bodies were purchased from the Detroit United Railway and reconstructed in the company's shops at Lansing. All of the cars have been fitted with Baldwin trucks, having 7-ft. wheel base. Five of the cars have been equipped with new GE-205 motors. The company advises that it has overhauled all of its interurban cars during the summer.

Chicago & Milwaukee Electric Railroad, Highwood, Ill., mentioned in the ELECTRIC RAILWAY JOURNAL of Sept. 25, 1909, as being in the market for a number of cars, has ordered the following: One dining and buffet car, three first-class coaches for limited train service, one combination smoking and first-class coach and 13 standard interurban cars from the American Car Company; 13 pairs of trucks were ordered from McGuire-Cummings Manufacturing Company. Five pairs of Baldwin trucks were ordered for five of the standard cars being built by the American Car Company. Hale & Kilburn seats, Smith No.

2 heaters, Westinghouse AMM automatic air brakes and four General Electric 75-hp motors with type M control will be used on all the above-mentioned cars. The company has also purchased one express car and one double-truck snow sweeper from the McGuire-Cummings Manufacturing Company.

Fort Wayne & Wabash Valley Traction Company, Fort Wayne, Ind., reported in the Electric Railway Journal of July 10, 1909, as contemplating the purchase of some rolling stock, has ordered four combination passenger and baggage cars, 20 single-truck, semi-convertible city cars, four trailer freight cars and two interurban freight cars from the Cincinnati Car Company. The details of the 20 city cars follow:

Seating capacity.....32	Hand brakes.....Peacock
Weight .....17,000 lb.	Heating system.Consolidated
Length of body..32 ft. 1 in.	Headlights,
Width over sills.. 8 ft. 1½ in.	Electric Ser. Sup. Co.
Length over vestibule .....31 ft. 1 in.	Journal boxes....Symington
	Motors.....Two GE-80
Width over posts at belt..... 8 ft. 4 in.	Push button signal.Cincinnati
	Registers .....International
Sill to trolley base.....9 ft.	Roofs .....Cincinnati
Height, top rail to sills.32 in.	Sash fixtures,
Body .....wood	O. M. Edwards Co.
Interior trim.....white oak	Seats..Hale & Kilburn, long rattan
Underframe .....Composite	Springs,
Control system,	Railway Steel Spring
General Electric K-10	Step treads.....Cincinnati
Bumpers .....Cincinnati	Trolley poles,
Couplers...Van Dorn No. 5	General Electric
Curtain fix....Curtain S. Co.	Trolley base.....GE-6
Curtain material...Pantasote	Trolley wheels.....GE
Destination signs....Hunter	Trucks.....Curtis CGJ8-96
Fenders ..... Providence	Wheels...Bass Foundry Co., cast iron
Gears and pinions.Gen. Elec.	
Gongs .....Adams-Westlake	

TRADE NOTES

Thomas Barlow & Sons, Durban, Natal, have been appointed agents for The J. G. Brill Company for Natal, Transvaal and the Orange River Colony.

Guy H. Gibbs, who has been connected with the Westinghouse Electric & Manufacturing Company for the last eight years, four of which have been served with that company at its Cincinnati office, has entered the employ of the Western Electric Company at Cincinnati.

H. W. Johns-Manville Company, New York, N. Y., announces that it has taken the exclusive sales agency for the New Lexington High-Voltage Porcelain Company, New Lexington, Ohio, which manufactures a complete line of high-grade porcelain insulators adaptable for all purposes and all voltages.

James Paton, who for some time has been associated with the St. Louis Car Company, St. Louis, Mo., has accepted a position as sales engineer with the Chicago office of the National Brake & Electric Company. Mr. Paton has had a wide experience in electric railway and engineering work and is well acquainted in the electric railway field. Before becoming associated with the St. Louis Car Company he was for several years employed by Ford, Bacon & Davis, engineers, and at one time was master mechanic of the Birmingham Railway, Light & Power Company, Birmingham, Ala.

John A. Roebling's Sons Company, Trenton, N. J., received a grand prize, highest award, for its exhibit of catenary trolley construction at the Alaska-Yukon-Pacific Exposition. The exhibit, which formed part of the company's display of wires used for electrical purposes, consisted of a model span 14 ft. 6 in. long, with a miniature trolley car beneath. Wire strand, similar in design to that employed in catenary construction, but only 3-16 in. thick, was used to support the trolley wire. The spreaders consisted of triangles made of No. 8 galvanized steel wire, while the trolley wire was a grooved section, No. 8, B. & S. gage copper wire. The entire exhibit, including the miniature trolley car, was made at the Roebling works.

ADVERTISING LITERATURE

Cooper Heater Company, Dayton, Ohio, is distributing a folder in which the improved Cooper hot-water heater is described and illustrated.

St. Louis Frog & Switch Company, St. Louis, Mo., has issued a very complete catalogue of its track work for steam, electric and industrial railways.

Automatic Ventilator Company, New York, N. Y., has published a 30-page catalog in which its system of automatic ventilation as applied to steam and electric cars is fully described and illustrated.

Allis Chalmers Company, Milwaukee, Wis., has published Bulletin No. 1618, entitled "Fighting Fires with High-Pressure Streams." It contains the official report of the efficiency tests of the New York high-pressure system conducted by Prof. R. C. Carpenter, of Cornell University.

Bergoff Bros., 1416 Broadway, New York, N. Y., have issued a card calling attention to the service performed by them during the strike of the employees of Pressed Steel Car Company at McKees Rocks, Pittsburgh, and the strike of the motormen and conductors of the Philadelphia (Pa.) Rapid Transit Company.

John F. Scott & Company, Highland Park, Ill., have printed a leaflet in which their combination hanger and ear is described. Two tables of costs are presented, in connection with the reading matter, one for 5 years and the other for 7 years, showing the saving which can be effected by the use of the firm's product.

Ohio Filler Shield Company, Columbus, Ohio, is distributing a folder containing samples of the three types of shield which it manufactures, the graphite iron, metal and roof shields. A paragraph describing the various uses to which the company's product may be adapted accompanies each of the three samples. Attention is also called in the folder to the company's waterproof concrete shield.

National Electric Lamp Association, Cleveland, Ohio, has issued Bulletin No. 5 B which is devoted to modern railway lamps. Two types described, those for d. c. service with tantalum filaments and those for a. c. service with carbon filaments. In connection with the descriptive matter a number of data tables and a set of curves are printed showing the variation of candle power with voltage for 4 watts per candle carbon lamps and for tantalum street railway lamps.

J. P. Devine Company, Buffalo, N. Y., has published two small placards, one entitled "The Long and Short of It," and the other containing extracts from the report of the committee on equipment of the American Street & Interurban Engineering Association. "The Long and Short of It" shows by diagrams giving costs the operations through which coils were put under the old process and the operations through which they pass when subjected to the Passburg process.

Electric Railway Improvement Company, Cleveland, Ohio, has printed an illustrated 30-page catalog on the installation of rail bonds by electric and copper welding. The catalog opens with an interesting chapter on the early history and present facts of rail bonding. The company's apparatus for electric and copper welding is fully described and illustrated. Brief directions are also given of the method of applying both of these welds. In addition, the publication contains illustrations of the various types of bonds.

Duplex Metals Company, New York, N. Y., has issued a circular entitled "Is Copper-Clad Steel Wire an Experiment?" A list of 18 steam railroads using 9600 miles of copper-clad wire is published. The company has also issued an illustrated catalog describing the features of its copper-clad steel wire. It contains a number of tables showing the comparative gages, approximate weights of weather-proof copper-clad steel wire, comparative weights and resistance per 1000 ft., etc., and comparative characteristics of copper and copper-clad wire.

National Brake Company, Inc., Buffalo, N. Y., has issued, for distribution in the United States only, an attractive 30-page catalog on the Ackley adjustable brake and the Peacock brake. Each of these types is fully described and illustrated, and accompanied by a number of drawings. In connection with the description there are printed code words for ordering the apparatus, and price lists. The National Brake Company has issued a similar catalog descriptive of the Ackley adjustable brake alone. This publication is for use in all other countries, and is printed in English, German, French and Spanish.

NEW PUBLICATIONS

Railway Signaling in Theory and Practice. By James Brandt Latimer. Chicago, 1909: Mackenzie-Klink Publishing Company; 420 pages with index; illustrated. Price, $2.50.

The author of this work has had over 25 years' experience in the operating and signal departments of steam railroads and is now signal engineer of the Chicago, Burlington & Quincy Railroad. He has written a painstaking analysis of signal practice and apparatus, making his book particularly valuable by the many practical comments drawn from his experience. Several chapters are devoted to the preparation of contracts, dealings with public authorities and with the making up of specifications.