

# Electric Railway Journal

Vol. XLI

NEW YORK, SATURDAY, MARCH 29, 1913

No. 13

PUBLISHED WEEKLY BY

## McGraw Publishing Company, Inc.

JAMES H. MCGRAW, President. C. E. WHITTLESEY, Secretary and Treas.  
239 West 39th Street, New York.

CHICAGO OFFICE.....1570 Old Colony Building  
PHILADELPHIA OFFICE.....Real Estate Trust Building  
EUROPEAN OFFICE....Hastings House, Norfolk St., Strand, London, Eng.

### TERMS OF SUBSCRIPTION

For 52 weekly issues, and daily convention issues published from time to time in New York City or elsewhere: United States, Cuba and Mexico, \$3.00 per year; Canada, \$4.50 per year; all other countries, \$6.00 per year. Single copies, 10 cents. Foreign subscriptions may be sent to our European office.

Requests for changes of address should be made one week in advance, giving old as well as new address. Date on wrapper indicates the month at the end of which subscription expires.

Copyright, 1913, by MCGRAW PUBLISHING COMPANY, INC.

Entered as second-class matter at the post office at New York, N. Y.

Of this issue of the ELECTRIC RAILWAY JOURNAL, 8000 copies are printed.

SEP 1914

## MODEL UTILITIES. We shall soon see the fruits of the LAW NEARLY months of labor that the National READY Civic Federation's department on

regulation of utilities, under the chairmanship of Mr. Emerson McMillin, has put upon a model public utilities law. The measure was discussed at the joint meeting of the public utilities committees of the National Electric Light Association and the American Electric Railway Association last month and considerable progress has been made by a joint sub-committee of these associations which has had before it the final draft of the law. Already representing an agreement of many able minds, the model utilities law will, as a result of the co-operation of representatives of the N. E. L. A. and A. E. R. A., embody the broad practical experience of such men as T. N. McCarter, who was spokesman for the railways, as well as the invaluable results of the investigations of the National Civic Federation. The enlistment of the two associations was in itself significant of the fine spirit which Mr. McMillin has brought into the framing of the law, and the helpfulness of the corporation officials who have lent their aid in this undertaking shows that an enlightened public spirit exists where, according to the yellow press, a disposition to deprecate if not to denounce was to be expected.

## GIVING THE PUBLIC THE BENEFIT OF THE DOUBT

Recently we had occasion to comment on the unwisdom of attempting to suspend the operation of the laws affecting public utilities until the constitutionality of such laws has been passed upon by the courts. A way around such difficulties as cases of this kind often present is found in the plan adopted by the New York Central and New York, New Haven & Hartford Railroad companies, pending the decision as to the legality of Public Service Commission orders reducing commutation fares in New York suburban territory. The New York Central has taken this

question into the courts on a writ of certiorari, but awaiting the court's decision it is selling tickets at its usual rates, giving to each purchaser a card which, if the court of last resort should decide the proceedings against the company, will have a redemption value amounting to the difference between what the traveler pays for the ticket and the price at which it was ordered to be sold by the Public Service Commission. The New Haven road is following the same plan. Such an arrangement might not be practicable in many cases for electric railways, but the effort to insure passengers against loss in the event that the low-fare orders are sustained is based on sounder public policy than is the attitude that a law affecting public service corporations shall not be enforced pending decision of the courts in regard to it. Whether or not the public is justly entitled to the benefit of the doubt in such cases, it is best, we believe, as a matter of policy to concede whenever possible that this is so.

## THE PROBLEM OF ULTIMATE WAGE LIMITS

All employers have more or less reason to ponder a problem that is giving the steam railroads much concern. This problem is somewhat despairingly expressed in the query, Where is the increase of wages going to stop? One of our gifted statisticians has figured out that, at the rate railway wages have been increased since 1906, nothing will be left for dividends by 1938, ten years later all the steam roads will be in receivers' hands, and by 1958 nothing will remain for interest payments. Before these disasters happen it is probable that the cost of living will go down or carriers will be allowed to earn more money. There was a promise to this effect in the award of the board that considered the railway engineers' demands and plainly stated that if public opinion and regulative bodies supported demands for higher wages they must be willing to allow increases in earnings that would make these higher wages possible. In 1906 the steam roads paid out 37.75 per cent of their gross earnings in wages. In 1911 this percentage had risen to 42.01, and on the basis of an estimate of wage payments amounting to \$1,243,677,738 for 1912, the percentage of wages to gross earnings for last year is figured at 42.95. It would be interesting to know how this rate of increase compares with that on the electric railways and their related industrial concerns. These companies know that wages are constantly going up without any corresponding increase in prices for transportation, and often accompanied by higher costs of materials and supplies. Obviously this movement cannot go on forever without some such consequences as those forecast by the statistician already quoted. This fact, fortunately, is the best reason for believing that the movement will be stopped by its own economic absurdity before very many years have passed.

### USES OF THE ONE-MAN CAR

Accounts of the experiences of companies with one-man cars published elsewhere in this issue express opinions that, in general, are unqualifiedly in favor of this method of operation for lines in small communities and for outlying lines of larger property. Some of those who have written the results of their experiences to the *ELECTRIC RAILWAY JOURNAL* believe that a special study is warranted in each case to determine whether or not operation under this method is advantageous from every standpoint. In other words, they believe that all the advantages and all the disadvantages should be considered thoroughly before a change in the existing method of operation is made by a company which has an established system and business. This is a wise precaution.

The questions to be considered concern the revenues, the expenses and the service rendered. One-man operation usually means the prepayment of all fares, and for that reason it safeguards the revenues. The plainest fact about operation of this nature is that it reduces platform expense, because the wages of one man are less than those of two men.

While the question of the service rendered is one that has many angles, certain fundamental conditions apply in each case. The amount of business obtainable and the riding habits of a community are the best general guides to the amount of service that is warranted and to the manner in which it should be proportioned between the various hours of the day or night. In the average small community the rate of growth is not always so rapid as in the large cities. Increase in population in the small cities does not as surely mean corresponding increase of potential riders as it does in the large cities; distances are shorter, and many people walk to and from the various centers. Available houses or sites for building homes exist in plenty within short distances of the office or factory. To some extent the influence on riding habits of the existence of only a small area for all purposes of home or business is offset by the increased riding at noontime, when many workers enjoy the advantage of going to their homes for the midday meal. Where the amount of traffic is small and the rate of annual increase is slight, a company cannot build up density of traffic as easily as that is developed in a great city. It cannot lengthen headways from two to four minutes because such headways are not in its experience. If it lengthens its headways from ten to twenty minutes or from twenty to forty minutes, it may destroy the traffic.

The logical conclusion is that if a remedy for higher costs of labor and materials cannot be found by a small company in changes of headways, it may lie in the substitution of one-man cars for cars operated by two men. It is possible to give the same amount or nearly the same amount of service with one-man cars as with two-men cars at a smaller expenditure for platform expense, or it is possible to operate more one-man cars for the same platform expense than would be required for the operation of a smaller number of two-men cars.

An important factor with which the replies deal is that of accidents. A problem to be considered is the proper protection of railroad crossings. A number of the replies

state that fewer accidents to passengers occur with one-man-operated cars. The reason why this has been found to be so is that the movements of both the passenger and the car are controlled so closely by the one man. There are no signals between motorman and conductor to be misunderstood. If the use of one platform and the fact of control of the movements of passengers to and from cars reduce the number or serious degree of accidents, this consideration alone constitutes the strongest kind of a recommendation for the widespread adoption of this method of operation in localities for which it is especially suited.

### RECENT INTERURBAN CONSTRUCTION IN THE FAR WEST

Recognition by prominent steam railroad men of the merits of electric traction for frequent-stop service is being illustrated in a striking way at the present time in Oregon. That State, as shown by our statistical number last January, occupied a prominent place among the states for miles of electric track built and equipped during 1912. This was due almost entirely to the extensions and new construction undertaken by two roads in the Willamette Valley, the Oregon Electric Railway and the Portland, Eugene & Eastern Railroad. The first of these lines is controlled by the Hill interests and the second by the Southern Pacific Company. The activity of these two large groups of capital in electric railway construction in Oregon shows their faith in the ability of electric equipment to develop a lucrative passenger and freight business in a growing territory by means of a frequent train service with stops at approximately 2-mile intervals.

The conditions presented in the Willamette Valley were very similar to those which existed in parts of the Central States before the construction there of electric interurban railroads. That is to say, the territory was not, and at present is not, so densely populated as are some of the Eastern States, but there were cities of from 5000 to 15,000 inhabitants, 25 to 50 miles apart, with prosperous agricultural communities between, and, in Oregon, one large terminal city, Portland. With the existing steam railroad train schedules determined, as they necessarily had to be, by through-run conditions, such a territory was obviously ripe for electric railway development, either by the existing steam roads or by independent capital, and the wisdom of the former is shown by the fact that they have recognized this condition and have undertaken the work.

Under steam railroad direction the roads can be constructed at less cost because, in places, existing steam track can be electrified and the through business of the steam road benefited by the growth of the communities served.

This point was expressed in a speech made by President Strahorn of the Portland, Eugene & Eastern Railway on March 15, at the time of the completion of that line. In speaking of the facility with which each of the communities connected by the railway would be able to do business with the others and with the larger towns, he said: "In most regions to-day railroads are not seeking so much to extend their lines as they are concerned with the development of the territory they now occupy. This is

because, after all, it takes large traffic to pay dividends, while idle steel only glitters in the sun or rusts."

In one important respect the promoters of all of the recent electric interurban roads in the Far West have had an advantage over the builders of the earlier interurban roads in the Central and Eastern States. The advantages of electric transportation in frequent service and in other ways are now understood to be sufficient to warrant their bid for popular favor and patronage, and in consequence it is not necessary to cut the fare below the rate charged on parallel or neighboring steam railroad lines. The passenger rate on the Oregon electric lines mentioned, for example, is 3 cents a mile. Had this general fact been equally well recognized in the East it would have been much better for both the railways and the public. But some of the fares on the Eastern roads seem almost to have been established on the theory that passengers were entitled to a fare rebate with a bonus thrown in. The facts, of course, are that while the steam road is more convenient for the long-distance traveler, the electric interurban road is more convenient for the short-distance traveler, and neither can take many passengers from the other by cutting rates.

Whether the electrification of the through lines of the steam railroads in the Far West which operate electric interurban lines will be hastened because of this interurban activity is a question. Probably it will be to some extent. For one thing it puts the companies in possession of figures on the cost of electric operation obtained by their own transportation departments. Again, in some cases, hydroelectric propositions are being developed for the interurban lines which would be suitable for the supply of power for through-route electrification. The latter will come first in the Far West, undoubtedly, on the mountain divisions, where the limitations of the steam locomotive are most apparent.

#### PROPOSED TECHNICAL COMMISSION ON STEAM RAILROAD ELECTRIFICATION

All those who have at heart the advance of the electric railway industry will heartily second Mr. Sprague's proposal, made before the New York Railroad Club on Friday, March 21, that a technical commission on steam railroad electrification be formed to consider ways and means, first, to determine what systems of electrification are best suited for particular sets of conditions, and, second, how the steam railroad may be relieved of the necessity of raising capital for electrical energy supply and equipment. Mr. Sprague's proposal was not an impulse of the moment but a carefully wrought-out plan which he has been discussing for the last two years with interests whose financial aid would make such a commission possible. This technical body would be composed of engineers of recognized ability and breadth of mind whose combined experience in the technical and economic fields of steam and electric railroading and equipment would make their decisions of most influential if not binding character. Furthermore, these men would not have to take up this task as something subsidiary to their regular occupations but as a problem worthy of all their powers for an extended period. That the electrical interests have signified their willingness to bear all or part

of the expenses of this research is evidence that their faith in steam railroad electrification is of the sublime kind that moves mountains.

The fact will be very generally recalled that a similar commission was organized in Germany more than a decade ago to conduct the famous Zossen high-speed tests, and that its studies did much to present an exact idea of the possibilities of electric railway equipment. But in the United States the problem is far larger and more complicated, for the mileages possible for electrification are much greater, the railroads are owned by many private companies instead of a few governments, and electrifications of widely varying character have already been made.

It is not essential that the proposed technical commission should say: "This system shalt thou use and no other." It will be doing enough if it gives accurate statements of the capacity, efficiency and maintenance costs of the different systems as determined by direct study of the data sources. The cynicism of the steam railroad man will cease when he finds that the advocates of electrification are no longer deprecating one another's pet systems. The moral effect alone of this united stand will mark a gigantic step forward toward steam railroad electrification.

The proposal to finance the electrification by furnishing energy and cars on the basis of usage should be even more effective than any decision as to system. Government regulation, labor difficulties and the rising cost of materials have made it almost impossible for steam railroads to raise new capital at former rates. If some suitable financial organization, therefore, can raise the necessary capital and guarantee such low unit energy and rolling stock rental costs as would obviously bring immediate economies, the opponents of electrification would have left few valid objections.

Similar methods of financing railway needs have already been practised successfully on a large scale by the banks which stand behind the great German manufacturers of electric railway equipment. Mr. Sprague's proposal that the power companies should have the use of the railroad right-of-way for their pole lines presents one instance of how co-operation would eliminate needless investments. In view of the figures which the Pennsylvania and New York Central railroads have made available in such a broad-minded spirit on the maintenance costs of their electric rolling stock, it should not be difficult for electric companies to offer cars and locomotives on a definite mileage basis.

In conclusion, it is worth while to point out that one most important by-product of extended steam railroad electrification will be its favorable effect on the conservation of our national resources, namely, in bringing about the tremendous reduction in fuel consumption which must follow the elimination of the power station on wheels by the hydroelectric and even by the steam central station. The increased exploitation of water powers necessarily means the conservation of the forests in the watersheds which feed them.

This fact alone shows that the problem of steam railroad electrification has far greater ramifications than the mere enrichment of the electrical interests, for by the elimination of waste this proposal discloses the possibilities of a great national service.

# Express and Freight Traffic in Providence, R. I.

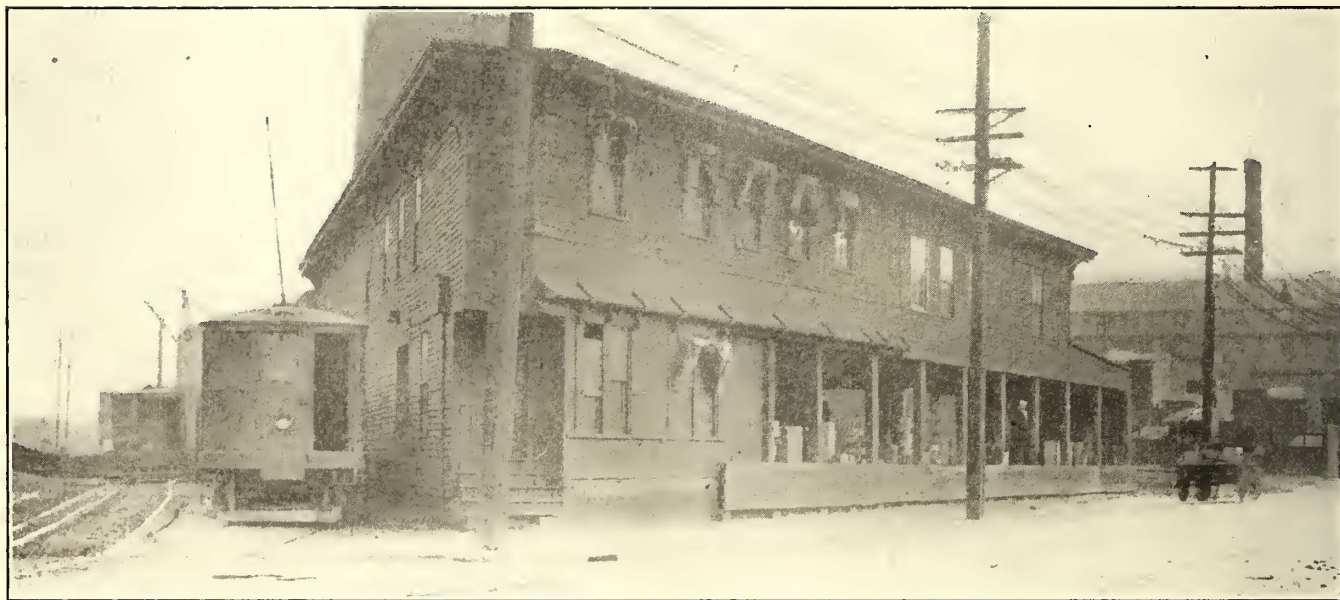
An Account of the Methods Used in Handling Express and Freight In and Out of the City, Including Descriptions of the Special Facilities Provided for This Service—A Number of the Rates for Various Commodities Are Given

The electric freight and express business of the Rhode Island Company is one of the most highly developed in New England and is the outgrowth of pioneer work by the company in this field at a time when little interest was felt in the subject except in the Middle West. The service was inaugurated at Providence by the Union Railroad Company and the Rhode Island & Suburban Railway Company in May, 1901, with three 17-ft. cars refitted from old passenger rolling stock, these making two trips daily into the Pawtuxet Valley. Freight was delivered to the cars by teams at the Crawford Street bridge in Providence and distributed by the cars in many of the villages in the valley. In July two other cars specially built for electric freight service were added, and in the early fall a storage freight house was rented near the business district, the depot having 2000 sq. ft. of working area. This terminal had two loading doors for teams and two for cars, but as the

of the department requires fifteen clerks, six checkers, three collectors, two cashiers, nine conductors, two foremen, twenty-eight helpers, two messengers, seventeen motormen and two trolley tenders, or a total of ninety-three men, including five brakemen, the general freight agent and his assistant. There are also twenty-five outside freight and express agents located at points elsewhere in the State who give their time wholly or in part to the work.

## FREIGHT AND EXPRESS STATIONS

The Dyer Street station occupies a lot of triangular shape at the intersection of Dyer and Dorrance Streets and includes quarters for the general freight agent and his assistants, a receiving and loading shed, delivery shed and storage yard, besides being served by two passing and three spur tracks in the adjoining streets. Two of the spur tracks shown at the left in the accompanying photograph are used by the express cars in loading and unload-



Providence Express and Freight—View of Dyer Street Station, Showing Offices and Receiving Platform

latter were obliged to pass in front of the former, necessitating constant moving of the teams, the terminal was soon found inadequate. During the summer electric freight service was begun between Providence and East Greenwich, and it was soon extended to Wakefield and Narragansett Pier by connection with the Sea View Railroad. In the fall service was begun between Providence, Warren, Bristol, Manton, Centerdale and Cranston.

In 1905 the Rhode Island Company leased the Dyer Street station, located about half a mile south of the business center of the city, and has since made this the headquarters of the service. The growth of the business necessitated the opening of an additional station in 1909 at Fox Point, on the East Side of the city, to care properly for the traffic between Providence and Fall River, Taunton, New Bedford, Phillipsdale and the Barrington district. The company now operates in its express and freight service on its lines about sixty total cars per day, including outward and inward operation, with extras as required. The rolling stock used in the freight department includes three electric locomotives, twenty-seven express box cars, twenty-six flat cars of from 10 to 15 tons capacity, twenty-three side-dumping coal cars, and seven 10-ton box cars. The work

ing freight and have a capacity of four cars each, it being customary to load or unload eight cars at a time. The third spur track has a capacity of five cars and is used only for storage service. In unloading the express cars the company endeavors to berth them as far from the Dyer Street entrance as is convenient, in order to avoid interference with the transfer of merchandise in the main portion of the building, besides shortening the distance between the cars and the loading platform for teams. The receiving and loading shed occupies the first floor of a two-story structure and has a working area of 7170 sq. ft. Four 6½-ft. by 8-ft. doors are provided for car service on the Dorrance Street side of the building, and on the Dyer Street side are nine working doors used by teams delivering goods to the station. The general offices occupy the second story. The teaming doors are about 3 ft. above Dyer Street, and on the south side of the receiving and loading shed are two other doors used by teams with low-hung bodies, carried to within 18 in. of the ground. The delivery shed is a one-story structure of 1980 sq. ft. area and extends into the teaming yard as a wing of the main station. It is provided with three 9-ft. x 7-ft. doors located with the sills about 3 ft. above the street. The

exterior is covered with sheet iron to provide greater fire protection. The interior of the receiving and unloading shed is divided into areas corresponding to the geographical destinations of the shipments. A cashier's office is located on the first floor at the main entrance. The station is open from 7 a. m. to 5:30 p. m. on week-days. It is lighted by

The Fox Point freight station is a one-story structure built in two sections, each of which is 75 ft. long and 30 ft. wide, and is of the island type, with two service tracks on one side and a teaming thoroughfare on the other. It adjoins an abandoned passenger station of the New York, New Haven & Hartford Railroad and is in close proximity



Providence Express and Freight—Delivery Platforms at Dyer Street Freight Station—Typical Diagonal Track Entrance at a Warehouse

16-cp incandescent lamps wired in series circuits of five each and supplied from the company's feeders. The doorways are lighted by a row of incandescent lamps carried on the inside and slightly above each entrance. The area of the storage yard is about 1650 sq. ft. To facilitate the loading and unloading of cars and teams the passenger

to the shipping district served by steamship lines running in and out of the city.

A maximum of five freight cars can be loaded or unloaded at once at this station, four doors being used for the car service and thirteen for the teaming. Ample storage facilities for cars are also available. The station plat-



Providence Express and Freight—View of Receiving Platform at Fox Point Freight Station

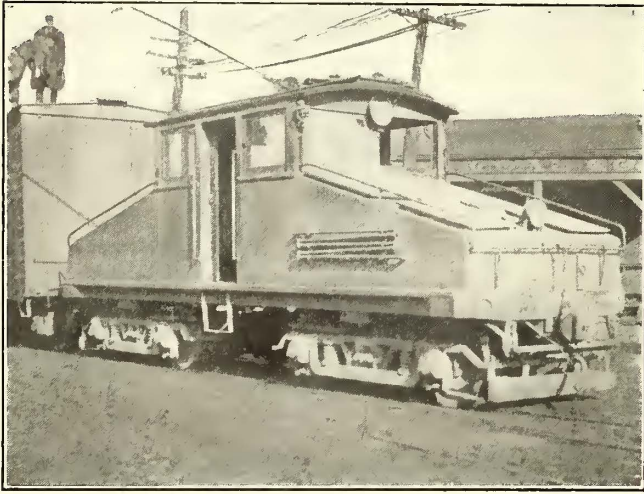
traffic is handled from south to north only on this portion of Dyer Street, the further track from the station being devoted to northbound passenger traffic and necessary freight movements. The track nearer the station is used only by express cars and locomotives shifting freight. A Y-connection is provided for reversing train movements in a square at the south of the station.

form is located 3 ft. 6 in. above the street, and the doors, which are 8 ft. high by 7 ft. wide, are of the upward swinging type.

Artificial illumination is provided by five-lamp clusters placed 9 ft. above the floor. The platform area, exclusive of a freight office at one end of the building, is about 3800 sq. ft.

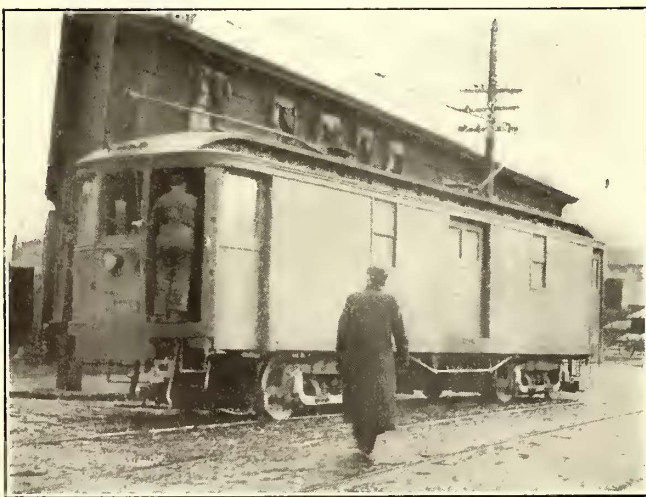
## EQUIPMENT FOR HANDLING FREIGHT

Between the Fox Point and Dyer Street stations a loop service including the city of Pawtucket is maintained, three round trips being run daily over this route. In this way the two terminals are brought into close operating relations and the transfer of freight is easily accomplished. The transfer of steam railroad freight cars between the



Providence Express and Freight—Electric Freight Locomotive

New York, New Haven & Hartford Railroad and business and industrial establishments, including the local electric lighting company, a machinery house, bakery, coal pocket, grain dealers, oil wholesalers and produce merchants, is handled by the Rhode Island Company's electric locomotives over a so-called "interchange loop" or belt-line track of standard railroad construction which traverses the wholesale and trucking district. All these concerns are served by spur tracks entering their premises from the street, the trolley wire being carried into the property to facilitate switching. A typical diagonal entrance to a wholesaler's premises is shown in the accompanying photograph. This belt line is operated day and night, and the shifting is accomplished with great speed, the noise and



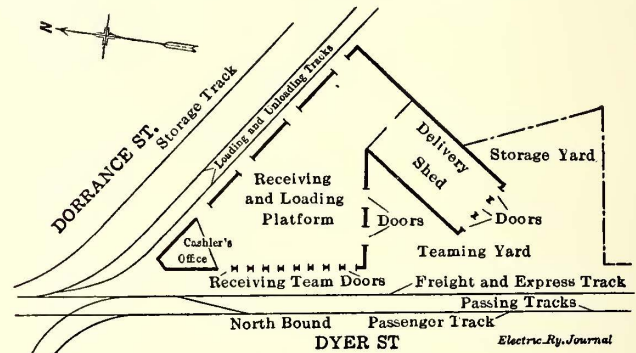
Providence Express and Freight—Standard Express Car

dirt associated with the ordinary steam-driven switch engine being absent. The excellent acceleration of the electric locomotives is an important factor in the speed of the work. Two of the latter are in regular service, the third being held in reserve. The crew of an electric locomotive on shifting work includes a motorman, conductor, trolley tender and two brakemen. Coal cars are handled for out-

of-town deliveries after midnight. Three times a week an electric locomotive hauls six carloads of bananas from the steamship wharf district to wholesale fruit houses.

The locomotives weigh 30 tons each and are 27 ft. 10½ in. over bumpers, with 16-ft. truck centers, an over-all width of 8 ft. 3 in. and a body length of about 27 ft. The cab is 10 ft. long and is framed between ten posts usually 4¼ in. x 4½ in. in section, with the exception of the doors, whose posts are of 3¾-in. x 5¾-in. section. The locomotive underframe is composed of four 5½-in. x 7½-in. longitudinal sills, with cross bracing, and a running board carried by an angle iron 5⅞ in. wide extends along each side from end to end. Grab handles are provided all around the locomotive, which is equipped with four Westinghouse No. 93-A 60-hp motors, 33-in. wheels, K-14 controllers, standard M.C.B. trucks and incandescent headlights. Both straight and automatic air-brake equipments are provided. A sand box surrounded by four 4.5-amp Simplex electric heaters is located in the cab and air sanders are used. The cab lighting is effected by a circuit of 16-cp incandescent lamps, including the headlight wiring and lamps. These locomotives were built several years ago and future equipments will weigh at least 40 tons per unit.

The usual type of express car is 40 ft. over all with a 32-ft. body carried on double trucks with 33-in. wheels and four 40-hp motors, the gear ratio being 19 to 67. Gen-



Providence Express and Freight—Plan of Dyer Street Freight House

eral Electric K-6 controllers and straight-air brake equipment are used. The roof is of the arched type and central loading doors 4 ft. 6 in. wide are provided, the width of the car over the sheathing being 8 ft. 2 in. and the height from the under side of the sill to the top of the roof 8 ft. 1 in. Wooden underframing is used and the speed of the car on a level is 25 m.p.h.

## FREIGHT ROUTES AND RATES

In general the company provides express service at freight rates, and the growth of its business has been greatly influenced by the promptness of the service. Throughout many parts of the territory morning and afternoon express car trips are run to and from the city, and in some cases the cars are run through from Providence without local stops. The lines are operated under the Interstate Commerce Commission's tariff classification. The waybill and routing are handled along the usual steam railroad lines, freight being billed through to any named destination. Special commodity rates are named for cotton bales, granite and stone in carloads, ice, milk, ties, wood and lumber in carload lots. Citing a few of the regular rates, the charges per 100 lb. from Providence to Danielson, Conn., range from 18 to 9 cents according to classification, with a minimum charge up to 25 lb. of 25 cents, the distance being 35 miles; from Providence to Putnam, Conn., the rates range from 20 to 11 cents, the distance being 41 miles; from Providence to Narragansett Pier, from 18 to 7 cents, distance 31 miles. The Providence & Fall River Street Railway, Union Street Railway Company

of New Bedford, New York, New Haven & Hartford Railroad and New England Steamship Company participate in the tariff issued by the Rhode Island Company, and the Rhode Island Company acts as a delivering carrier for the Bay State Street Railway Company of Boston, Mass.

The electric express service from Dyer Street station in Providence covers one car per day to Buttonwood and way stations; Cranston, Esmond and way stations; Danielson, Putnam and way stations; Foster and way stations; North Attleboro, Plainville and way stations; Wickford, Narragansett Pier and Peace Dale; Wrentham, Franklin and Milford, Mass. Two cars per day are operated from Dyer Street to Auburn, Hope, Crompton and Anthony; Norwood, East Greenwich and way stations. A daily express car to Attleboro, Mass., and the Pawtucket service before mentioned complete the schedule. From the Fox Point station three daily trips are run to Fall River, Mass., and way points; three to New Bedford, Mass.; two to Riverside and Barrington; two to Taunton, Brockton, Middleboro, Plymouth, Quincy and Neponset, Mass., and Newport, R. I. A daily Fall River express service is also scheduled. The company also handles daily a through car from Brockton, Mass., with freight destined for New York City by the night sailings of the Hartford & New York Transportation Company and the Colonial Line. Accommodations on the pier are reserved by the steamship companies for this service. Between 5 and 7 p. m. the express cars are not permitted to operate on any of the important streets of Providence. The leaving times for the express service are listed in detail in the weekly publication of the Providence Board of Trade and in the monthly pocket manual "Red Guide" to the city.

The electric express service centering in the Providence district has increased the value of farms throughout a radius of at least 40 miles from the city; it has cut down the time of shipments from the urban stores to the villages and towns outside by one day and in some cases by one and one-half days; has reduced the size of local stocks carried; has brought the city table and the farm closer together and has stimulated the development of summer resorts on Narragansett Bay and the south shore of Massachusetts.

### PUBLIC SERVICE REGULATION AS EXEMPLIFIED BY WISCONSIN COMMISSION

A joint meeting of the Chicago Section of the American Institute of Electrical Engineers and the Electrical Section of the Western Society of Engineers was held in Chicago on March 24. Halford Erickson, member of the Wisconsin Railroad Commission, read a paper, "The Regulation of Public Utilities in Wisconsin," and it was followed by an interesting discussion.

Mr. Erickson described in outline that part of the work of the commission which is involved in enforcing adequate service, reasonable rates and sound financial methods and practices. The speaker described the cost basis of making rates as adopted in Wisconsin, and the uniform accounts and reports for both privately owned and municipally operated companies, and then devoted some attention to the subject of capitalization. One of the evils of over-capitalization, Mr. Erickson said, was the unnecessary and economically unwise consolidation of public-utility plants under one management, which was encouraged by the unlimited right to issue securities. Consolidations of operated properties were sometimes prudent and economical, but the opportunity to combine two corporations and issue securities exceeding the combined value of the two was so tempting that sometimes, in the absence of regulation of security issues, the merger was concluded in a manner detrimental to the interests of the public. Another function of the commission was the prevention of duplication and waste in the establishment of public-utility plants. This was accom-

plished by the regulation of capital expenses in the case of privately owned enterprises and by the use of the indeterminate permit in the case of municipal utilities. On the whole, the regulation of public utilities had been of direct benefit to the public, but the operations of the state commissions had not brought about the millennium. Complaints against regulation were more frequently actuated by personal or political interests than by unselfish regard for the public welfare.

Bion J. Arnold, consulting engineer, who opened the discussion at the request of A. Reichmann, president of the Western Society, said that Mr. Erickson had laid down the fundamentals of public regulation. As to capitalization, Mr. Arnold said that his practice had been to endeavor first to find a fair valuation of the property—one upon which both the municipality and the company could agree. Almost always this figure contains some intangible value. Provision is then made for the decapitalization of the intangible value by the establishment of an amortization fund which, at a slow rate of accretion, will eventually wipe out the intangible value, so that finally the physical value will exactly equal the capitalization, and here the capitalization should be kept.

Mr. Erickson, answering some of the questions put to him, said that it was only during the last two years that the commission had entire control of capital issues. The plan was working well and the speaker believed that it had reduced the rate of interest on capital needed for utilities in Wisconsin by making the securities safer. As to capitalization of early losses, the Wisconsin method was not perhaps understood. The commission tried to find out what the early losses were, and from all the facts available it fixed the value of the plant and business. The commission had received twice as many complaints relating to discriminating rates made by municipal plants as in the case of privately owned plants. Mr. Erickson remarked that he recited these matters in regard to municipal plants because the facts existed as he stated them. The rate for "overhead" allowed in Wisconsin varied from 12 per cent to 15 per cent. However, it was to be considered that 10 per cent was allowed for contractor's profits on unit prices. This was in addition to the 12 per cent to 15 per cent for overhead, and if it were taken into account, the percentage allowed for overhead would be more than 20 per cent. As to the cost of making investigations, the commissioner explained that the utilities were seldom assessed the cost of making investigations, even when their rates were found to be too high, although the law permits this to be done. Often it was found, in the case of one utility, that some rates were too high and others too low, so that the subject was a complicated one, and the commission had never availed itself of its power to assess the cost of investigations of utilities that have been charging rates determined to be too high.

G. T. Seely, assistant general manager of the Chicago Elevated Railways, spoke of the overhead expense. In the case of an elevated railroad it took four years, perhaps, after construction was begun before final operation was accomplished. The overhead expense would surely mount up to 25 per cent or more.

Mr. Erickson, in answer to questions asked by W. B. Jackson and others, said that in relation to capitalization and overhead expense, the final standard, after all, was the figure for which money could be obtained. As to the "used and useful" phrase, it included all the amounts judiciously expended in building a plant and securing its business. There should be a fair relation between bonds and stock in financing utilities. It was difficult to determine in advance what this relation should be, but, after all, it came down to the question of the cost of obtaining capital by one method or another. The commission had not as yet granted a certificate of necessity to a competing utility, although it had the power to do so.

# Experience with One-Man-Operated Cars

Letters from Railway Officials Describing the Results of Their Adoption of This Method of Operation and Recommending More General Use of This Type of Equipment

In view of the great interest in the subject of one-man-operated cars and the discussion regarding the practicability of the use of such cars to a much greater extent than has been the custom heretofore, the *ELECTRIC RAILWAY JOURNAL* addressed letters of inquiry to officials of companies that have had experience with this method of operation. The substance of the replies is given below, and the responses recommend strongly the adoption of this method of operation in small cities and on outlying lines of large cities.

R. B. STICHTER, GENERAL MANAGER WACO (TEX.) STREET RAILWAY

The cars were originally built with a view of one-man operation but so that, when occasions of heavy traffic demanded, they could be operated well with two men. The older types of Brill fare boxes have been in use, and the trainmen are permitted to make change only. We are at this time trying out the later types of fare boxes.

The system is so laid out that every car in service passes in front of the company office, the trainmen are supplied with \$5 in nickels, and a change man remains on duty during the entire period of operation and keeps the men supplied. Twenty nickels are stacked and held together with a spring clip for the purpose, so change can be quickly and accurately made when required by the trainmen.

The hours of car operation per month will exceed 10,000, and the addition of another trainman per car hour, at 18 cents, would mean an increase of \$1,800 per month. The saving does not amount to this much, however, as at present some of the lines have such heavy traffic that, the cars being of the single-truck type, it has not been found possible to operate with one man and make sufficient headway. There are other lines which during the heavy traffic period are supplied with an extra man to each car to act as motorman, the regular man during such period of heavy traffic confining his duties to acting in the capacity of conductor.

There are twenty-four cars on the system, all arranged for one-man operation. During November, however, four double-truck motor cars and four double-truck trail cars were received and were greatly praised by the Mayor and members of the City Commission and others interested in the city's welfare and development. These later cars embody the single-man, pay-as-you-enter feature, with outside closing doors operated by the motorman, are provided with cash fare boxes and are without bulkheads. The side framing consists of T-irons, extending from the floor framing up one side and down to the floor again on the other side, in one continuous piece. All of the motor cars are equipped for double-ended operation except four.

The amount to be expended to convert old-style cars to one-man pay-within cars depends on the number of car hours, the rate paid the trainmen per hour and other local conditions which are easily ascertained and secured in each particular case.

We expect trainmen to request payment of fare, cash, ticket or transfer, the same as in two-man pay-as-you-enter operation. All fares are registered on a double-fare register as cash or tickets. This is done by means of overhead straps. Transfers are issued at certain transfer points. We have not tried a transfer-issuing machine. The trainmen are instructed to announce streets and to assist only elderly persons on or off the cars. Our pay passengers per car mile average a little in excess of four.

One-man operation gives a little slower schedule than two-man operation. The schedule, however, under proper training and proper inspection, in our experience, is sufficiently rapid to please all patrons, and, in fact, is as rapid as safe conditions of operation will permit, regardless of whether the car is operated by one man or two men.

Our observation shows that a single-man car, provided with lever to operate folding doors and steps, if properly operated, is practically as safe as when operated by two men, and the number of accidents and the amount of damage resulting from one-man operation do not exceed to any perceptible degree those with two-man operation. As previously stated, however, when the traffic gets heavy, in order to make the same schedule, it is necessary to provide two men, and the results, from the accident standpoint, depend largely on the provision by the superintendent of inspectors of two men just at the time when traffic becomes sufficiently heavy to justify it.

The attitude of the public toward the one-man car seems to be very favorable. There is no objection to it whatever except in certain localities where a large proportion of the passengers are negroes, and in such cases it sometimes becomes necessary, hearkening to public opinion, to segregate the negroes in the rear of the car and permit them to enter and leave through the rear. In the case of one-man-operated cars it is ordinarily required that all passengers enter and leave by the front entrance.

Our experience with the one-man-operated car is that it very often enables the traction company to give street car service in thinly populated districts where if two-man operated cars were required such service could not profitably be maintained, and with the exception of lines blessed with quite heavy patronage the system of operation can be so laid out that very economical and satisfactory service can be given to the public.

J. W. WAGGENER, GENERAL SUPERINTENDENT ATCHISON (KAN.) RAILWAY, LIGHT & POWER COMPANY

The cars we operate are the ordinary semi-convertible single-truck cars with both rear and front platforms. The rear doors are kept closed and no fare boxes are used. We supply \$5 in change to the trainmen. We have eight cars, all double-end. I think it is not necessary to spend any money in remodeling old-style cars for one-man prepayment operation if our system of closing the rear door is followed. We instruct trainmen to exact prepayment of fare in all cases on one-man cars. The fares are registered by hand. Transfers are issued when passengers leave the car and at the junctions. The motorman announces streets and assists passengers in boarding and alighting, or with heavy packages, etc., if they need assistance.

The average number of passengers per car mile on our one-man cars is 4.8. The maximum speed of the one-man cars is 8 m.p.h. The schedule speed is 7 m.p.h. There has been no effect on our schedule speed from the introduction of one-man cars. We have employed a second man when traffic is heavy; he stands inside of the car at the front end and collects and registers the fares. So far as our observation goes, the number of accidents has not been increased by one-man operation. We have never had any trouble with passengers, but many of them buy tickets to save trouble in making change when they enter the cars. All objection on the part of our public against one-man cars disappeared in a short time.

The saving in platform expense due to the use of one-man cars is not offset by disadvantages of any kind. We have received advantages from one-man operation in addi-



tion to our reduction in platform expense. All fares are apparently registered, and a saving has resulted of \$2 per day on each car. This city has between 17,000 and 18,000 inhabitants. We came to the conclusion that one man could collect fares and register them practically as quickly as could be done with a conductor, and it became a question of cutting expenses; hence the adoption of the system.

I certainly recommend one-man operation for companies in small cities and for the outlying lines of companies in large cities, especially where the schedule is not too fast. For a number of years our cars were operated as one-man cars, passengers paying their fare when they left the car, but about two years ago this method was changed to payment as the passengers entered. This last arrangement has been much more satisfactory to the general public. On holidays, such as the Fourth of July and other big days, when the traffic is particularly heavy, it becomes necessary for us to put on a conductor during the congested hours only.

ATTILIO NORMAN, TREASURER FREEPORT (ILL.) RAILWAY & LIGHT COMPANY

Four of our cars were originally for one-man operation and two were reconstructed. The cars are double-end. Johnson registering fare boxes are used, and very little expense was necessary to remodel our old-style cars for one-man prepayment operation. We instruct trainmen to exact prepayment of fare in all cases on one-man cars. Trainmen register fares by hand and issue transfers in the usual manner. The motorman announces streets or assists passengers in boarding and alighting, or with heavy packages, etc., if they need assistance.

Our average number of passengers per car mile on one-man cars is about three and one-half. Our schedule speed is 8 m.p.h.; our runs are short and this includes turning time. There was no effect on our schedule speed from the introduction of one-man cars. We have never employed a second man on our one-man cars. So far as our observation goes the number of accidents has been decreased by one-man operation. Our car mileage is greater with the one-man cars than with the two-man cars operated previously. Our traffic has increased, but we are not sure that this was not due to other causes.

The attitude of our public toward one-man cars at the beginning of operation was that it was willing to have us try them out. Sentiment seems favorable now. The saving in platform expense due to the use of one-man cars is not offset by disadvantages of any kind. We have received advantages from one-man operation in increased receipts and fewer accidents. We introduced one-man operation for the purpose of economy in operation and because we expected increased receipts and fewer accidents. We recommend one-man operation for companies in small cities and for outlying lines of companies in large cities.

SAMUEL BARNES, GENERAL MANAGER CAPE GIRARDEAU-JACKSON (MO.) INTERURBAN RAILWAY

We have operated our one-man pay-as-you-enter cars for a little more than two years. We were about the first company to operate one-man cars. During this time we have had but one accident. We feel that this is due mostly to the fact that the motorman is placed in a position where he realizes that he is wholly responsible for the car operation and is not depending on the efforts of any one else to avoid possible accident. Furthermore, we have some 7 per cent grades running straight toward and within one block of the Mississippi River banks or levee. When going down this grade, if the car gets beyond the motorman's control, it is necessary for the motorman to throw off the overhead switch and reverse the controller seven or nine points to allow the motors to generate sufficient current to hold the car to a controlling point of speed. Previous to the one-man operation this effort to avoid a runaway with the car on the down grades depended on the conductor to

some extent, and at such times he was liable to be inside of the car collecting fares; but under the new system the motorman has quicker access to the means of remedy. There are other instances wherein the one-man pay-as-you-enter car is far superior to two-man car operation.

We reconstructed our cars ourselves. Fare boxes of the 4-A Brill type are used. Each man has to furnish his own change, \$10. There are six one-man cars on the system, or ten cars of all types. One-half of the cars are single-end and the remainder are double-end. The expenditure that a company would be justified in making to remodel old-style cars for one-man prepayment operation depends on the type of car and general traffic conditions. Our single-end cars cost \$240 per car, and our double-end cars \$480 per car, to reconstruct. We instruct trainmen to exact prepayment of fares in all cases on one-man cars. Fares are registered by hand and regular transfers are issued. The motorman announces streets and assists passengers in boarding and alighting, or with heavy packages, etc., if they need assistance.

The schedule speed on our one-man cars is 9½ m.p.h. We are making just as good schedule time as with the old system. We have never employed a second man on one-man cars. The number of accidents has been decreased by one-man operation. Our car mileage is greater with the one-man cars than with the two-man cars operated previously. The traffic was affected by the establishment of one-man cars on the start for about ten days. The change seemed to cause a little inconvenience to the public, but after that everything worked smoothly. Some people were not favorable to the idea of putting change in the box, but this attitude has changed. All the results of one-man car operation are advantageous. We introduced the cars to reduce the cost of operation and improve the receipts, and by all means recommend one-man operation for companies in small cities and for outlying lines of companies in large cities. During big days our one-man cars carry 1800 to 2000 passengers per day each. We have had days in which these cars have handled 900 passengers each in three hours.

JOHN A. PORTER, MANAGER PARIS (TEX.) TRANSIT COMPANY

We use cars with 5-ft. platforms with a controller on each platform. We supply the trainmen with \$5 for change. We have, all told, eight cars, of which five are operated in regular service. All are of the semi-convertible type. The cars are double-end. We instruct trainmen to exact prepayment of fares in all cases on one-man cars, unless from a woman encumbered with baggage or baby, who is allowed to pass in, deposit baggage and return immediately with fare. The car remains standing until the fare is received, when it is at once registered by the motorman, the register cord being immediately overhead.

Transfers are issued as passengers leave the car. This feature is easily controlled here, as there is but one transfer point to which all cars run. No announcement is made of streets. The motorman assists passengers in boarding or alighting only from the platform and never alights upon the ground unless in some extreme cases as with a cripple, decrepit person, etc. Our average number of passengers per car mile on one-man cars is 3.87. Our maximum speed on one-man cars is 15 m.p.h. Our schedule speed is 12 m.p.h. The result on our schedule speed from the introduction of one-man cars was a loss of nearly two minutes per mile. We have employed a second man on one-man cars on big days. On double-end cars when conductors are employed the front doors are closed and conductors take the usual place. The number of accidents has been decreased by one-man operation because the motorman can see that passengers have alighted before he starts the car.

The sentiment of the public at Paris forbids obscene language on cars, and as there are no saloons in town, we

rarely have disorderly behavior on our cars. Our car mileage is less with the one-man cars than with the two-man cars operated previously. The schedule is lowered at the transfer point about three minutes. The public was informed of the change by announcement of the difficulty that the line had to maintain itself with the expense involved with two men. The public now generally realizes that small towns cannot afford such a train crew. The disadvantages in the use of one-man cars are the lowered schedule and the difficulties in handling the occasional rush, but the saving justifies the change in spite of these objections. Expenses were reduced at this plant about \$250 per month average on "trainmen's wages" without perceptible change in revenues.

We introduced one-man operation to save money. We recommend one-man operation for companies in small cities and for outlying lines of companies in large cities and only under these conditions.

S. R. INCH, FORMERLY MANAGER MISSOULA (MONT.) STREET RAILWAY

[As Mr. Inch has been a strong advocate of the one-man car, he was asked if he cared to say anything to supplement the paper presented by him before the American Electric Railway Association convention in Chicago, an abstract of which was published in the *ELECTRIC RAILWAY JOURNAL* of Oct. 11, 1912. The list of questions that was sent out generally was also sent to him. His reply is given below.—EDITOR.]

In regard to your suggestion that there might be something which I would care to say further at this time relative to one-man cars, I have only one thing to suggest. This is, that as much as possible be made of the fact that the operation of one-man cars in towns where their use is feasible represents a distinct benefit to the community affected, since the reduction in operating expenses should enable the railway company to give more frequent service for the same density of travel than would be possible with two-man cars under the same conditions. I feel that the difficulty of introducing one-man cars may be considerable in certain places unless the company affected can interest the public which it serves in the matter, and this can be done only if the public is shown that it is to its interest that one-man service be adopted.

This is a matter which I attempted to bring out in my paper, but it is one which I think has not had the prominence which it deserves in connection with one-man-car discussions. It is true that the most important point to the operating company is the saving in the platform expenses for any given number of cars. It is also true, however, that this is an item of very little interest to the general public, and it therefore becomes necessary that some argument be advanced affecting the self-interest of the public, so that it will favor the proposition. I think the argument of increased service satisfactorily fills this condition, and I think it should be made a great deal of by any company proposing to introduce one-man cars. With the public convinced that its interests will be better served with one-man than with two-man cars, the difficulties with labor organizations relative to such a change would be much simplified.

Our cars were originally built for one-man operation. Fare boxes, Brill No. 4-A, are used. We supply the trainmen with change for \$15 per car. One-man operation saves us  $3\frac{1}{2}$  cents per car mile in platform expense. We have eleven one-man cars on the Missoula system, or thirteen cars of all types. Two of the cars are single-end and the remainder are double-end.

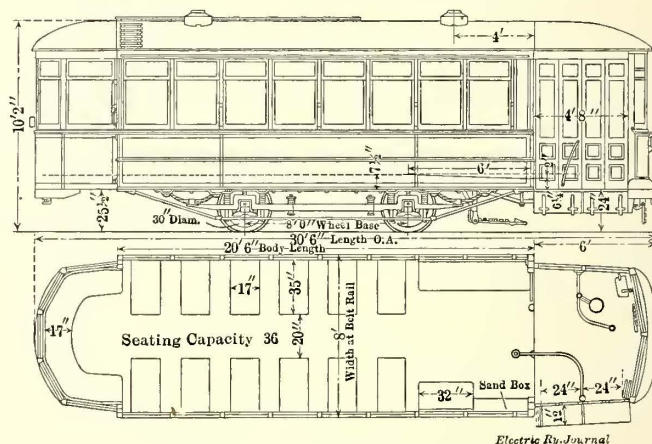
The expenditure that a company would be justified in making to remodel old-style cars for one-man prepayment operation would vary in different places, and I would suggest that an estimate of probable saving be made. We instruct trainmen to exact prepayment of fares in all cases on one-man cars. Fares are registered by means of a hand

lever and transfers are issued in the ordinary way. We are experimenting on a transfer-issuing machine of our own design. The motorman does not announce streets but does assist passengers in boarding and alighting when necessary. Our average number of passengers per car mile on one-man cars is 3.76. The maximum speed on one-man cars is 20 m.p.h. The schedule speed is  $8\frac{1}{2}$  m.p.h. We cannot state the effect on schedule speed from the introduction of one-man cars as our system has always been "one-man," but I think the effect should be negligible or nearly so. It is not necessary in a small town to employ a second man on occasion. We have had no accidents due to one-man operation in nearly three years.

Possibly certain classes of passengers are more likely to cause disturbance on one-man cars than on a car with two trainmen, but we have had very little trouble from this cause. The attitude of the public toward one-man cars at the beginning of operation was one of suspended judgment, but this attitude has changed and it is now very favorable. We know of no disadvantages in one-man operation but have received advantages in addition to the reduction in platform expense. The additional advantages are freedom from platform accidents and ability to run more cars and so serve our territory better. I recommend very strongly one-man operation for companies in small cities and for outlying lines of companies in large cities.

E. G. CONNETTE, PRESIDENT INTERNATIONAL RAILWAY, BUFFALO, N. Y.

We are equipping our Lockport city system for the operation of one-man near-side cars. The tracks have been arranged for the operation of this type of car. The cars are here and we hope to have them equipped and in operation during January. I estimate that the saving in plat-



One-Man Near-Side Car—Buffalo

form expense, together with other economies incident to this type of car, will be sufficient to pay the interest and depreciation upon the new equipment, including the track facilities and leave a substantial balance to be credited to net earnings. The proposed operation of the entire city system in Lockport, N. Y., with one-man near-side cars will fully demonstrate the efficiency and economy of this method of operation. The cars were furnished by the Near-Side Car Company of Philadelphia, Pa.

We propose to use fare boxes of the Johnson type until we can secure a combination fare box and recorder. The collection of fares will be under the control of the motorman, who will furnish change and issue transfers. The transfers will be simple in form, requiring two punch marks, time and destination. We do not propose to use a transfer-issuing machine. The motorman will announce the names of the streets.

We have been operating cars with one man on shuttle lines in the city of Buffalo for the last year or two, but the operation is in isolated districts where the traffic is

light, and it is not worth while to make any report on it.  
J. T. SKINNER, MANAGER LAWRENCE (KAN.) RAILWAY &  
LIGHT COMPANY

In preparing cars for one-man operation we simply closed up the rear door and folded up the rear step and put a fare box on the front end of the car. Fare boxes are used, part Brill No. 4-A and part Johnson recording fare boxes. We loan the trainmen for change \$10. The one-man-operated cars save approximately 40 per cent of platform labor. We operate regularly seven one-man cars on the system, but have a total of eleven double-end and three single-end cars.

A company is justified in folding up the rear step, closing the rear door, putting the fare box or register on the front end of the car and going ahead without any further changes except to adopt the near-side stop. We instruct trainmen to exact prepayment of fares in all cases on one-man cars except where the trainmen know that the person will hunt out the fare and drop it in the box before leaving the car. Old people and women with children and bundles will frequently take a seat near the front end of the car, hunt out the fare and drop it in the box after the car has started.

Trainmen ring up fares by hand as they are dropped in the box. If the car has a clear running space, the trainman punches his transfers with the car in motion; if not, the transfers are punched and handed to passengers as they leave the car. Only about 10 per cent of the passengers require transfers. Trainmen announce transfer points and streets for strangers. Our average number of passengers per car mile on one-man cars is about four. Our maximum speed on one-man cars is 20 m.p.h., and our schedule speed approximately 8 m.p.h. Since the introduction of one-man cars we have used a somewhat slower schedule. When we have large crowds to handle we open up the rear door and use two men, collecting fares at each end as passengers board cars; this allows a car to be loaded and unloaded quickly. The number of accidents has been decreased by one-man operation. We have not found that certain classes of passengers are more likely to cause disturbance on one-man cars than on a car with two trainmen.

Our car mileage has been increased somewhat with the one-man cars on account of the slower schedule. There has been no change in traffic due to one-man cars. The public thought it was a sensible thing to introduce one-man cars on a small road rather than to cut down car service to effect economies. The saving in platform expense due to the use of one-man cars is not offset by disadvantages of any kind. There are advantages in one-man operation in addition to the reduction in platform expense. One man kept busy will render more efficient service than two men partly idle. We introduced one-man operation because there is no need of two men on a small road except during a few days out of a year. I recommend one-man operation for companies in small cities, and for outlying lines of companies in large cities, where the regular riding is light, one man is better than two.

L. W. HESS, GENERAL SUPERINTENDENT NORTHERN ILLINOIS  
LIGHT & TRACTION COMPANY

Our one-man-operated cars are ordinary cars. We close the back doors and make all people get on the front end. In Summer we have both front doors open and in winter the right-hand front door in the direction the car is going. We supply \$4 to the trainmen for change. In September, 1912, our revenues per car mile on one-man-operated cars were \$0.1897 and our expenses were \$0.0918. We have six cars, and all are operated by one man except on large-traffic days. All the cars are double-end. The amount which a company would be justified in spending to remodel old-style cars for one-man prepayment operation would depend on local conditions.

We instruct trainmen to exact prepayment of fares in

all cases on one-man cars. The trainman records the fares on a fare register. He collects as the passenger gets off and the car is at stop or when he comes to a switch where cars pass. He steps inside at this point and collects fares. Transfers are issued by the motorman, who does not announce streets except when the passenger asks to get off at a certain place. The motorman is required to help all passengers who need it. Our average number of pay passengers per car mile on one-man cars is 3.93. Our schedule speed is 12 m.p.h. under the ordinance. One-man cars run a little faster under certain local conditions than was the practice before. On large days we have employed a second man on our one-man cars. He acts as conductor.

According to our experience the number of accidents has not been increased by one-man operation. We have never had an accident to a passenger getting on or off a one-man car. I do not think collisions are increased, as the man on the front end is the man to look out for that, anyway. I do not think disturbances are more apt to occur on one-man cars than on a car with two trainmen. Any person who wants to start trouble is usually under the influence of liquor, and the number of the crew would make no difference. Our car mileage is not greater with the one-man cars than with the two-man cars operated previously. The traffic was decreased slightly at the beginning by the introduction of one-man cars. There was some opposition toward them also at first, but this attitude has changed. I think the saving in platform expense due to the use of one-man cars is not offset by disadvantages of any kind.

There are advantages in one-man operation in addition to the reduction in platform expense. The responsibility of operation cannot be shifted to the other man, and there are fewer men to bear the responsibility. We introduced one-man operation to economize in expenses, as we cannot afford two men on a car. I recommend one-man operation for companies in small cities and for outlying lines of companies in large cities if they want to save money. We have operated our line almost fifteen years and have never had a suit entered in court because of a street car accident, although, of course, we have had a number of accidents.

DEAN TREAT, DISTRICT SUPERINTENDENT ILLINOIS NORTHERN  
UTILITIES COMPANY, DIXON, ILL.

At the present time we are installing the prepayment device on our city cars; that is, putting the door-control mechanism on our single-man cars. We have been operating these cars as single-man cars ever since the road started, with the exception of the first few months, when it was found that the amount of business did not warrant two-man operation. In the past our city cars have been operated as single-man cars, using the rear right-hand door for receiving and discharging passengers. The Johnson fare box was used and was placed in the forward end of the car, making it necessary for the passengers to deposit their fares, either ticket or cash, in this box.

On account of the accidents that occurred it was found advisable to put in the door-control mechanism and make the near-side stops. This allows passengers to leave the cars at the front right-hand door and deposit their fare in the fare box, which is located on the front platform.

E. E. DOWNS, FORMERLY GENERAL MANAGER BELVIDERE (ILL.)  
CITY RAILWAY

The cars on the Belvidere city line were built originally for one-man operation. A remodeled Johnson fare box is used. It rests on a pedestal on the platform convenient to the passengers and the motorman. The motorman supplies himself with \$10 in change, but 75 per cent of the passengers have the exact fare ready. We operate two double-end one-man cars. We instruct trainmen to exact prepayment of fares in all cases on one-man cars. Fares are recorded by a hand-register card hanging directly in front of the motorman. Transfers are not issued. The

motorman announces streets or assists passengers in boarding and alighting, or with heavy packages, etc., if they need assistance. Our maximum speed on one-man cars is 15 m.p.h. The schedule speed is 7.5 m.p.h. A second man is hardly ever necessary, except on special occasions, to make change and expedite loading and unloading. At such times he stands in any place not occupied by passengers. One-man operation obviates all loading and unloading accidents, but certain classes of passengers are more likely to cause disturbance on one-man cars than on a car with two trainmen.

At the beginning of operation everybody seemed pleased and took to the new order of things very kindly. The saving in platform expense due to the use of one-man cars is not offset by disadvantages of any kind. I recommend one-man operation for companies in cities of even as high as 40,000 population.

JOHN WISDOM, GENERAL SUPERINTENDENT JACKSON RAILWAY & LIGHT COMPANY

Our cars were not rebuilt. We use Coleman fare boxes and supply trainmen with \$10 for change. Our revenues per car mile on one-man-operated cars are 17 cents and our expenses 10 cents. We have eighteen one-man cars on the system and twenty-one cars of all types, running three open cars with conductor on the park line during the summer. All the cars are double-end.

We instruct trainmen to exact prepayment of fares in all cases on one-man cars. Fares are not registered. Transfers are issued by the motorman as passengers leave the car. We use a transfer agent during the evening rush. Except in rare instances the motorman does not announce streets or assist passengers in boarding and alighting. Our average number of passengers per car mile on one-man cars is four. Our schedule speed is 8 m.p.h. We reduced our schedule 1 m.p.h. when we put these cars in service.

On big days we sometimes put an extra man on to make change and punch transfers. Our accidents have been reduced by the use of the one-man car. We noticed no difference in traffic from the introduction of one-man cars. The public of Jackson likes the system. The worst trouble we have is to keep passengers from wanting to ride on the front platform. The advantages received from one-man operation in addition to reduction in platform expense are in the reduction of accidents. We recommend one-man operation for companies in small cities and for outlying lines of companies in large cities.

HENRY CRITTENDEN, GENERAL MANAGER DELTA ELECTRIC LIGHT, POWER & MANUFACTURING COMPANY, GREENVILLE, MISS.

We reconstructed our platforms, one side of the platform being entirely closed. We have seven one-man-operated cars on our system and twelve cars of all types. The cars are double-end. We use the old-style T. L. Johnson fare box, one on each end of the car, and supply our trainmen with \$7 each for change. We do not instruct trainmen to exact prepayment of fares in all cases on one-man-operated cars. As fares are dropped into the box they are registered by means of an overhead cord on each end of the car. Transfers are issued only when cars reach the transfer point, which in our case is only at one intersection of north-and-south and east-and-west lines. We have never tried a transfer-issuing machine. We do not find it necessary on our system to announce streets or assist passengers in getting on and off cars.

Our schedule speed is 8 m.p.h. with maximum speed of 20 m.p.h. We use only one man except when the county fair is in progress or when a circus comes to town. At such times the extra man collects the fares. We deal with both white and negro passengers, but have never had any trouble with disorder on the cars. We started operating cars with one man and have never received any serious complaint of such service. We chose one-man operation

for the purpose of reducing operating expense. Two-man-operated cars would on our system result in loss. In cities of from 15,000 to 20,000 population I would recommend one-man operation, but do not know anything about outlying lines in large cities.

F. R. NEWMAN, GENERAL MANAGER GREENVILLE (TEX.) RAILWAY & LIGHT COMPANY

Our cars were built originally for one-man operation by the Cincinnati Car Company. We have seven single-end cars all of the one-man type. Johnson fare boxes are used. We do not supply any money to trainmen for change. A company would be justified in spending \$500 per car if necessary to remodel old-style cars for one-man prepayment operation.

We instruct trainmen to exact prepayment of fares in all cases. Fares are registered by hand. This does not interfere with their other duties, as the cars are not started until the doors are closed. Transfers are issued in the usual manner. It is only in unusual cases that the motorman announces streets or assists passengers in boarding or alighting. Our maximum speed is 15 m.p.h. and our schedule speed is 8½ m.p.h.

We have employed extra men on rush days, but then only to attend to the trolley and open the back door for exit purposes. Judging by experience on other systems using two men to the car, the one-man system will show fewer accidents by a considerable percentage. The attitude of our public toward one-man cars has always been favorable. The disadvantages of the system are that there is nobody to attend to the trolley at railroad crossings, and the schedule is slower, as all passengers must enter and leave at the front end. On the other hand, there should be a reduction in boarding and alighting accidents, because there is no division of responsibility between motorman and conductor. Our system has been in operation about one and one-half years with one-man cars entirely. The results have been such that I feel safe in saying I know personally of many small systems that would be able to effect considerable economies if one-man cars were adopted, both from the standpoint of reduced platform expense and that of reduction in number of boarding and alighting accidents.

#### COMMITTEE ON CONVENTION LOCATION FOR 1915 LEAVES FOR SAN FRANCISCO

On the same train which carried the electric railways committee of the American Electric Railway Association, which left for San Francisco on March 25, as noted elsewhere on this page, was the joint committee on location of the 1915 convention. The convention location committee representing the American Electric Railway Manufacturers' Association is composed of E. H. Baker (chairman), James H. McGraw and Secretary H. G. McConnaughy. The American Electric Railway Association members of the committee are Messrs. Harries, Henry and Donecker, who will also act as the electric railways committee which has been invited to the organization meeting of the proposed Pacific Coast electric railway association. On reaching San Francisco the joint committee on convention location will take up the matter of available facilities for holding a convention there during 1915, the exposition year. The committee has power to act in this matter provided satisfactory facilities are found. This early action is made necessary because a great many national societies and associations have already made their plans to meet in San Francisco during 1915. Thus, if the convention of the American Electric Railway Association is to be held during the exposition, it is necessary to insure now that the members shall be taken care of properly and that due reservations shall be made for such exhibit space as may be required.

# An Improved Type of Articulated Car

The Novel Design of Car Which Was Developed by the Boston Elevated Railway Last Year Has Proved So Successful That a Second Car of the Same Type Has Been Constructed—In the New Design a Number of Improvements Have Been Introduced, Including a Stepless Feature

In the issue of this paper of Oct. 5, 1912, page 606, an illustrated description was printed of the new articulated car designed by John Lindall, superintendent of rolling stock and shops, Boston Elevated Railway Company. The

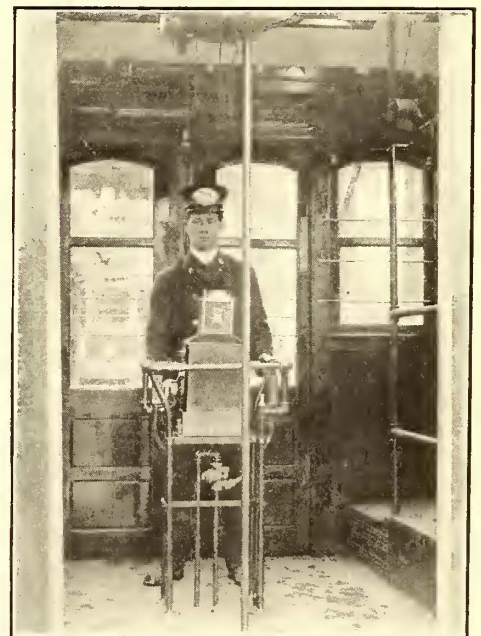
The main object sought in the design of the car, aside from its effective utilization of a heavy investment in small rolling stock units of low carrying capacity, was to obtain a car capable of holding at least as many passengers as the



Improved Articulated Car—General View Showing New Arrangement of Central Section with Stepless Feature

car represented the most novel design placed in service in urban traction work during the year and consisted in brief of two of the company's 20-ft. closed cars with one vestibule and platform removed from each, the two units being assembled into a single car 62 ft. 10¼ in. long over bumpers through the use of an intermediate compartment flexibly connected with the two end sections and serving

standard semi-convertible cars owned by the company and to produce a piece of rolling stock which could be used on narrow streets and on short curves without dangerous overhang, at the same time providing improved facilities for convenience and safety to passengers when entering or leaving. The first car of this type has been in service since early in September, 1912, and has met with complete suc-



Improved Articulated Car—View of Central Section Showing Roller Curtains and Hinged Hoods—View of Interior Showing Heater Under Step at Right

as a center-entrance, prepayment platform. In this car access to the intermediate compartment was had by means of a folding step attached to the outside of the compartment in front of the doors and about 11 in. below them.

cess, both from the company's point of view and from that of the public. A second car of this general type has lately been placed in commission, and a number of improvements have been effected in its design, the most

notable feature being the adoption of the principle of stepless operation. In the new car the floor of the center section, where the doors are located, is arranged with a lower level than the first car of the type, so that passengers step directly from the street into the intermediate compartment, which is located 14 in. above the roadway. This is an unusually low height of step, and the car may in fact be considered stepless in the same sense as the so-called step-

The flexible curtain inclosing the passageway between the intermediate and end sections of the car has been materially improved, and instead of using a continuous diaphragm the bonnets carried by the end sections have been arranged with horizontal hinges permitting vertical movement of the outer end of the bonnet, which rests in each case on the top of the end wall of the intermediate section. This provides all necessary movement between the units and



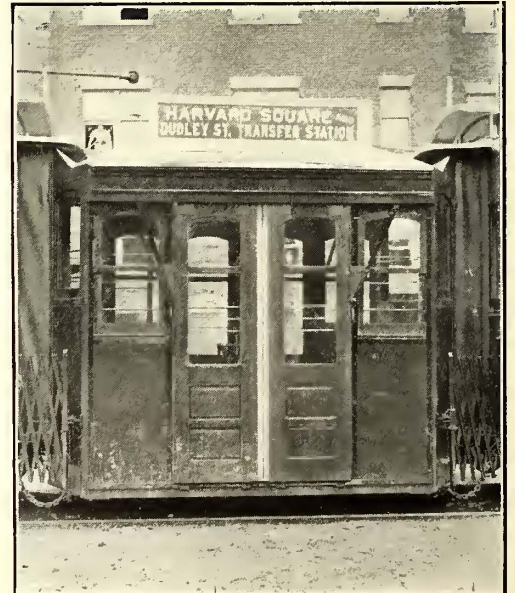
Improved Articulated Car—View of Framing for Central Section Showing Offset in Center Sills and Method of Supporting Side Sills

less center-entrance cars now operating in Manhattan and Brooklyn Boroughs, New York City.

The general design of the car is similar to that of the first one, but the utilization of the stepless principle made a number of changes necessary in the underframing of the intermediate compartment. After the passenger has stepped into the center compartment and deposited his fare in a Johnson fare box in the middle of the compartment, a second step of 10 in. is taken in order to approach the doorway leading into either end section, and this platform within the central compartment has a ramp with a rise of 2 in. between the outer edge and the step riser which is surmounted prior to entering the end section. As in the first car, the latter is 5 in. in height. The lowering of the center platform has been accomplished by offsetting the center sills of the central or intermediate compartment, the side sills being supported at the same height as the

at the same time makes a waterproof joint, providing at all times a ceiling line parallel to the floor line of the intermediate compartment and thus enabling the sides to be closed with spring roller curtains. This arrangement is shown in the accompanying halftone views.

The car is equipped in the vestibules with electric bells operated by push buttons located on the pipe framing which carries the fare box. When the car is running only the bell in the forward vestibule and one in the center compartment are in circuit, a metallic covering being provided for the push button which controls the bell in the rear vestibule. When the car is operated in the reverse direction the push-button cover is transferred by the conductor, so that only one button can be operated at a time. Four 500-watt Consolidated car heaters are installed under the platform in the intermediate section, as shown in the accompanying halftone, and these add greatly to the comfort of the con-



Improved Articulated Car—Car on Curve—Central Section with Outside Folding Doors in Closed Position

lower portion of the center sills by channel irons passing through center-sill reinforcing plates and resting on the bottom members of the center sill. A change has also been made in the bolster arrangement, the side-bearing plates resting on top of rollers carried on the top of the bolster support instead of on the end sills of the cars. This permits the use of a flooring about 8 in. wider for the passageway between the intermediate and end sections.

ductor and to that of passengers entering the car in wintry weather, as the payment of fares is made in a reasonably warm compartment instead of in a cold vestibule. The ends of the end sections are equipped with folding steps operated with the doors which are under the control of the motorman. Ordinarily the steps at the rear of the car are not used, but the movement of passengers is from the center toward the front end and from the rear section

toward the front, as in the first car of this type. The car is equipped with four G.E.-58 motors and semi-automatic air brakes, a feature of the latter apparatus control being a conductor's emergency valve located under the fare box supporting frame in the central compartment. The doors of the central portion are operated by air cylinders in the roof. Like the first car of this type, the second unit has been built at the Bartlett Street shops of the railway company, and both are now in regular service on the route between Harvard Square, Cambridge and Dudley Street, Roxbury.

DATA ON OPERATION

The observations on passenger handling with the stepless articulated car, as noted in the accompanying table, were made on March 24 between 3:17 and 4:15 p. m. during a round trip between Harvard Square and Dudley Street:

DATA ON LOADING AND UNLOADING PASSENGERS

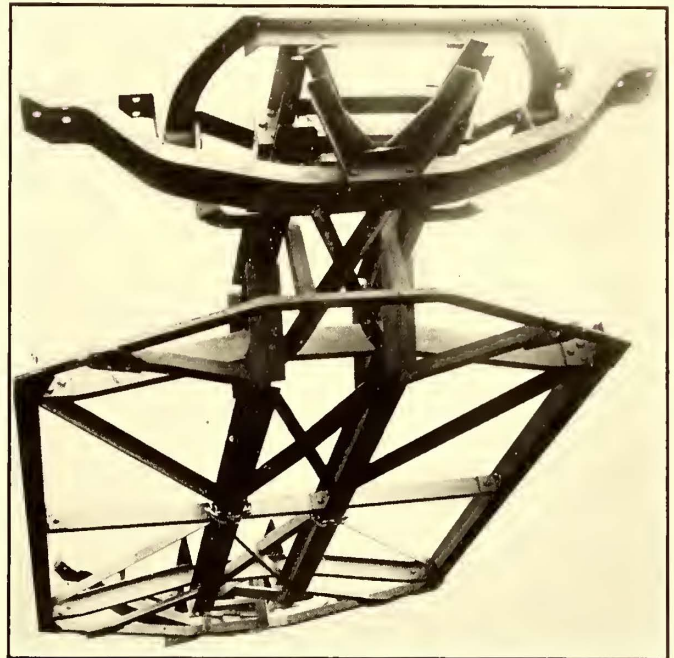
| Pass'r Stop No. | Seconds | PASSENGERS ON AND OFF CAR NO. 372 |                 |                     |                      | Remarks                                      |
|-----------------|---------|-----------------------------------|-----------------|---------------------|----------------------|----------------------------------------------|
|                 |         | Center Door On                    | Center Door Off | End Door (Front) On | End Door (Front) Off |                                              |
| 1               | 2       | 1                                 | 0               | 0                   | 0                    |                                              |
| 2               | 9       | 4                                 | 0               | 0                   | 0                    |                                              |
| 3               | 2       | 0                                 | 1               | 0                   | 0                    |                                              |
| 4               | 2       | 2                                 | 1               | 0                   | 0                    |                                              |
| 5               | 16      | 5                                 | 2               | 0                   | 0                    | Brookline St. transfer station               |
| 6               | 9       | 5                                 | 0               | 0                   | 1                    |                                              |
| 7               | 10      | 5                                 | 0               | 0                   | 0                    |                                              |
| 8               | 5       | 2                                 | 0               | 0                   | 0                    |                                              |
| 9               | 8       | 1                                 | 0               | 0                   | 0                    |                                              |
| 10              | 10      | 3                                 | 1               | 0                   | 0                    |                                              |
| 11              | 3       | 1                                 | 0               | 0                   | 0                    |                                              |
| 12              | 3       | 0                                 | 1               | 0                   | 0                    |                                              |
| 13              | 55      | 29                                | 5               | 1                   | 0                    | Mass. Ave. transfer station                  |
| 14              | 3       | 2                                 | 0               | 0                   | 0                    |                                              |
| 15              | 13      | 0                                 | 6               | 0                   | 0                    |                                              |
| 16              | 5       | 1                                 | 1               | 0                   | 0                    |                                              |
| 17              | 2       | 1                                 | 0               | 0                   | 0                    |                                              |
| 18              | 6       | 0                                 | 3               | 0                   | 0                    |                                              |
| 19              | 7       | 3                                 | 0               | 0                   | 0                    |                                              |
| 20              | 9       | 2                                 | 2               | 0                   | 0                    |                                              |
| 21              | 7       | 0                                 | 1               | 0                   | 0                    |                                              |
| 22              | 26      | 1                                 | 20              | 0                   | 0                    | Northampton St. transfer station             |
| 23              | 3       | 0                                 | 1               | 0                   | 0                    |                                              |
| 24              | 5       | 0                                 | 2               | 0                   | 0                    |                                              |
| 25              | 35      | 0                                 | 22              | 0                   | 0                    | Dudley St., unloading<br>Dudley St., loading |
| 26              | 27      | 16                                | 0               | 0                   | 0                    |                                              |
| 27              | 5       | 2                                 | 0               | 0                   | 0                    |                                              |
| 28              | 2       | 1                                 | 0               | 0                   | 0                    |                                              |
| 29              | 13      | 5                                 | 0               | 0                   | 0                    | Northampton St. transfer station             |
| 30              | 12      | 4                                 | 1               | 0                   | 0                    |                                              |
| 31              | 6       | 0                                 | 1               | 0                   | 0                    |                                              |
| 32              | 5       | 0                                 | 2               | 0                   | 0                    |                                              |
| 33              | 7       | 4                                 | 1               | 0                   | 0                    |                                              |
| 34              | 5       | 1                                 | 0               | 0                   | 0                    |                                              |
| 35              | 10      | 1                                 | 2               | 0                   | 0                    |                                              |
| 36              | 19      | 2                                 | 11              | 0                   | 0                    | Mass. Ave. transfer station                  |
| 37              | 5       | 0                                 | 2               | 0                   | 0                    |                                              |
| 38              | 4       | 1                                 | 1               | 0                   | 0                    |                                              |
| 39              | 5       | 0                                 | 2               | 0                   | 0                    |                                              |
| 40              | 11      | 0                                 | 2               | 0                   | 0                    | Brookline St. transfer station               |
| 41              | 10      | 0                                 | 7               | 0                   | 0                    |                                              |
| 42              | 5       | 0                                 | 1               | 0                   | 0                    |                                              |

SUMMARY OF OBSERVATIONS, MARCH 24, 1913

|                                                                                   |      |
|-----------------------------------------------------------------------------------|------|
| Total passenger stops                                                             | 42   |
| Length of round trip in miles                                                     | 8.76 |
| Passengers on (boarding car during trip)                                          | 106  |
| Passengers off (leaving car during trip)                                          | 102  |
| Total passenger movements on and off                                              | 208  |
| Cash fares                                                                        | 66   |
| Transfer passengers                                                               | 28   |
| Unregistered passengers                                                           | 20   |
| Total passengers, including those on car at the start and on at end of round trip | 114  |
| Total duration of passenger stops in seconds                                      | 406  |
| Duration of round trip in seconds                                                 | 3536 |
| Percentage passenger stops of total time                                          | 11.5 |
| Average length of passenger stop, seconds                                         | 9.6  |
| Passenger stops per mile                                                          | 4.8  |
| Passenger movements per mile                                                      | 23.8 |
| Average passenger movements per stop                                              | 4.95 |
| Average time in seconds per passenger movement                                    | 1.05 |

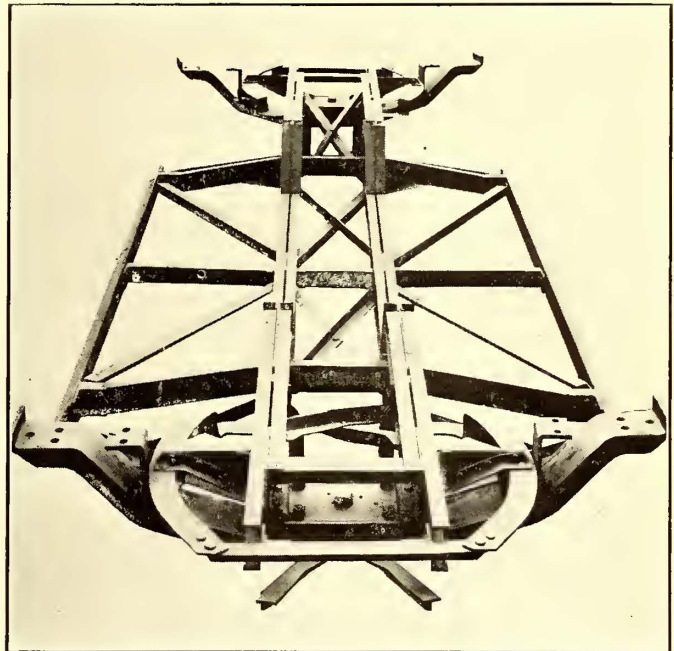
The above data show that the average time required for a passenger to board or leave the car was about two seconds, covering the total duration of the stop from the time the car came to absolute rest to the time when it again began to move. At the stops where the larger traffic entered or left the car the time per passenger to board or alight was much less, usually in the vicinity of one and one-half seconds, and this despite the fact that little use was made of the forward door in leaving the car. The observations were purposely made during the mid-afternoon period before the evening rush hours. The route traversed by the car is

of the cross-town type and does not pass through the business center of Boston, although it lies almost entirely within a district occupied by residences, small mercantile establishments, concert halls and schools. A heavy local traffic is handled between the several transfer points named



Improved Articulated Car—Bottom View of Central Section Frame

in the tabulation. The figures give a good idea of the working of the low-step center-entrance feature of the car, as the passengers voluntarily used this almost to the exclusion of the forward door. Had the latter been used, it is probable that the duration of passenger stops would have been



Improved Articulated Car—Top View of Central Section Frame

still further reduced at points where several persons entered or left the car at the same time. Prompt handling of the pneumatically operated doors of the central compartment was a factor in the reduction of stops to the limits in the table.

# Electrical Night of the New York Railroad Club

The Proceedings Were Devoted Exclusively to Problems of Electrification—At This Meeting Frank J. Sprague Outlined a Proposed Plan for a Technical Commission to Aid the Steam Railroads in Choosing a Proper System of Electrification and in Financing Electrification Projects

The New York Railroad Club held its annual "electrical night" on Friday, March 20, at the club headquarters in New York. No set papers were delivered, but upon invitation of the club a number of prominent operating and consulting engineers delivered brief talks on the present status of railroad electrification. President Chamberlin acted as chairman of the meeting.

#### MR. McCLELLAN'S REMARKS

The first speaker was William McClellan, consulting engineer, New York. He discussed the progress that had been made in electrification. Not a dollar had been spent, he said, for absolutely new projects during the year 1912, but the Denver & Rio Grande and the Chicago, Milwaukee & St. Paul electrifications, comprising 203 miles and 440 miles of track respectively, would soon be under way. Both of these electrifications were on mountain divisions and would be supplied with energy from hydroelectric plants. Hitherto every electrification had been made on account of some special condition which favored electric operation, and none had yet been made purely for economy on a line with ordinary operating conditions. No official of a steam railroad could contemplate spending large sums of money for electrification under the present conditions concerning the regulation of corporations, the prices of material and the uncertainty of labor. There was nothing experimental about the engineering side of electrification, but the disturbance of income account caused steam railroad men to hesitate unless the conditions were plainly in favor of electrical operation. However, important progress had been made in gaining much experience which would be available to those who were going to electrify in the future.

#### MR. KATTÉ'S REMARKS

E. B. Katté, chief engineer electric traction New York Central & Hudson River Railroad, reported that during the past year his company had extended its multiple-unit operation to the present terminal on the Hudson division at Croton. It had made a route extension of about 10 miles which comprised some 40 miles of third-rail on the main line and some 10 to 15 miles of yard track. The new substation, No. 6, erected at Ossining contained three 1000-kw rotary converters and a storage battery with an hourly capacity of 2200 amp. The company had also completed nine circuit-breaker houses with automatic remote-control circuit-breakers feeding current direct to the third-rail. The transmission line, with two 11,000-volt circuits, had been erected between the last substation at Irvington and the new one at Ossining. This transmission work included 600-volt d.c. feeders and 2200-volt a.c. signal circuits.

The new extension had been inaugurated during the end of February, 1913, for suburban service. The Hudson division was now operating fifty-six trains a day, equivalent to 7000 multiple-unit car miles, and the Harlem division was operating seventy-two trains a day, equivalent to 7800 multiple-unit car miles. The average number of trains which operated in and out of the Grand Central Terminal was 525 a day. A new record for reliability had been made as compared with preceding years; namely, the electric locomotives had operated 4709 miles and the multiple-unit cars 10,798 miles for each minute of detention due to electrical causes. Likewise, the multiple-unit cars had operated 12,374 miles per minute detention due to mechanical causes. The average miles per minute detention on the whole electrical division due to all electrical and mechanical delays, including line, etc., was 4861 miles in 1912, 1200 miles in 1911 and 1785 in 1910. The table on the opposite page,

which classifies all detention troubles and mileages for every month of 1912, shows that the company operated 1,351,577 locomotive miles and 4,297,633 multiple unit miles.

The electric locomotives and multiple-unit cars had now been in operation for more than six years. During 1912 the maintenance and renewal cost of the locomotives, including shop expenses, painting, etc., was 3.34 cents per mile, compared with 3.2 cents in 1910 and 3.08 cents in 1911, making the general average, say, 3.33 cents. Similarly the maintenance and renewal cost of the multiple-unit cars was 1.8 cents per car mile in 1912, 2.1 cents in 1911 and 1.9 cents in 1910, but Mr. Katté estimated that the average cost would run about 2 cents per car mile.

During the present year the electric locomotive service was to be extended through to Harmon, a distance of 34 miles from New York. The interchange terminal for steam locomotives was nearing completion, and additional and more powerful electric locomotives had been ordered for the increased service. The extended electric locomotive service would be inaugurated in June or July of the present year.

#### MR. SPRAGUE'S REMARKS

Frank J. Sprague, New York, was the next speaker. He called attention to the fact that the present year was very close to the twenty-fifth anniversary of electric railway operation, for it was on Feb. 3, 1889, that the Richmond Union Passenger Railway was opened to the public. Mr. Sprague then briefly described the many features of his original Richmond equipment which had found a permanent place in the art and told of his early advocacy of direct-current operation at 1200 volts and higher.

Referring to the old controversies about the merits of single-phase alternating current and direct current, Mr. Sprague said that too much had been expected of the former and too little attention had been paid to the possibilities of the latter in making use of higher line and motor voltages. The development of electric traction had now reached the point where one could specify the normal maxima in operating potentials on the working conductor at which there would be established a balance of advantages and disadvantages for any system. These potentials were about 6000 volts for polyphase operation, 11,000 to 15,000 volts for single-phase, 1200 to 1500 volts for direct-current with protected third-rail and from 2500 volts to 3000 volts with direct-current trolley. There were inherent differences in the weights and costs of single-phase and direct-current motor equipments, when built and operated under like conditions of reliability, which were irremedial and which would be found in a large measure to offset whatever advantages might be achieved in efficiency of the secondary transmission. In view of the coming necessary interconnection of power supplies in which railroad use would be but one of many, an arbitrary cycle adoption for trunk-line operation was of questionable advisability. Finally, he said, it was only after the inevitable development of each of the systems to its natural limit that any ultimate determination could be made regarding their relative values.

While the art had practically arrived in sight of the limiting potentials and fields of each system, there was still no general agreement as to fundamentals, and professional and manufacturing rivalries the world over were unduly manifest. No railway official, however broad his experience, no manufacturing company, whatever its resources, no electrical engineer, however experienced, could alone settle





knowledge of railway and electrical conditions—men big enough to subordinate their preconceived opinion in the face of facts—to whom such momentous questions could be submitted for at least advisory conclusions? Instead of attempting to arrive at conclusions with regard to the possibilities and economies of electrification from theoretical discussions or application of known facts to assumed conditions, they should apply their studies to some concrete case or cases which would embrace in extent and variety all the principal problems of trunk-line electrification.

Most of the electrification projects in connection with trunk lines which had been carried out in this country had been dictated by local terminal necessities which could not be met by steam operation, but for the more extensive projects other reasons must prevail. Even with a settlement of system and demonstrated ultimate economy of operation and increase of capacity denied to steam operation, the financial problem facing the railroad men was still a most serious one. Assuming, therefore, some general agreement as to standard, electrification would be materially advanced if the burden of reliable power supply at a reasonable rate and with ample reserve and the possible provision of rolling stock on a basis of usage could be undertaken through the agency of outside capital, leaving the railroads only the minor burden of supplying fixtures along the right-of-way and co-operating with the power companies in the erection of general power supply lines upon their own property.

In conclusion, Mr. Sprague said that he felt justified in stating that the principal manufacturing companies were now favorably inclined to the creation of a technical commission to be composed of disinterested engineers of wide and varied experience who should make a thorough study of the various systems of electrification as applied to such situation or situations as might be taken up; that they were prepared to bear a part, or, if necessary, to meet the entire expense of such a commission; that they were in favor of some scheme of financial development which should relieve the railroads of part of the burden of raising capital, and finally that they awaited only the necessary co-operation of railroad officials to make effective this joint effort to avoid the heavy costs of mistakes due to individual judgment on the threshold of a great electrical development in transportation.

#### PROFESSOR MURALT'S REMARKS

C. L. Muralt, professor of electrical engineering University of Michigan, pointed out that greater tractive power was the reason for adopting electric locomotives on lines where terminal and tunnel conditions were not controlling factors. An electric locomotive was best either where greater acceleration or heavier loads were under consideration. He had looked into several Western cases and had found that it was cheaper to electrify than to add tracks. He greatly approved Mr. Sprague's idea of a technical commission.

#### MR. MAILLOUX'S REMARKS

C. O. Mailloux, consulting engineer, New York, heartily indorsed the idea of a technical commission. He was pleased to see that the economics of electrification were receiving so much attention. The problem of securing the extra capital required to make electrification was the meat and core of the situation. His studies had shown that electrification was advisable on not more than 10 per cent of the lines in the United States. He did not mean to say, however, that this condition would always be so and he hoped that it would not always be so. He wanted to see a technical commission such as Mr. Sprague suggested and mentioned the excellent work which such a commission had done in Germany in carrying out the famous Zossen high-speed electric railway tests.

#### MR. HEDLEY'S REMARKS

Frank Hedley, vice-president Interborough Rapid Transit Company, believed that there was a larger percentage

of steam railroads ripe for electrification than that given by Mr. Mailloux. In many cases it would not be a question of smoke elimination, tunnels or the like, but of capacity.

#### SUMMARY

Mr. McClellan summed up the discussion of the evening. He said that it seemed to be the way of the world to develop old methods to their maximum efficiency before taking up the new. For instance, the builders of the reciprocating engine had developed it to the highest point before acknowledging the superiority of the steam turbine, and it was possible that this operation would be paralleled by the history of the gas engine and steam turbine.

### ACCIDENT PREVENTION CAMPAIGN OF WABASH VALLEY LINES

The Fort Wayne & Northern Indiana Traction Company, Fort Wayne, Ind., has entered actively on its accident prevention campaign under the direction of R. R. Ritchie, superintendent of safety of the company. The company is now running two series of newspaper talks, one series in the daily papers and one in the weekly papers, with change of copy daily in the daily papers and change of copy weekly in the weekly papers. The talks appear in more than thirty newspapers, which cover a population of about 200,000 people.

On the evening of Wednesday, Feb. 26, 1913, the company extended a general invitation to the public to attend a "safety first" rally at the Victoria Theater, Lafayette, Ind., given under the auspices of the Fort Wayne & Northern Indiana Traction Company, the Terre Haute, Indianapolis & Eastern Traction Company, the Monon Railroad, the Big Four Railroad and the Wabash Railroad. This meeting was addressed by George Bradshaw, general safety agent of the New York Central & Hudson River Railroad. Mr. Bradshaw illustrated his remarks with colored stereopticon views. More than 1200 people attended this rally. The Fort Wayne & Northern Indiana Traction Company sent an employees' special car for its men and their families, picking up all employees between Logansport and Lafayette, a distance of 40 miles. In pursuance of its regular policy the company held a morning meeting on the same day at which the employees were addressed by Richard Burke, chairman of the safety and efficiency committee of the Monon Railroad. This meeting was held at the company's carhouse in Fort Wayne at 7 a. m. Two talks from the series which is appearing weekly are appended:

"For a safe and sane everyday.

"The serious injury or death of a human being in a railway accident calls forth the keenest sympathy of the public and all connected with this company. A careful study of the past records has shown us that practically all accidents are avoidable if everyone thinks before he acts and thinks of safety first. Co-operation will do this where everything in the past has failed in part at least. All you have to do to join this safety movement is to

"Think,

"Never take any chance,

"Get the safety habit,

"Set the safety example—daily."

"If your child is cautioned and taught the safety habit, if you do not take chances where your life is at stake, and if you always will set the safety example for the younger folks, then, and only then, can you expect that you and your family will enjoy a long life, full of happiness and prosperity.

"Accidents happen when you least expect them. You rush to catch the train, and catch it on the fly; you fall and break your arm or leg. A man who did this not long ago fell and his arm was cut off.

"Please remember that 'haste isn't worth life or limb.'

"Better be late than never."

## NEW SUBURBAN LINE FOR PHILADELPHIA

The Philadelphia & West Chester Traction Company has just completed an extension of the Philadelphia and Garrettford lines to the borough of Media. This will be opened for passenger service in April, 1913. The road is built exclusively on private right-of-way from the Sixty-ninth Street terminal of the Market Street subway and elevated line, Philadelphia, through the townships of Upper Darby, Springfield and Nether Providence, thence over State Street to Orange Street in the borough of Media, thus opening up a most beautiful section of Delaware County. All the county seats of Philadelphia, Delaware, Chester, Montgomery and Lancaster Counties can now be reached through the electric railway systems terminating at Sixty-ninth Street.

The roadbed is built in accordance with steam railroad standards, being rock-ballasted throughout and equipped with 80-lb. steel rails. The bridges are of steel and the culverts and undergrade crossings of reinforced concrete. The steel spans across Crum Creek are 85 ft. long and 7 ft. 9½ in. in depth. The maximum grade has been



Philadelphia Suburban Line—Typical Way Station

limited to 3 per cent, although this necessitated heavy cuts and fills. The maximum curvature on the line is 5 deg. The permanence of construction is shown by the accompanying illustration of one of the five way stations which have been built along the route.

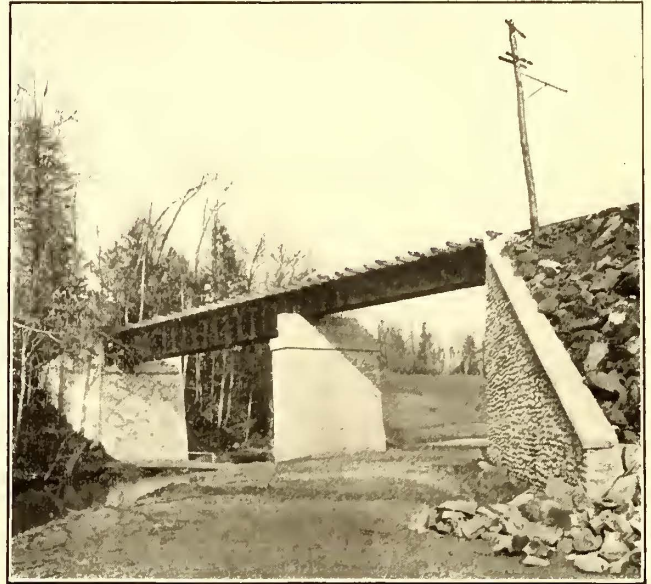
The distance from the Sixty-ninth Street terminal, Philadelphia, to Media is 8.50 miles, and the running time will be twenty-five minutes. Trains will be run at half-hourly intervals, leaving the terminal points in Philadelphia and in the borough of Media at half-hourly intervals.

The fare from the Sixty-ninth Street terminal to Media will be 10 cents, the route being divided into two 5-cent fare zones. This, plus the 5-cent fare on the Market Street subway and elevated line, will give a ride from Media to any part of central Philadelphia, touching the main steam railroad terminals and steamship terminals, ferries and department stores, for 15 cents, with free transfers at several points in Philadelphia.

The saving in time and money effected by the new line is a very material item. The fare on the steam railroad from the Broad Street station to Media is 35 cents; the round-trip fare is 56 cents. The running time of local steam trains from the Broad Street station to Media is from thirty-nine to forty-seven minutes. On the electric railway route the fare one way from the Broad Street sta-

tion will be 15 cents and the round trip will be 30 cents. The running time will be forty-one minutes.

An additional turbo-generator set of 1000-kw capacity has been installed at the Lanerch power station of the Philadelphia & Garretttsford Street Railway Company, and



Philadelphia Suburban Line—Girder Bridge Over Crum Creek

a new substation has been built at Drexel Hill, equipped with two 500-kw General Electric rotary converters. The line is equipped throughout with signals. Telephone jack-boxes have been installed at intervals of 1000 ft., making it possible to telephone directly from any point on the line to the dispatcher.

New cars will be provided for the line, the first consignment of them having already been received. These are 51 ft. 3 in. in over-all length and 8 ft. 8½ in. in width. Cross seats upholstered in leather are used, the seating capacity being fifty-six. The cars are built with steel



Philadelphia Suburban Line—Interior of Standard Car

underframes and contain smoking compartments. Each car is equipped with four GE-205 motors of 115 hp and is capable of maintaining a speed of 40 m.p.h. Westinghouse electro-pneumatic brakes are used throughout. The total cost of each of these cars is reported to be about \$12,000.

## ANNUAL BANQUET OF THE NEW ENGLAND STREET RAILWAY CLUB

Six hundred members and guests of the New England Street Railway Club gathered at the Hotel Somerset, Boston, Mass., on the evening of March 27 to attend the thirteenth annual meeting and banquet of the organization. As on previous anniversaries of the club, the dominant note of the occasion was one of relaxation and good fellowship, and neither the unpropitious weather without nor the cares of the electric traction industry could dim the enthusiasm of the assembly. The club has grown since its formation in 1901 to a present membership of 748, of which sixty-six were added during the past year, and is believed to be the largest organization of its kind in the country outside the American Association itself.

### ELECTION OF OFFICERS

The annual meeting, held in the parlors of the hotel in the afternoon, resulted in the election of the following officers for the ensuing year: President, Elton S. Wilde, New Bedford, Mass.; vice-presidents, Maine, Harry B. Ivers, Portland; New Hampshire, J. Brodie Smith, Manchester; Vermont, F. C. Wilkinson, St. Albans; Massachusetts, W. W. Sargent, Fitchburg; Rhode Island, D. F. Sherman, Providence; Connecticut, W. S. Murray, New Haven; secretary, H. A. Faulkner, Boston, Mass.; treasurer, E. P. Shaw, Jr., South Framingham, Mass.; finance committee, Messrs. Elton S. Wilde, C. E. Learned and R. E. Hamilton, Boston; executive committee, Thomas Lees, Lowell, Mass.; Franklin Woodman, Haverhill, Mass.; A. E. Paddock, Providence, R. I.; C. S. Hawley, Boston; Carl P. Dennett, Boston; E. J. Dickson, Springfield, Mass., and George C. Ewing, Boston.

### FEATURES OF THE BANQUET

At the close of an informal reception those in attendance filed into the main ballroom of the hotel, where the demand for banquet seats necessitated "double-decking" the establishment by the use of the visitors' gallery for belated applicants for tickets. During the evening a varied musical program, including the popular airs of the day and operatic selections, was rendered effectively by an orchestra of about fifteen pieces, many of the members joining vigorously in the choruses. A novel feature of the entertainment was the installation of a tiny theater at one end of the dining hall, which was used for a striking vaudeville entertainment at the close of the after-dinner addresses. The menu, in the form of a "Trolley Trip Through the Land of Gastronomy," made a distinct hit, and carried the hungry street railway man "across gorgeous tablelands, past sparkling springs and through picturesque paths bordered by the culinary concoctions of the Somerset chefs." The menu abounded with clever cartoons and hits aimed at prominent members and included a "railway map" of the dinner in which the main courses were set forth as stations on a trunk line with the entrées and side dishes on appropriate branch lines.

President Thomas Lees extended a cordial welcome to the members and guests at the close of the dinner and paid a tribute to former Secretary Lane and Secretary Faulkner, and then introduced President-elect Elton S. Wilde amid tumultuous cheering. President Wilde in a few well-chosen words thanked the club for the honor of his election and pledged his best efforts to the organization and its interests for the coming year. A telegram was then read from President George H. Harries of the American Electric Railway Association, regretting his inability to be present on account of illness.

### ADDRESS BY LIEUTENANT-GOVERNOR WALSH

Lieutenant-Governor David I. Walsh of Massachusetts was then called upon and extended the hearty greetings of the commonwealth, emphasizing the importance of transportation in the State's welfare. He paid a high tribute to the Fitchburg & Leominster Street Railway Company as a home-ruled and home-owned organization which for over a

quarter-century has both paid dividends and satisfied the public, contending that the record of this road shows that ample capital can be had for such a local development within the borders of the State itself. He believed that public service corporations are in partnership with the government. Indirectly the government invites the public to invest its funds in these corporations and it is the public's interest to see that the capital invested receives a fair return.

Good service and satisfactory returns should go together. The protection of the public and the investor are two sides of the same shield. The time has come when this partnership between the government and the public should be recognized. The transportation problem is second only in importance to the problems of government themselves. This partnership means open-mindedness, and it means that the public has a right to see the books, not to injure the company or its securities, but to assure itself that a proper service is being conducted without large dividends being the sole aim of the public utility. The principal trouble is that the public has seen so much in the past of overcapitalization that it is distrustful to-day. The opening of the books will dispel many of these present evils and misunderstandings. Weaknesses and limitations of government are human, but we need to talk more and more about the blessings and the good things of government and less and less of its evils. We should be proud of our banking laws and many other benefits of government. Street railway men should take a part in leading a campaign of confidence. The government is going to protect honest invested capital and is not going to destroy it, whatever political party may be in control. Agitation is not so much against business as a desire of the people to call attention to the fact that the government must be concerned in the people's interests and along humanitarian lines. "Think of the commonwealth as the mother government, as the college man thinks of his alma mater," said the Lieutenant-Governor, "a mother government most concerned about those millions of her children who have to travel the rougher and harder paths of life."

The old-age pension agitation and the child labor laws are examples of this, and the speaker contended that all can meet upon this common ground. He closed with an appeal for a broad, disinterested outlook which will redound to the glory and happiness of the commonwealth and leave it better and safer than it was before.

### ADDRESS BY HON. LEVI GREENWOOD

The next speaker was Hon. Levi Greenwood, president of the Massachusetts State Senate. He praised highly the pioneers in electric transportation. Improved methods of transportation were second only to the printing press as a promoter of civilization. He appreciated the difficulty that the electric railways have to-day in maintaining dividends on a 5-cent fare in view of higher costs of material and labor. It seemed to him that the extension of electric railways into interurban and other heavy traction fields made it unnecessary for the State of Massachusetts to continue the present arbitrary distinctions between electric railways and steam railroads. The people of Massachusetts did not believe in cut-throat competition, but simply wanted good service under regulated monopolies. As an example of an enlightened development, he favored the proposed extension of electric railway facilities in western Massachusetts by the New York, New Haven & Hartford Railroad. In conclusion, he expressed the hope that the pending bill favoring electric railway development in the western half of Massachusetts would be passed.

### ENTERTAINMENT

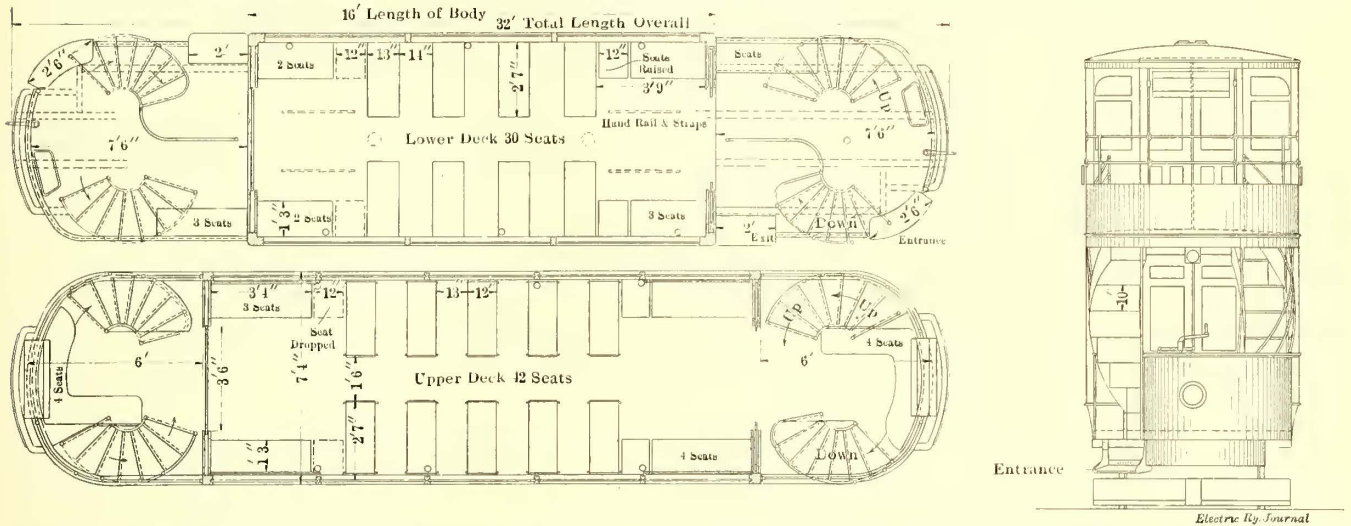
The evening was pleasantly concluded by an elaborate vaudeville entertainment which ended at 11:30 p. m. to permit the delegates to get home before the wee sma' hours of the dawn.

# New Cars for Liverpool

Description of Double-Deck, Drop-Platform and Center-Entrance Cars with Separate Stairways for Entrance and Exit

The Liverpool Corporation Tramways have recently completed the equipment of two double-deck cars, one of which is of single-truck, drop-platform type and the other of double-truck center-entrance design. A novel feature common to both designs is that all passages and stairways are divided for separate use as exits or entrances, although

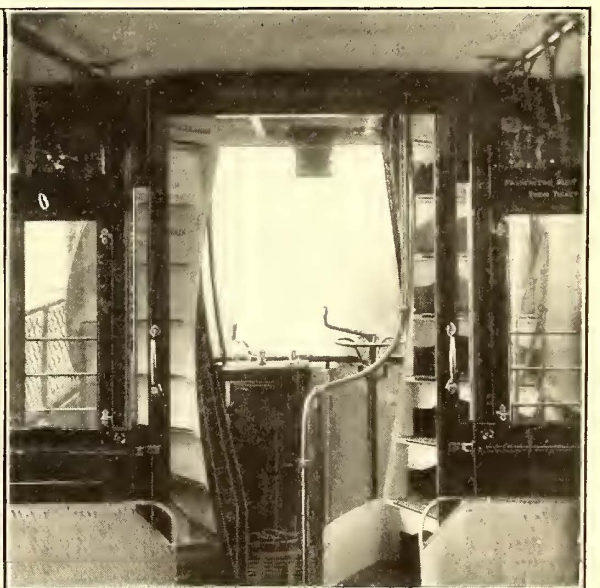
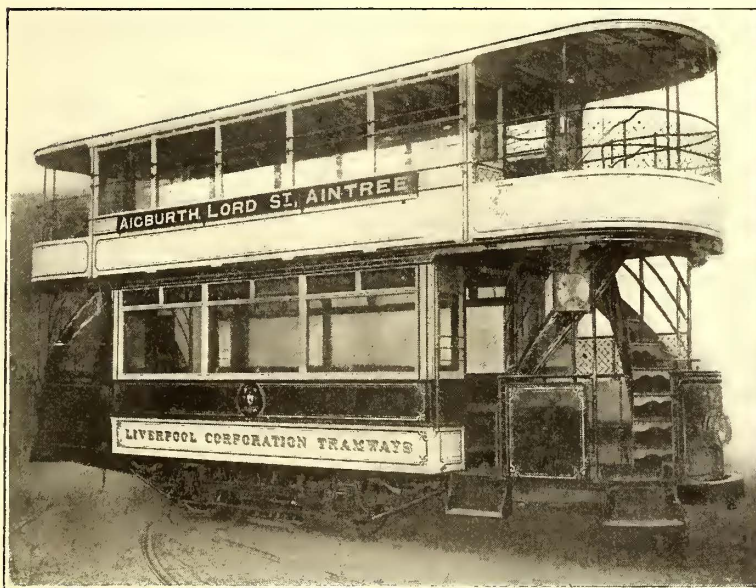
form in order to provide separate exits and entrances to the upper deck. The passengers to and from the lower deck are also kept in separate channels by the usual forms of platform dividing rails. The distance from the top of the rails to the platform step is 15½ in. and from the step to the platform 13½ in. The entrance step is 2 ft. 6 in.



Liverpool Cars—Plans and End Elevation of the Lower and Upper Deck of Liverpool Double-Deck Car with Entrance and Exit Stairways

there is no immediate intention of using the prepayment system. Like other English cities, Liverpool has a zone system of fare collection, the rates being 1d., 2d. and 4d. The average ride for 1d. is 3 miles. The new cars were built by the United Electric Car Company, Preston, England, in accordance with the plans of C. W. Mallins, general manager of the tramways. A preliminary description

wide and the exit step is 2 ft. wide, so that both are considerably wider than similar openings on many American prepayment cars. The platform railing, which extends as far as the pair of sliding doors in the bulkheads, gives separate 21-in. passages for incoming and outgoing passengers. It will be seen that ample space has been provided for free movement despite the presence of two stair-



Liverpool Cars—Exterior and Interior Views of Double-Deck, Drop-Platform Car, Showing the Separate Entrance and Exit Stairways

was published in the ELECTRIC RAILWAY JOURNAL for July 6, 1912. The following particulars describe the cars as actually constructed.

**SINGLE-TRUCK DROP-PLATFORM CAR**

The most interesting feature of the single-truck drop-platform car is the use of a double staircase on each plat-

forms, and this was made possible by the use of platforms 7 ft. 6 in. long. On both decks the width of the aisle between cross seats is 1 ft. 6 in. and the clear width of the cross seat is 2 ft. 7 in. Clearances of 13 in. and 14 in. are provided alternately between the transverse seats on the lower deck and of 13 in. on the upper deck. The

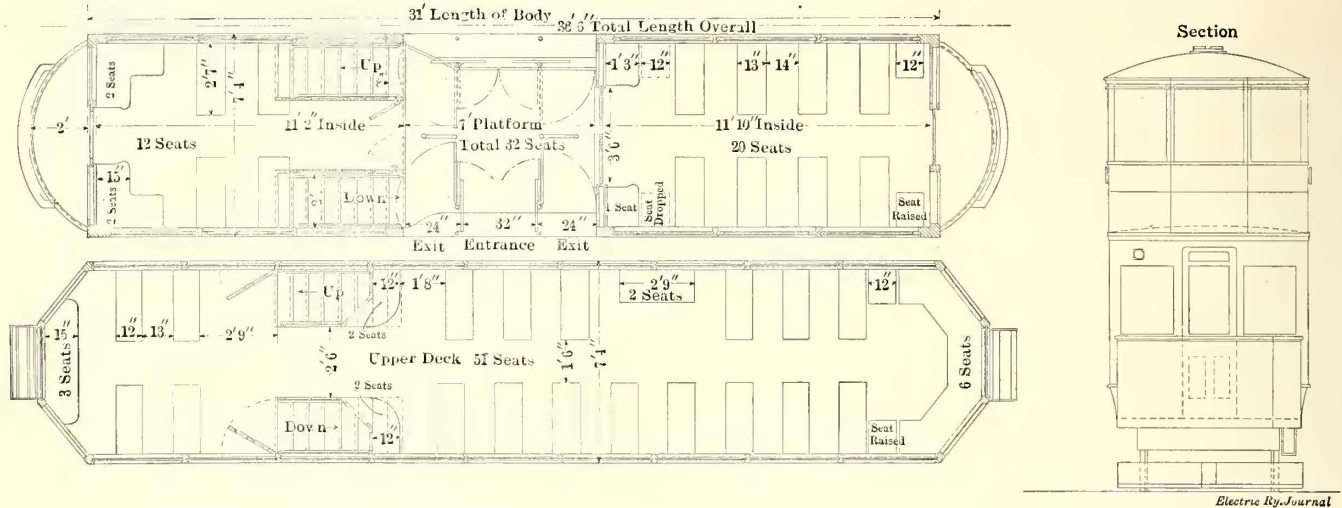
stairways previously noted are of liberal dimensions, the usual width of the step being 20 in. and the height of the risers 10 in.

Although the covered sections of both decks are of different lengths, the seating arrangement is practically the same, consisting of longitudinal seats at the corners and transverse seats in the rest of the car. One-seat extensions of the corner seats may be raised out of the way or lowered for use in accordance with the direction of running. Hand rails and straps are installed in the aisles

designations nor the Mallins plow-guard with which it was finally equipped.

#### DOUBLE-DECK CENTER-ENTRANCE CAR

The Liverpool center-entrance car, unlike most of those recently built in the United States, has no special floor construction for the purpose of securing either an unusually low step or a stepless entrance from the street. However, the ascent from the ground to the car floor has been made a moderate one by the adoption throughout of a height of 11 in. for the distance from the ground to the outside



Liverpool Cars—Plans and End Elevation of the Lower and Upper Deck of the Center-Entrance Car

between the longitudinal corner seats. The platforms on both decks are also provided with permanent benches, the lower platforms seating three and the upper platforms four passengers each. The lower deck seats thirty passengers and the upper deck forty-two passengers, a total of seventy-two. All seats are of rattan.

The principal dimensions of this car are as follows: total length over all, 32 ft.; length of lower body, 16 ft.; width over all, 7 ft. 4 in.; height from rail to trolley base, 16 ft. 8 in. This car, as well as the center-entrance type, is mounted on Brill trucks of latest design, equipped with 33½-in.-diameter steel-tired wheels and 4¾-in.-diameter

step, from the outside step to the platform and from the platform to the car floor proper. The central opening is built as a platform 7 ft. wide, open at the sides and bounded at the ends by the doors of the two passenger compartments. This platform is divided by railings into an entrance aisle which is approximately 32 in. wide and is flanked by exit aisles approximately 24 in. wide. A pair of double sliding doors covers the 42-in. opening to the larger compartment on the lower deck, while a pair of swinging doors is used to cover the corresponding 32-in. opening to the smaller compartment. The cross-seat aisle in both compartments is 18 in. wide, the presence of the stairway accounting for the narrower doorway of the smaller compartment.

It is significant that an English street railway which has had so much experience with double-deck cars should have found it desirable to provide separate exit and entrance stairways for its center-entrance car. The stairways as installed are straight. They run parallel from the platform and open into the upper deck through vestibules. They are 24 in. wide, have 10-in. risers and 8-in. treads. The far-side stairs are for entrance, the near-side stairs for exit. The inside faces of the stairs are beveled in order to secure maximum width. The seating plans show that the lower deck has twenty seats in the larger compartment and twelve seats in the smaller, while the upper deck has



Liverpool Cars—Double-Deck, Center-Entrance Car with Open Platform

axles. The power equipment of each car consists of two 40-hp Dick-Kerr motors.

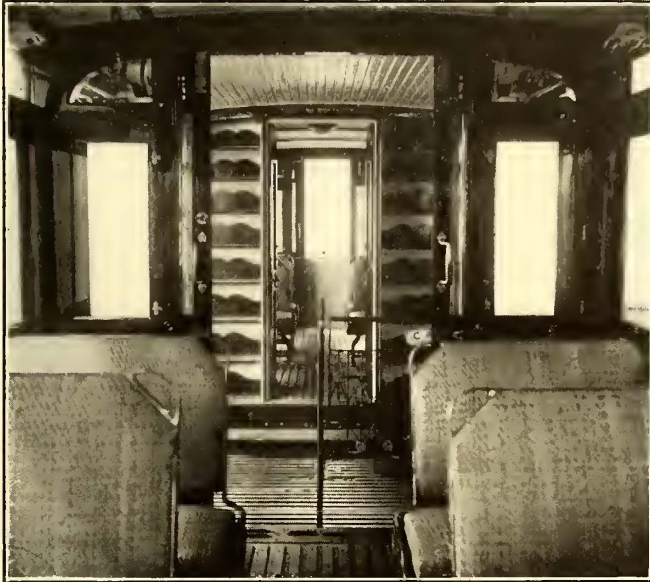
An interesting operating feature of the drop-platform car is a disk indicator which, as shown, is attached to the stanchion alongside one of the stairways. This indicator is operated electrically from the controller or by bell pushers on the platform. In its alternative position it displays the notice "Wait until car stops." The car was photographed before it was actually ready for service, and therefore it does not display the customary entrance and exit

a capacity of fifty-one seats, giving this car a total capacity of eighty-three seats, part transverse and part longitudinal. The seats and aisle dimensions are practically the same as in the drop-platform double-deck car. Although the motorman's compartment at each end is not of folding type, it is remarkably small, its inside clearance being only 2 ft.

The principal dimensions of this car are: length over all, 36 ft. 6 in.; length of body, 31 ft.; width over all, 7 ft. 4 in., and height from top of rails to trolley base, 16 ft. 8 in. On comparing these dimensions and the seating capacity with

the drop-platform car of the same width and height, it will be found that the seating capacity of the center-entrance car is 2.7 passengers per foot of length and that of the drop-platform car only 2.2 passengers per foot of length.

The railings on the central platform are reversed when the direction of run is changed. The off side of the platform is protected by means of balanced horizontal bars which run in guides and which are arranged to slide upward when not in use. The main doors leading from the



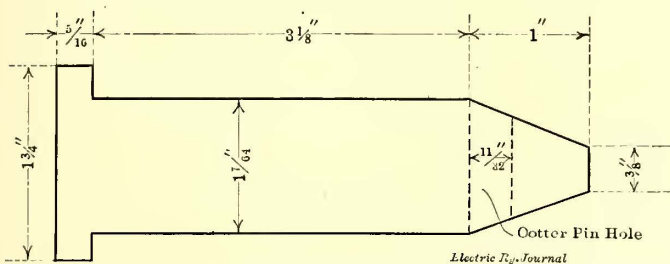
Liverpool Car—Interior View of Double-Deck, Center-Entrance Car

center platform are spring-controlled so that when the doors are operated half-way the spring completes the rest of the travel, holding them either wide open or shut tight as the case may be. A flap gate or barrier with the inscription "Wait until the car stops" is mounted on the vertical hand rail. This barrier is so connected that it is mechanically impossible for the car to start until the gates are closed, but it opens automatically when the car comes to a standstill.

Acknowledgments are due to the *Tramway and Railway World* for the photographs from which the halftones in this article were made.

**A SIMPLE IMPROVEMENT IN BRAKE RIGGING PINS**

The tapering of the ends of brake rigging pins has been found by the Syracuse, Lake Shore & Northern Railway and allied lines to result in a considerable saving of time in



Tapered Pin for Brake Rigging Used on Syracuse Lines

assembling. The holes in both jaws and brake beams are lined with hardened Shelby tube steel bushings and make a close fit on the pins. Without the taper it requires some time and effort to get the holes lined up sufficiently to insert the pins. With the tapered end, as shown in the accompanying cut, the pin acts as a drift in lining up the bushings.

**FORTHCOMING ORGANIZATION OF THE PACIFIC COAST ASSOCIATION**

For some time past there has been on foot a movement among the Pacific Coast electric railways to form a local association. This has now culminated in a plan for an organization meeting which is to be held in San Francisco on Dec. 31. In general, the companies interested in this movement are members of the American Electric Railway Association. It is not widely known that the membership of the national association on the Pacific Coast is equal to that of New England. In both cases the membership is about thirty-five companies, whose mileages, earnings, and consequently whose dues, are approximately the same.

In order to aid the proposed association in working along harmonious lines with the American Electric Railway Association, its projectors have invited to the San Francisco meeting representatives of the national body who have had experience in organization. This is splendid evidence of the get-together spirit which now prevails among the electric railways of the country, and it shows further a cordial appreciation of the work of the American Electric Railway Association, a body which now represents 80 to 90 per cent of the earning capacity of the electric railway business. The fact that such enthusiasm should be shown by the companies on the distant Pacific Coast is certainly inspiring. The American Electric Railway Association committee on electric railways which will address the organization meeting is composed of President George H. Harries, Third Vice-president Charles L. Henry and Secretary H. C. Donecker. These gentlemen left for the Pacific Coast on the afternoon of March 25 via the New York Central & Santa Fé Railways. They are due to arrive at San Francisco on Saturday evening, March 29.

**ELECTROLYTIC ACTION ON REINFORCED CONCRETE**

A portion of the instructive exhibit of the National Bureau of Standards at the Cement Show held recently in Chicago was devoted to a display of the effect of electrolytic action on reinforced concrete as determined by experiments made under government supervision at Washington. In most cases of reinforced-concrete construction local currents are set up due to moisture and impurities in the iron that cause the formation of iron oxide, and this reaction is greatly increased by the presence of stray currents. The iron oxide occupies a much larger volume than the iron from which it is formed, and when the pressure thus created exceeds the bond strength of the concrete cracking follows and more surface is exposed to disintegration.

The possible extent of the reaction was determined by an experiment in which a steel rod 1 in. in diameter, used as a core, was placed concentrically within a hollow steel cylinder, 1.5 in. in internal diameter, the space between being filled with cement which was allowed to set. The whole was then immersed in water and the iron core made the anode terminal of an electric circuit. The maximum pressure caused by the oxidation of the iron core and tending to break the cement was found to be 4700 lb. per square inch, the pressure being measured by the expansion of the outer cylinder.

In cases where salt is used, as is often done in cold weather to prevent freezing, the reaction is much hastened, as the salt solution forms a more active electrolyte than moisture alone.

One experiment was performed in which a test column of concrete was used, 1 ft. long and 6 in. in diameter, reinforced by an iron core. The mixture of the concrete was of the following proportions: Cement, 1; sand and gravel, 2.5; stone, 4, and salt, 3 per cent, measured by weight of cement. The column was then immersed in water and 50 volts applied across it, with the iron core as the anode. The specimen cracked longitudinally in three hours.

## COMMITTEES OF C. E. R. A. AND C. E. T. A.

The folder of the Central Electric Railway Association and the Central Electric Traffic Association has just been issued by Secretary Neereamer. This contains, among other items of interest, the names of the members of the various committees for the year 1913. The following list of committees and the names of the members of the two associations which comprise them are taken from this publication and represent the make-up of the working organization in accordance with the latest appointments.

## COMMITTEES OF THE CENTRAL ELECTRIC RAILWAY ASSOCIATION

## STANDING AUDITING COMMITTEE

Walter Shroyer (chairman), Union Traction Company of Indiana.

L. T. Hixson, Terre Haute, Indianapolis & Eastern Traction Company.

E. L. Kasemeier, Ohio Electric Railway.

## ANNUAL TRANSPORTATION

H. A. Nicholl (chairman), Union Traction Company of Indiana.

S. W. Greenland, Fort Wayne & Northern Indiana Traction Company.

J. O. Wilson, Cleveland, Southwestern & Columbus Railway.

C. P. Wilson, Interstate Public Service Company.

C. O. Sullivan, Western Ohio Railroad.

## CONSTITUTION AND BY-LAWS

F. D. Carpenter (chairman), Western Ohio Railroad.

C. N. Wilcoxon, Chicago, Lake Shore & South Bend Railway.

C. L. Henry, Indianapolis & Cincinnati Traction Company.

C. A. Floyd, Grand Rapids, Holland & Chicago Railway.

G. O. Nagle, Wheeling Traction Company.

## CLAIMS COMMITTEE

William Tichenor (chairman), Terre Haute, Indianapolis & Eastern Traction Company.

J. H. Shaw, Cleveland, Painesville & Eastern Railroad.

F. E. Rankin, Detroit, Monroe & Toledo Short Line Railway.

H. Rimelspach, Lake Shore Electric Railway.

C. P. Wilson, Louisville & Northern Railway & Lighting Company.

S. W. Reynolds, Danville, Urbana & Champaign Railway.

E. E. Slick, Union Traction Company of Indiana.

## FINANCE COMMITTEE

F. D. Carpenter (chairman), Western Ohio Railroad.

W. H. Forse, Union Traction Company of Indiana.

B. J. Jones, Ohio Electric Railway.

H. E. Vordermark, Fort Wayne & Northern Indiana Traction Company.

C. N. Hawley, Northwestern Ohio Railway & Power Company.

F. J. Green, Springfield, Troy & Piqua Railway.

## HOTEL AND ARRANGEMENT COMMITTEE

L. J. Drake, Jr. (chairman), Galena Signal Oil Company.

S. D. Hutchins, Westinghouse Traction Brake Company.

W. H. Bloss, Ohio Brass Company.

L. G. Parker, Cleveland Frog & Crossing Company.

T. A. Henkle, Electric Service Supplies Company.

M. B. Lambert, Westinghouse Electric & Manufacturing Company.

H. C. Marsh, General Electric Company.

## INSURANCE COMMITTEE

F. W. Coen (chairman), Lake Shore Electric Railway.

F. A. Healy, Ohio Electric Railway.

W. H. Forse, Union Traction Company of Indiana.

## LIGHTNING ARRESTER COMMITTEE

Edward Heydon (chairman), Terre Haute, Indianapolis & Eastern Traction Company.

F. T. Bundy, Ohio Electric Railway.

Fred Heckler, Lake Shore Electric Railway.

F. J. Stevens, Fort Wayne & Northern Indiana Traction Company.

Charles Sigler, Winona Interurban Railway.

E. J. Burdick, Detroit, Monroe & Toledo Short Line Railway.

Jerry Cronin, Western Ohio Railroad.

## COMMITTEE ON COMPENSATION FOR HANDLING UNITED STATES MAIL

E. B. Peck (chairman), Terre Haute, Indianapolis & Eastern Traction Company.

R. A. Crume, Dayton & Troy Electric Railway.

W. A. Carson, Evansville Railways Company.

## PUBLICITY COMMITTEE

Frederic Nicholas (chairman), ELECTRIC RAILWAY JOURNAL.

H. J. Kenfield, *Electric Traction*.

E. H. Farr, A. H. Pugh Printing Company.

## STANDARDIZATION COMMITTEE

R. N. Hemming (chairman), Union Traction Company of Indiana.

H. H. Buckman, Louisville & Northern Railway & Lighting Company.

F. J. Foote, Ohio Electric Railway.

L. M. Clark, Terre Haute, Indianapolis & Eastern Traction Company.

Charles Sigler, Winona Interurban Railway.

F. J. Stevens, Fort Wayne & Northern Indiana Traction Company.

J. R. Fairchild, Western Ohio Railroad.

A. P. Lewis, Cleveland, Southwestern & Columbus Railway.

A. F. Rolston, Columbus, Delaware & Marion Railway.

## SUBJECT COMMITTEE

W. S. Whitney (chairman), Ohio Electric Railway.

E. B. Peck, Terre Haute, Indianapolis & Eastern Traction Company.

J. Jordan, Cleveland, Painesville & Eastern Railroad.

C. D. Emmons, Chicago, South Bend & Northern Indiana Railway.

G. W. Parker, Detroit, Monroe & Toledo Short Line Railway.

F. D. Carpenter, Western Ohio Railroad.

Will H. Bloss, Ohio Brass Company.

## SUPPLY MEN'S COMMITTEE

S. D. Hutchins (chairman), Westinghouse Traction Brake Company.

John F. Ohmer, Ohmer Fare Register Company.

W. H. Bloss, Ohio Brass Company.

L. J. Drake, Jr., Galena Signal Oil Company.

L. G. Parker, Cleveland Frog & Crossing Company.

W. D. Hamer, Electric Service Supplies Company.

M. B. Lambert, Westinghouse Electric & Manufacturing Company.

H. C. Marsh, General Electric Company.

J. H. Drew, Indianapolis Brass Company.

## TRANSPORTATION COMMITTEE

G. K. Jeffries (chairman), Terre Haute, Indianapolis & Eastern Traction Company.

H. C. Warren, Toledo & Indiana Railroad.

E. Smith, Toledo, Fostoria & Findlay Railway.

Frank Smith, Interstate Public Service Company.

J. F. Keys, Detroit, Monroe & Toledo Short Line Railway.

E. F. Schneider, Cleveland, Southwestern & Columbus Railway.



B. J. Jones, Ohio Electric Railway.  
 C. F. Franklin, Winona Interurban Railway.  
 H. C. Mason, Benton Harbor-St. Joe Railway & Light  
 Company.

## VIGILANCE AND MEMBERSHIP COMMITTEE

C. D. Emmons (chairman), Chicago, South Bend &  
 Northern Indiana Railway.  
 A. C. Miller, Gary & Interurban Railroad.  
 F. J. Green, Springfield, Troy & Piqua Railway.  
 R. A. Crume, Dayton & Troy Electric Railway.  
 T. F. Grover, Terre Haute, Indianapolis & Eastern Traction  
 Company.  
 J. N. Tabb, Parkersburg, Marietta & Interurban Railway.  
 C. J. A. Paul, Mahoning & Shenango Railway & Light  
 Company.

Will H. Bloss, Ohio Brass Company.

E. M. Haas, ELECTRIC RAILWAY JOURNAL.

## WOOD PRESERVATION COMMITTEE

F. P. Smith (chairman), Interstate Public Service Com-  
 pany.

Gaylord Thompson, Ohio Electric Railway.

T. B. McMath, Indianapolis Traction & Terminal Com-  
 pany.

L. A. Mitchell, Union Traction Company of Indiana.

## RULES GOVERNING THE INTERCHANGE OF EQUIPMENT

H. A. Nicholl (chairman), Union Traction Company of  
 Indiana.

C. D. Emmons, Chicago, South Bend & Northern Indiana  
 Railway.

A. Benham, Ohio Electric Railway.

E. F. Schneider, Cleveland, Southwestern & Columbus  
 Railway.

## COMMITTEE ON JOINT WEIGHT AND INSPECTION BUREAU

J. H. Crall (chairman), Terre Haute, Indianapolis &  
 Eastern Traction Company.

R. A. Crume, Dayton & Troy Electric Railway.

W. S. Whitney, Ohio Electric Railway.

## JOINT FOLDER COMMITTEE

E. B. Peck (chairman), Terre Haute, Indianapolis &  
 Eastern Traction Company.

E. F. Schneider, Cleveland, Southwestern & Columbus  
 Railway.

C. E. Palmer, Fort Wayne & Northern Indiana Traction  
 Company.

COMMITTEES OF THE CENTRAL ELECTRIC  
TRAFFIC ASSOCIATION

## STANDING AUDITING

Walter Shroyer (chairman), Union Traction Company  
 of Indiana.

L. T. Hixson, Terre Haute, Indianapolis & Eastern Traction  
 Company.

E. L. Kasemeier, Ohio Electric Railway.

## BOOSTER COMMITTEE

F. D. Norviel (chairman), Union Traction Company of  
 Indiana.

C. O. Sullivan, Western Ohio Railroad.

J. H. Crall, Terre Haute, Indianapolis & Eastern Traction  
 Company.

O. H. Murlin, Dayton & Troy Electric Railway.

J. H. Pounds, Benton Harbor-St. Joe Railway & Light  
 Company.

## CONSTITUTION AND BY-LAWS

C. J. Laney (chairman), Cleveland, Southwestern &  
 Columbus Railway.

I. E. Guthrie, Interstate Public Service Company.

E. Hamprecht, Toledo, Bowling Green & Southern Traction  
 Company.

B. E. Parker, Public Utilities Company.

W. O. Woodard, Chicago, Lake Shore & South Bend  
 Railway.

## INTERCHANGEABLE MILEAGE TICKET

F. D. Norviel (chairman), Union Traction Company of  
 Indiana.

W. S. Whitney, Ohio Electric Railway.

O. H. Murlin, Dayton & Troy Electric Railway.

## INTERLINE BAGGAGE

O. H. Murlin (chairman), Dayton & Troy Electric Rail-  
 way.

C. O. Sullivan, Western Ohio Railroad.

J. A. Greenland, Fort Wayne & Northern Indiana Traction  
 Company.

## JOINT PASSENGER TARIFFS

W. S. Whitney (chairman), Ohio Electric Railway.

F. D. Norviel, Union Traction Company of Indiana.

C. J. Laney, Cleveland, Southwestern & Columbus Rail-  
 way.

## JOINT FREIGHT TARIFFS

J. H. Pounds (chairman), Benton Harbor-St. Joe Rail-  
 way & Light Company.

C. O. Warfel, Indianapolis & Cincinnati Traction Com-  
 pany.

C. B. Kleinhans, Toledo & Indiana Railroad.

W. D. Stansifer, Winona Interurban Railway.

F. C. Mayer, Grand Rapids, Holland & Chicago Railway.

## OFFICIAL INTERURBAN MAP

G. M. Patterson (chairman), Toledo & Chicago Inter-  
 urban Railway.

J. H. Crall, Terre Haute, Indianapolis & Eastern Traction  
 Company.

O. H. Murlin, Dayton & Troy Electric Railway.

W. S. Whitney, Ohio Electric Railway.

C. C. Trees, Indiana Railways & Light Company.

## OFFICIAL INTERURBAN GUIDE

C. O. Sullivan (chairman), Western Ohio Railroad.

J. M. Brick, Springfield, Troy & Piqua Railway.

F. D. Norviel, Union Traction Company of Indiana.

J. F. Starkey, Lake Shore Electric Railway.

J. A. Greenland, Fort Wayne & Northern Indiana Traction  
 Company.

## JOINT EXCEPTION SHEET

C. O. Sullivan (chairman), Western Ohio Railroad.

J. H. Crall, Terre Haute, Indianapolis & Eastern Traction  
 Company.

C. O. Warfel, Indianapolis & Cincinnati Traction Com-  
 pany.

G. M. Patterson, Toledo & Chicago Interurban Railway.

J. H. Pounds, Benton Harbor-St. Joe Railway & Light  
 Company.

W. S. Whitney, Ohio Electric Railway.

F. D. Norviel, Union Traction Company of Indiana.

## RULES GOVERNING SETTLEMENT OF FREIGHT CLAIMS

F. D. Norviel (chairman), Union Traction Company of  
 Indiana.

F. I. Hardy, Chicago, South Bend & Northern Indiana  
 Railway.

J. S. Clark, Marion, Bluffton & Eastern Traction Com-  
 pany.

C. B. Kleinhans, Toledo & Indiana Railroad.

C. O. Sullivan, Western Ohio Railroad.

## JOINT WEIGHT AND INSPECTION BUREAU

J. H. Crall (chairman), Terre Haute, Indianapolis &  
 Eastern Traction Company.

F. D. Norviel, Union Traction Company of Indiana.

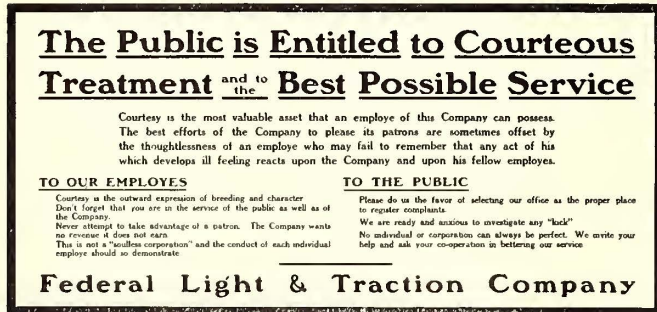
W. S. Whitney, Ohio Electric Railway.

F. I. Hardy, Chicago, South Bend & Northern Indiana  
 Railway.

O. H. Murlin, Dayton & Troy Electric Railway.

**A COURTESY CARD FOR STREET CARS**

The accompanying illustration, reproduced from a placard of the Federal Light & Traction Company, New York, N. Y., indicates one of the means adopted by that company in the interest of closer co-operation with the public and employees. One of these cards will be placed in a frame at one end of each of the electric railway cars operated by the subsidiary companies of the Federal Light & Traction Company. Another card will be placed over the cashier's window at the home office, one in the show window of the

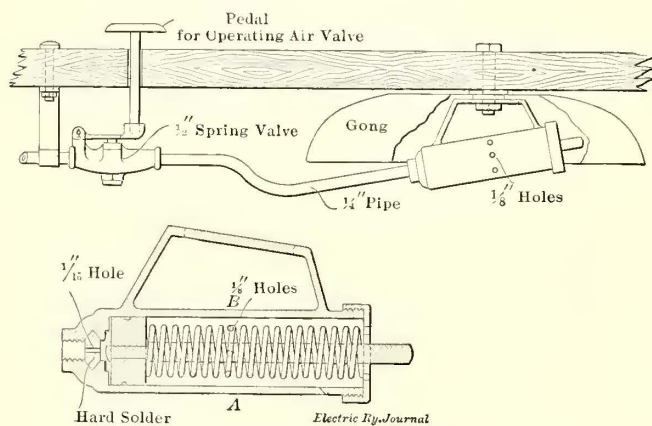


Courtesy Card of the Federal Light & Traction Company

office and several elsewhere in the office. The cards will also be placed in the club rooms or places where the employees congregate. Electrotypes have been made of the cards and these have been sent to the various newspapers in the cities in which the Federal Light & Traction Company operates the utilities. While the reading matter is the same on all of the cards, the company has used the names of the local companies in each city in which it operates. This makes the card a local issue.

**A SIMPLIFIED PNEUMATIC GONG RINGER**

The Kansas City Railway & Light Company is operating thirty city cars which are equipped with a new form of pneumatic operating gong. The device, which is the invention of C. C. Crewson, Kansas City, is shown in the accompanying illustration. The gong is operated by air which passes through the small port, 1/16 in. in diameter, in the hard-solder disk as shown in the line cut. The air pressure forces the piston forward until the piston head passes six



Pneumatic Gong Ringer for Kansas City Cars

1/8-in. holes bored in the walls of the cylinder. These allow the air pressure to be instantly reduced to such an extent that the compressed spring forces the piston back about 1 1/4 in. At this point the piston is again picked up by the air pressure and again forced past the 1/8-in. holes, the process continuing at the rate of 800 strokes per minute as long as air pressure is supplied at the small hole in the hard-solder disk. A single tap of the gong may be produced by pressing the pedal down and immediately releasing it, but if the

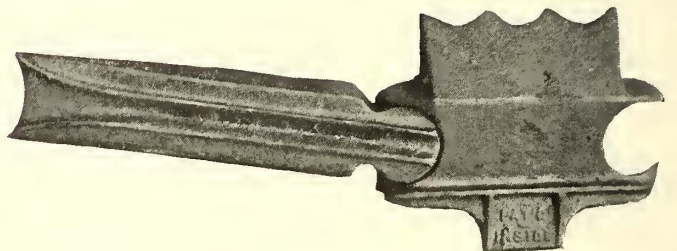
pedal is held down steadily a continuous ring is produced.

The extreme simplicity of the device is its most important feature. With the exception of the small cylinder casting the entire device can be made up in any repair shop. Its low cost and freedom from repairs offer a material argument for its use in order to eliminate the customary awkward practice of having motormen stamp upon foot gongs. It has been suggested that the device can be placed on the rear of the car and operated by the motorman at the opposite end in order to give an alarm to approaching cars or automobiles when the car is about to make a turn or come to a sudden stop. The same arrangement can be used to signal to passengers who have alighted and are passing around the rear end of the car when another car is approaching in the opposite direction.

The small size of the port admitting air into the cylinder positively limits the amount of air used by the device, this restricted opening being an essential feature of the arrangement as it permits the charge of air in the cylinder to be released promptly from the large exhaust port before pressure can be built up by the incoming air. The disk in which the inlet port is placed is made of hard solder for the purpose of preventing moisture which collects at the port from freezing in cold weather. This is stated by the designer to be a new feature which has proved most successful in practice.

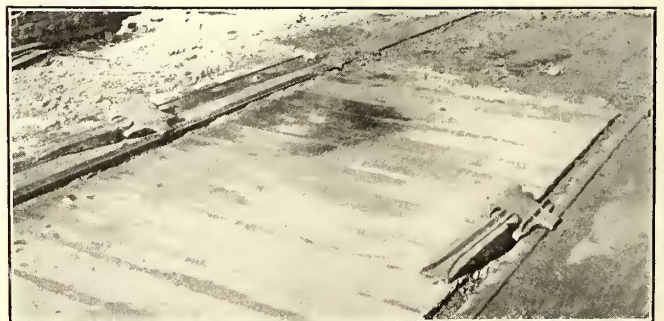
**A SIMPLE CAR REPLACER**

After two years' service on the New York Railways and several other roads had demonstrated its value, the car replacer shown in the accompanying halftones has been placed on the market by the Columbia Machine Works & Malleable



Car Replacer for Inside Rail

Iron Company, Brooklyn, N. Y. This replacer is of the simplest possible construction, consisting merely of two strong, deeply ribbed castings. The part which is fitted to



Car Replacer Outfit Installed

the rail is formed with a three-quarters circle at each end in order to receive the other part, which can be swiveled through any portion of an arc of 45 deg. In operation the swiveling pieces of both the inside and outside replacers are first adjusted to the position of the truck wheels, and then the wheels are guided up the converging runway in each swivel piece to the rail casting. The latter is formed with an incline and outer lip, thereby permitting the wheel to slide down to the adjacent rail without difficulty.

# News of Electric Railways

## Tornado and Flood Damage

The tornado of March 23, which vented its worst fury on Omaha and vicinity, was followed on March 24 and 25 by what are considered the worst floods in the history of the Middle West. The reports which have been so far received indicate that the property loss will be very great. The railroads and the electric railways were hard hit. On March 25 Indianapolis was practically cut off from the rest of the world and all steam railroad and electric railway transportation into the city was reported to be suspended. The Wabash River overflowed, and it was stated that the tracks of the Fort Wayne & Northern Indiana Traction Company were inundated at many places. The Miami River rose ten inches in one hour.

A large part of the city of Dayton is under water and on March 26 the nearest that the railroads could get to the stricken city was Xenia, which is 40 miles distant. The worst flooded district in and near Dayton includes all of North and West Dayton, all of the downtown section, the south side as far as Oakwood, through which the Oakwood Street Railway operated, and all of the residence suburb of Glendale.

The tracks of the Ohio Electric Railway near Middletown, Ohio, were reported to be washed out and electric railway service in all parts of Indiana was uncertain. In Marion no attempt was made on March 25 to operate the electric railway there. Fort Wayne, at the junction of the St. Mary, St. Joseph and Maumee Rivers, was flooded on March 25. The electric light plant was submerged and the city was without light during the night. On the day mentioned the rivers just referred to reached stages higher than at any other time in twenty years.

Scores of relief trains dispatched from Chicago on March 25 reported that they could get no further than Lafayette or Logansport, Ind. Trains were detoured and those that were able to get through on March 25 were from four to ten hours late. A report from Akron, Ohio, on March 25 said that railroad and electric railway traffic there was paralyzed.

On March 26 western New York was reported to be in the grip of the flood. On that date street railway traffic in South Buffalo had to be suspended.

It is said that bridges of the Western Ohio Railroad, Ohio Electric Railway, Toledo, Bowling Green & Southern Traction Company and other roads in the western part of Ohio have been carried away. The power house of the Toledo, Bowling Green & Southern Traction Company at Findlay had to be shut down on March 24 and the town was left without railroad service and light. On the same day operations on the Western Ohio Railway's lines at Lima were completely suspended. From Delphos it was reported that no cars were in operation on the Ohio Electric Railway.

Only four of the interurban lines which enter Toledo were in operation on March 25. An overflowing river at Fremont prevented the Lake Shore Electric Railway from operating further than that point from the Toledo end of the line. A washout on the Ohio Electric Railway at Waterville was reported and no cars came into Toledo on Tuesday. The Toledo, Port Clinton & Lake Side Railway was partially in operation but washouts at one point prevented through cars. The Maumee Valley Railway & Light Company's line, the Toledo & Western Railroad, the Toledo & Indiana Railroad and the Detroit, Monroe & Toledo Short Line were not disturbed seriously.

The property of the Ohio Electric Railway at Columbus is probably seriously damaged, as the western part of the city is covered with water to a depth of several feet. The Columbus-Springfield branch enters from this side of the city. The Columbus-Newark-Zanesville division leaves the city on the east side.

No information had been obtained up to Tuesday in regard to the Columbus, Delaware & Marion Railway. Neither was any information obtainable relative to the Scioto Valley Traction Company, the lines of which traverse one division of the valley of the Scioto River. Only part of the system of the Cleveland, Southwestern & Co-

lumbus Railway was in operation Wednesday. About 6 ft. of water stood in the power station at Elyria. From Seville west operations had been suspended. A bridge near Galion was washed out.

The Cleveland, Youngstown & Eastern Railway was reported on Wednesday as operating between Cleveland and Chardon on one branch and Cleveland and a point beyond Chagrin Falls on the other. Middlefield could not be reached. The Lake Shore Electric Railway suffered from washouts. For a time operations were pretty well suspended, but on Wednesday cars were running between Cleveland and Lorain, Cleveland and Sandusky, Sandusky and Norwalk, and Toledo and Fremont. The power plants had not been badly affected at that time by water.

The tracks of the Cleveland, Painesville & Eastern Railroad near Ashtabula were weakened by washing on Tuesday, but a fair schedule was again established Wednesday. The power plant at Willoughby had to suspend for a short time as a result of the high water.

Cars on the Northern Ohio Traction & Light Company's line were in operation between Cleveland and Bedford Wednesday, but none of them could reach Akron. A report from Akron is to the effect that much of the track within the city has been torn up by the flood and that traffic between Akron and Ravenna and Akron and Cuyahoga Falls had been suspended. The Mansfield Railway, Light & Power Company was forced to suspend operations Tuesday, as the power plant was partially submerged.

Only about one-third of the track of the Columbus Railway & Light Company was in operation on Monday and Tuesday. It could not be learned whether or not the power plants of this company have been damaged. The Collinwood line of the Cleveland Railway was forced to suspend and was not operated on Monday or Tuesday.

Reports from Omaha, Neb., where there was great loss of life as a result of the tornado of March 23, show that, although the street railway service was discontinued when the wind and the torrential rain struck the city, cars were in operation on the following day. At the moment when the wind first hit the city some cars were directly in the path of the storm. In one case the conductor warned the passengers to leave the car. Nineteen lives are reported lost in the wreck of another car. The difficulties of the company were increased by the fact that the street lamps went out with the coming of the storm.

While the property loss in Omaha is estimated at \$5,000,000 by the city assessor and some part of this represents damage to the plants of public utilities, the Omaha & Council Bluffs Street Railway had cars running on all but two lines on March 25 and the Omaha Electric Light & Power Company had its service resumed in some districts. The Nebraska Traction Company, running between Papillion and Omaha, suffered severe loss to its lines, but resumed operation as soon as connection was obtained with the Omaha Electric Light & Power Company's circuits.

The Commercial Club of Omaha announced on March 25 that the path of the tornado was through the residential district only and affected no business institution. Large contributions for relief purposes were made by representative companies. These included \$5,000 each from the Omaha & Council Bluffs Street Railway, the Chicago & Northwestern Railway, the Union Pacific Railroad, the Chicago, Burlington & Quincy Railroad and the local gas company.

Electric railway service between Goshen and Elkhart had to be abandoned following the windstorm of March 21, but was resumed on March 22. Workmen are clearing the debris of the wrecked Dunlap carhouse and substation. C. D. Emmons, general manager of the Chicago, South Bend & Northern Indiana Railway, estimates the company's loss at from \$25,000 to \$30,000. Many of the city cars blown out of the carhouse were reduced to kindling wood.

A relief train stocked with provisions, blankets, cots, tents and water left New York early on March 27 for Dayton, Ohio, to aid the victims of the flood. This train was formed and provisioned under the direction of L. E. O'well, an officer of the National Cash Register Company, who was assisted by many other Daytonians now in New

York, among them Henry Gebhart, general manager of the Oakwood Street Railway, and Harrie P. Clegg, president of the Dayton & Troy Electric Railway.

Serious flood conditions were reported on March 27 along the Mohawk and upper Hudson Rivers. High water at Spier Falls put the plant of the Adirondack Electric Power Company out of commission at 9 a. m., on March 27. This plant furnishes power for light and traction purposes to the cities of Albany, Troy, Cohoes, Rensselaer and Watervliet, in all of which the United Traction Company operated. With 5 ft. of water reported in the emergency steam plant of the United Traction Company at Mechanicsville, Saratoga County, no power was available there.

#### Proposed Transportation Lines Discussed with Reference to Philadelphia

Frank R. Ford, of Ford, Bacon & Davis, New York, N. Y., consulting engineers to A. M. Taylor, transit commissioner of the city of Philadelphia, contributed to the *Philadelphia Public Ledger* of March 25, 1913, an article, "Transit in Connection with Growth of Cities." Mr. Ford presented tables showing the population of the New York, Chicago, Philadelphia and Boston metropolitan areas embraced within a circle of 16 miles radius, according to the census of 1910. He said that New York was growing much more rapidly than any of the other cities and showed the growth of the four cities during the decade to 1910. In the cases of New York and Philadelphia the increase of population in each decade has been cumulative, while for Chicago and Boston the increases per decade have decreased. Consequently the growth of both New York and Philadelphia should be larger in the future than that of the other two cities. An estimate of the population of Philadelphia within the metropolitan area of the 16-mile circle covering a period of fifty years shows that in 1960 this area will have a population of 3,926,000. An estimate was also presented for a similar period covering the population within the present Philadelphia city limits. Mr. Ford concluded his article in part as follows:

"The bulk of the city's population lives within the 2-mile, 3-mile and 4-mile zones, which is the territory served by the present surface railway system. The important part that rapid transit will play in the development of Philadelphia's population growth is in the 4-mile, 5-mile and 6-mile zones. These contain 48,139 acres of land area, and if the present density within the 3-mile zone of 44 per acre can be there developed these three zones would accommodate 2,118,000 persons, or an increase over their present population of 1,520,000. Philadelphia is pre-eminent as the 'City of Homes,' having the least number of persons per dwelling, approximately one-fifth the average in New York. If Philadelphia is to maintain its pre-eminent advantage of having a dwelling for each family, it is necessary to develop the outlying areas, which can be done only by additional high-speed lines.

"It has been determined that on the proposed North Broad Street subway approximately 410,000 people would save time in their journey to and from the business district over a trip on the present surface lines; on the South Broad Street subway, 235,000 people; on the Frankford line, 300,000 people, and on the Darby line, 60,000 people. The present subway-elevated line in West Philadelphia saves time over surface lines for approximately 165,000 people, making a grand total, if these three proposed lines are built, of 1,170,000 persons benefited by this enlarged rapid transit system out of a total population within the corporate city limits estimated for 1912 of 1,623,000, or 72 per cent. A large part of the remaining 28 per cent of population is within the central part of the city and is served more expeditiously by surface lines to the business district. These people, of course, would be benefited in traveling to the outlying districts by the proposed rapid transit system. Compared with Philadelphia, twice as many rapid transit passengers are carried in Boston, over five times as many in Chicago and Brooklyn and twenty times as many in New York.

"Since June 1 of last year the technical force of the transit commissioner's office has been making studies of the most efficient location of additional rapid transit lines. A number of routes are under consideration, of which the most important are as follows:

"1. Subway under North Broad Street from City Hall to Olney Avenue, a distance of about 6 miles.

"2. Subway under South Broad Street from City Hall to League Island, a distance of about 4 miles.

"3. Elevated line from Front and Arch Streets over Front, Kensington and Frankford Avenues to Frankford, a distance of about 7½ miles from City Hall.

"4. Elevated line from Thirty-second and Market Streets on Thirty-second Street and private right-of-way parallel to the railroad right-of-way to Gray's Ferry Avenue, thence to Woodland Avenue near Forty-ninth Street, thence on Woodland Avenue and Main Street to the center of Darby, a distance of about 7 miles from City Hall.

"5. Delivery loop subway under Arch, Eighth and Walnut Streets, the fourth side being the Broad Street subway.

"Careful estimates are being made of the cost of construction and equipment of these lines. Based on the traffic survey which was made by this organization in October and November last, an accurate knowledge of the amount and direction of traffic to and from each part of the city has been determined, and from this information estimates are being prepared of the traffic and gross earnings to be expected from each of these proposed lines. The proportion that these gross earnings will draw from the present surface lines and that from the additional facilities are also being developed. Additional estimates of operating expenses and fixed charges and the net return on cost of construction and equipment are being prepared. It is expected that by June 1, or within twelve months from the beginning of this inquiry, definite results will be obtained."

#### Rapid Transit Progress in New York

On the day following the signing of the dual rapid transit operating contracts the Public Service Commission of the First District of New York approved the mortgages filed by the Interborough Rapid Transit Company and the New York Municipal Railway Corporation and authorized each company to issue bonds needed for the carrying out of the new agreements. The mortgage of the Interborough Rapid Transit Company to the Guaranty Trust Company of New York is for \$300,000,000, and the bonds authorized by the commission total \$160,957,000. The mortgage of the New York Municipal Railway Corporation to the Central Trust Company is for \$100,000,000, and the bonds authorized total \$40,000,000. Neither company may issue further bonds without the consent of the commission.

Commissioner Milo R. Maltbie, who has been opposed to the new contracts, cast the only vote against the approval of the mortgages and bonds. Both bond issues are to run for fifty years, the issue of the Interborough Rapid Transit Company from Jan. 1, 1913, and that of the New York Municipal Railway Corporation from July 1, 1912. Each will bear 5 per cent interest. The Interborough company's bonds must be sold for not less than 93½ and the New York Municipal Railway Corporation's bonds for not less than 97 per cent of their par value. The Interborough company's bonds are to be redeemable before maturity at 110 and the New York Municipal Railway Corporation's bonds at 107½, with accrued interest.

The new rapid transit system provided by these contracts will be about three times the capacity of the existing lines. It will have more than 600 miles of single track and will cost for construction and equipment about \$325,000,000. The cost of construction will be borne jointly by the city of New York and the companies, and all the new roads, other than the extensions of privately owned elevated lines, will be owned by the city, but each company will get a lease of the roads allotted to it for forty-nine years. After the payment of operating expenses and other charges, the companies must share profits equally with the city. For the construction of city-owned lines the city will contribute about \$163,000,000, the Interborough Rapid Transit Company \$58,000,000 and the Brooklyn company \$4,000,000. Each company must bear the entire cost of equipment, as well as the cost of construction of the privately owned elevated railroads. Of the city's contribution, contracts have already been awarded for about \$75,000,000, so that there is yet to be let on the city-owned lines work to cost about \$160,000,000. All construction contracts are to be awarded by the Public Service Commission, which is

now increasing its engineering force for the purpose of properly handling the new work. The engineering department of the commission now numbers about 750 employees, and it is expected that 200 or 250 more will be necessary to recruit it to the required strength. Five thousand men are now at work on the contracts already awarded, and it is expected that this number will be doubled within a year or two. The new system is to be completed and ready for operation by Jan. 1, 1917, but the contracts provide for the operation of parts of the system as they are completed. This means that the Steinway tunnel, leading from Manhattan to Queens, the Centre Street loop in Manhattan, connecting the East River bridges, and the Fourth Avenue subway in Brooklyn will be placed in operation before the rest of the system is completed.

Chairman Edward E. McCall and Secretary Travis H. Whitney, of the commission, have executed the construction contracts for Sections Nos. 2 and 3 of the Woodside, Astoria and Corona elevated railroad in Queens. These sections comprise the main parts of the two projected rapid transit lines from the Queensboro Bridge to Astoria and Corona. When completed these lines will be operated jointly by the Interborough Rapid Transit Company and the New York Municipal Railway Corporation (Brooklyn Rapid Transit). The total contract price for the two sections is \$2,924,341. Cooper & Evans have the contract for Section No. 2, the Astoria line, and the E. E. Smith Contracting Company for Section No. 3, the Corona line. The contractors will begin work within sixty days and have eighteen months thereafter in which to complete it.

#### The Future of the Willamette Valley

The new bridge of the Portland, Eugene & Eastern Railway at Salem, Ore., that links the east and the west side of the Willamette Valley, was dedicated on March 15, 1913. The construction of the bridge was started on May 5, 1912, and completed during February, the first train being sent over the bridge on Feb. 28, 1913. On March 10 regular service was inaugurated over the bridge. It is estimated that the work in connection with the bridge amounted to an approximate total cost of \$300,000.

At the ceremonies on the afternoon of the day on which the bridge was dedicated Robert E. Strahorn, president of the Portland, Eugene & Eastern Railroad, asserted that the last of the new steam lines has been seen in Oregon and predicted that the time will come when there will be only one steam line north and south through the Willamette Valley. All other roads will be electrified.

At a banquet on the evening of March 15 Mr. Strahorn said in part:

"I regard the completion of the Salem, Falls City & Western Railway as vastly more beneficial to you and the Willamette Valley generally than the building of a new line from Salem to Portland. Of course I must modestly suggest that this presumes my being allowed to put on the finishing touches by electrification. I venture the assertion that no similar area west of the Mississippi is better served by railroads than this will be when this programme is complete. We may well pause to consider that in most regions to-day railroads are not seeking so much to extend their lines as they are to develop the territory they now occupy. This is because after all it takes large traffic to pay dividends. Without adequate tonnage the most gigantic transportation company heads straight to bankruptcy. It behooves us to pull together in consistent and persistent endeavor to develop this territory to its greatest possible production, encourage by every means the establishment of home industry and promote with most cordial co-operation the intelligent interchange of business and the enlightening and care-lifting habit of intercourse and travel."

#### Proposed Extensions in Utah

All of the electric railways in Salt Lake City are making or planning extensions. The Utah Light & Railway Company will build a 10-mile extension this spring north to Bountiful and a 5-mile extension on the Holliday line to the mouth of the Cottonwood Canyon and is drawing up specifications for twenty-four new cars. The type to be pur-

chased has not yet been definitely settled, but will be determined during the next few weeks.

The company is also increasing the peak-load capacity of its hydroelectric stations by the construction of equalizing reservoirs. The water used at its hydraulic plants is employed farther down the stream by the farmers for irrigation purposes. For this reason it is impracticable to impound water for peak-load hours in the usual way because such a plan would interfere with the continuity of flow below the station, but by the installation of reservoirs at both the intake and tailrace this difficulty is avoided, and this is the plan which the company is following at its Ogden and Cottonwood Canyon plants. By this means it will increase its peak-load power capacity about 50 per cent.

The new equipment purchased for the Ogden Canyon station includes two 3750-hp Morgan-Smith wheels each directly connected to a 2500-kva Westinghouse generator; a bank of three 875-kva Westinghouse transformers stepping up to 45,000 volts, switchboard appliances, etc. At the Ogden Canyon station the company is installing a new 1000-kva Morgan-Smith wheel and four Westinghouse generators, with corresponding equipment. At the same time it is increasing the capacity of its West Temple substation by the addition of a 1500-kw motor-generator and will build a new substation with a 500-kw motor-generator at Bountiful. The company is also installing underground feeders on 2 or 3 miles of route in Salt Lake and substituting steel span poles for the present wooden center-bracket poles on these routes.

The Salt Lake & Ogden Railway, popularly known as the Bamberger route, is double-tracking a considerable portion of its line to Ogden. By July 1 this work will be completed as far as Kaysville.

An important electric railway, projected to connect Salt Lake City with Payson, Provo and other cities to the south, is that of the Salt Lake & Utah Railway. This company will occupy an interurban terminal at Salt Lake City in connection with the Salt Lake & Ogden Railway and will build some 65 miles of track through a rich agricultural district with the different towns some 6 miles apart. The population to be served, exclusive of the terminal city, is about 50,000. Large irrigation work is under way near the southern end of the system and, when completed, will draw many new settlers. The right-of-way has been secured and rails and ties for about 30 miles of track are on the ground. The company has not done much grading yet, as it is waiting for the spring. A bridge is being erected across the Provo River. It is expected that 45 miles of track will be in operation by the late summer. No contracts for rolling stock or equipment have yet been let. The company will purchase power from the Utah Power & Light Company.

The officers of the company are: W. C. Orem, Boston, president; James G. Berryhill, Des Moines, and H. C. Joy, Boston, vice-presidents; F. M. Orem, Salt Lake City, secretary and treasurer. The directors are J. E. Cosgriff, L. H. Curtis, James G. Berryhill, Jr., Joseph S. Keeler and J. S. Macbeth. The electrical engineer is Leonard Wilson and the constructing engineer is S. S. Arendt.

The company has an authorized capital stock of \$2,000,000 and authority to issue bonds at the rate of \$40,000 a mile, but as yet has made no public issue of its securities. At present the work is being directed by the president of the company, W. C. Orem, Newhouse Building, Salt Lake City.

The Ogden Rapid Transit Company is planning some important extensions this year under the direction of P. D. Kline, who has been elected superintendent in place of the late J. W. Bailey. Mr. Kline was formerly connected with H. A. Strauss & Company, constructing engineers of Chicago, and had charge of the electrical equipment of the Salt Lake & Ogden Railway.

The two most important projects of the Ogden Rapid Transit Company are a 6¼-mile extension to the Ogden Valley and a connection between its line and the Logan Rapid Transit System, which it also owns. This extension will involve the construction of some 50 miles of track. The company will also build about 3 miles of track in Ogden and expects early in the spring to purchase ten new cars. It is also preparing plans for a new carhouse and repair shop.

### Rehabilitation Work of Allen & Peck, Inc., at Newport News Praised

In commenting editorially on the report of President C. Loomis Allen to the stockholders of the Newport News & Old Point Railway & Electric Company the Newport News *Times-Herald* said recently:

"Mr. Allen and his associates who acquired these properties a short while back found them in a condition of collapse and the power plant had to be rebuilt from the bottom. It was no small undertaking to tear away a lot of old machinery and replace it with new machinery of a different pattern, and yet keep the wheels turning day and night. This power plant supplies power not only for the electric cars and for many private machine shops, but lights for the streets, business houses and dwellings for the lower peninsula. But the change from old to new was done scientifically and as expeditiously as possible and the interruptions were so few in number as compared with previous conditions that it is small wonder that the people were patient and of a liberal spirit. This work was done under the immediate inspection and supervision of General Manager J. N. Shannahan and it is a monument to his skill and zeal.

"But that is not all that can be said of Allen & Peck, Inc., and their associates. They are men of character, as well as men of ability. They are men of their word, who have a keen sense of obligation, and they have fairly kept faith with this community. They have endeavored to give adequate service and to live up to all the responsibilities of their franchise, while at the same time doing their duty by the stockholders; for it must be considered always that the stockholders, as well as the general public, have their rights. By pursuing this course, Allen & Peck, Inc., have won the confidence and the good will of the people of the lower peninsula, and that spirit of co-operation referred to by President Allen is abiding. There is a new spirit in Newport News, and its birth was coincident with the coming of Allen & Peck, Inc. The confidence and optimism manifested by them proved a benevolent contagion and it is still spreading."

### Cincinnati Negotiations

Following a conference on March 20, 1913, between the city officials of Cincinnati, Ohio, and Walter Draper and Attorney Lawrence Maxwell, representing the Cincinnati Traction Company, Mayor Hunt announced that the city could not accept the proposal for a settlement of the street railway situation made by the company. In its latest proposal the Cincinnati Traction Company specified that the betterments to the Cincinnati Street Railway, since the latter has been under its control, should be capitalized at \$7,216,283. The city officials considered this amount excessive, although the proposal contained a condition that the accounts should be verified. The city proposed that the improvements should be capitalized at \$6,500,000. An arbitration proposal as to the expenditures made for betterments had been made by the city.

The city and company are practically agreed as to the rates of fare, although there is a difference as to the periods for readjustment. The company insists that the first readjustment shall take place five years from the date of settlement, while the city contends that the fare should be readjusted in 1916. The interurban cars are to be charged 25 cents per car mile for operating over city tracks. On the Cincinnati Street Railway the fare is to be 5 cents with transfers good on the Mill Creek Valley and the Rapid Transit lines, while six tickets are to be sold for 25 cents, good only on the Cincinnati Street Railway system and carrying the privilege of transfers only on that system. On the Mill Creek Valley lines the fare within the city limits is to be 5 cents, with transfers to the Cincinnati Street Railway and Rapid Transit systems. The fare is to be the same on the Rapid Transit line, with transfers to the other two lines within the city limits.

The city objects to the clause in the company's proposal which specifies that before the city shall have a right to demand a readjustment of fares and extensions the earnings must be sufficient to pay 6 per cent on the capital stock of the Cincinnati Street Railway. The Cincinnati

Street Railway has outstanding \$18,738,950 of stock, the present market value of which is about \$23,000,000. A fare of 4 cents during the rush hours with straight 5 cents at all other times of the day and universal transfers is under consideration as a substitute for the rates already practically agreed upon.

**Review of Traction Developments in Troy.**—The *Troy Record* recently contained a very interesting non-illustrated review of the progress in street railway development in Troy, N. Y., and vicinity. The lines in that city are now controlled by the United Traction Company, Albany.

**Catalogs and Bulletins Wanted.**—The European Bureau of American Manufactures, Berlin, W 9, Germany, has invited manufacturers to forward promptly their catalogs with best export discounts for the following articles: bird's-eye wood (maple) for street car ceilings, bent boards of five layers, tulip-shaped reflectors for electric lamps and railroad and surface car supplies in general.

**Protests Against Railway Location in Cleveland.**—Residents on the streets to be used by the proposed crosstown line on the East Side in Cleveland are protesting against the location of the road in front of their properties. At a meeting with the street railway committee of the City Council on March 18 Attorney M. P. Mooney for the protesting property owners intimated that an injunction suit might be filed.

**More Storage Battery Cars in New York.**—The Belt Line Railway Corporation, formerly the Central Park, North & East River Railroad, which was recently acquired by the Third Avenue Railway, New York, N. Y., has submitted to the Public Service Commission its plans for substituting storage battery cars for the horse cars now operated on its lines on the west and east sides of the city south of Fifty-ninth Street. The commission has set April 28 for a public hearing on the plan.

**Franchise Adjustment in Tiffin.**—The Tiffin, Fostoria & Eastern Railway, Tiffin, Ohio, has obtained a twenty-five-year franchise for the operation of the Tiffin city lines. The company has been operating in the city at a loss for several years. On complaint of residents there the Public Service Commission recently ordered the company to make improvements. The company replied that rather than spend more money on a losing venture it would take up the tracks. The Tiffin Commercial Club, Central Labor Council and other organizations interceded in behalf of the company and formulated a franchise that is acceptable to the company. This franchise has been passed by the City Council.

**Automatic Stopping Devices.**—Since the announcement by the New York, New Haven & Hartford Railroad of its intention to try out two of the many automatic stopping devices submitted in the competition for the \$10,000 prize offered by President C. S. Mellen, there have been many inquiries for the names of the inventors of the two devices that will receive a trial. The two devices selected by the company for its experiment are being handled by the Union Switch & Signal Company, Swissvale, Pa., and the International Signal Company, New York. The railroad company has announced that it is not intended to convey the impression that either one of them will be the final choice of the company, as it may be found advisable to test a number of other devices that may seem to contain sufficient merit to warrant the experiment. The contest is open until July 1.

**Normal Service in Binghamton.**—The service of the Binghamton (N. Y.) Railway is now practically normal, and so far as the company is concerned the strike is a thing of the past. G. Tracy Rogers, president of the company, in a statement which he issued several days ago said in part: "As a result of the call issued for the employees on strike to return to work if they desired their old positions nineteen of the former employees responded and will be assigned to regular runs. We now have forty-five regular crews to operate the cars over the various lines of the system. Out of twenty-five students who applied for work this morning we accepted twenty men. We are well pleased with the situation and are receiving many compliments in regard to the courtesy of the men now manning the cars. We are going to put on extra cars during rush hours."

## LEGISLATION AFFECTING ELECTRIC RAILWAYS

## DELAWARE

The House has passed the bill providing for a public utility commission. The measure empowers the Governor to appoint three commissioners at a salary of \$3,000 a year each, one from each county. It abolishes the present Wilmington Public Utilities Commission. The Senate has killed the bill providing for "Jim Crow" cars.

## ILLINOIS

Senator Denvir has introduced Senate Bill No. 257, limiting the hours of employment of street railway employees to ten hours, which must be in twelve consecutive hours.

## INDIANA

Governor Ralston of Indiana has vetoed the Harlan "blue sky" bill. As the Legislature of Indiana has adjourned it will be at least two years before a "blue sky" bill is enacted. The Governor has announced, however, that a commission of three will be appointed to survey the security situation and report a bill for passage in 1915.

## MAINE

The Legislature of Maine has passed the bill to create a public service commission. The measure is fashioned after the Wisconsin law. The commission is to consist of three members to be appointed by the Governor and his Council.

## MASSACHUSETTS

The bill providing for the creation of a public transportation commission in place of the present board of Railroad Commissioners has been unanimously reported in the Massachusetts Legislature. The bill as finally drafted provides that the chairman shall receive a salary of \$6,000 and that the other members of the board shall be paid at the rate of \$5,000 each per annum. The proposed act gives the newly created commission mandatory powers over railroad and street railway rates, and it is an outcome of a long-continued discussion of the methods of regulating transportation companies within the State. Governor Foss continues to urge the desirability of a single public utilities board for the commonwealth, having jurisdiction over all public service companies, but there is little disposition in the Legislature to interfere with the present Gas and Electric Light Commission's functions.

Interest has centered during the past fortnight upon hearings by the committee on street railways on the bill requiring that a day's work for conductors and motormen shall not exceed nine hours of service performed within eleven consecutive hours. Representatives of all the principal electric railway systems of the State have testified before the commission in opposition to the bill.

## MICHIGAN

Senator James E. MacGregor has prepared a public utilities bill for introduction in the Legislature. The measure is in line with the recommendations made by Governor Ferris in his inaugural address. It provides for transferring the duties of the State Railroad Commission to a public service commission and the employment of expert help sufficient to operate the department properly.

Attorney-General Fellowes has rendered an opinion to the effect that all amendments to city charters voted upon at the spring election on April 7, under the new home rule bill, will be illegal, since the Legislature is without power to give this law immediate effect. According to Mr. Fellowes, the law cannot go into effect until eighty days after the close of the present session. It was proposed by the Detroit city officials to proceed at the election on April 7 with the vote on the proposed municipal ownership amendments.

## MISSOURI

<sup>3</sup> A constitutional amendment authorizing St. Louis to become indebted to the extent of \$30,000,000 to construct a municipal subway has passed the Legislature. If ratified at the fall election of 1914, the city could issue bonds. Under the proposed amendment Kansas City also is authorized to vote subway bonds. The Senate has passed the Rodgers bill, which provides that all railroads and electric

railways which operate in Missouri must incorporate under the laws of that State.

## NEW YORK

The Goldberg bill creating a state board of securities to supervise all companies and associations organized for profit, other than banks, which is patterned largely after the Kansas "blue sky law," passed the State Assembly on March 25. All the Stilwell stock exchange reform bills need to become laws now is the signature of Governor Sulzer. The Senate passed the measures on March 25. The Assembly passed them several days ago. They prohibit the publication of fictitious transactions in securities and false representations concerning securities. Assemblyman Small has introduced a bill to compel street surface, elevated and subway railways to pay the State 10 per cent of the money received for advertising in cars or stations. The bill would create another new office, known as inspector of advertising, salaried at \$2,500 a year and traveling expenses. Mr. Small has also put in another bill to compel street railways to sprinkle with sand or oil between their tracks and 3 ft. each side four times a day from May 15 to Sept. 15.

## OHIO

Representatives of the public service corporations called upon Governor Cox on March 30 to protest against the enactment of what is known as the administration public utilities bill in its present form. The bill has been amended to place with municipalities that have adopted the home rule form of government absolute control over public service companies, with the exception of the accounting system. About all the work left to the Public Service Commission to perform is the supervision of interurban railways. Instead of the uniform regulation of the past two years being continued there will be local regulation under about 600 commissions, representing as many cities and villages. The Governor refused to consider the suggestion to incorporate in the bill a provision that municipally owned plants shall not furnish service below cost.

J. C. Martin, president of the Ohio Electric Light Association, charged the Governor with failure to carry out the promises made in his inaugural address. He declared that the bill legislates out of office the present commission and repeals a good law. When Governor Cox took office it was thought that he would recommend the strengthening of the public service laws and select three experts to act as commissioners, with experts at the head of the various departments of the commission.

On March 19 the Bigelow bill providing for the repeal of the law requiring consents of owners of abutting property along a proposed line of electric railway was defeated in the House, but it has been reconsidered and reinstated on the calendar. Mr. Bigelow has promised to amend the measure so as to provide that property owners may bring suit for damages if they feel that their property has depreciated in value on account of the construction of a railway. Another proposed amendment would re-establish the necessity of securing consents for lines outside of municipalities and another would require consents inside if the tracks are not laid in the middle of the streets.

A. B. DuPont, Cleveland, is opposed to the Bigelow bill to revoke all franchises which were drawn for more than twenty-five years.

## PENNSYLVANIA

The most interesting feature of the legislative sessions recently was the descent upon Capitol Hill of more than 1500 residents of Philadelphia, in the interest of the three Philadelphia bills reported favorably to the Senate on March 26. These measures are designed to improve the transit facilities in that city and to raise additional revenue for municipal purposes. One bill creates a department of city transit, and another empowers the city to purchase, lease or construct lines for a period not exceeding fifty years, subject to prescribed rates of fares, rentals and sinking fund. Among those who appeared before the committee on municipal affairs in behalf of the bills were Mayor Blankenburg, A. B. Johnson, president of the Baldwin Locomotive Works; George McCurdy, president of Common Council, and Secretary Lennon of the South Philadelphia Business Men's Association.

Before returning home the delegation called upon Gov-

ernor Tener, who made a brief speech of welcome and declared himself in favor of early improvement of the port of Philadelphia, which, he stated, would benefit the State at large.

The House has passed the bill limiting the employment of watchmen at railroad crossings to eight hours per day, under penalty of a fine of from \$50 to \$100 for each violation. The same body also passed the workmen's compensation and employers' liability bill by a vote of 159 to 28. Both of these measures now go to the Senate. An effort to have the bill making it a misdemeanor to have wooden passenger cars between steel cars placed upon the calendar notwithstanding a negative recommendation from committee was defeated by 102 to 54 in the House.

At a meeting of the joint committee on taxation on March 25 attorneys representing various railroad interests presented objections against the McClintock bill providing for the taxation of railroad property for county, township and borough purposes. They argued that it would be exceedingly difficult equitably to assess railroad property and urged that such taxation be withheld until the present work of compiling figures on the valuation of all railroad property in the country is completed at Washington.

#### RHODE ISLAND

A hearing upon the act providing a charter for the Boston & Providence Interurban Electric Railway was held on March 25 by the House committee on corporations of the Rhode Island Legislature. Stephen O. Edwards, Providence, of the law firm of Edwards & Angell, appeared on behalf of the railroad. He outlined the entire proposition and explained the reasons for its organization. He promised that if the company received permission to build it would construct a line over which electric trains would be run at a speed which would equal that of the fast express trains on the New Haven system. The attorneys declared that on the Boston end the freight and express terminal would be at Forest Hills. On the Providence end the terminal would be at tidewater near Field's Point. Chairman Langworthy continued the hearing until April 2.

An act providing for a board of arbitration and conciliation to handle labor difficulties has been introduced in the Legislature by Representative Jacob A. Eaton and is now pending before the committee on labor legislation of the House. The act provides for a board of three members, one of whom shall be an employer of labor, another an employce, and a third a member of the Rhode Island bar, all to be appointed by the Governor.

#### WASHINGTON

The House has killed the so-called "5-cent-fare bill" (H. B. 581), which removed the legal limit of car fares within the limits of a city and left the fixing of rates in the hands of the Public Service Commission.

#### WISCONSIN

The Assembly has killed the bill requiring street railways to maintain offices and keep their accounts and repair shops in the State. The bill requiring street and interurban railways to carry road material has been passed. The committee on transportation of the Assembly held hearings recently on the Jennings bill to prevent the overcrowding of street cars and permitting only ten persons to stand when all seats are occupied, and on the Gannon bill to compel street railways to pave between the tracks and 1 ft. on each side. The committee has taken no action on the bills. The committee on corporations of the Senate held hearings recently on the Linley bills to confer on municipalities the power to own and operate street railway systems.

Because it would have the effect of restricting the power of the Railroad Commission, the Schnitzler bill to prohibit interurban and electric lines from raising rates specified in their franchises was killed in the Assembly. The bill was on the calendar for indefinite postponement, but the author presented an amendment providing that such corporations could not surrender their franchises for indeterminate ones without the consent of the councils or other bodies granting them. Opponents of the measure said the bill would tie the hands of the Railroad Commission and tend to keep capital out of the State. No other matters of importance to electric railways have come before the Wisconsin Legislature lately.

## Financial and Corporate

### Stock and Money Markets

March 26, 1913.

Prices on the New York Stock Exchange made another advance to-day. The total number of shares sold was 446,551, notwithstanding the news from Ohio and Indiana indicating great property losses to the railroads and manufacturing interests. The bond transactions totaled \$1,575,000, par value. Stock advances ranged from a fraction to several points. Rates in the money market to-day were: Call, 3 @ 4½ per cent, with the last loan at 4 per cent; sixty days, 5¼ @ 5½ per cent; ninety days and four, five and six months, 5 @ 5¼ per cent.

The market in Philadelphia to-day was broad and quite active. The demand for bonds was good.

The Chicago market to-day was narrow and the volume of transactions very small. The bond market was extremely dull.

In Boston to-day there was very little trading in the railroad issues. The demand for bonds was fair.

In Baltimore the trading in stocks was narrow and the volume of transactions small. The demand for bonds continued good, the bond transactions totaling more than \$70,000.

Quotations of traction and manufacturing securities as compared with last week follow:

|                                                         | Mar. 19 | Mar. 23. |
|---------------------------------------------------------|---------|----------|
| American Brake Shoe & Foundry (common).....             | 90¾     | 90¾      |
| American Brake Shoe & Foundry (preferred).....          | 131     | 130½     |
| American Cities Company (common).....                   | 44      | 43       |
| American Cities Company (preferred).....                | 476¾    | 471      |
| American Light & Traction Company (common).....         | 350     | 345      |
| American Light & Traction Company (preferred).....      | 106     | 105      |
| American Railways Company.....                          |         | 39       |
| Aurora, Elgin & Chicago Railroad (common).....          | 44      | 43½      |
| Aurora, Elgin & Chicago Railroad (preferred).....       | 87      | 87½      |
| Boston Elevated Railway.....                            | 107     | 105½     |
| Boston Suburban Electric Companies (common).....        | 7½      | 7½       |
| Boston Suburban Electric Companies (preferred).....     | a66     | a66      |
| Boston & Worcester Electric Companies (common).....     | 7½      | 7½       |
| Boston & Worcester Electric Companies (preferred).....  | 43      | 43       |
| Brooklyn Rapid Transit Company.....                     | 87      | 88¾      |
| Capital Traction Company, Washington.....               | 120     | 120      |
| Chicago City Railways.....                              | 150     | 150      |
| Chicago Elevated Railways (common).....                 | *25     | 26       |
| Chicago Elevated Railways (preferred).....              | *88     | 88       |
| Chicago Railways, ptcptg., ctf. 1.....                  | 90      | 88       |
| Chicago Railways, ptcptg., ctf. 2.....                  | 22½     | 21¾      |
| Chicago Railways, ptcptg., ctf. 3.....                  | 6¾      | 6        |
| Chicago Railways, ptcptg., ctf. 4.....                  | 3½      | *3½      |
| Cincinnati Street Railway.....                          | 112     | *112     |
| Cleveland, Southwestern & Columbus Ry. (common).....    | *5½     | *5½      |
| Cleveland, Southwestern & Columbus Ry. (preferred)..... | *30     | *30      |
| Cleveland Railway.....                                  | 103½    | 103½     |
| Columbus Railway & Light Company.....                   | 18      | *18      |
| Columbus Railway (common).....                          | a69½    | *69½     |
| Columbus Railway (preferred).....                       | *82½    | *82½     |
| Denver & Northwestern Railway.....                      | *108    | *108     |
| Detroit United Railway.....                             | a80     | 74¼      |
| General Electric Company.....                           | 136     | 137½     |
| Georgia Railway & Electric Company (common).....        | 121     | 118      |
| Georgia Railway & Electric Company (preferred).....     | a83¾    | 84       |
| Interborough Metropolitan Company (common).....         | 17¼     | 16¾      |
| Interborough Metropolitan Company (preferred).....      | 58      | 58       |
| International Traction Company (common).....            | *35     | *35      |
| International Traction Company (preferred).....         | *95     | *95      |
| Kansas City Railway & Light Company (common).....       | 15      | 15       |
| Kansas City Railway & Light Company (preferred).....    | 30      | *30      |
| Lake Shore Electric Railway (common).....               | *6½     | *6½      |
| Lake Shore Electric Railway (1st preferred).....        | *91     | *91      |
| Lake Shore Electric Railway (2d preferred).....         | *25½    | *25½     |
| Manhattan Railway.....                                  | 127¾    | 127      |
| Massachusetts Electric Companies (common).....          | 16½     | 16½      |
| Massachusetts Electric Companies (preferred).....       | 74½     | 74       |
| Milwaukee Electric Railway & Light Co. (preferred)..... | *100    | *100     |
| Norfolk Railway & Light Company.....                    | *25¾    | *25¾     |
| North American Company.....                             | 77      | 75       |
| Northern Ohio Light & Traction Company (common).....    | 72½     | 70½      |
| Northern Ohio Light & Traction Company (preferred)..... | a105    | *105     |
| Philadelphia Company, Pittsburgh (common).....          | 45      | 44½      |
| Philadelphia Company, Pittsburgh (preferred).....       | 40      | 40       |
| Philadelphia Rapid Transit Company.....                 | 25¾     | 24½      |
| Portland Railway, Light & Power Company.....            | *67     | *67      |
| Public Service Corporation.....                         | 115     | 115      |
| Third Avenue Railway, New York.....                     | 34      | 36¾      |
| Toledo Railways & Light Company.....                    | 25½     | 25½      |
| Twin City Rapid Transit Co., Minneapolis (common).....  | 103     | 103½     |
| Union Traction Company of Indiana (common).....         | *4½     | *4½      |
| Union Traction Company of Indiana (1st preferred).....  | *81     | *81      |
| Union Traction Company of Indiana (2d preferred).....   | 34      | *34      |
| United Rys. & Electric Company (Baltimore).....         | 23      | 23½      |
| United Rys. Inv. Company (common).....                  | 25      | 27½      |
| United Rys. Inv. Company (preferred).....               | 47      | 50½      |
| Virginia Railway & Power Company (common).....          | 51¾     | 51¾      |
| Virginia Railway & Power Company (preferred).....       | 89      | 89       |
| Washington Ry. & Electric Company (common).....         | 87½     | 94       |
| Washington Ry. & Electric Company (preferred).....      | 88½     | 89       |
| West End Street Railway, Boston (common).....           | 76½     | 76       |
| West End Street Railway, Boston (preferred).....        | a95     | a95      |
| Westinghouse Elec. & Mfg. Company.....                  | 62      | 63½      |
| Westinghouse Elec. & Mfg. Company (1st preferred).....  | 117     | 116      |

\*Last sale. A asked.



ANNUAL REPORT

Public Service Corporation of New Jersey

Earnings and expenses of the Public Service Corporation of New Jersey, Public Service Gas Company, Public Service Railway Company, Public Service Electric Company and subsidiary companies for the year ended Dec. 31, 1912, were as follows:

|                                                                                                              |              |              |
|--------------------------------------------------------------------------------------------------------------|--------------|--------------|
| Gross earnings of leased and controlled companies.....                                                       | \$32,654,469 |              |
| Operating expenses and taxes.....                                                                            | \$17,779,433 |              |
| Amortization charges .....                                                                                   | 722,078      |              |
|                                                                                                              |              | 18,501,511   |
|                                                                                                              |              | <hr/>        |
|                                                                                                              |              | \$14,152,958 |
| Public Service Corporation of New Jersey income from securities pledged and from miscellaneous sources ..... |              | 1,939,338    |
|                                                                                                              |              | <hr/>        |
|                                                                                                              |              | \$16,092,296 |
| Bond interest and rentals of leased and controlled companies                                                 |              | 11,289,076   |
|                                                                                                              |              | <hr/>        |
|                                                                                                              |              | \$4,803,220  |
| Fixed charges of Public Service Corporation of New Jersey..                                                  |              | 2,749,996    |
|                                                                                                              |              | <hr/>        |
|                                                                                                              |              | \$2,053,224  |

Net surplus ..... \$2,053,224

Thomas N. McCarter, president, says in part:

"Out of these earnings dividends at the rate of 6 per cent per annum, aggregating \$1,500,000, were paid during the year upon the capital stock of the corporation, which amounts to \$25,000,000 at par.

"The corporation financed itself and its subsidiary companies for the year for the most part from the remaining proceeds of the sale of \$13,860,000, face value, of its general mortgage bonds, which, as stated in the annual report for 1911, were sold to J. P. Morgan & Company and Drexel & Company during that year. These remaining proceeds were used to meet the construction and extension requirements of the three operating companies for the year, and, in addition thereto, the Public Service Railway issued \$500,000 at par of equipment trust, series C, certificates, dated Aug. 31, 1912, the proceeds of which were used to pay, in part, for 100 new cars. To meet the further construction obligations of its subsidiary corporations, the corporation borrowed during the latter part of the year \$600,000 on its note, secured by its general mortgage bonds as collateral.

"During the year the Public Service Railway leased the Riverside Traction Company for a period of 999 years from April 1, 1912. The lines of the Riverside Traction Company connect with those of the Public Service Railway at Riverton and run thence to the heart of Trenton, having a total trackage of about 33 miles. The Public Service Corporation of New Jersey also acquired during the year the capital stock of the Trenton Terminal Railroad (which last named company is the lessee of the Elizabeth & Trenton Railroad). These properties will embrace an additional trackage, when contemplated construction is completed, of more than 41 miles. By the acquisition of these properties and the completion of their construction the corporation fills in the gap in its railway system in the center of the State. When the remaining construction is finished, which we anticipate should not be later than May 1, 1913, the Public Service Railway will have a completed through line across the State from the Hudson River waterfront to the Delaware River waterfront at Camden. The old properties thus acquired are being thoroughly reconstructed and rehabilitated and the new construction is of the fine, modern interurban type, admitting of high speed. I regard these new properties as most valuable assets for the future. With them the Public Service Railway will parallel the Pennsylvania Railroad all the way from New York to Philadelphia. In addition thereto, and closely connected with this project, it is proposed to build a cut-off from this new line at a point near Port Reading Junction to Sewaren, a distance of 1.6 miles, where the cut-off will connect with our existing line into Perth Amboy. The result of this will be to provide the Amboys with high-speed facilities into Elizabeth and Newark, as well as to New York. It is the intention of the management not to extend further the activities of the company beyond the State line.

"The properties owned by the corporation have been maintained throughout the year at a high standard of efficiency, and, in addition thereto, the sum of \$722,077 has been charged to amortization.

"The most important of the improvements completed

during the year is the new Summit railway terminal and office building in Jersey City, built to be used in co-operation with the Summit Avenue station of the Hudson & Manhattan Railroad and the Pennsylvania Railroad.

"The large new carhouse, known as 'Big Tree,' in the town of Nutley, in the Essex division, was completed during the year and put into operation on Sept. 22. This carhouse affords capacity for 120 cars and provides in connection therewith a repair shop, office building and recreation room for employees. A new carhouse, to be built of brick and concrete, is in process of construction at West New York. A very substantial building for office purposes, designed as the Hudson division headquarters for the mechanical departments of the electric and railway companies, is in course of construction at Palisade Avenue and the elevated structure in Jersey City.

"The company has increased its number of prepayment cars so that there are now a total of 1113 cars of this variety on the system. During the year two-car trains to the number of forty-one trains were put in operation on various lines in the Hudson and Essex divisions and have been very successful.

"More than 51 miles of track was reconstructed during the year and, including the new properties above referred to, approximately 17½ miles of new track was laid. The total mileage of the railway when the new construction under way is completed will be approximately 850 miles.

"A very large and valuable piece of real estate has been secured during the year, fronting on the Passaic River in the meadow section of Newark, as the site for a new power station, which the rapidly growing business of the electric company in this locality clearly presages as a necessity in the early future.

"The corporation's subsidiary operating companies obtained an approximate gross increase from operating during the year of \$2,200,000, or 7.31 per cent over 1911. The percentage of increase of the railway was 4.35 per cent. This is below normal and is due to two reasons—the severe climatic conditions which prevailed during the early winter months of 1912 and the direct loss suffered by the opening of the Summit station of the Hudson & Manhattan Railroad in Jersey City and the joint operation of the high-speed line to Newark by the Hudson & Manhattan Railroad and the Pennsylvania Railroad. The opening of the Summit station has very largely changed conditions in Jersey City. The vast majority of people living in the Hill section of Jersey City no longer take either the ferry or the tube to Exchange Place, but go right through in the tube trains to or from Summit Avenue, thus eliminating the ride on the street railway. The lines affected by the operation of these new facilities show an actual loss of business of approximately \$225,000. Except for this the increases of the railway would have been very satisfactory, notwithstanding the severe winter.

"The taxes paid during the year amounted to \$1,873,018, an increase over 1911 of \$213,276. In addition to this, the corporation, as usual, contributed large sums to municipalities in the form of new improvements, street paving and street-paving assessments.

"The fire insurance carried as of Dec. 31, 1912, amounted to \$26,860,669. This is an increase over the corresponding date of the previous year of \$2,530,853. The total premiums for 1912 amounted to \$118,534, which is an average of 44 cents per hundred and a decrease in the premiums paid, as compared with 1911, of \$887.25. This it appears the company carried during 1912 a large amount of additional insurance over 1911 at a substantially less premium.

"The welfare plan of the corporation, which was put into effect Jan. 1, 1911, has been carried on and extended during the year of 1912. The following is the cost of the work: Insurance, \$19,009; sick benefits, \$24,119; pensions, \$11,169; expenses, \$6,819; total, \$61,116.22. This is an increase of \$12,327 over 1911, the reason for which, however, is that the cost of administration was not charged to this account in the former year but is included in the figures this year. The pension roll was increased from twenty-two at the beginning of the year to forty-one at the close of the year. Sick benefits were paid on 1124 cases, at an average of \$21.45 per case.

"July 4, 1912, completed the first full year of the operation of the workmen's compensation act. The cost of

accidents to employees occurring during this period, when the weekly payments are completed, will amount to \$63,530. There were 2357 injuries to employees reported during the year, as against 1356 during the previous year, this largely increased number, however, being due to the care with which minor injuries are now looked after.

"During the latter part of the year the board of directors decided, as of Jan. 1, 1913, to put all female employees upon a minimum wage basis of \$9 per week. The company regards this as an important step in its welfare work. While the increase involved in many cases was more than the positions merited, the company feels that it is doing that which is eminently fitting in vouchsafing to all its female employees a decent living wage.

"Another full year of operation has been passed under the supervision of the Public Utility Commission. Our subsidiary companies are constantly before the commission in a multitude of matters of greater or less importance. Our relations with the commission have been, and continue to be, of an entirely cordial character.

"While the company decided to obey the order and recommendations of the Public Utility Commission in regard to the reduction in the price of gas from \$1 per 1000 cu. ft. to 90 cents per 1000 cu. ft., it did not waive its right to contest the legality thereof. The decision upon which the order is based is most drastic and, in the judgment of our lawyers, is illegal, being founded upon a principle which will not stand the scrutiny of the courts. To determine the correctness of this decision, with the knowledge and approval of the commission, we have sued out a writ of certiorari in the Supreme Court of New Jersey. The main point involved in the controversy will be the decision of the question as to the value of the company's franchises for rate-making purposes. The commission repudiated this value altogether. The Supreme Court of the United States, as we view the decision, has decided directly to the contrary in a precisely similar case."

A comparison of the railway traffic statistics for 1911 and 1912 follows:

|                                                | 1911        | 1912        |
|------------------------------------------------|-------------|-------------|
| Revenue passengers .....                       | 277,730,238 | 292,707,377 |
| Transfers and passes .....                     | 84,820,157  | 90,007,641  |
| Total passengers .....                         | 362,550,395 | 382,715,018 |
| Percentage of passengers using transfers ..... | 21.4        | 21.2        |
| Average fare per passenger, cents.....         | 3.82        | 3.82        |
| Car mileage .....                              | 44,561,141  | 47,355,292  |
| Car hours .....                                | 5,159,073   | 5,465,926   |
| Passengers per day .....                       | 993,289     | 1,045,669   |
| Passenger receipts per car mile, cents.....    | 31.07       | 30.87       |
| Passenger receipts per car hour.....           | \$2.68      | \$2.67      |

The statement of mileage of the Public Service Railway follows:

|                                               | Miles   |
|-----------------------------------------------|---------|
| First main track .....                        | 516,591 |
| Second main track and turnouts .....          | 275,489 |
| Connections, crossovers, wyes and loops ..... | 12,850  |
| Carhouse and yard tracks .....                | 38,845  |
| Total .....                                   | 843,775 |

Total number of passenger cars available for operation: Closed, 1667; open, 503.

Number of new passenger cars since 1903: Closed, 878; open, 130.

A comparative statement of gross earnings of the railway division of the Public Service Corporation for 1912 and 1911 follows:

|                                                         | 1912         | 1911         |
|---------------------------------------------------------|--------------|--------------|
| Bergen division .....                                   | \$967,606    | \$926,484    |
| Central division .....                                  | 1,461,337    | 1,328,294    |
| Essex division .....                                    | 5,437,024    | 5,153,906    |
| Hudson division .....                                   | 4,628,284    | 4,606,249    |
| Passaic division .....                                  | 1,311,553    | 1,241,628    |
| Southern division .....                                 | 1,456,622    | 1,193,527    |
|                                                         | \$15,262,426 | \$14,450,088 |
| Gross earnings of leased and controlled companies ..... | \$32,654,469 | \$30,125,508 |
| Public Service miscellaneous income .....               | 1,939,338    | 1,890,512    |
| Grand total .....                                       | \$34,593,808 | \$32,016,020 |

**Belt Line Railway Corporation, New York, N. Y.**—The Public Service Commission for the First District has authorized the Belt Line Railway Corporation to issue \$431,300 in capital stock and \$1,750,000 in first mortgage 5 per cent bonds, dated Jan. 1, 1913, payable on Jan. 1, 1943, and redeemable as an entirety at 105 per cent. By another order the commission authorized the Third Avenue Railway

to purchase the stock and bonds issued by the Belt Line Corporation upon the condition that the Third Avenue Railway guarantee the principal and interest of the bonds. The Belt Line Railway Corporation owns the property of the Central Park, North & East River Railroad Company, consisting of the Fifty-ninth Street crosstown railroad and the east and west belt lines. The property was sold for \$1,673,000 at foreclosure in November, 1912, to Edward Cornell, who turned it over to the Belt Line Railway Corporation.

**Columbus, Marion & Bucyrus Railway, Marion, Ohio.**—Master Commissioner William P. Maloney has changed the date of the sale of the property of the Columbus, Marion & Bucyrus Railway from April 12, 1913, to May 10, 1913, at the request of the Troy Trust Company, which is said to be preparing to bid in the property for the bondholders.

**Durham (N. C.) Traction Company.**—The Durham Light & Traction Company has been incorporated in Delaware in the interest of H. L. Doherty & Company, New York, N. Y., to take over the property of the Durham Traction Company. The capital stock of the Durham Light & Traction Company is \$1,000,000.

**Elmira Water, Light & Railroad Company, Elmira, N. Y.**—The Public Service Commission of the Second District of New York has authorized the Elmira Water, Light & Railroad Company to sell \$339,000 of its first consolidated mortgage 5 per cent fifty-year gold bonds to refund a like amount of bonds of the Elmira Water Works Company.

**Kansas City & Bonner Springs Street Railway, Bonner Springs, Kan.**—J. D. Waters, cashier of the Farmers' State Bank, Bonner Springs, Kan., and his associates have taken over the interests of John W. McDaniel, which include the Kansas City & Bonner Springs Street Railway. All of the right-of-way has now been obtained for the Kansas City & Bonner Springs Street Railway and the line will be completed between Kansas City and Bonner Springs this year. The company is operating 5 miles of line between Bonner Springs and Lake Forest. New officers and directors have been elected for the Kansas City & Bonner Springs Street Railway, but the new owners are not prepared at present to announce their plans in detail. It is understood that the Kansas City & Bonner Springs Street Railway will be succeeded by the Kansas City, Kaw Valley & Western Railway, a new company.

**Lake View Traction Company, Memphis, Tenn.**—The bondholders of the Lake View Traction Company are reported to have arranged to sell the property of the company, exclusive of the building owned in Memphis and the carhouse, to the Memphis Street Railway for \$160,000. Payment is to be made, according to report, in twenty-year bonds of the Memphis Street Railway, to bear 2 per cent interest for two years, 3 per cent interest for the next three years, 4 per cent interest for the next eight years and 5 per cent interest for the last seven years. The bondholders of the Lake View Traction Company took over the property of the company at foreclosure sale last fall.

**Lehigh Valley Transit Company, Allentown, Pa.**—At a meeting of the directors of the Lehigh Valley Transit Company on March 20, 1913, the various electric light and power companies controlled by the company were merged into a new company to be known as the Lehigh Valley Light & Power Company with a capital of \$1,000,000. The constituent companies merged are the Allentown Electric Light & Power Company, the Halcyon Electric Light & Power Company, of South Bethlehem, and the Whitehall, Emaus, Slatington, Hanover, South Allentown, Salisbury, Fountain Hill, Northampton Heights and Sancon companies. The companies were consolidated to facilitate operation.

**Milwaukee Electric Railway & Light Company, Milwaukee, Wis.**—Harris, Forbes & Company, New York, N. Y.; N. W. Harris, Inc., Boston, Mass.; the Harris Trust & Savings Bank, Chicago, Ill., and others are offering for subscription at 96½ and interest a block of \$877,000 of the new general and refunding mortgage 5 per cent gold bonds of The Milwaukee Electric Railway & Light Company dated 1911. The same interests placed the original \$3,621,000 of these bonds. There are now outstanding \$4,498,000 of the bonds and \$13,228,000 of the authorized issue are reserved to retire underlying bonds.

**Nashville Railway & Light Company, Nashville, Tenn.**—A meeting of the stockholders of the Nashville Railway & Light Company has been called for May 8, 1913, to vote to purchase the property and rights of the Gallatin Pike Railway.

**Ocean Shore Railroad, San Francisco, Cal.**—The Ocean Shore Railroad reports gross receipts for the calendar year 1912 as \$272,162, as compared with \$219,022 for 1911; total expenditures for 1912, \$253,380, as compared with \$265,719 in 1911, and surplus for 1912, \$18,782, as compared with a deficit of \$46697 for 1911.

**Southern Traction Company, Dallas, Tex.**—For the express purpose of providing for bond issues to aggregate \$10,500,000, the Southern Traction Company has filed in the County Clerk's office at Dallas two releases from the St. Louis Union Trust Company, one on a first mortgage for \$7,500,000 and one on a second mortgage for \$500,000. Each release states that the bonds have been returned canceled to the St. Louis Union Trust Company and that the deeds of trust are to be replaced, one with a first mortgage for \$10,000,000 and the other with a second mortgage for \$500,000.

**Toledo & Chicago Interurban Railway, Kendallville, Ind.**—The property of the Toledo & Chicago Interurban Railway is to be sold at receiver's sale at Fort Wayne, Ind., on April 14, 1913. The upset price has been fixed at \$550,000. The property will be sold free and clear of the existing \$1,250,000 bond issue, but the purchaser will be required to assume all taxes, receivers' obligations and claims for terminals in Fort Wayne.

**Tri-City Railway, Davenport, Ia.**—The Tri-City Railway has filed with the County Recorder a certificate of an increase in its capital from \$3,500,000 to \$5,000,000.

**Walla Walla (Wash.) Valley Railway.**—The Walla Walla Valley Railway, the entire capital stock of which is owned by the Pacific Power & Light Company, has made a first and refunding mortgage to the United States Mortgage & Trust Company, New York, N. Y., as trustee to secure an issue of \$10,000,000 of 5 per cent gold bonds due July 1, 1930. It is understood that these bonds will be acquired by the Pacific Power & Light Company and be pledged by it to secure its own first and refunding mortgage 5 per cent bonds. The Walla Walla Valley Railway operates at present 27 miles of standard gage railway.

**Dividends Declared**

Asheville Power & Light Company, Asheville, N. C., quarterly, 1¾ per cent, preferred.

Aurora, Elgin & Chicago Railroad, Wheaton, Ill., quarterly, 1½ per cent, preferred; quarterly, ¾ of 1 per cent, common.

Bangor Railway & Electric Company, Bangor, Me., quarterly, 1¾ per cent, preferred.

Capital Traction Company, Washington, D. C., quarterly, 1½ per cent.

Carolina Power & Light Company, Raleigh, N. C., quarterly, 1¾ per cent, preferred.

Cincinnati & Hamilton Traction Company, Cincinnati, Ohio, quarterly, 1¼ per cent, preferred; quarterly, 1 per cent, common.

Cincinnati (Ohio) Street Railway, quarterly, 1½ per cent. City Railway, Dayton, Ohio, quarterly, 1½ per cent, preferred; quarterly, 2 per cent, common.

Columbia Railway, Gas & Electric Company, Columbia, S. C., quarterly, 1½ per cent, preferred.

Columbus, Newark & Zanesville Electric Railway, Columbus, Ohio, quarterly, 1½ per cent, preferred.

Frankford & Southwalk Passenger Railway, Philadelphia, Pa., quarterly, \$4.50.

Germantown Passenger Railway, Philadelphia, Pa., quarterly, \$1.31¼.

Lake Shore Electric Railway, Cleveland, Ohio, quarterly, 1½ per cent, first preferred.

Metropolitan West Side Elevated Railway, Chicago, Ill., quarterly, 1¼ per cent, preferred.

New Orleans Railway & Light Company, New Orleans, La., quarterly, 1¼ per cent, preferred.

Northern Ohio Traction & Light Company, Akron, Ohio, quarterly, 1½ per cent, preferred.

Pacific Gas & Electric Company, San Francisco, Cal., quarterly, 1½ per cent, common.

Porto Rico Railways, Ponce, P. R., quarterly, 1¾ per cent, preferred; quarterly, 1 per cent, common.

Public Service Corporation of New Jersey, Newark, N. J., quarterly, 1½ per cent.

Puget Sound Traction, Light & Power Company, Seattle, Wash., quarterly, 1½ per cent, preferred; quarterly, 1 per cent, common.

Republic Railway & Light Company, New York, N. Y., quarterly, 1½ per cent, preferred.

Ridge Avenue Passenger Railway, Philadelphia, Pa., quarterly, \$3.

South Side Elevated Railway, Chicago, Ill., quarterly, 1½ per cent.

Union Railway, Gas & Electric Company, Rockford, Ill., quarterly, 1½ per cent, preferred.

Washington Water Power Company, Spokane, Wash., quarterly, 2 per cent.

Western Ohio Railway, Lima, Ohio, quarterly, 1½ per cent, second preferred; quarterly, 1¾ per cent, first preferred.

Winnipeg (Man.) Electric Railway Company, quarterly, 3 per cent.

**ELECTRIC RAILWAY MONTHLY EARNINGS**

AMERICAN RAILWAYS, PHILADELPHIA, PA.

| Period.        | Gross Earnings. | Operating Expenses. | Net Earnings. | Fixed Charges. | Net Surplus. |
|----------------|-----------------|---------------------|---------------|----------------|--------------|
| 1m., Feb., '13 | \$367,117       | .....               | .....         | .....          | .....        |
| 1 " " '12      | 350,001         | .....               | .....         | .....          | .....        |
| 8 " " '13      | 3,429,025       | .....               | .....         | .....          | .....        |
| 8 " " '12      | 3,260,844       | .....               | .....         | .....          | .....        |

AURORA, ELGIN & CHICAGO RAILROAD, WHEATON, ILL.

|                |           |          |          |          |         |
|----------------|-----------|----------|----------|----------|---------|
| 1m., Feb., '13 | \$123,383 | \$82,599 | \$40,784 | \$32,454 | \$8,330 |
| 1 " " '12      | 120,641   | 80,525   | 40,116   | 31,970   | 8,146   |
| 8 " " '13      | 1,314,447 | 768,312  | 546,235  | 256,985  | 289,250 |
| 8 " " '12      | 1,229,302 | 717,902  | 511,400  | 253,096  | 258,304 |

CLEVELAND, PAINESVILLE & EASTERN RAILROAD, WILLOUGHBY, OHIO

|                |          |          |          |          |       |
|----------------|----------|----------|----------|----------|-------|
| 1m., Jan., '13 | \$28,095 | \$16,681 | \$11,414 | \$10,471 | \$943 |
| 1 " " '12      | 23,901   | 16,958   | 6,943    | 10,016   | 3,073 |

DETROIT (MICH.) UNITED RAILWAY

|                |             |           |           |           |           |
|----------------|-------------|-----------|-----------|-----------|-----------|
| 1m., Jan., '13 | \$1,005,346 | \$677,776 | \$327,570 | \$178,501 | \$149,069 |
| 1 " " '12      | 840,221     | 545,825   | 294,396   | 181,603   | 112,793   |

FEDERAL LIGHT & TRACTION COMPANY, NEW YORK, N. Y.

|                |           |           |          |       |       |
|----------------|-----------|-----------|----------|-------|-------|
| 1m., Jan., '13 | \$164,634 | \$91,444  | \$73,190 | ..... | ..... |
| 1 " " '12      | 146,737   | 78,547    | 68,190   | ..... | ..... |
| 12 " " '13     | 1,709,154 | 1,001,259 | 707,895  | ..... | ..... |
| 12 " " '12     | 1,476,996 | 875,071   | 601,924  | ..... | ..... |

JOPLIN & PITTSBURG RAILWAY, PITTSBURG, KAN.

|                |          |           |          |          |         |
|----------------|----------|-----------|----------|----------|---------|
| 1m., Feb., '13 | \$40,667 | *\$25,848 | \$14,818 | \$12,541 | \$2,276 |
| 1 " " '12      | 36,356   | *23,237   | 13,119   | 12,899   | 220     |
| 12 " " '13     | 544,091  | *322,035  | 222,056  | 152,013  | 70,042  |
| 12 " " '12     | 475,907  | *279,701  | 196,205  | 153,479  | 42,725  |

LAKE SHORE ELECTRIC RAILWAY SYSTEM, CLEVELAND, OHIO

|                |           |          |          |          |       |
|----------------|-----------|----------|----------|----------|-------|
| 1m., Jan., '13 | \$100,373 | \$64,977 | \$35,396 | \$34,938 | \$458 |
| 1 " " '12      | 87,153    | 55,457   | 31,696   | 34,591   | 2,895 |

LEHIGH VALLEY TRANSIT COMPANY, ALLENTOWN, PA.

|                |           |          |          |          |          |
|----------------|-----------|----------|----------|----------|----------|
| 1m., Feb., '13 | \$114,165 | \$58,313 | \$55,853 | \$44,835 | \$11,018 |
| 1 " " '12      | 98,671    | 51,486   | 47,185   | 39,268   | 7,917    |
| 12 " " '13     | 1,580,349 | 670,253  | 910,095  | 516,483  | 393,612  |
| 12 " " '12     | 1,383,371 | 611,171  | 772,201  | 465,416  | 306,785  |

NORTHERN OHIO TRACTION & LIGHT COMPANY, AKRON, OHIO

|                |           |           |          |          |          |
|----------------|-----------|-----------|----------|----------|----------|
| 1m., Jan., '13 | \$237,465 | \$142,250 | \$95,215 | \$44,671 | \$50,544 |
| 1 " " '12      | 209,389   | 122,536   | 86,853   | 43,825   | 43,028   |

REPUBLIC RAILWAY & LIGHT COMPANY, YOUNGSTOWN, OHIO

|                |           |           |           |          |          |
|----------------|-----------|-----------|-----------|----------|----------|
| 1m., Dec., '12 | \$279,047 | \$164,783 | \$114,264 | \$42,835 | \$71,429 |
| 1 " " '11      | 247,386   | 144,491   | 102,895   | 44,319   | 56,576   |
| 12 " " '12     | 2,663,762 | 1,606,622 | 1,057,140 | 528,395  | 528,745  |
| 12 " " '11     | 2,401,995 | 1,451,010 | 950,985   | 529,290  | 421,695  |

SAN FRANCISCO-OAKLAND TERMINAL RAILWAYS, OAKLAND, CAL.

|                |           |           |           |          |          |
|----------------|-----------|-----------|-----------|----------|----------|
| 1m., Jan., '13 | \$371,731 | \$233,928 | \$137,803 | \$99,647 | \$38,156 |
| 7 " " '13      | 2,728,393 | 1,651,504 | 1,076,888 | 707,765  | 369,122  |

ST. JOSEPH RAILWAY, LIGHT, HEAT & POWER COMPANY, ST. JOSEPH, MO.

|                |           |           |          |          |          |
|----------------|-----------|-----------|----------|----------|----------|
| 1m., Jan., '13 | \$107,323 | *\$58,822 | \$48,501 | \$20,182 | \$28,319 |
| 1 " " '12      | 102,541   | *55,980   | 46,561   | 19,626   | 25,925   |
| 12 " " '13     | 1,184,622 | *671,866  | 512,756  | 236,616  | 276,140  |
| 12 " " '12     | 1,110,838 | *686,082  | 424,756  | 231,940  | 192,816  |

\*Includes taxes.

# Traffic and Transportation

## Owl Service Unprofitable in Birmingham

The City Commissioners of Birmingham, Ala., have consented to the discontinuance of the owl service by the Birmingham Railway, Light & Power Company. According to the agreement, the service was to be abandoned after a trial of thirty days if not self-sustaining. The commission received data from the company indicating that every night 193 persons were handled on the average. On the five lines the company handled an average of thirty-eight persons, while four and three-quarters passengers were handled per car. The officials of the company informed the commission that if 15 cents per passenger had been charged the revenue thus derived would have been insufficient to pay the cost. George H. Harris, superintendent of transportation, gave it as his opinion that if the service was continued there would be little if any increase. On the first night the service went into effect the revenue was about \$7, while on the last night it was under that figure. The officials of the company pointed out to the commission that a six months' trial of the owl car service in Memphis had proved a failure, while in New Orleans the franchise called for that service, and although 10 cents was charged the company lost money steadily and is yet losing.

## Fort Street Case, Detroit

Corporation Counsel Lawson of Detroit, Mich., has stated that the first step taken in the Fort Street litigation with the Detroit United Railway will be the filing of a motion to dismiss the stay of execution granted in the ouster case by the United States Supreme Court. Attorneys will argue that this matter does not properly come within federal court jurisdiction and should be left with the city through its control of the streets. It is thought that the motion will be argued within ninety days.

Mayor Marx is in favor of continuing the operation of the auto bus lines placed in service to the city recently, but Alderman Keating holds that it is useless to tie up money in the vehicles when there is doubt about the right of the city to use funds in this way. He fears that the company will sue for an injunction if the operation of the bus lines is continued. Alderman Vernor favors waiting until the charter amendments are passed and then constructing competing street railway lines.

**Through Freight Between Clinton and Muscatine.**—Through daily freight service between Clinton, Ia., and Muscatine, Ia., has been inaugurated by the Davenport & Muscatine Railway and the Illinois & Iowa Railway.

**Increase in Wages on Ohio Electric Railway.**—An increase of from 1 cent to 2 cents an hour in the wages of motormen and conductors has been granted by the Ohio Electric Railway to the men on its interurban lines and on the city lines in Lima, Zanesville, Hamilton and other points in the State.

**Through Cars Between Frankford and Morrisville.**—The Trenton, Bristol & Philadelphia Street Railway, Philadelphia, Pa., and the Holmesburg, Tacony & Frankford Passenger Railway have entered into an operating arrangement by which the cars of both companies will run through from Frankford to Morrisville. This does away with at least two changes which through passengers have heretofore been compelled to make between these points.

**Address by Mr. Shane on Accident Prevention.**—An interesting meeting in connection with the accident prevention campaign of the Louisville & Northern Railway & Lighting Company, New Albany, Ind., will be held at the Carnegie Library in that city on March 31, when all of the road men of the company will be addressed by Alexander Shane, of the safety bureau of the Middle West Utilities Company, Chicago, which owns the Louisville & Northern Railway & Lighting Company.

**Increase in Milk Rates.**—The shippers of milk from Louisville to Lagrange, Ky., have been placed upon a parity as regards rates with the shippers of milk along the lines of the Louisville & Interurban Railway between

Louisville, Ky., and Shelbyville. The company recently authorized an increase in rates on milk brought to Louisville from 3 cents to 5 cents upon each can carried more than 19 miles, or 10 cents for 5-gal. cans, 12 cents for 8-gal. cans and 15 cents for 10-gal. cans.

**New Transfer Suggestion in Baltimore.**—The United Railways & Electric Company, Baltimore, Md., has submitted to the Public Service Commission of Maryland a proposition that it be authorized to issue "walking transfers" between the lines serving southwest and northwest Baltimore as a means of solving the problem of getting quick transportation between the two sections and meeting the demand for such service by the people of the respective sections. This plan would necessitate the passengers walking two or three blocks, but it would save them a long ride downtown in order to make the transfer.

**Skip-Stop Idea in Los Angeles.**—The Board of Public Utilities of Los Angeles, Cal., has approved the list of proposed car stops on the Hollywood line on Sunset and Hollywood Boulevards of the Pacific Electric Railway and has authorized the company to place signs at the designated points to indicate "outbound" stops, "inbound" stops and "both direction" stops. Under the new stop plan it is estimated that the running time between the business center of Los Angeles and the Hollywood business center will be reduced from forty-five to thirty minutes. The proposed list of stops eliminates about 35 per cent of the present stops along the entire line.

**Report on Conditions in Worcester.**—Inspector George T. Delaney of the city law department of Worcester, Mass., recently investigated the property and service of the Worcester Consolidated Street Railway and submitted his findings in a written report to City Solicitor Ernest H. Vaughan, who in turn submitted the report to the Railroad Commission. In summarizing his conclusions Mr. Delaney said: "It is conclusive that the Consolidated Street Railway, with the exception of building a double-track line between Chandler and Pleasant Streets on Park Avenue, of work on the Burncoat Street line and of the extension of Providence Street, has not increased its trackage and has not kept pace with the growth of the city."

**Increase in Wages by the Fort Wayne & Northern Indiana Traction Company.**—On March 16, 1913, announcement was made by the Fort Wayne & Northern Indiana Traction Company, Fort Wayne, Ind., of a change in wage scale for all city and interurban trainmen in the employ of the company. The new scale, which is to be effective from April 1, is as follows: Interurban—first six months, 20 cents; second six months, 21 cents; second year, 22 cents; third year, 23 cents; fourth year, 24 cents; fifth year, 25 cents; sixth year, 26 cents; seventh year, 27 cents; eighth year and thereafter, 28 cents. Fort Wayne city lines—first six months, 19 cents; second six months, 20 cents; second year, 21 cents; third year, 22 cents; fourth year, 23 cents; fifth year and thereafter, 24 cents. The rates for city trainmen at Peru, Wabash, Logansport and Lafayette are 1 cent less than the Fort Wayne city rates.

**Traffic Diversion in Boston Back Bay.**—Plans for the diversion of traffic from Boylston Street, Boston, between Exeter and Arlington Streets, during the construction of the Copley Square-Public Garden section of the Boylston Street subway were filed by the Boston Transit Commission with Commissioner of Public Works L. K. Rourke on March 22. The arrangements are the most extensive thus far authorized for the Boston Elevated Railway in the work of subway construction and provide for the temporary use of Exeter Street and Huntington and St. James Avenues. The subway is being built by the open-cut method and up to the present time traffic has been diverted from the Boylston Street trunk line mainly at night. The provision of a parallel route for one of the most crowded avenues of travel in Boston is made possible in large measure by the recent reconstruction of the principal streets involved. Work on the subway is progressing steadily.

**Order of the Ohio Commission to the Dayton & Troy Electric Railway.**—The Public Service Commission of Ohio has ordered the Dayton & Troy Electric Railway, Dayton, Ohio, to operate trail cars in connection with its car scheduled to arrive in Dayton at 5.50 a. m. and its regular car which leaves Dayton at 5.30 p. m., to keep its ticket offices

and waiting rooms open continuously from at least five minutes before the first car is scheduled to leave in the morning until 8.30 in the evening, to provide proper shelters at five of its stops and stations which are specified, and to provide adequate means for passengers to signal approaching cars at signal stations at night. These conditions are to be complied with on or before May 1, 1913. In addition, the commission has ordered the company on or before Dec. 1, 1913, to provide not less than 400 kw of additional power capacity, or on or before May 1, 1913, to arrange for the purchase and delivery by Dec. 1, 1913, of additional energy.

**Improvements in Service at Boston.**—The Boston (Mass.) Elevated Railway has made public a letter from M. C. Brush, second vice-president of the company, to Gen. W. A. Bancroft, president, in regard to recent improvements in the service. Mr. Brush states that beginning with Jan. 20 a three and four-minute service was instituted on the Forest Hills elevated extension in the morning and evening rush hours, compared with a previous four and five-minute service. On Feb. 24 the company began running six-car trains on some of its elevated service during the morning rush hours where formerly less than six-car trains had been operated, and it is anticipated that more six-car trains will be run in the near future. On March 3 the company began to run seven-car trains during the afternoon rush hours, never having run more than six-car trains before. The surface car service is being analyzed and the rush-hour facilities have been increased at many points on the system. Some delays have occurred in the Back Bay on account of the construction of the Boylston Street subway, but these are being minimized so far as possible by the company.

**The Question of Signals on Elevated Lines in New York.**—At the inquest before the coroner into the death of a policeman who was killed in a collision on Jan. 25 on the Third Avenue elevated line of the Interborough Rapid Transit Company, New York, N. Y., Theodore P. Shonts, president of the company, testified in part as follows in regard to the consideration which had been given to the subject of installing a more complete system of signals on the elevated lines of the company: "The matter of signals for the elevated railroads was brought up in 1911, when the Public Service Commission ordered us to show cause why we should not have more and longer trains and another signal system on the line. Our policy has been safety first. The Third Avenue elevated is the most congested in the city. We operate trains on a forty-two-second headway. This is the first case of a passenger being killed in a collision. There have been passengers killed in derailment. If we established the system of signals used in the subway we could only run at a headway of one minute and thirty seconds, and that would cut the capacity of the line in half. We thought it to the best advantage of the public to run at a shorter headway."

**Result of Inquiry in Connecticut Accident.**—C. C. Elwell, chief engineer of the Public Utilities Commission of Connecticut, has concluded in part as follows his report to the commission in regard to the accident at Cheshire on Feb. 28, 1913, on the line of the Connecticut Company in which two persons were killed: "This accident was due entirely to the carelessness of the motorman who was running car No. 130, which was well equipped with all appliances in good working order for stopping it. No recommendations made by the commission or rules adopted by the company will overcome human frailty and positively prevent motormen from passing danger signals, but if the construction of electric railway cars can be so improved as to lessen the casualties caused by accidents of this character, the matter should receive serious consideration. I would, therefore, suggest that all electric railways operating cars within the State of Connecticut seriously consider the practicability of having all cars equipped with buffers of a uniform standard height, and some improved system of 'anti-climbing' device, to make the telescoping of passenger cars less likely in case of collision, and submit to the commission the result of their consideration and investigation." The commission has called attention to the suggestions made by Engineer Elwell and suggested that the company submit to it before April 15, 1913, the result of its consideration and investigation of such proposed equipment and the practicability of adopting it.

## Personal Mention

**Mr. Alexander Shaw** has been appointed chief claim agent and assistant secretary-treasurer of the Montreal (Que.) Tramways. Mr. Shaw was formerly connected with the staff of the Windsor Hotel at Montreal.

**Mr. Van Dusen Rickert**, assistant manager of the Eastern Pennsylvania Railways, Pottsville, Pa., has been elected assistant secretary and assistant treasurer of the company and secretary and treasurer of all underlying companies.

**Mr. C. E. Calder**, assistant secretary and assistant treasurer, auditor and purchasing agent of the Eastern Pennsylvania Railways, Pottsville, Pa., has resigned to accept the secretaryship and assistant treasurership of the Texas Power & Light Company, Dallas, Tex. He is also controller of all underlying companies.

**Mr. Allen Purvis**, manager of the interurban lines of the British Columbia Electric Railway, Ltd., Vancouver, B. C., and Mr. W. H. Elson, division superintendent of that company, have returned to Vancouver after a trip of inspection of electric railway properties in which they visited Indianapolis, Chicago, Toronto, San Francisco and Seattle.

**Mr. George B. Erdeman**, chief clerk in the accounting department of the Eastern Pennsylvania Railways, Pottsville, Pa., has been appointed auditor of the company, vice Mr. C. E. Calder, resigned. Mr. Erdeman entered the employ of the Eastern Pennsylvania Railways as a bookkeeper in 1906, serving in that capacity for four years, when he was promoted to chief clerk.

**Mr. E. W. Cabaniss** has been appointed secretary of the Macon Railway & Light Company, Macon, Ga. For the last five years Mr. Cabaniss has been connected with the Central Georgia Power Company and for the last two years has been assistant secretary of that company. The Macon Railway & Light Company and the Central Georgia Power Company are under the same management and are controlled by the same interests.

**Mr. Samuel B. Thompson** has resigned as mechanical superintendent of the British Columbia Electric Railway, Ltd., Vancouver, B. C., and has become associated with Mr. James A. Roosevelt, formerly of the Third Avenue Railway, New York, N. Y., under the firm name of Roosevelt & Thompson, to investigate and report on electric railway and light properties. Mr. Thompson was formerly with the Consolidated Railway, Baltimore, Md., Sanderson & Porter, New York, N. Y., and was also consulting engineer in connection with various Pacific Coast properties.

**Mr. William S. Kuhn** has been elected president of the First-Second National Bank, Pittsburgh, Pa., which is a consolidation of the First and Second national banks of Pittsburgh, and will personally devote his time and attention to directing the affairs of that institution. Mr. Kuhn is vice-president of the investment banking firm of J. S. & W. S. Kuhn, Inc., Pittsburgh, has been president of the West Penn Traction & Lighting System from its inception and is an officer of the American Water Works & Guarantee Company and all of its subsidiaries. He is also connected as an officer or director with the Colonial Trust Company, the Commonwealth Trust Company, the Commercial National Bank, the Pittsburgh Bank for Savings, Pittsburgh, and the First National Bank, McKeesport.

**Mr. James Dewar Fraser**, who, as noted in the *ELECTRIC RAILWAY JOURNAL* of March 8, 1913, was recently elected a director of the Ottawa (Ont.) Electric Railway to succeed Mr. G. A. Cox, resigned, is a son of the late Andrew Fraser, of Martintown, Glengarry. He spent his youth in Glengarry and entered the employ of W. McClymont & Company, Ottawa, lumber dealers, in 1871 as accountant and telegraph operator. He remained with this company till 1882. He was then appointed secretary-treasurer of the Ottawa City Passenger Railway and continued in this position until 1891, when the company was merged with the Ottawa Electric Street Railway as the Ottawa Electric Railway. He has been secretary-treasurer of the last named company ever since. He is also a director and secretary-treasurer of the Ottawa Car Company, Ltd.; vice-president and secretary-treasurer of the Wallace Realty Company, Ltd., and a member of the executive committee of the Canadian Street Railway Association.

**Mr. V. L. Edmunds** has been appointed superintendent of transportation of the Binghamton (N. Y.) Railway in charge of operation. Mr. Edmunds was born in Petersburg, Va., on Aug. 23, 1880. After leaving school he entered railroad work as a fireman with the Norfolk & Western Railroad. He next became connected with the Atlantic Coast Line and was promoted to be engineer, in which capacity he served for six years. He then entered the service of the Missouri Pacific Railway as an engineer in through freight service. He resigned from the Missouri-Pacific to become connected with the Railway Audit & Inspection Company as railway efficiency man and served for that company on a number of railroads in connection with the development of their transportation departments. He became connected with the Binghamton Railway early in the present year as assistant to the president, and on March 16 his title was changed to superintendent of transportation in charge of operation.

**Mr. George B. McGinty**, assistant secretary of the Interstate Commerce Commission, has been appointed secretary of the commission to succeed Mr. John H. Marble, who as previously announced in the *ELECTRIC RAILWAY JOURNAL* has been appointed a member of the Interstate Commerce Commission. Mr. McGinty was born on Sept. 8, 1878, in Monroe County, Ga. He was graduated from the high school at Forsythe, Ga. Subsequently he pursued an A. B. course at Emory College, Oxford, Ga. He then took up the study of law, but left that profession to enter railroad work. He served the Atlantic Coast Line, the Georgia Railroad, the Southern Railway and the West Point Road. He entered the service of the bureau of animal industry of the United States Department of Agriculture in 1906; in November, 1908, became connected with the division of statistics and accounts of the Interstate Commerce Commission and later served as confidential clerk to Commissioner Clements. When Mr. Marble was appointed secretary of the Interstate Commerce Commission on Feb. 10, 1912, Mr. McGinty was appointed assistant secretary.

**Mr. Edwin F. Wendt**, who was elected president of the American Railway Engineering Association on March 20, was born at New Brighton, Pa., and was educated in the public schools of that city, after which he entered Geneva College, Beaver Falls, Pa., taking the classical course and graduating with honors in 1888. In September, 1888, he entered the service of the Pittsburgh & Lake Erie Railroad and has been continuously with the road ever since. Starting as axeman, he became successively in the next few years chain man, rod man and transit man. Since Oct. 1, 1898, he has been assistant engineer in charge of maintenance of way and construction and contract work, reporting to the chief engineer. Mr. Wendt was elected a member of the Engineers' Society of Western Pennsylvania in 1890 and a member of the American Society of Civil Engineers in 1903. He is a charter member of the American Railway Engineering Association, was chairman of the committee on records and accounts in 1903, 1904 and 1905, has been a member of the committee on signals and interlocking since 1906, was a member of the board of direction during 1908, 1909 and 1910, and has been chairman of the committee on publications during the past year. He was elected second vice-president of the association in 1911 and first vice-president in 1912.

**Mr. L. C. Bradley**, Galveston, has been appointed assistant district manager of the Stone & Webster properties in Texas, with headquarters in Dallas. The properties over which Mr. Bradley will now have control comprise the street railroads and other public service corporations in Galveston, Dallas, Fort Worth, Beaumont, Port Arthur, Houston, El Paso and several interurban railroads. In his new office Mr. Bradley will be the executive head in Texas for all Stone & Webster properties and will relieve Mr. M. M. Phinney, district manager and president of the properties, of a very large part of his duties. Mr. Phinney will hereafter spend most of his time in Boston. Mr. Bradley was formerly vice-president of the Houston Electric Company and the Galveston-Houston Electric Railway and manager of the Galveston Electric Company and resided in Galveston about two and a half years. He served previously in the following capacities: general superintendent of the Puget Sound Electric Railway, Seattle, Wash.; gen-

eral manager of the Key West Mining & Railway Company, Salt Lake City, Utah; general superintendent of the Tennessee Northern Railway, Knoxville, Tenn.; general manager of the Scioto Valley Traction Company, Columbus, Ohio, and general manager of the J. G. White railway, lighting and gas properties at Pottsville, Pa. Announcement of Mr. Bradley's successors with the Galveston, Houston and interurban properties has not yet been made. Mr. Bradley has been a leader in civic affairs in Galveston and was a director in several social and civic organizations in that city.

**Mr. Elton S. Wilde**, the newly elected president of the New England Street Railway Club, is one of the best known of the younger electric railway managers in New England.



E. S. Wilde

He is a native of Fairhaven, Mass., and, after being educated in the public and preparatory schools of Fairhaven and New Bedford, entered the employ of the law firm of Crapo, Clifford & Prescott in the latter city. At the suggestion of Mr. H. H. Crapo, the present president of the Union Street Railway, New Bedford, Mr. Wilde entered the street railway field, serving in various capacities in the mechanical and electrical departments and steadily advancing through the assistant treasurership and operating department to the post of vice-president and superintendent which he now holds in the Union Street Railway. He is a director and vice-president of the New Bedford & Onset Street Railway and has served as commander of Sutton Commandery, No. 16, Knights Templars. Mr. Wilde is a director of the Board of Trade and president of the Dartmouth Club of New Bedford, besides being a member of the Engineers' Club of Boston.

**Mr. Arthur L. Linn, Jr.**, has resigned as assistant secretary and assistant general auditor of the Syracuse (N. Y.) Rapid Transit Railway, Utica & Mohawk Valley Railway and the Oneida Railway and as secretary and general auditor of the Ontario Light & Traction Company, Canandaigua, N. Y., to become associated with Mr. Harrison Williams, New York, N. Y., in the purchasing, financing and operation of public utility properties. The Williams syndicate controls a number of electric railways in Eastern Ohio and Western Pennsylvania through the Republic Railway & Light Company and others in Washington, Arizona, Colorado and other Western states through the Federal Light & Traction Company. It has also been prominent in electric lighting and power enterprises through the organization of the American Gas & Electric Company and in the control of the Cleveland Electric Illuminating Company and other properties. Mr. Linn has been connected with electric railways for many years. He started as assistant bookkeeper with the Cleveland (Ohio) Electric Railway, in which capacity he served for several years and was then appointed assistant auditor. He subsequently became assistant treasurer, auditor and assistant secretary of the Utica & Mohawk Valley Railway and subsidiary lines at Utica, N. Y. He resigned his connection with that company in 1905 to become general manager of the Fairmont & Clarksburg Traction Company, Fairmont, W. Va. The following year, however, he returned to New York as general auditor of the electric railway and power companies controlled by the New York Central & Hudson River Railroad in New York State. He was also secretary and assistant treasurer of a number of subsidiary companies and was general auditor of the Mohawk Valley Company, which was organized to hold temporary control of certain properties. In 1909 Mr. Linn was made general auditor and assistant secretary of the New York State Railways. Mr. Linn was also assistant auditor and auditor of the subsidiary lines of the New York Central & Hudson River Railroad.

## Construction News

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

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

### RECENT INCORPORATIONS

**\*Elbow River Suburban Railway, Calgary, Alta.**—Application for a charter has been made in Alberta by this company to build an electric line from Calgary along the Elbow River to Canyon Creek.

**\*East Side Electric Railway, Centralia, Ill.**—Incorporated in Illinois to build an electric railway from Centralia to Irvington. Headquarters, Centralia. Capital stock, \$25,000. Incorporators and first board of directors: C. F. Lender, H. C. Higgins, G. L. Pittenger, S. A. Frazier, W. M. Grison, W. F. Bundy and Robert Rohl.

**\*Richmond, Portland & Fort Wayne Railroad, Portland, Ind.**—Application for a charter has been made by this company to build an interurban railway to connect Fort Wayne, Decatur, Monroe, Berne, Ceylon, Geneva, Bryant, Portland, Ridgeville, Winchester, Lynn, Fountain City and Richmond. Capital stock, \$100,000. Directors: Grant S. Staub, William T. Harbinson, Charles F. Harbinson, Richard J. McCarty and C. H. Frank.

**\*Durham Light & Traction Company, Durham, N. C.**—Incorporated in Delaware in the interest of H. L. Doherty & Company, New York, N. Y., to take over the property of the Durham Traction Company. Capital stock, \$1,000,000. Resident incorporator, James M. Satterfield, Dover.

**\*Warrenton & Norlina Railway, Warrenton, N. C.**—Chartered in North Carolina to build a 5-mile railway between Warrenton and Norlina. Headquarters, Warrenton. Capital stock, \$50,000. Incorporators, J. P. Scoggin, W. H. Burroughs and W. E. Twitty, Warrenton; A. C. House, Weldon; J. K. Plummer, Jr., Raleigh, and J. E. Bowers, Scotland Neck, N. C.

**\*Cleveland (Ohio) Interurban Railway.**—Incorporated in Ohio to build an electric railway on Shaker Heights, a suburb of Cleveland. Capital stock, \$5,000. Incorporators: W. D. Turner, L. M. Henders, B. E. Robertson and others.

**\*Birmingham-Tuscaloosa Railroad & Utilities Corporation, Birmingham, Ala.**—Chartered in Virginia, with headquarters at Norfolk, as an extension of the Tidewater Power Company's line from Birmingham to Tuscaloosa. Capital stock, \$5,000,000. Officers: F. E. Calkins, New York, N. Y., president; R. Mitchell Brown, Norfolk, vice-president, and Henry Cross, Philadelphia, Pa., secretary and treasurer.

### FRANCHISES

**Birmingham, Ala.**—I. C. Beatty, general manager of the Birmingham Realty Company, has asked the Council for a franchise to build an electric line in Norwood along the new boulevard.

**Burnaby, B. C.**—The British Columbia Electric Railway, Vancouver, has asked the Council for a franchise for a mile along North Road and 2 miles along Barnet Road.

**Burlingame, Cal.**—The Easton Railroad, Burlingame, has asked the City Trustees for a franchise for an extension to the Burlingame station by way of Burlingame Terrace and Burlingame Avenue in Burlingame. The plans outlined by the company call for a line in San Mateo and Burlingame and part of Hillsboro, including El Cerrito Park, San Mateo Park and the Easton Additions. Ansel M. Easton, Burlingame, is interested. [E. R. J., March 22, '13.]

**Los Angeles, Cal.**—The Los Angeles Railway has asked the Council for a franchise for an extension of its West Tenth Street line from Hoover Street to the west city limits of Los Angeles.

**Sacramento, Cal.**—The Pacific Gas & Electric Company has asked the Council for a franchise on Third Street between I Street and M Street in Sacramento. The company has entered into an agreement with the Oakland, Antioch & Eastern Railway to allow that railway to operate over the Pacific Gas & Electric Company's lines between I Street and M Street.

**Macon, Ga.**—The Macon Railway & Light Company has asked the Council for a franchise to double-track Monroe Street between Washington Avenue and Forsyth Street in Macon.

**Hillsboro, Ill.**—The Springfield & Central Illinois Traction Company has received a franchise from the Montgomery County Board of Supervisors in Montgomery County.

**Bonner Springs, Kan.**—J. D. Waters, president of the Kansas City, Kaw Valley & Western Railway, has asked the Wyandotte County Commissioners for a franchise to use the county roads and bridges between Kansas City, Kan., and Bonner Springs. It is intended ultimately to extend the line to Topeka. A branch line 1½ miles long will extend to the Lake of the Forest near Bonner. The main line will extend from Bonner direct to Edwardsville, a distance of 14 miles. It is understood that this company will succeed the Kansas City & Bonner Springs Street Railway. [E. R. J., Feb. 8, '13.]

**Paducah, Ky.**—The Kentucky Southwestern Electric Railway, Light & Power Company, Paducah, has purchased a franchise from the Council to enter Graves County with its lines. The divisions of this railway to be constructed first will be from Paducah to Fancy Farm and Murray, via Mayfield. Work will be begun in the spring.

**\*Slidell, La.**—The City Council will be asked to grant a franchise to build a gasoline railway through Slidell. This is part of a plan to build a line from Artesia to Oaklawn via Slidell and Liberty. It is said that New Orleans and Chicago capitalists are interested in this proposition.

**\*Iron River, Mich.**—F. D. Sullivan, John Holland, G. W. Robertson and A. D. Johnson have received franchises from the Councils in Iron River, Stambaugh and Ashland. This is part of a plan to build a 12-mile electric railway to extend from the Palatka district on the south to the locations lying to the north of Iron River. Power will be furnished by the hydraulic electric plant at Iron Mountain.

**Yorkville, N. Y.**—The Public Service Commission, Second District, has authorized the New York State Railways to construct an extension consisting of a second track on Whitesboro Street in Yorkville beginning at the westerly line of the city of Utica and extending westerly for about 1476 ft., and to assign the franchise for such construction to the Utica, Clinton & Binghamton Railroad upon condition that it be included in the lease by that company to the Utica Belt Line Street Railroad.

**Greensboro, N. C.**—The Southern Power Company will ask the County Commissioners for a franchise to build an electric railway from Greensboro to High Point.

**High Point, N. C.**—The North Carolina Public Service Company, Salisbury, has asked the Council for a franchise to extend its line eastward out of High Point.

**Cleveland, Ohio.**—The Cleveland Railway has received a franchise from the Council to extend its Union Avenue line from its present terminal to a point near East 116th Street in Cleveland. The company has asked the Council for a franchise to double-track several of its lines in Cleveland.

**Tiffin, Ohio.**—The Tiffin, Fostoria & Eastern Electric Railway has received a twenty-five-year franchise from the Council to take the place of the present franchise in Tiffin, which has five more years to run.

**Hamilton, Ont.**—The Hamilton Street Railway has received a franchise from the Council for extensions in the northeastern and southeastern sections of Hamilton.

**Toronto, Ont.**—The Board of Control has decided in favor of the city taking over the franchise of the Humber Valley Electric Railway. A by-law will be submitted to the people asking authority to spend the necessary money to build this railway.

**Portland, Ore.**—The Portland Railway, Light & Power Company recently filed its acceptance of the franchise granted by the Council which calls for the immediate construction of 18 miles of track.

**El Paso, Tex.**—The El Paso Electric Railway will ask the Council for two franchises in El Paso. One is for the extension of the Mesa line from Arizona Street to Kansas

Street. The other line will leave the Mexico line at Tenth Street and will extend to Seventh Street to connect with the Second Ward line.

#### TRACK AND ROADWAY

**Birmingham Railway, Light & Power Company, Birmingham, Ala.**—This company has placed in operation its new line from Brighton to Woodward, 2 miles. The line will eventually be extended to Dolomite.

**British Columbia Electric Railway, Vancouver, B. C.**—Plans are being made by this company to build a line into the Fernwood district to connect with the city lines at Quadra Street in Victoria. A. T. Goward, local manager.

**Los Angeles-Pacific Railway, Los Angeles, Cal.**—A survey has been completed by this company for an extension of the Franklin Avenue line through Beachwood Park, Hollywood, to connect with the present Brush Canyon line by loop.

**Oakland, Antioch & Eastern Railway, Oakland, Cal.**—This company plans for the formal opening on April 5 of its line from Bay Point through the Contra Costa hills to Oakland.

**Mexico & San Diego Railway, San Diego, Cal.**—This company will operate two Edison storage battery cars between South San Diego and Imperial Beach, beginning about April 1. This line will be 2 miles in length. E. S. Babcock, president. [E. R. J., March 15, '13.]

**Peninsula Railway, San José, Cal.**—Plans are being considered by this company for an extension into the foothills in the southeastern section of the Santa Clara Valley.

**Stockton (Cal.) Electric Railway.**—Work on the Ophir Street line of this company will be begun next month.

**Jacksonville (Fla.) Traction Company.**—Six extensions are now being planned by this company for its lines in Jacksonville. One will be the extension of the Hogan Street line to connect with the Pearl Street line, and another will be a line to Murray Hill.

**Centralia & Central City Traction Company, Centralia, Ill.**—This company will build from Junction City to Sandoval, a distance of 4.5 miles, during the year.

**Springfield & Jackson Electric Railway, Springfield, Ill.**—A 30-mile line between Berlin, Springfield and Jacksonville will be built by this company during the year.

**Evansville & Southern Indiana Traction Company, Evansville, Ind.**—Grading will be begun April 15 by this company on its line between Chrisney and Lynnville.

**Indianapolis Traction & Terminal Company, Indianapolis, Ind.**—This company has submitted to the Board of Works its outline of work to be done on its property for the coming year. The work includes the rebuilding, extending and double-tracking of its lines in Indianapolis.

**Des Moines (Ia.) City Railway.**—One of the improvements planned by this company for the summer will be the construction of the proposed line through the territory lying between University Avenue and Ingersoll Avenue in Des Moines.

**Union Electric Company, Dubuque, Ia.**—This company plans to build about a mile of new track in Dubuque during the year.

**Waterloo, Cedar Falls & Northern Railway, Waterloo, Ia.**—A 40-mile line between Laporte City, Ind., and Urbana, Ill., will be built by this company during 1913.

**Louisville (Ky.) Railway.**—This company views favorably the proposition to construct a ½-mile extension to its Brook Street line from the present terminal at Oak Street south to Hill Street, where a connection with the Second Street line may be made. The work will cost \$15,000. No definite steps have been taken toward the improvement, as a franchise for its execution is yet to be purchased.

**Joplin & Pittsburg Railway, Pittsburg, Kan.**—Preparations have been begun by this company for laying ties and rails for the extension of its line from Fourth Street and Joplin Street to the Union Station grounds in Joplin.

**Manhattan City & Interurban Railway, Manhattan City, Kan.**—A 13½-mile line between Eureka, Ogden and Fort Riley will be built by the company during 1913.

**Bangor Railway & Electric Company, Bangor, Maine.**—This company announces that it has decided to build the 2-mile extension of its Hampden line to the city limits. The company will ask the Hampden Council for a franchise.

**Winnipeg (Man.) Electric Railway.**—Under the street railway by-law, the city may require this company to construct certain lines each year and the following list gives the requisition for 1913: Arlington Street, from Milburn to Mountain; Mountain Avenue, from McGregor to Arlington; Talbot Avenue, from Strathcona to Roland; Portage Avenue, from Hargrave to Maryland; Pembina Street, from Subway to Kylmore Avenue; Sargent Avenue, from Arlington to Erin, and Notre Dame Avenue, from the end of the present track to Keewatin Street. The lines are in operation on Portage Avenue to Pembina Street, but as these are to be paved with asphalt the tracks will have to be relaid.

**Towson & Cockeysville Electric Railway, Towson, Md.**—Work has been begun by this company on the extension from the present terminus at Chesapeake and Bosley Avenues, Towson, to Washington Avenue and Chesapeake Avenue.

**Bristol & Norfolk Street Railway, Boston, Mass.**—Surveys have been made by this company for a line from Holbrook Square along Union Street to the station in Holbrook. It is said that the company is to run storage battery cars and has applied for the right to run over the New York, New Haven & Hartford Railroad tracks.

**Fitchburg & Leominster Street Railway, Fitchburg, Mass.**—Surveys have been completed and construction will soon be begun by this company on its extension to Townsend. It is expected that the company will soon build a line from Fitchburg to Nashua, N. H., a distance of 19 miles.

**New Hampshire Electric Railways, Haverhill, Mass.**—This company is asked to consider plans to build a line between Rochester and Farmington.

**Worcester (Mass.) Consolidated Street Railway.**—About 2 miles of new track will be built in Worcester by this company during 1913.

**Linden, Mich.**—Plans are being considered to build an electric line between Linden and Holly. The proposition is that if the township of Linden will do the grading, build culverts and prepare the right-of-way, the Independent Power Company will build the line and furnish the power. This line will be extended to Owosso, Pontiac and Flint. O. H. Lau, Detroit, is interested. [E. R. J., Oct. 5, '12.]

**\*Redwood Falls, Minn.**—Engineers are making surveys to build an electric line between Redwood Falls and the Twin Cities.

**Jackson Light & Traction Company, Jackson, Miss.**—This company plans to build about 1 mile of track during 1913.

**Meridian Light & Railway Company, Meridian, Miss.**—This company plans to build possibly 2 or 3 miles of track during the year.

**\*Fredericton (N. B.) Street Railway.**—This company plans to build a 5-mile electric railway to connect Fredericton, St. Mary's, Gibson and Marysville.

**Moncton Tramways, Electric & Gas Company, Ltd., Moncton, N. B.**—During the year this company plans to build 3 miles of new track to include 2 miles of interurban track to North Sunny Brae.

**Public Service Railway, Newark, N. J.**—Plans are being made by this company to extend its Hawthorne Avenue line through Fourth Avenue between Broad Street and Belleville Avenue in Newark.

**Trenton & Mercer County Traction Corporation, Trenton, N. J.**—This company will soon begin the work of laying new tracks on Center Street and on North Broad Street in Trenton.

**United Traction Company, Albany, N. Y.**—Plans are being made by this company for an extension of its Arbor Hill line to Watervliet Avenue, via North Lake Avenue and Third Street in Albany.

**New York & Stamford Railway, Port Chester, N. Y.**—



Plans are being considered by this company for a line direct from White Plains to Port Chester, through Westchester Avenue, White Plains.

**Piqua & Bradford Traction Company, Covington, Ohio.**—This company plans to build a line between Covington and Bradford. At Covington the line will connect with the Dayton, Covington & Piqua Traction Company, West Milton, Ohio. Hugh C. Marlin is interested. [E. R. J., March 22, '13.]

**Ottawa (Ont.) Electric Railway.**—The double-tracking of 1½ miles on Creighton Street, from St. Patrick to Sussex Street, with 75-lb rails is being contemplated by this company.

**Ottawa & Morrisburg Electric Railway, Ottawa, Ont.**—Plans are being considered by this company to make Brockville its terminal.

**Toronto & Suburban Railway, Toronto Junction, Ont.**—This company expects to begin work on May 1 on a line on Annette Street and Pacific Avenue in Toronto.

**Portland, Eugene & Eastern Railway, Portland, Ore.**—This company will begin the work of electrifying the old line of the Southern Pacific Railway on the west side of the Willamette River immediately. Paul Lebenbaum will have charge of the work.

**Portland Railway, Light & Power Company, Portland, Ore.**—This company has planned an extensive programme of betterments and extensions for the present year. In all, the improvements will require an expenditure of \$4,000,000, of which \$2,500,000 will be used for railroad construction, new buildings, equipment, repairs and other betterments in the city and suburban railway lines.

**Corry & Columbus Street Railway, Corry, Pa.**—During 1913 this company will build possibly 15 miles of track.

**Centre & Clearfield Street Railway, Philipsburg, Pa.**—This company plans to build 7 miles of new track during 1913.

**East End Passenger Railway, Williamsport, Pa.**—This company, which is owned by the Lycoming Improvement Company, has asked for charters to operate in half a dozen nearby townships and boroughs.

**Hull (Que.) Electric Company.**—This company will build about 1½ miles of track in Hull during 1913.

**Charleston Consolidated Railway & Lighting Company, Charleston, S. C.**—During 1913 this company will build 0.6 mile of city track and 4½ miles of interurban track.

**Chattanooga Railway & Light Company, Chattanooga, Tenn.**—This company plans to build 12 miles of interurban track during the year.

**Knoxville Railway & Light Company, Knoxville, Tenn.**—This company has practically completed ballasting an extension which it is constructing for several miles on the Kingston pike in Knoxville. The company has practically completed the construction of an extension along the Sevierville pike.

**Murfreesboro (Tenn.) Electric Railway.**—Plans are being made by this company for an extension from Nashville to Woodbury, via Murfreesboro. Work will be begun in the early spring. The company will soon ask the County Court for a franchise.

**Jefferson County Traction Company, Beaumont, Tex.**—This company has completed arrangements with the Port Arthur Traction Company for entering Port Arthur over the latter's track. [E. R. J., Jan. 4, '13.]

**El Paso (Tex.) Electric Railway.**—This company plans to build about 11 miles of new track to include a 9-mile line from El Paso to Ysleta during the year.

**Port Arthur (Tex.) Traction Company.**—During the year this company plans to build 3 miles of new track.

**Utah Light & Railway Company, Salt Lake City, Utah.**—This company plans to build about 10 miles of new track during 1913. Work has been begun by this company on its Capitol Hill branch in Salt Lake City.

**Chehalis & Cowlitz Railroad, Chehalis, Wash.**—Plans are being made by this company to electrify its line into eastern

Lewis County. The contract for the poles has been let to the Brown-Robinson Logging Company.

**Charleston (W. Va.) Interurban Railroad.**—It is possible that during 1913 this company will begin construction on a 27-mile line to Montgomery.

**\*Laramie, Wyo.**—Plans are being considered to build an electric railway in Laramie. The Laramie Electric Company (C. E. Van Diest, Laramie, manager) is interested.

#### SHOPS AND BUILDINGS

**Shore Line Electric Railway, Saybrook, Conn.**—The general offices and headquarters of this company are to be located in the Thames Loan & Trust Company's Building on Shetucket Street, Norwich.

**St. Petersburg & Gulf Railway, St. Petersburg, Fla.**—Plans are being made by this company to build a new carhouse and repair shop in conjunction with its new power plant in St. Petersburg.

**Illinois Traction System, Peoria, Ill.**—Plans are being considered by this company to build a new passenger depot in Springfield.

**Aurora, Elgin & Chicago Railroad, Wheaton, Ill.**—The four-story office building of this company in Wheaton was destroyed by fire on March 24. The loss is estimated to be about \$40,000.

**Bay State Street Railway, Boston, Mass.**—Preparations are being made by this company to build a new carhouse on Middlesex Street in Lowell.

**Springfield (Mass.) Street Railway.**—As soon as a location is decided upon this company will build a new depot in Springfield in the Highland section.

**Mesaba Electric Railway, Duluth, Minn.**—This company has opened its new passenger station on Wyoming Avenue in Virginia.

**International Traction Company, Buffalo, N. Y.**—Plans are being made by this company to begin work soon on its new depot at the local terminal of the Buffalo and Lockport line in Lockport. The structure will be two stories high and of brick construction. It is proposed to have train sheds into which the cars will run.

**Portland Railway, Light & Power Company, Portland, Ore.**—This company has been asked to build a new terminal station in Portland from which all lines shall radiate.

**Salt Lake & Utah Railway, Salt Lake City, Utah.**—Plans are being considered by this company to build a passenger station in Salt Lake City. F. M. Orem, Salt Lake City, secretary and treasurer.

#### POWER HOUSES AND SUBSTATIONS

**British Columbia Electric Railway, Vancouver, B. C.**—This company will build three two-story steel frame and reinforced concrete transformer stations, two in Hastings and one near Sapperton. Approximately \$450,000 will be expended.

**St. Petersburg & Gulf Railway, St. Petersburg, Fla.**—This company has awarded contracts for the equipment of its new brick power plant in St. Petersburg. The structure will be 80 ft. x 100 ft. The chimney will be 165 ft. high. Two units of 1000 kw and three boilers with an aggregate of 1500 hp will be installed. The generators will be connected to cross-compound engines which will be run condensing. A rotary converter has been ordered from the Westinghouse Electric Manufacturing Company. The boilers will be supplied by the Erie Iron Works. The generators have been ordered from the General Electric Company. All other accessories have been ordered from one or another of these companies.

**Kentucky Utilities Company, Lexington, Ky.**—This company is installing new equipment at its plant in Somerset.

**West Penn Traction & Water Power Company, Pittsburgh, Pa.**—This company has ordered from the Westinghouse Electric & Manufacturing Company two 19,000-kva Westinghouse-Parsons turbo-alternators for its power house.

**Ogden (Utah) Rapid Transit Company.**—This company is installing new machinery at its power plants in Ogden Canyon and Big Cottonwood Canyon.

# Manufactures and Supplies

## ROLLING STOCK

Oregon Electric Railway, Portland, Ore., will soon receive forty-two new cars from the St. Louis Car Company.

San Antonio (Tex.) Traction Company has ordered from the American Car Company ten cars mounted on Brill 27-G trucks.

Springfield (Mass.) Street Railway has ordered six 30-ft. 3½-in. closed-car bodies from the Wason Manufacturing Company.

Connecticut Company, New Haven, Conn., has ordered five eight-wheel dump-car bodies from the Wason Manufacturing Company.

Hudson Valley Railway, Glens Falls, N. Y., has ordered three 38-ft. 1½-in. closed-car bodies from the Wason Manufacturing Company.

General Electric Company, Schenectady, N. Y., has ordered six locomotive cabs with twelve trucks from the Wason Manufacturing Company.

Harrisburg (Pa.) Railways has authorized the purchase of seven pay-as-you-enter cars for the Steelton line. The cars replaced will be used on the city lines.

Pascagoula Street Railway & Power Company, Pascagoula, Miss., has ordered from the American Car Company four 18-ft. closed cars mounted on Brill 21-E trucks.

Utah Light & Railway Company, Salt Lake City, Utah, will order twenty-four cars this spring. The company has not settled upon the details of these cars, but is considering various types.

Belt Line Railway Corporation, New York, N. Y., has submitted to the Public Service Commission its plans for substituting storage battery cars for the horse cars now operated on its lines.

Hummelstown & Campbellstown Street Railway, Hershey, Pa., has ordered from The J. G. Brill Company one 30-ft. 8-in. semi-convertible pay-within car body mounted on Brill 27-MCB-1 trucks.

Columbia (S. C.) Railway, Gas & Electric Company has built in its own shop two pay-as-you-enter cars and a concrete mixer. They are equipped with Westinghouse motors. It is stated that the company will build more cars in its shops.

Shore Line Electric Railway, Saybrook Junction, Conn., noted in the *ELECTRIC RAILWAY JOURNAL* of March 1, 1913, as being in the market for six cars, has placed an order with the Wason Manufacturing Company for eight 30-ft. 8-in. semi-convertible plain-arch car bodies mounted on Brill 27-MCB trucks, to be delivered July 1, 1913.

Houston (Tex.) Electric Company, reported in the *ELECTRIC RAILWAY JOURNAL* of Feb. 15, 1913, as having ordered ten double-truck closed cars from the St. Louis Car Company, has included the following details in the specifications for this equipment:

|                         |               |                        |            |
|-------------------------|---------------|------------------------|------------|
| Seating capacity.....   | 40            | Curtain material..     | Pantasote  |
| Length of body....      | 26 ft. 6 in.  | Destination signs....  | Hunter     |
| Length over buffers.    | 39 ft. 0 in.  | Gongs .....            | Wall       |
| Width over sheathing.   | 8 ft. 7 in.   | Hand brakes.....       | Peacock    |
| Height, rail to sills.. | 32¾ in.       | Headlights .....       | C-H        |
| Sill to trolley base.   | 8 ft. 6¾ in.  | Sash fixtures.....     | Edwards    |
| Body .....              | composite     | Seats .....            | H. & W.    |
| Interior trim.....      | mahogany      | Seating material..     | wood slats |
| Roofing .....           | ¼-in. Agasote | Step treads.....       | Mason      |
| Roof .....              | arch          | Trolley catchers...    | Keystone   |
| Underframe .....        | steel         | Ventilators            |            |
| Bumpers .....           | 6-in. channel | Stone & Webster vacuum |            |
| Curtain fixtures.       | Nat.L.W.Co.   | Wheelguards .....      | H-B        |

## TRADE NOTES

Edward J. Hunt, Newark, N. J., manufacturer of Hunt transformer oil, dryer and purifier, has moved his office from the Prudential Building to the Ordway Building, Newark.

Howard & Curtiss, San Francisco, Cal., Pacific Coast representatives of the Federal Storage Battery Car Company and agents for Edison storage batteries, have moved

their offices from the Metropolis Bank Building, 55 New Montgomery Street, San Francisco, Cal.

Jeffrey Manufacturing Company, Columbus, Ohio, announces that J. W. White, the engineering salesman until recently stationed at its Athens (Ohio) office, has been transferred to Duluth, Minn., with headquarters at 1905 East Superior Street. Mr. White will have charge of the sales of the company in the eastern part of Minnesota, northern Wisconsin and the northern part of Michigan.

Dearborn Chemical Company, Chicago, Ill., announces that Paul T. Payne, who has been associated with the company for many years and who has for the past ten years been engaged in various capacities in the sales department of the company, has been appointed district sales manager with headquarters in the Hume Mansur Building, Indianapolis, Ind. Mr. Payne will direct the sales of several of the company's branches in that territory.

Duff Manufacturing Company, Pittsburgh, Pa., manufacturer of Barrett lifting jacks, etc., has moved into its new plant and general office building located on Preble Avenue, N. S., Pittsburgh. Its old works on Marion Avenue, Pittsburgh, have been dismantled. The new building comprises approximately 68,000 sq. ft. of area. The company plans to erect a plant in the Chicago district and expects to have this factory in operation by next fall, the question of location being under final consideration at this time. A Canadian factory will also be equipped during the coming summer to be in operation by this fall. The Canadian factory will be located at Windsor or Hamilton, Ont.

Allis-Chalmers Company, Milwaukee, Wis., through its reorganization committee, has given notice that the properties of the company having been purchased on behalf of the committee and the sale having been confirmed by the courts, the Allis-Chalmers Manufacturing Company, to which reference appeared in these columns last week, will take over the properties and begin operation at an early date. Notice has also been given by the committee to holders of certificates of deposit for the preferred and common stock that it has called for the payment of the balance due on the assessments levied under the reorganization plan. On the preferred stock \$4 a share is payable on or before April 24 and the same amount is payable on or before May 15. Two payments, each of \$2 per share, are payable on each of these dates on the common stock.

Westinghouse Electric & Manufacturing Company, Pittsburgh, Pa., has appointed Charles Robbins, who since 1909 has been manager of the industrial and power department of the company, as assistant sales manager with headquarters at East Pittsburgh. Mr. Robbins became associated with the Westinghouse Electric & Manufacturing Company in 1899 and was for a number of years located in New York. Previous to his connection with the Westinghouse Company he was associated with the Cutter Company of Philadelphia. He is a member of the National Electric Light Association and the American Institute of Electrical Engineers. J. M. Curtin, who heretofore has been assistant manager of the industrial and power department at Pittsburgh, has been appointed manager of this department to succeed Mr. Robbins. Mr. Curtin is a graduate of Penn State College and has been identified with the company ever since his graduation.

## ADVERTISING LITERATURE

Joseph Dixon Crucible Company, Jersey City, N. J., has published *Graphite* for March, 1913, which contains, among other interesting reading matter, an article calling attention to the power plant of the Terre Haute, Indianapolis & Eastern Traction Company, in which the steel work is protected with a shop and field coat of Dixon's silica-graphite paint.

California Corrugated Culvert Company, West Berkeley, Cal., has printed an elaborate pamphlet illustrated in colors showing the manifold applications of its American ingot iron corrugated culverts. This material is especially suited for culverts because it is strong, light and resistant to corrosion. These qualities are clearly brought out in the chapter on tests of irons. An important part of this publication is the table on distributed load test of corrugated pipe as made by Professor A. N. Talbot, in charge of the materials testing laboratory, University of Illinois.