

# Electric Railway Journal

A CONSOLIDATION OF

Street Railway Journal and Electric Railway Review

VOL. XXXVIII

NEW YORK, SATURDAY, JULY 8, 1911

No. 2

PUBLISHED WEEKLY BY

## McGraw Publishing Company

239 WEST THIRTY-NINTH STREET, NEW YORK

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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.

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

*Of this issue of the ELECTRIC RAILWAY JOURNAL 8500 copies are printed.*

NEW YORK, SATURDAY, JULY 8, 1911

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### Materials and Schedules

The popularity of the subject of efficiency has had a tonic effect which will do some good if it is not overdone. A wholesome result of the agitation has been a widespread interest in the methods of the efficiency engineers. Although the genesis of these methods was in shop work and in motion study in connection with manufacturing processes, there is no question that the publicity which has been given to them has provoked a similar consideration of topics of more direct bearing on railways. Of such topics two that may be mentioned are greater economy in the use of materials and closer analysis of schedules so as to eliminate as much unprofitable car mileage as possible. An appeal to employees is an effective way of re-awakening their interest in the economical use of supplies and securing their co-operation, which is essential in any successful plan of improvement. In the revision of schedules it is always a serious problem to know how far to go. There is no permanent advantage in the reduction of car mileage to a point that discourages the traffic. In city operation frequent, rapid service is desirable and headways cannot safely be lengthened beyond certain intervals in order that full loads may be secured. Economy could be enforced to the sure discomfort and inconvenience of the traveling public, and, therefore, to the eventual disadvantage of the company, but the achievement of economy at this price would not be wise railway efficiency. The best operation, however, requires continual investigation of the traffic and schedules and readjustment from time to time to meet the changes that develop. In the practice of some companies it has been found that a material of lower cost can be substituted at times for one of higher cost without any detriment, or a smaller car substituted for a large one and the traffic accommodated satisfactorily; and these small things help to make an aggregate that, whether large or small, is gain and not loss.

### The Reorganization of Railways

Through the appeal to the Court of Appeals from the decision of the Appellate Division of the State Supreme Court the order of the Public Service Commission in the Third Avenue Railroad reorganization case will be adjudicated finally in the court of last resort. In the consideration of this case by the Appellate Court the controlling importance was placed upon the single question of the authority of the commission in a reorganization proceeding. We stated on Oct. 1, 1910, in a review of the decisions of the commission, that the question was whether the applicant was to be regarded as seeking a new capitalization for a new property or whether the old property was to be considered as the real applicant. In the latter event it was assumed that the reasonable costs of conversion from one

form of motive power to another would be retained in the capitalization. The court, however, has gone much further than this and has swept aside all questions of the value of the property. It concludes that the authority of the commission is confined in fact to a review of the acts of the corporation under a statute which, it holds, applies to reorganization cases and has not been repealed by implication by the public service commissions law. It is the conclusion of the court, further, that the new corporation is "based upon the former corporation, depending for its existence upon the provisions of the reorganization statute and embodying in itself as the very reason for its being the reorganization agreement of the affairs of its immediate predecessor." This would give the security holders of companies that undergo receivership full control of plans for reorganization in New York State. The effect of a final determination that such is the law would be interesting. A State policy of this nature would, it appears, tend to restrict the commissions to jurisdiction over present and future rather than over past acts.

#### Questions of Capitalization

At the banquet of the Street Railway Association of the State of New York on June 27 Oscar T. Crosby presented a strong defense of that often maligned individual, the promoter. No one will deny that in the transportation industry, as well as in other lines of business, little progress will be made if capital should be invested only in enterprises of established security, and this will be the case if the opportunities for making a "promoter's profit" should be greatly reduced. We agree with Mr. Crosby that the rate of return to which the investor in any line of business is entitled, should the enterprise prove successful, ought to be commensurate with the risks which are assumed. For instance, a return of 25 per cent per annum upon the money, upon the value of the time invested by the promoter and upon the cost of the other factors necessary in the development of certain classes of electric railway undertakings is not too high. On the other hand, 6 per cent might be large for an underlying security in a well-established public service corporation. And disasters have followed attempts to secure 25 per cent on the latter class of securities just as they will follow attempts on the part of the State to confine the profit on hazardous enterprises to the legal rate of interest. If we admit that those who promote the latter class of enterprise are entitled, in case of its success, to compensation for their risk, this return may be paid to them in the form of high dividends upon a low capitalization or in the form of moderate dividends upon a capitalization in excess of the cash value of the elements which were required to organize and establish the business. From one point of view the way in which the annual profits of a public utility company are distributed is a matter of no concern to the public. Its chief interest lies in the fact of whether the people are paying an undue profit for the service rendered. Whether this profit is paid as a dividend upon one capitalization or at the rate of half of that dividend upon twice that capitalization is a matter of little moment. According to Mr. Crosby, much of the popular misunderstanding in regard to capitalization would disappear if the "par value" of the capital stock

of a company should be forgotten, or if the stock should be issued without any specified par value. Each share would then represent the right of its proportionate participation in the profits of the company, and while there would be rigorous supervision over the issue of such shares they would not necessarily indicate that any particular amount of money had been paid in by the original holder.

#### EQUIPMENT TRUST NOTES

The favorable experience of steam railways with equipment trust notes, to which Mr. Brockway calls attention in his suggestive article in this issue, has already encouraged some participation by electric railways in this form of security. An inspection of the last edition of *AMERICAN STREET RAILWAY INVESTMENTS* shows that the following companies had equipment trust securities outstanding: Ft. Wayne & Wabash Valley Traction Company, Indianapolis Traction & Terminal Company, Northwestern Elevated Railroad of Chicago, Chicago & Oak Park Elevated Railroad, United Railways & Electric Company of Baltimore, Public Service Railway of Newark, N. J.; Coney Island & Brooklyn Railroad, Pittsburgh Railways, Norfolk & Portsmouth Traction Company, Hudson & Manhattan Railroad, Buffalo, Lockport & Rochester Railway, International Traction Company of Buffalo, and Virginia Railway & Power Company.

Necessarily there are fundamental differences between the conditions of issue of these certificates by the large steam railroad and by the more generally local electric railway. But so far as these differences affect marketability they lie in the total amount of the issue and not in the quality of the security, and hence they are not disparaging to the electric railway. A steam railroad with extensive mileage would issue a larger volume of securities than a local electric railway system, because its needs and revenues are greater. Therefore, it would be better able to interest large banking houses or syndicates of bankers having representation in a number of important cities. This would facilitate the rapid distribution of the securities, which is the essential feature to the underwriting banker. However, if an issue of equipment trust notes made by an electric railway is small in amount or the other securities of the company are not well known outside of the community in which it operates, the local bankers should be induced to furnish the market. Indeed, it is our understanding that some of the notes of this character which have been issued by electric railways have been taken at once by savings banks and trust companies in the community and held for permanent investment instead of being offered for re-sale to the general public. Another method of marketing the securities which has been followed releases the railway company from all negotiations except those conducted directly with the equipment manufacturing company, which receives payment in notes for the equipment furnished. The manufacturing company then makes either a direct sale to bankers or a commission arrangement under which the notes are sold for its account.

It is the "ultimate consumer," the investor, who determines in the end the market position of the various classes of securities, but his judgment as to the interest his capital should yield on long-time investments is affected by the

money rates prevailing in financial centers. As a general rule, the equipment trust securities outstanding bear  $4\frac{1}{2}$  per cent to 5 per cent interest and were sold to the public to yield a little over or under 5 per cent. With the interest return at this satisfactory rate, the principal other question that concerns the investor is the factor of safety. In an equipment trust note he has an interest in a mortgage on specific property which is readily distinguishable. That is an advantage which is not possessed by many underlying mortgages on properties which, after merger, are lost to identity. One other feature, that of convertibility into money, is important to the investor. Ease in convertibility could be assured under ordinary circumstances if the notes were sold to banks in the community.

#### COST OF ELECTRIC OPERATION OF RAILROADS

The engineering aspects of the problem of electric operation of steam railroads are no longer in doubt. Both the single-phase alternating-current system with overhead trolley and the direct-current third-rail system have been installed and successfully operated for a sufficient period of time to demonstrate their superiority over steam locomotive operation in high-speed passenger service, suburban service, yard switching and hauling long, heavy freight trains in tunnels and up steep grades. Electricity will do all and more than steam as a motive power with equal reliability. This much has been proved. The relative cost of electric and steam operation is the crux of the situation with respect to electrification projects of the future.

Electrical engineers can estimate the cost of installation and roughly the cost of operation, but their figures admittedly are estimates. They do not know what it costs to operate electrified steam roads and the officials of such roads, if they know themselves, have not been willing to tell. Why this apparent desire for secrecy? It is safe to say that no steam railroad official would willingly abandon electric operation where it has once been begun. If it is not directly profitable it certainly is not unprofitable when the comfort of passengers, the higher speeds of trains and the simplified terminal operations are taken into account. Nothing is to be gained by concealing the true cost, even though it is apparently resulting in a deficit. The figures relating to the West Jersey & Seashore Railroad which were given by B. F. Wood in his paper read last week at the annual convention of the American Institute of Electrical Engineers are among the first to be made public, and they constitute a substantial addition to the general fund of rather widely scattered data. Unfortunately they tell less than half the story, for the West Jersey & Seashore is still operating freight trains with steam locomotives and no figures of steam passenger operation prior to electrification are given from which comparisons with electric passenger train operation can be made. What is wanted now is a complete statement of operating results from all of the electrified steam railroads. The public, which is demanding electrification of terminals in large cities, has a right to know what results may be expected if the demands are complied with. The engineering fraternity has a right to know, so that costly mistakes may be avoided in planning other electrification projects of the future.

#### THE NEW YORK SUBWAY SITUATION

The New York subway situation is developing rapidly every day. After lying dormant for nearly seven years, or since the present subway was put in operation, each day now sees some change in its condition. The city and the railway companies interested in the proposed franchises have issued ultimatums which have been followed later by ultimatissimums. Each railway has advanced important reasons why it should receive different terms or more favorable conditions than the other. Finally, estimates by the city of large profits from certain routes, when placed under the microscopes of the corporations for careful examination, have been returned with the statement that they were really deficits in disguise. It is undoubtedly true that never before have transportation experts been required to calculate the future profits upon urban railway enterprises of such magnitude as those represented by the franchises offered in the McAneny proposal to the Interborough and Brooklyn Rapid Transit Companies. Not only have the companies been obliged to predict the future traffic and profits from the new lines, but they have had to determine the effect of each new system on the other and upon each company's existing system. A miscalculation of 1 per cent in the growth of future business, or an erroneous allowance of the same amount in regard to the operating ratio, would amount to millions of dollars during the period of the franchise. It would be a serious misfortune to the city of New York if after all these negotiations and efforts it shall not succeed in securing the best possible extension to its rapid transit facilities. At the same time no one can blame the companies for being unwilling to assume the financial burden of conducting an unprofitable service.

We have great sympathy with the position of ex-Mayor Low, who stated that any transportation scheme other than one which would include both existing system, as in the proposal originally submitted to the companies, would be a makeshift. The purpose toward which efforts should be directed is that of providing rapid transit between each of the outlying boroughs and the lower half of Manhattan Island, with such extension of these routes only as will provide train loads in both directions. A through service from the northern confines of the Bronx to the southerly end of Brooklyn is not only unnecessary but uncalled for.

The modified acceptance of the proposals of the city by the Brooklyn Rapid Transit Company and the apparent willingness of the authorities of the city to adjust the points of difference between them and this company assure, we hope, that at least a considerable part of the general plan will be carried out. The final answer of the Interborough Rapid Transit Company was not expected until July 5, or after this paper went to press. The company has taken a number of exceptions to the city's original offer and has advanced many good reasons why some change should be made in them. We sincerely trust, for the sake of a well-rounded-out system, that the concessions which it will ask in its proposal this week will be such that they will be granted. If not, we feel that the Brooklyn Rapid Transit Company is amply able to build along the routes which will be open to it a rapid transit system which will be of great benefit to the city.

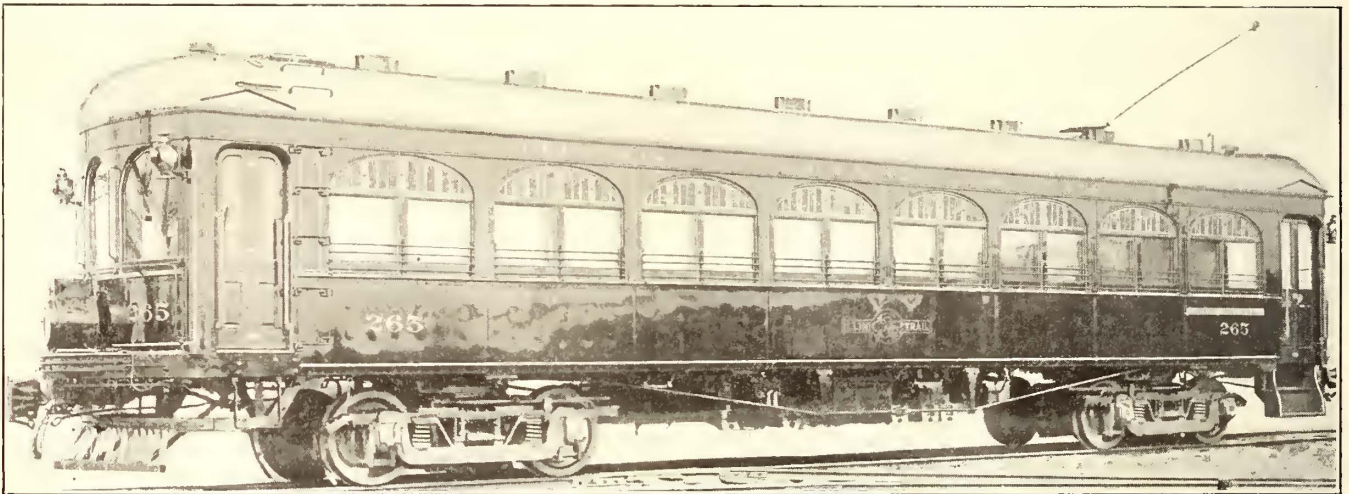
# Latest Type of Interurban Passenger Car for McKinley System

These Cars Are of the Combination Passenger and Baggage Type and Are Designed for Train Operation. They Have Arch Roofs and the Framing Is Strongly Reinforced with Steel.

Ten large interurban cars designed by J. M. Bosenbury, superintendent of motive power and equipment of the Illinois Traction System, have just been built by the Danville Car Company. Six of these cars have been put into service on the Chicago, Ottawa & Peoria Railway and four on the Illinois Traction System. Numerous improvements in design which have been found desirable as the result of experience with older types of cars on the McKinley traction system have been incorporated in these new cars, which are intended for high-speed multiple-unit service. Each car has a motorman's cab at the left-hand corner and is subdivided into a combination baggage and smoking compartment, a main compartment, a toilet room and a heater closet. The cars are arranged for single-end operation and the seats are placed so that passengers in the forward compartment have a clear view ahead. The rear platform is inclosed. The accompanying engravings show the principal features of design and the general appearance of these new cars, which have turtle-back roofs and are heavily reinforced with steel in the framing.

compound side sill is bolted to the inside of the posts of the side framing. The center and intermediate sills over the bolsters are reinforced with 4-in. x 4-in. x ½-in. angle irons 8 ft. long. The longitudinal sills are held together by ¾-in. tie rods terminating between the center sills at hollow rectangular malleable-iron spacing blocks. These blocks are made hollow to provide a continuous space between the center sills for installing the cables and air pipes.

At the front end of the car the sills terminate in a combination crown-block, buffer beam and end sill, which is made of straight-grained white oak 2¾ in. thick. The outer member of this buffer beam is made of 8-in. x 10-in. white oak. The buffer beam and crown block are slip-tongue and grooved together and held in position by U-shaped pocket irons to which the sill webs are bolted. The outer side of the buffer beam is faced with a continuous iron plate ½ in. x 8 in., which is returned along the side sills. On the outside of this facing Hedley anti-climber sections 2 in. x 5½ in. x 7 ft. 4 in. have been applied. The rear buffer beam of the car is similar to the front buffer beam, except that the face



Illinois Traction Car—Exterior View

The cars weigh 93,000 lb. completely equipped and have seats for fifty-six passengers.

#### GENERAL DIMENSIONS

The principal dimensions are as follows:

Length over buffer plates.....	55 ft. 6 in.
Width over outside sheathing.....	9 ft. 6 in.
Width inside between wainscoting.....	8 ft. 8 1/16 in.
Height from bottom of sill to top of roof... 9 ft. 4 13/16 in.	
Height from top of rails to bottom of sill... 3 ft. 5 in.	
Height from top of rails to center of draw-bar .....	2 ft. 10 1/2 in.
Length of posts between sill and plate.....	6 ft. 8 in.
Truck-center distance.....	32 ft. 3 in.

#### BOTTOM FRAMING

The ten cars were designed to be substantial, easy riding, and to have great strength to resist damage in butting collisions. The principal members of the underframe are four 6-in. 12¾-lb. I-beams extending from buffer to buffer and two steel plate side sills ¼ in. thick by 18 in. deep. The center and intermediate sills are filled out with yellow pine timbers and the deep plate side sills are reinforced at the top and bottom by 3-in. x 3-in. x ¾-in. angle irons. The

plate is returned around and into the step openings. Both buffer beams are supported on the bottom flanges of the center sills, the web and top flange having been cut away.

The bolsters are made up of steel plates. The tension or upper member is a 1-in. x 12-in. plate with the ends upset to 2 1/8 in. x 12 in. The lower member is a 1 1/8-in. x 12-in. plate, the ends of which rest against the inside portion of the upset ends of the top member. The lines of contact between the top and bottom members were accurately machined. The top and bottom members are held apart by iron spools and wing castings. The bolster plates support machine-finished castings which are fitted on the lower side with 1-in. x 4-in. wearing plates to serve as side bearings. The center plates are held in place by four 1 1/8-in. bolts extending through the bolster and above the tops of the center sills. The lower nuts on these bolts are fitted with National lock washers and underneath one nut on each center plate is a copper terminal to receive the ground wire. The center pins are 2 in. in diameter; they have forged upset heads and extend below the truck bolsters a sufficient distance to be fitted with 1/2-in. cotter pins.

The needlebeams consist of 5-in. 14¾-lb. I-beams trussed

with two  $\frac{7}{8}$ -in. rods. The main longitudinal truss rods are double-refined iron  $1\frac{1}{2}$  in. in diameter and they are anchored to the side sills with forged truss-rod hinges made of  $\frac{3}{4}$ -in. x 4-in. iron bolted to the side sills.

**BODY FRAMING**

The bodies of these cars, as shown in the accompanying half-tone engravings, have arched roofs and are sheathed with steel. On the left-hand side of the body are eight double Pullman type windows, in addition to the rear passenger entrance door and the motorman's cab door. On the other side of the car are seven double windows, a baggage door and a single window. The front end has three windows with double sash and the rear vestibule has two windows with single sash and an end door in the center with drop sash for passing through to a trailer car when used for train operation.

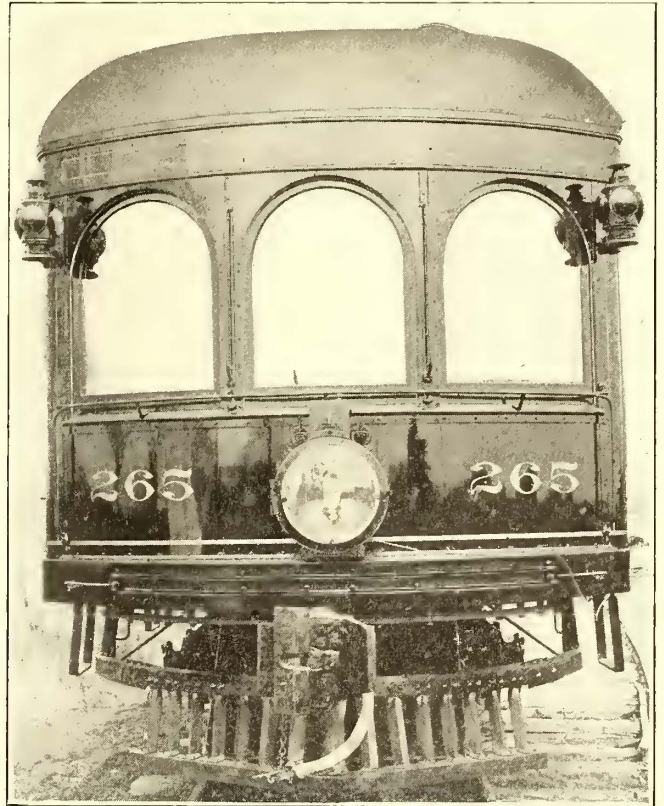
The outside of the car bodies up to the letter board is covered with No. 14 sheet steel. This protective covering is brought around the corner posts and around both ends of the car. The vertical members of the side framing consist of ash posts  $2\frac{3}{4}$  in. x  $4\frac{3}{4}$  in. in section. Each post is mortised into the side sill at the bottom and the side plate at the top and the double pier posts are gained inside for filler blocks. The side plate is a continuous piece of long-leaf yellow pine. Between each adjacent pair of window posts is a yellow pine brace  $1\frac{1}{2}$  in. x  $4\frac{3}{4}$  in. in section, held at the upper end against a  $\frac{1}{2}$ -in. hook rod terminating under the side sill. The side and vestibule framing structures are tied together by a  $\frac{1}{4}$ -in. steel plate. The tie rods in the side frame are  $\frac{1}{2}$  in. in diameter and are incased in grooves cut in the single posts and in the blocking between the double posts and they are wedged to prevent vibration. The side framing of each side of the car is strengthened by an overhang truss rod resting on deep cast-iron struts over each bolster and terminating in metal anchor blocks underneath the corner posts of the body. These truss rods are  $\frac{3}{8}$  in. x  $1\frac{1}{2}$  in. in section where they pass through the side framing and  $1\frac{1}{8}$  in. round where they pass down through the side sills. All the side framing of these cars was strengthened by three-cornered glue blocks at the junctions of the letter boards and posts and by blocking between the double pier posts.

The truss plank which forms part of the underframing consists of a steel plate  $\frac{1}{4}$  in. thick by 18 in. deep, to which the side posts are bolted. This truss plank is reinforced at the top and bottom with heavy angles. A wood capping which forms a continuous foot rest from end to end of the car is securely bolted to the upper angle. The truss plank is fitted with malleable-iron clips to hold the hot-water

tween these two layers are two thicknesses of "red rope" building paper.

**STEPS**

These cars are designed for single-end operation and have the standard step arrangement of other cars of the Illinois Traction System, which includes brass-bound sheet-steel

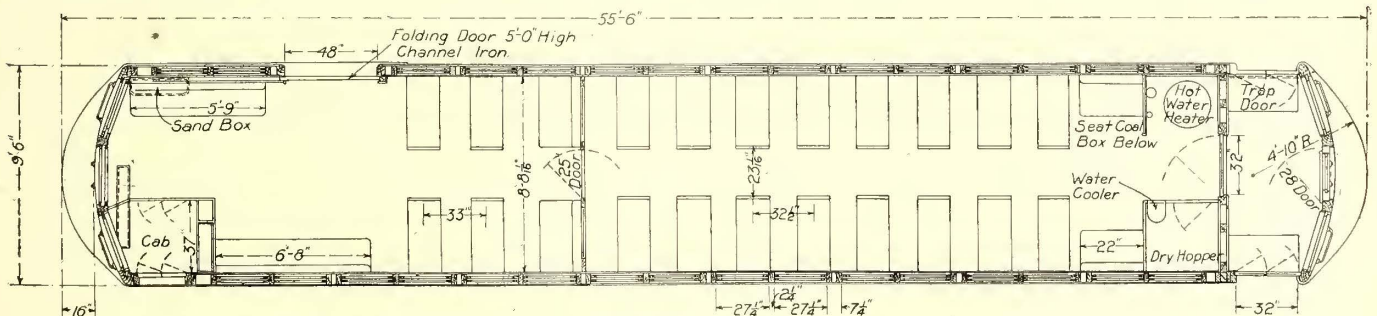


Illinois Traction Car—End View

hangers, covered with Empire safety treads and O. M. Edwards type-F trap-door fixtures.

**ROOF**

The roof of these new cars is designed along lines similar to the roof of the sleeping cars of this company. Its shape conforms to two segments of circles joined by a flat curve. The arch roof is supported by compound carlines consisting of white ash pieces  $1\frac{3}{4}$  in. thick faced on the outside with two pieces of steel  $\frac{1}{2}$  in. x  $1\frac{3}{4}$  in. These carlines have



Illinois Traction Car—Floor Plan

heater pipes. Underneath the angle iron and near the top of the truss plank is a  $\frac{3}{4}$ -in. loricated conduit having a bell-mouth opening at each seat for the electric heater wires. This conduit is supported on wrought-iron clips fastened to the angle irons which stiffen the truss plank.

**FLOOR**

The floor consists of long-leaf yellow pine  $\frac{13}{16}$  in. thick and  $3\frac{1}{4}$  in. wide. The lower layer of the floor is placed crosswise and the upper layer lengthwise of the car. Be-

feet bent at an angle at each end to rest on the side plate, and they are fastened to the plate with  $\frac{1}{2}$ -in. bolts and also by tie rods. Wood rafters  $1\frac{3}{8}$  in. thick are placed between adjacent carlines. The purlins are built up of  $\frac{1}{2}$ -in. x  $1\frac{3}{4}$ -in. iron and ash filler blocks. The iron members of the composite purlins are bent at an angle at each end and bolted to the main carlines of the roof.

Particular care was taken in designing the hood framing to make it substantial so that it will withstand extraordinary

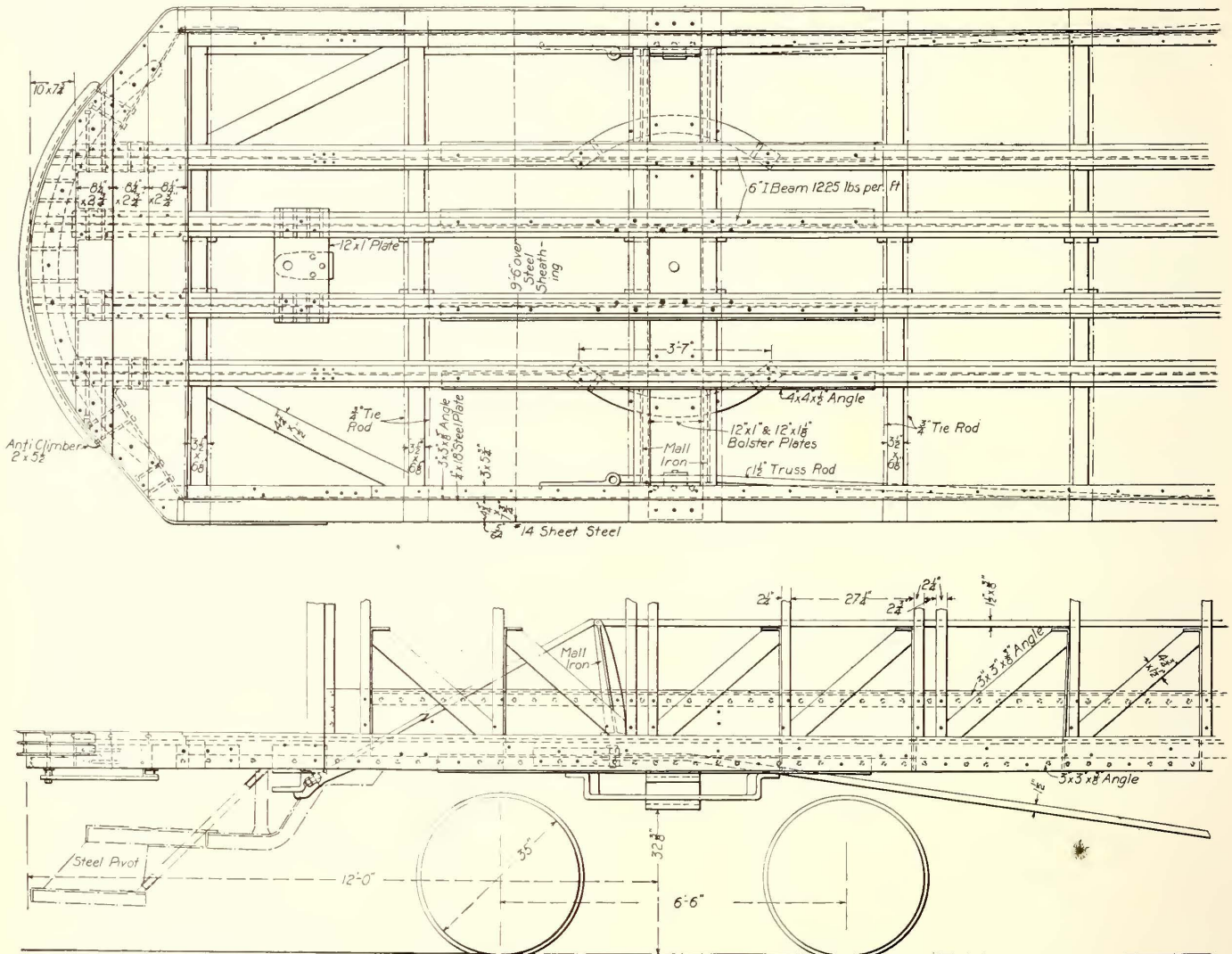
shocks. The hood covering is an extension of the main roof without any offset. Its supports are framed of  $1\frac{3}{8}$ -in. rafters connecting with a 2-in. yellow pine bulkhead and secured by  $\frac{1}{2}$ -in. strap bolts. The wood rafters are faced on each side with iron carlines and thus the roof of the hood is a stiff structure rigidly tied to the side framing through the bulkhead.

The roof of the cars consists of  $\frac{9}{16}$ -in. matched yellow poplar boards laid with the tongues pointing toward the center of the roof. Over the hoods were laid two thicknesses of  $\frac{9}{32}$ -in. boards steam-bent to form the contour. The entire roof of the cars is painted with two coats of white lead and boiled linseed oil, and then covered with one piece of No. 6 cotton duck applied with No. 10 copper tacks. Drip moldings were made of  $\frac{13}{16}$ -in. yellow poplar and

The roofs of the cars are fitted with automatic ventilators for the main ventilation and one ventilator each for the motorman's cab and toilet room, and an air insulated smoke jack for the hot-water heaters. At the points where these ventilators pass through the roof blocking has been inserted to strengthen the roof and ceiling structures. The ceiling openings for the ventilators are fitted with polished bronze shutters which can be operated by the conductor from the aisle. The ventilators in the motorman's cab, toilet room and the smoke-jack top on the heater pipe are 5-in. Globe ventilators.

#### SHEETING

The outside of the cars below the window sills is sheeted with yellow pine boards  $\frac{13}{16}$  in. thick gained over the posts and glued and screwed thereto. The upper sheeting



Illinois Traction Car—Half Plan and Side Elevation of Framing

the roofing canvas was fastened to these. After the canvas covering was placed it was treated and painted according to Illinois Traction System standard painting specifications. Small copper eaves troughs were placed over each door opening. These troughs are attached by nails to furring blocks placed on the underside of the roof. A running board continuous for the full length of the car and made of  $1\frac{1}{2}$ -in. x 6-in. yellow pine rests on ash cleats fitted to the contour of the arched roofs. At a point 11 ft. 4 in. from the rear end of the car blocking was attached for mounting a No. 13 United States trolley base. The rear hood of each car is covered with an ash slat rack to protect the roofs from the trolley wheel. This rack rests on four hickory ribs bent to the contour of the hood and securely bolted to the roof.

is of yellow poplar. Over the sheeting has been placed No. 14 sheet steel, double-rolled and straightened. The joints of the steel plates are covered with battens of  $1\frac{1}{8}$ -in. wagon box iron slightly concave on the inside to retain a strip of lead putty.

The steel sheeting was applied with round-headed steel screws dipped in red lead. The battens are held by oval-headed screws. All the holes in the steel sheeting were drilled and special care was taken to prevent denting the steel. After the sheeting had been applied it was sand-blasted to remove the roll scale and rust before paint was applied. The inside of all the sheet-steel work was painted a coat of red lead and linseed oil before application. An iron batten  $\frac{1}{4}$  in. x  $1\frac{3}{4}$  in. in section extends the full length of the car under the edges of the arm rails.

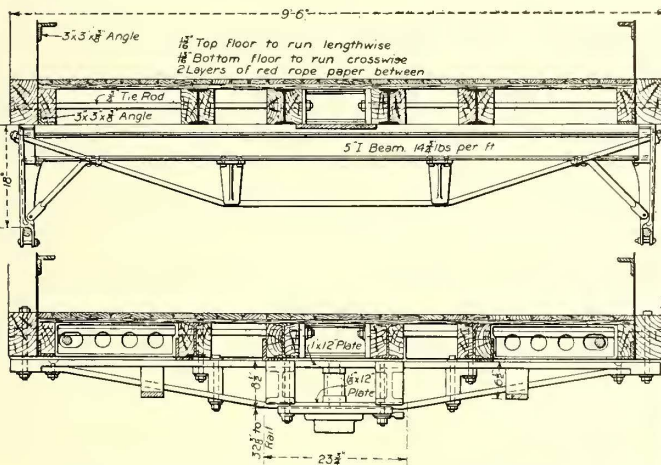
WINDOWS

The windows, of which there are eight on one side and seven on the other, are of the double Pullman type, and are provided with two complete sets of lower and Gothic sashes in each opening. The upper outside Gothic sashes are screwed to the window heads and the letter board from the inside and the construction is such that the sashes can be removed from the outside by removing the retaining battens which are held in position with brass screws. The inner Gothic sashes are so arranged that they may be moved up to permit cleaning the inside of the windows. Both the lower window sashes can be raised 24 in. above the arm rail. The inside sashes have the glass beads removable from the inside and the outside sashes have the beads removable from the outside. All window sashes are fitted with O. M. Edwards anti-rattling devices and window catches.

The front windows of the cars have two complete sashes at each opening. The outside front sashes are stationary and the inside sashes are hung on three brass hinges and have two catches. The windows on the rear platforms have single stationary sash with the exception of the opening in the door, which has a drop sash. All the sashes in the cars are made of 13/16-in. solid mahogany. The glass is 3/16-in. polished American plate and all outside windows and doors are fitted with Bosley's metallic weather strips fastened with 3/8-in. brass escutcheon pins.

COUPLERS

Each car is equipped with two Illinois Traction System standard couplers of the Bosenbury type with spring draft



Illinois Traction Car—Sections of Underframing

gear made by the National Malleable Castings Company. The draft pockets are made of cast steel and the radial carrying irons are made of 7/8-in. x 3 1/2-in. iron secured to the buffer beam by 3/4-in. square-head bolts, passing through thirteen cast-iron spacing spools and two malleable-iron end stops. The drawbar and spring pocket are made of cast steel. The tail pin of the coupler is at the center of the circle described by the face plate of the buffer beam, which has a radius of 4 ft. 10 in. Each car has one Illinois Traction System standard steel angle pilot held by angles and hydraulic tubing at an elevation of 10 in. above the rails.

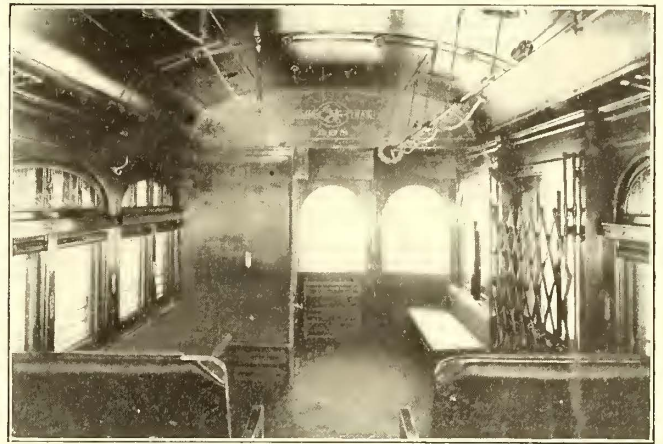
INTERIOR ARRANGEMENT

One of the engravings shows the floor plan of these cars. This plan, with slight modifications, conforms to the standard interior arrangement of the Illinois Traction System's passenger equipments. At the forward end is a combination smoking and baggage compartment from which the motorman's cab has been set off. The smoking compartment has two folding longitudinal seats and six cross seats. The baggage door is on the right-hand side of the car and is 48 in. wide. The double-arched interior window covering the baggage-door recess is a single section, hinged at the corner post and having an extra heavy stile and three spring hinges, so that it may be swung into the car to permit

cleaning the windows or repairing the baggage-door runway. The main compartment of the car has sixteen cross seats and two small box seats. All the seats are Hale & Kilburn 199-EE reversible with double head rolls, brass corner grab handles and automatic foot rests. The hot-water heating equipment is located in a closet at the right hand of the rear door and the toilet room at the left hand.

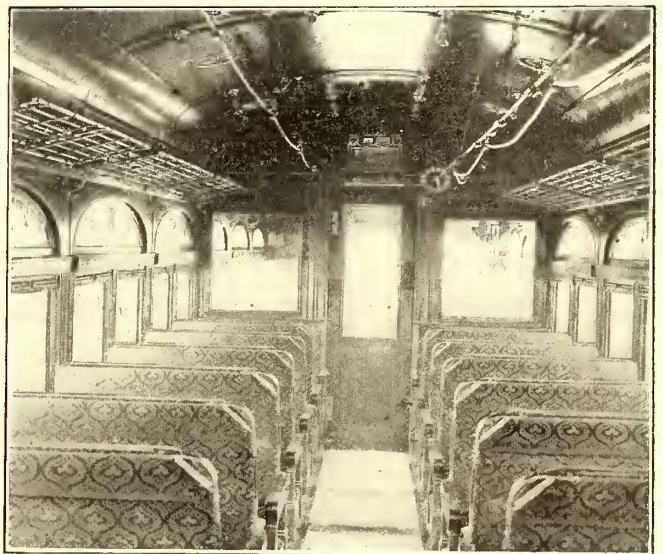
INSIDE FINISH

The inside finish of the car is of Honduras mahogany



Illinois Traction Car—Smoking and Baggage Compartment

above the arm rail and below the crown molding, with the exception of the ceiling bands. The finish below the arm rail is No. 14 sheet steel applied over girths made of long-leaf yellow pine and glued and screwed into position. The steel inside of the car is treated in the same manner as described for the outside sheeting and after application was painted and grained mahogany to match the interior. The ceiling and head lining are formed of three-ply poplar veneer 1/4 in. thick. Between the ceiling and its supports pieces of cloth have been placed at points of contact to prevent squeaking.



Illinois Traction Car—Passenger Compartment

The motorman's cab at the forward left-hand corner of the car is covered on the smoking compartment side with sheet steel protected at the corners by angle iron. This cab contains a switch cabinet lined with 3/8-in. transite board. The cabinet has no cover, but is protected by three 1/2-in. round iron guards. Under the switch cabinet is a smaller receptacle for the air governor, feed and governor valves. To the left of the switch cabinet is a recess of similar depth provided with coat hooks. The motorman's cab has a double

folding door in the side of the car and a double folding creep door leading into the smoking compartment. Above the latter door is a window. The cab is ventilated by a 5-in. Globe ventilator fitted with a bronze shutter which can be operated from the inside. The crown block from the motorman's cab to the center of the car between the sills was routed out to receive cables and pipes leading from the space between the two center sills.

INTERIOR FIXTURES

All the side windows in the car as well as the window above the creep door to the motorman's cab have Pantasote curtains equipped with O. M. Edwards spring rollers and

The car is equipped with one Illinois Traction System sheet-steel sand box and an air sander-trap with Ohio Brass Company's sander valve. The sand pipes and hose carry the sand in front of the wheels of the forward truck.

The center aisle of the car in the main compartment is covered with a strip of plain brown linoleum 24 in. wide and 3/16 in. thick, at each edge of which is a beveled strip of hard maple. The car is lighted by forty incandescent lamps arranged in rows of four lamps across the ceiling at the double window posts. A shift light is provided for illuminating the motorman's cab.

CAR HEATING

Each car is equipped with a No. 1-C Peter Smith hot-water heater connected to three rows of 1½-in. pipe on each side of the car under the continuous foot rest. These pipes extend from the heater compartment at the rear of the car as far forward as the baggage door on the right-hand side, and then under the floor and up into the motorman's cab and return to the rear on the left-hand side of the car. In addition to the hot-water heating equipment each car has twenty-seven Consolidated Car Heating Company's electric heaters distributed as follows: Sixteen under the reversible seats in the main compartment and four under the reversible seats in the smoking compartment; two under one of the longitudinal seats and one under the other longitudinal seat in the smoking room; three heaters mounted against the front lining of the front vestibule. A cab type heater independent of the others is located in the motorman's compartment. The electric heaters are arranged for three degrees of heat and those in the main compartment are controlled independently of those in the smoking compartment.

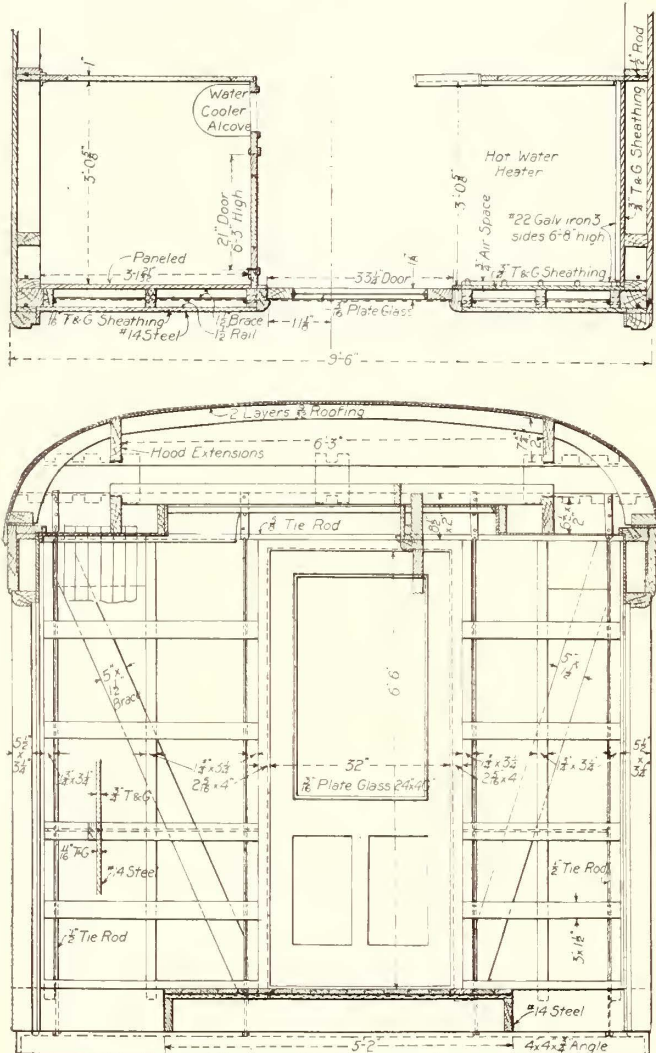
GRAB HANDLES AND SILL STEPS

Grab handles and steps have been installed to conform to the requirements of the safety appliance law. Two wrought-iron handles have been placed on the front window posts of the cars and a continuous handle extends from the bumper beam up to the front vestibule window sill and across the front and down to the other end of the buffer beam. Wooden grab handles are placed outside of the motorman's cab door; wrought-iron grab handles are placed at each side of the baggage door; one wood grab handle has been placed over each inside rear vestibule door, and one on the outside of each of these doors; two wrought-iron grab handles have been placed on the rear center door posts, two on the rear dash and one at each diagonal corner of the car for mounting to the roof. Wrought-iron sill steps have been placed at the motorman's cab door and the baggage door, and wrought-iron ladders at diagonal corners on the outside of the car.

MISCELLANEOUS FITTINGS

All the trimmings in the car are made of polished bronze. These include match scratchers in the smoking room, door locks, catches and hinges, window catches and hinges, parcel racks, bell and register cord hangers, sign holders, grab-handle sockets and a corner grab handle in the toilet room. The car is equipped with four combination marker and classification lamps of Adams & Westlake manufacture and with four combination flag and marker brackets.

One of the short seats in the main passenger compartment has a well beneath it lined with zinc designed for storage of the marker lamps so as to prevent their damaging clothing. Each car is equipped with one 6-amp automatic Wagenhals arc headlight and supporting brackets on the front dash of the car and on the rear train door. Some of the other miscellaneous equipment includes 3-gal. Alert chemical fire extinguisher, twelve destination signs supported in a wood-lined galvanized iron box, six camp stools with mahogany frames and tops covered with Wilton carpet supported by cotton duck; malleable-iron threshold plates, Illinois Traction System standard window guards, Consolidated Car Heating Company's tow car coupler, Knutson No. 5 trolley retriever. Ohmer interurban type



Illinois Traction Car—Plan and Elevation of Rear End Framing

Forsyth fixtures with ring tips. The curtain rollers for the side windows are inclosed in mahogany curtain boxes held in place by bronze screws.

As earlier stated, the car contains twenty reversible seats and six stationary seats. All of the stationary seats have cushions similar to those of the reversible seats and have their backs set at the same angle. The two long seats in the smoking room are made with spring bottoms and the edges of the cushions are covered with No. 14 sheet steel with rounded corners. All the seats in the smoking compartment are upholstered in dark green split horsehide and the rest of the seats in the main passenger compartment are upholstered in green frieze plush.

An emergency tool box located over the window in the motorman's cab contains one axe, one 8-lb. steel sledge, one Diston steel-blade hand saw and one small pinch bar. The tool box is lined with plush and all the tools are painted red and lettered "I. T. S."



register, Dayton standard dry closet screen pocket in toilet room, bronze parcel racks built by the Rostrand Manufacturing Company, Milford, Conn.; lazy-tong channel-iron gates for baggage-door opening, oil report-card box, equipment report-card box, train mail box and clip for holding train orders.

The cars are equipped with hand brakes operated by a vertical acting ratchet lever brake handle installed in one corner of the motorman's cab. This hand-brake equipment supplements the Westinghouse schedule AMS combination straight and automatic air-brake equipment, which has M-22 brake valves and D-2-E-G compressors. Conductor's emergency air valves are provided.

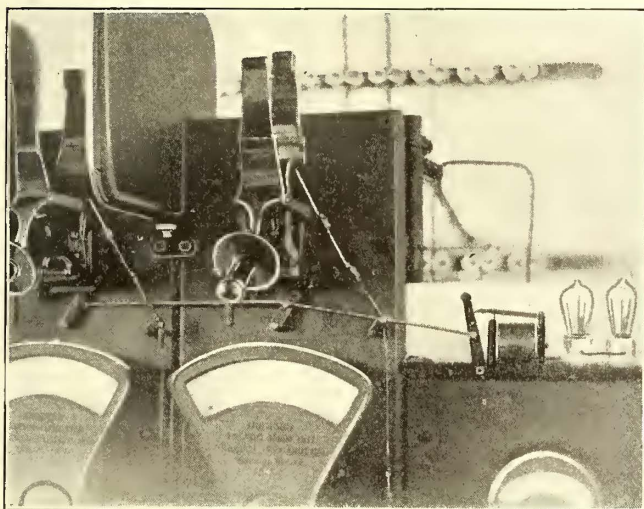
**ELECTRICAL EQUIPMENT**

The cars are mounted on Baldwin M.C.B. type trucks of 30,000-lb. center-pin capacity. Each truck carries two 303-A, 100-hp Westinghouse interpole motors. The control is Westinghouse unit-switch, type H-L, with combination mechanically and pneumatically operated reversers. The air pipes for the control are painted yellow and those for the brake system are painted black. The electric-light wiring is inclosed in conduit, but the cables are run in three-ply, 1-in. water hose. The main car cables are run in cotton hose and all of the main electrical wiring is pro-

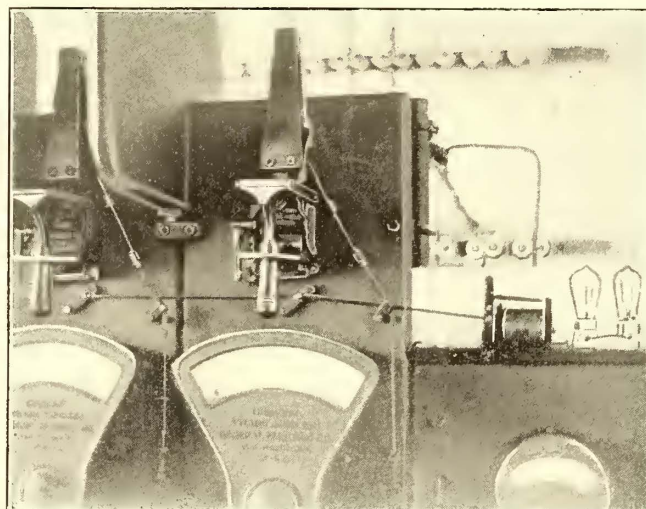
**DISPATCHER'S CONTROL OF LINE CIRCUIT BREAKERS**

The Indianapolis & Louisville Traction Company has recently installed in its power station at Scottsburg, Ind., a simple device by means of which the train dispatcher can open the circuit breaker instantly and throw all current off the line. The accompanying illustrations show the method of applying the device on the switchboard in the power house. The small electromagnet, shown at the right is connected to the trolley in series with two banks of incandescent lamps, one of which is mounted on the switchboard and the other in the dispatcher's office. A double-throw switch is inserted in the circuit in the dispatcher's office. With the switch in normal position the current passes from the trolley wire through both banks of incandescent lamps and the electromagnet coil. The resistance of both banks of lamps in series is so high that the current flowing through the magnet coil is very weak and the armature will not attract the tripping latch.

To shut off the current from the line and stop the cars in an emergency the switch in the dispatcher's office is thrown to the second position. This cuts out one bank of incandescent lamps from the circuit and lowers the resistance correspondingly. Sufficient current then flows through the



Line Circuit Breakers Open



Line Circuit Breakers Closed

ected from chafing and runs through the hollow malleable-iron sill spacers between the center sills. This runway between the center sills is inclosed from below to protect the cables against wheel wash.

The cars are fitted with Westinghouse Air Brake Company's electro-pneumatic signal valves and cords designed for facilitating train operation. The signal apparatus is inoperative unless there is sufficient air on the car to apply the brakes and thus a safety feature is introduced. Cords and valves are so arranged that pulling the cord in any car will blow a signal on both platforms of each car except the motor car, on which the signal is only given at the rear of the car, thus making it possible to hold the conductor of the forward car responsible for the safe starting of the train. The same cord which operates the motorman's signal can be used by him for signaling the conductor of the head car.

During the month of May, 1911, the Employees' Relief Funds of the Pennsylvania Railroad and affiliated lines distributed \$186,886.96 in benefits to members. This was an average of \$6,028.21 a day. The families of members who died received \$58,220.18 and members who were incapacitated for work received \$128,666.78. Since the organization of the fund in 1889 a total of \$30,820,807.60 has been paid in death and disability benefits.

magnet coil to attract a small horizontal tripping lever shown above the coil. This lever acts as a detent for the vertically pivoted lever which is connected to a rod extending across the front of the switchboard. This rod is connected to small bell cranks under each circuit breaker. The shafts of these bell cranks pass through the switchboard and counterweights are attached on the back side. When the electromagnet is energized sufficiently to attract the latch lever the vertical lever is released and the counterweights on the back of the switchboard cause the bell crank arms to move to the left. The bell crank arms strike the latches of the circuit breakers and open them instantly.

As long as the dispatcher's switch remains in the second position it is impossible to restore the circuit breakers because the instant the circuit breakers are closed the electromagnet is energized and the detent latch is again attracted. When the dispatcher throws his switch to the second position the bank of incandescent lamps which remain in the circuit burn brightly for an instant and then go out. The dispatcher thus has a positive indication that the tripping device has operated and that the current is off the line.

The details of the device were worked out by H. D. Murdock, superintendent of the Indianapolis & Louisville Traction Company.

# Equipment Trust Securities

By W. B. BROCKWAY

This Article Describes the Methods of Issuing Equipment Trusts and Discusses the Character of the Security Covered by Them.

A study of equipment trust securities, as applied to electric railways, brings out little that does not apply also to the same class of securities put forth by steam railroads. Indeed, it is, comparatively, only recently that electric railroads have taken advantage of this most excellent form of borrowing for the purpose of providing equipment.

Therefore for the history of the equipment trust plan we must turn to the steam railroads, where it is found that equipment trust securities were first issued in the early seventies. A careful investigation seems to show the surprising fact that there has never been a permanent default in principal and but few instances of delay in the payment of interest upon the securities of this nature. I believe this is a record not equaled by any other form of corporation security either here or abroad.

During the three years of panic and receiverships, 1893-1896, a time when railroads as a class were in a worse condition than they have been since, equipment securities made a most remarkable record. Over 100,000 miles of steam railroad were placed in charge of receivers. The companies which failed had outstanding many millions of dollars of equipment securities of various forms, and in every instance the holders of these securities received payment in full for principal and interest. In many cases the first mortgage bonds were in default and, in the process of reorganization, were scaled down or changed for a junior lien, yet the equipment securities, with few exceptions, suffered no delay in the receipt of interest and in the end obtained par value for both principal and interest.

It is particularly interesting to note, in corroboration of the above, the names of railroads reorganized without loss to the holders of equipment securities. The list is a long one, but only the best known are selected as examples, as follows:

Atchison, Topeka & Santa Fé Railroad.  
Baltimore & Ohio Railroad.  
Chesapeake & Ohio Railroad.  
Northern Pacific Railroad.  
Philadelphia & Reading Railroad.  
Union Pacific Railway.

In the reorganization of these properties practically all other securities issued by them were scaled either in amount or rate.

The principal reason for this remarkable record is that a railroad cannot operate without equipment. That is axiomatic; therefore it or the court in charge during the receivership cannot afford to permit anything to happen which will deprive it of what may be called, for lack of a better word, its tools. In fact, that particular word has been used in court to explain the importance of recognizing equipment obligations.

The courts have recognized the truth of this and have often permitted receivers to issue their certificates to provide for the payment of interest and instalments of principal.

Thus equipment securities have not only the first lien upon a most necessary part of a railroad property, but their obligations receive a prompt recognition from the courts. Due to the ample and growing margin of value over the debt outstanding, they are always in a very important and satisfactory position from the standpoint of the investor and they bring satisfactory returns to the company.

That buying equipment by the equipment trust method has grown in popularity is expressively shown by the table

prepared from the reports of the Interstate Commerce Commission. The ratio of equipment obligations to the total of capital stock, bonds and other interest-bearing debt (excluding ordinary bills or notes payable) has nearly trebled since 1888, but the enormous increase of actual debt outstanding of this nature, the amount outstanding in 1908 being seven times the amount outstanding in 1888, is the best evidence of how this class of security has pleased the investing public and assisted the railroads.

TABLE I.—AMOUNT OF EQUIPMENT OBLIGATIONS OUTSTANDING. FROM ANNUAL REPORTS OF INTERSTATE COMMERCE COMMISSION, 1888-1909.

1888.....	\$49,294,329	1899.....	\$42,058,348
1889.....	Not available	1900.....	60,308,320
1890.....	49,478,215	1901.....	68,116,723
1891.....	54,755,157	1902.....	89,208,425
1892.....	55,153,595	1903.....	142,980,116
1893.....	62,699,282	1904.....	173,334,694
1894.....	63,970,204	1905.....	186,302,906
1895.....	55,915,327	1906.....	224,719,099
1896.....	50,304,931	1907.....	329,773,289
1897.....	39,888,767	1908.....	344,592,782
1898.....	40,351,111	1909.....	307,869,061

Equipment trusts equaled 0.637 per cent of total stock and funded debt of the railroads in 1888 and they have nearly trebled, increasing to 1.760 per cent, in 1909.

It is interesting to note the effect business depressions have had upon these securities. Table I shows that at every pause in business more equipment trusts are issued than at just before that period; also that the tendency is to reduce the amount outstanding after the depression has passed, or, in other words, to issue the trusts in smaller amounts while the maturities serve to reduce the total outstanding.

This does not by any means argue that equipment trusts are panic makeshifts, but rather that the plan is recognized as the surest one that will permit the company to continue to purchase its equipment without material sacrifice of proceeds of obligations issued. In fact, there are times when they are almost the only obligations which can be issued economically.

The investor finds these securities to be conservative and exceptionally safe. His only regret is the chance of early maturity of his holdings, but as there are always investors in the market who wish short term investments, that objection is easily met. In this connection there are two plans by which the instalments are called. The usual method is to fix the maturity of bonds by number in the agreement; the other plan is to call by lot in the customary manner. In either case the market value is usually close to par.

When issuing an equipment trust the usual plan is for the company to pay 10 per cent of the cost of the equipment in cash. The remaining 90 per cent fixes the amount of the bonds issued. The term of payment is spread over ten years in equal annual or semi-annual instalments. At the termination of the full period, that is to say, at the payment of the last instalment, the title to the whole equipment is turned over to the company in fee and ordinarily falls under the operation of the "after acquired property" clause of a regular mortgage.

An electric-car trust covers not only the car body and trucks but also the electric equipment and air-brake equipment of the car; that is to say, the whole car equipment is treated and covered as a unit. With reference to the financial plan upon which equipment securities are issued and assuming, for example, the average life of equipment at twenty years and subject to a flat depreciation of 5 per cent a year, also that the instalments are payable semi-annually, the plan works out about as follows:

Cost of equipment.....	\$1,000,000
Paid in cash.....	100,000
Represented by equipment bonds.....	900,000
Semi-annual installment.....	45,000
Annual depreciation.....	50,000

TABLE II.—SHOWING COURSE OF EQUIPMENT SECURITIES.

When issued.....	Value of Equipment.....	Bonds Outstanding.....	Security Times Bonds Outstanding.....	Company's Equity Per Cent.....
After 1st half year.....	\$1,000,000	\$900,000	1.11	10.00
" 2d " " ".....	975,000	855,000	1.14	12.25
" 3rd " " " ".....	950,000	810,000	1.17	14.75
" 4th " " " ".....	925,000	765,000	1.21	17.25
" 5th " " " ".....	900,000	720,000	1.25	20.00
" 6th " " " ".....	875,000	675,000	1.30	22.90
" 7th " " " ".....	850,000	630,000	1.35	25.85
" 8th " " " ".....	825,000	585,000	1.41	29.10
" 9th " " " ".....	800,000	540,000	1.48	32.50
" 10th " " " ".....	775,000	495,000	1.57	36.20
" 11th " " " ".....	750,000	450,000	1.67	40.00
" 12th " " " ".....	725,000	405,000	1.79	44.20
" 13th " " " ".....	700,000	360,000	1.94	48.55
" 14th " " " ".....	675,000	315,000	2.14	53.25
" 15th " " " ".....	650,000	270,000	2.38	58.50
" 16th " " " ".....	625,000	225,000	2.78	64.00
" 17th " " " ".....	600,000	180,000	3.33	70.00
" 18th " " " ".....	575,000	135,000	4.26	76.50
" 19th " " " ".....	550,000	90,000	6.11	83.60
" 20th " " " ".....	525,000	45,000	11.70	91.42
" 20th " " " ".....	500,000	.....	.....	.....

A short consideration of the accompanying diagram shows the course of the debt clearly. The diagram is based on semi-annual payments and shows diagrammatically the facts given in Table II. The line marked "security times

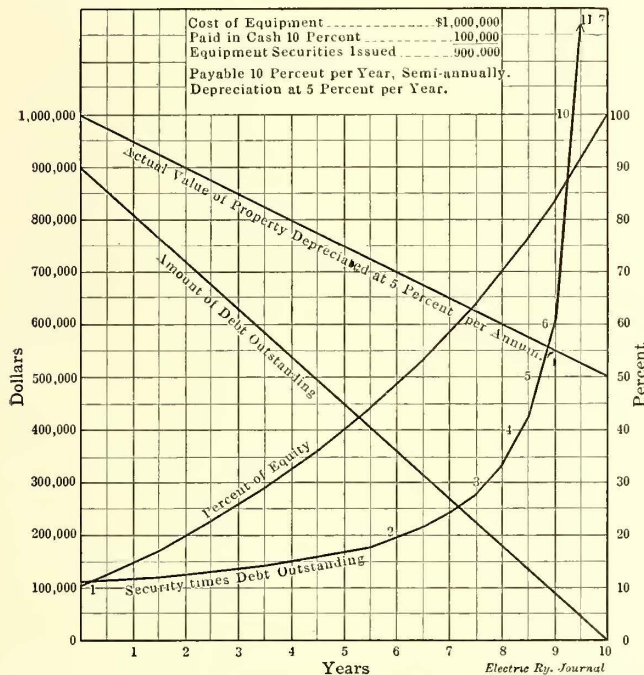


Diagram Showing Relation Between Security and Debt Outstanding

debt outstanding" is the one which most clearly gives the value of this plan of borrowing in the eyes of the lender. Because of the steadily reducing amount of debt outstanding and also because of the condition in the deed of trust that the title of the whole equipment stays with the trustee until the last instalment is paid, the margin of safety to the lender has, at the sixth year, climbed to twice the amount of outstanding debt. From the sixth year the rise is rapid until at the ninth year the security is just over six times the debt.

From the point of view of the railroad the curve giving the per cent of equity is of much interest. In six years the margin is 50 per cent and it increases rapidly thereafter.

In electric as well as in steam railroad practice there are in general use three methods by which equipment securities are issued. In each of the three the railroad is obligated for any loss which may arise.

The first method is to purchase the equipment through an

association which leases the equipment to the railroad. The lease is deposited with a trustee which issues its car-trust certificates against the lease.

Another form follows the first, except that the association sells its own stock instead of using the trustee's certificate. The certificates of stock in this instance are ordinarily guaranteed by the railroad.

These two methods are known as the "Philadelphia plan." The third method, now most used, is a direct first-mortgage equipment bond issued by the railroad itself. The trustee in this case holds the title under lease or else sells it conditionally to the railroad.

The result of each of these plans is the same, viz.: Not until the last security is taken up is the equipment deeded by the trustee or the association to the railroad.

Under certain of the above conditions the interest upon the notes is called a rental but under other plans it is called interest.

Speaking broadly, the form of agreement between the railroad and the trustee follows closely the form of an ordinary mortgage, although the length of the agreement or the trust deed, as the case may be, is very much shorter, due to the less complicated nature of the property mortgage. Of course, the conditions provided in the agreements vary, probably no two agreements being exactly alike, but, in general, provision is made somewhat like the following, which is taken from a car trust agreement issued by an electric railway company:

The company acknowledges receipt of the equipment, which is described by number and class.

Title is to remain with trustee until last bond is paid.

Bonds are to be retired in either semi-annual or annual instalments in accordance with the plan agreed upon.

The wording of the bond is given in full.

Bonds must be certified or countersigned by the trustee.

Bonds may be registered as to principal.

Temporary bonds may be issued.

Maturing coupons are to be paid in gold in the usual manner.

Gold coin with which to retire maturing bonds, or the entire issue if called, is to be deposited by the company with the trustee.

Company is to pay all taxes.

Equipment is to be kept in full repair and cars destroyed are to be replaced with others "of like character and equal value."

Cars are to be plainly marked showing the trustee to be the owner and lessor.

Equipment is to be insured at the expense of the company and loss, if any, is to be paid to trustee.

Mortgage is to be recorded.

Company is to make periodical reports of condition of equipment, and trustee is to have the right of inspection and the further right to require repairs which it may consider necessary after inspection.

The usual terms relating to default and seizure and sale of equipment and disposition of proceeds are provided. The company agrees to be liable for any deficiency as a result of such sale.

The trustee may be removed, or resign, and its place be filled in the ordinary manner, and it is not to be held personally responsible for acts performed in good faith.

Trustee agrees to convey title to the company upon payment of the last obligation and expenses of the trust.

The resemblance of an equipment trust deed to the ordinary mortgage of a railroad is thus seen to be quite marked.

The courts are now rather generally permitting executors to invest trust bonds in equipment securities, especially when another bond of the same company is acceptable for such investment. Hence, equipment obligations, when issued by a railway, must not be taken as an indication of financial weakness, but as showing that the company is taking ad-

vantage of a modern partial payment method to replace equipment out of earnings. It is thus a form of depreciation.

The securities are not listed upon stock exchanges, but on account of their equity and the importance placed upon them by the courts they are always in demand and are liquid investments to a marked degree.

Only during the last few years has the plan been adopted by the electric railways. The census of 1907 made no separate tabulation of car trusts, and as that is the only source of complete information available for electric railway statistics, no figures can be obtained. The plan is being taken up more widely and successfully from year to year and there seems no good reason why the equipment trust should not be as satisfactory to the electric roads as it has been to the steam railroads.

**CHANGE OF MAILING DATE**

Beginning with the issue of July 15 the ELECTRIC RAILWAY JOURNAL will be issued and put in the mails on Saturday morning of each week instead of on Thursday afternoon. This will allow the publishers to keep the news and editorial columns open thirty-six hours later than formerly and to include in the issue of the current week news of conventions and other events occurring as late in the week as Thursday. It is hoped that this change, with the increase in size of type introduced with the issue of July 1, will be appreciated by the readers of this paper.

**MEETING OF AMERICAN SOCIETY FOR TESTING MATERIALS**

The American Society for Testing Materials held its fourteenth annual convention in Atlantic City June 27 to July 1, inclusive. Among other subjects considered were specifications for hard-drawn copper wire and specifications for rolled-steel wheels and heat-treated axles.

The specifications for hard-drawn copper wire submitted this year were amended so as to provide a more practicable test for small sizes of wire. The requirements for all sizes are the same as those submitted last year except that the percentage of elongation is increased for the smaller sizes.

The specifications for rolled-steel wheels which were submitted by committee A-1 on standard specifications for steel were referred back to the committee for further consideration. The specifications for heat-treated axles, however, were approved and will be submitted to letter ballot for adoption. As they differ in several important respects from the specifications submitted by the committee on heavy electric traction of the American Electric Railway Engineering Association they are reprinted below.

**PROPOSED STANDARD SPECIFICATIONS FOR HEAT-TREATED CARBON STEEL AXLES, SHAFTS AND SIMILAR PARTS**

1. Steel under this specification shall be made by the open-hearth or other approved process.
2. A sufficient amount of discard must be made from each ingot to insure freedom from piping and undue segregation.
3. The steel shall conform to the following limits in chemical composition:

Carbon .....	Not over 0.60 per cent
Manganese .....	0.40 to 0.80 " "
Phosphorus .....	Not over 0.05 " "
Sulphur .....	" " 0.05 " "

4. Drillings shall be taken from the crop end of one axle, shaft, or similar part from each melt represented, parallel to the axis on any radius one-half the distance from the center to circumference, to determine whether the chemical composition of the heat is within the limits of Par. 3.

In addition to the complete analysis, the purchaser has a right to call for a phosphorus determination, to be made from turnings from each tensile test specimen, and the phosphorus must show within the limits of Par. 3.

5. The steel shall conform to the following minimum physical properties:

Ultimate strength, lb. per sq. in. ....	85,000
Elastic limit .....	50,000
Elongation in 2 in., per cent.....	22
Reduction of area.....	45

The elastic limit shall be determined by extensometer. Above 40,000 lb. per square inch each increment of load shall be not more than 1000 lb. per square inch.

6. The test specimen, 0.5-in. diameter and 2-in. gage length, shall be used to determine the physical properties as specified in Par. 5. Test specimens shall be taken from the crop end of one axle, shaft, or similar part, from each treating-plant heat; if more than one open-hearth heat is represented in a treating-plant heat, a test shall be taken from each open-hearth heat represented. A full-size prolongation shall be left on each axle, shaft or similar part.

7. A cold bend test shall be made from the crop end of one axle, shaft, or similar part, from each treating-plant heat; if more than one open-hearth heat is represented in a treating-plant heat, a test shall be taken from each open-hearth heat represented. The test shall be made with a 1/2-in. square specimen, 6 in. in length, around a flat mandrel with edges of 1/2-in. radius, and the specimen shall bend, without fracture, 180 deg. around the said mandrel.

8. Specimens for tensile test and cold bend test shall be taken parallel to the axis of the axle or shaft and on any radius half way from the center to the circumference.

9. In case the physical results obtained from any lot of axles, shafts, or similar parts, do not conform to those called for by Par. 5 and 7, the manufacturer shall have the privilege of re-treating such parts, from which new tests shall be taken by the purchaser, and these shall govern the acceptance or rejection of the lot.

10. Each axle, shaft or similar part shall be allowed to cool after forging, shall then be reheated to the proper temperature, quenched in some medium, allowed to cool, and then reheated to the proper temperature for annealing.

11. Warped axles or shafts or similar parts must be straightened hot—that is, at a temperature above 900 deg. Fahr., and before offering the parts for test.

12. All axles, shafts and similar parts shall be free from cracks, flaws or other injurious imperfections when finished. Those which show such defects while being finished by the purchaser will be rejected and returned to the manufacturer, who must pay return freight.

13. All axles, shafts and similar parts must be rough-turned with an allowance of 1/8 in. on surface for finishing, except on collar, which is to be left rough forged. Turning must be done on 60-deg. centers with clearance at point.

14. The heat number shall be stamped on the rough forged collar. After rough turning the manufacturer's name, heat number, individual axle or shaft number and inspector's mark shall be stamped at place indicated by the purchaser, except at any point between the rough collars.

15. The inspector representing the purchaser shall have free entry, at all times while his contract is being executed, to all portions of the manufacturer's shop which concerns the manufacture of material ordered. All reasonable facilities shall be afforded to the inspector by the manufacturer to satisfy him that the axles, shafts and similar parts are being furnished in accordance with the specifications. All tests and inspection shall be made at the place of manufacture prior to shipment and free of cost to the purchaser. The purchaser shall have the right to make tests to govern the acceptance or rejection in his own testroom, or elsewhere, as may be decided by the purchaser, such test, however, to be made at the expense of the purchaser and to be made prior to the shipment of the material. Unless otherwise arranged, any protest based on such tests must be made within six days to be valid. Tests and inspection shall be so conducted as not to interfere unnecessarily with the operation of the mill.

**COMMUNICATION**

**PLAN OF MEMBERSHIP IN N. E. L. A.**

MILWAUKEE ELECTRIC RAILWAY & LIGHT COMPANY

Milwaukee, Wis., June 26, 1911.

To the Editors:

Referring to the recent convention of the National Electric Light Association in New York, May 29 to June 2, and to the marvelous growth in the membership of that association, particularly in Class A company members and Class B associate members, composed of officers and employees of company members, unquestionably the most potent factor in increasing the membership has been the formation of "company sections."

This company has recently formed a "company section" of the National Electric Light Association with a membership of 101, 94 of whom became Class B members of the National Electric Light Association in order to be eligible for membership in the "company section." This means that there were added to the Class B membership roll 94 members, who, presumably, would not have otherwise become Class B members of the National Electric Light Association, and would not be eligible for nor be able to participate in the advantages of membership in the "company section."

The advantages of "company sections" to the companies, their employees and the National Electric Light Association are so well understood as to need no specific mention here. These advantages are mutually beneficial and of far-reaching importance.

This company, being a member of the American Electric Railway Association as well as of the National Electric Light Association, feels that the formation of "company sections" in the American Electric Railway Association, along the lines laid down and followed by the National Electric Light Association, would accomplish the same relative and comparative good results for the American Electric Railway Association and for the interests which it represents as have been accomplished by the National Electric Light Association and for the interests which it represents.

As the recognized and authoritative organ of the electric railway business, if this suggestion appeals favorably to you, or if you consider the matter of sufficient importance to bring it to the attention of your readers, you are at liberty to publish this letter, if you so desire.

C. N. DUFFY, Comptroller.

Mr. Duffy's letter suggests that an outline of the present organization and different classes of members of the National Electric Light Association may be of interest to those who are not acquainted with the plan of organization of the National Electric Light Association. There are five different classes of members as follows:

Class A members are company members, and are the only ones who vote. The privilege of holding office is confined to representatives of member companies. The dues of member companies depend upon the population of the city in which the lighting company is located and vary from \$10 a year to \$1,250 a year.

Class B members are officers or employees of member companies and are elected and continued from year to year as members only with the consent of the member company with which they are connected. They have the privilege of attending the open meetings of the association. They may also attend the executive sessions if they have the consent of the member company with which they are connected. The "company sections" mentioned by Mr. Duffy are made up of Class B members by the organization into local sections of the employees of individual member companies. These company sections hold frequent sessions at which technical subjects are discussed. The advantages

of a section of this kind over an ordinary electrical club within the ranks of the company are that each member receives all of the publications of the association and so is kept in touch with the technical progress of the industry. These reports and the Monthly Bulletin and Question Box form the basis in many instances of the discussions at the meetings of these company sections. The dues of Class B members are \$5 a year for any section other than a company section and \$2.50 additional for membership in each additional section.

Class C members are instructors, teachers and practitioners of engineering and related sciences, who are interested in the objects of the association. They may become members only upon the annual invitation of the executive committee, and they may attend the open meetings of the association. The dues are \$5 per year.

Class D members are the manufacturing companies, which in the American Electric Railway organization are members of the Manufacturers' Association. Publishers and firms of consulting engineers also come in this class. They have the same privileges as Class C members. The dues are \$20 a year, plus \$5 for each representative or guest enrolled under the company's name at the annual convention.

Class E members are individuals connected with the corporations which are Class D members. They are elected and continued from year to year only with written consent of the company with which they are connected. The annual dues for Class E members are the same as for Class B members.

NUMBER OF MEMBERS	NATIONAL ELECTRIC LIGHT ASSOCIATION AS OF		
	JUNE 24.		
	1909.	1910.	1911.
Class A.....	731	850	962
Class B.....	2,079	3,757	6,942
Class C.....	0	0	19
Class D.....	194	219	231
Class E.....	133	688	837
Total .....	3,137	5,514	8,991

Some figures on the growth of the different classes of members of the Electric Light Association during the last two years may also be of interest in this connection. They are given in the accompanying table.—Eds.

**SELECTIVELY OPERATED SEMAPHORE AND TELEPHONE EQUIPMENT FOR ELECTRIC RAILWAYS**

The Western Electric Company, in conjunction with the Union Switch & Signal Company, has been working on a combination telephone and semaphore system which would provide a selectively operated semaphore signal for use in connection with the telephone train wire—that is, instead of having a selector on the telephone circuit ring a bell at a way station, the semaphore at this point will be thrown. This gives the dispatcher a chance to get into communication with any train crew. The economy of time and the increased safety of operation resulting from a combined semaphore, selector and telephone equipment are important advantages of this system.

The semaphore selector and telephone equipment are mounted on the same iron post in a weatherproof box, making the apparatus self-contained. The box is locked so that access to it is obtainable only by means of keys which would be furnished to the proper parties. The semaphore signal is of standard make and can be furnished in either the upper or lower quadrant types, as desired. A three-spectacle casting is provided. The semaphore blade itself can be furnished of any type or shape desired.

Everything is arranged for facilitating maintenance work. Terminals of ample size are used throughout in the apparatus, and practically all maintenance connections inside the casting are made with terminal screws or hexagonal lock-nuts. The wiring throughout is of insulated weather-proof braided wire, conforming with good signal practice.

All of the wood which is used in the interior of the set is oil-treated. The telephone and selector are inclosed in an inner compartment. All openings are arranged so that water cannot enter the set. In addition, the outer door of the set has a weatherproof gasket, rendering it practically impervious to moisture.

The signal mechanism is of the electrically operated type, but is manually restored. The operating relay is normally de-energized, and ten dry cells are required for its operation. As this relay will operate on four cells, an ample margin of battery is allowed. The signal mechanism proper is contained in the compartment at the top of the casting. The only part of this which appears on the surface of the inside door is the handle of the restoring lever. The selector and terminals are readily accessible for maintenance purposes.

One important feature of the selectively operated semaphore is the fact that it gives to the dispatcher an answer back which cannot be mistaken, telling him that one particular semaphore has completed its movement and is at the "stop" position at the time the answer-back signal is received.

The telephone set is especially designed for railway work and is of high efficiency. The transmitter and receiver are mounted on the outside of the inner door on the lower part of the apparatus casting. The transmitter mouthpiece is of metal and so fastened in the set that it cannot be removed without opening the inner door. All parts are arranged so that they can be easily inspected and maintained.

All metal is given a black finish, which eliminates any chance of rusting.

The signal mechanism is operated by the Western Electric's latest type of railway selectors. This selector is practically independent of weather

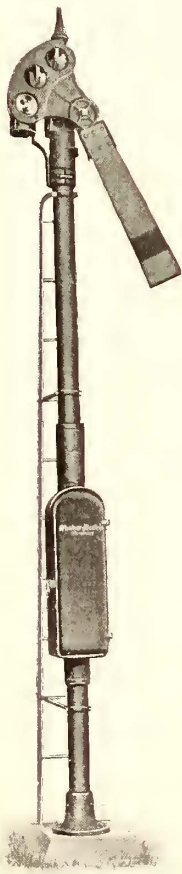
bell ringing at the point called, a semaphore blade moves to "stop." The answer-back signal returns to the dispatcher clearly and distinctly and then he waits for the crew of the train so signaled to call in. Should he be disconnected from the circuit for any reason the crew can easily call him, but ordinarily operating practice does not require this. Only one pair of wires is needed to extend along the line. As many sets as may be desired can be connected to this circuit, and it is used both for talking and signaling. All equipment is bridged directly across the circuit and any piece of apparatus can be taken off the line without affecting the rest of the equipment.

The use of these instruments affords an exceedingly flexible system, for as many semaphores can be located upon one telephone circuit as necessary, in addition to the telephone apparatus.

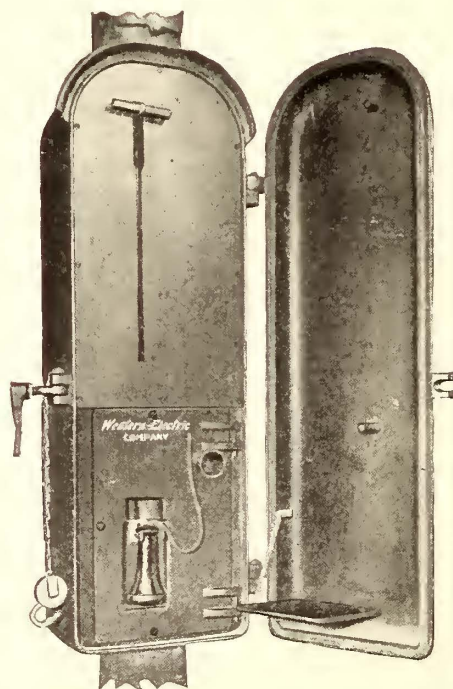
If desired, standard telephone apparatus can also be used at other points along this circuit where semaphores are not located. This semaphore equipment can also be placed upon existing train wires which are being operated by means of the telephone. In addition to being exceedingly flexible, the use of these semaphores insures an accurate, speedy, convenient and economical method of handling train movements.

### A 35-TON ELECTRIC LOCOMOTIVE

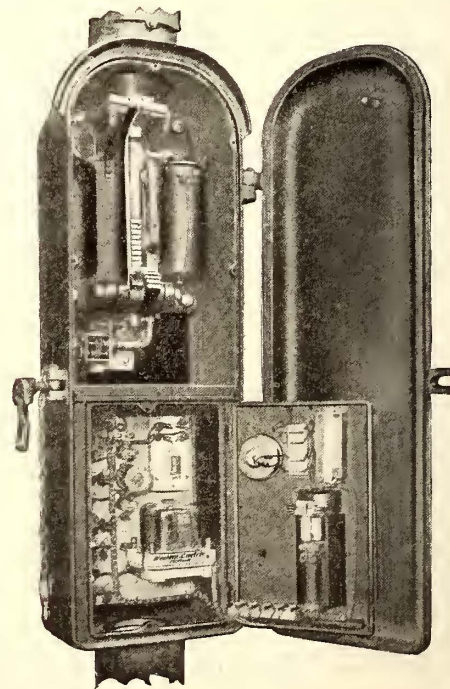
The Woodward (Ala.) Iron Works have ordered a 35-ton slow-speed locomotive from the General Electric Company. It will be used for hauling coke. The locomotive makes about fifty round trips a day, the approximate length of each trip being 2000 ft., and it handles about 20 tons of coke per trip. There is a 3 per cent grade about 300 ft. long. The locomotive has all-steel framing and cab and arch bar truck. It is equipped with type M single unit control.



Signal Post



Outer Door Open



Inner Door Open

conditions and is asserted to be absolutely reliable. It is in operation at the present time on eighteen of the largest railroad systems in this country, where it is giving universal satisfaction.

The circuit arrangements of the signaling equipment above described are very similar to the standard Western Electric train dispatching circuit. The dispatcher operates selector keys in the same manner; instead, however, of a

The platform framing consists of six pieces of channel and two large plates, all riveted. Of these two 8-in. side channels 18¾ lb. per foot and two 7-in. center channels 17¾ lb. per foot run the whole length of the platform. A box casting forming the drawhead is riveted between the center channels and to an 8-in. cross channel that forms the end framing. The outer longitudinal channels are also riveted to the same cross channel through forged knees.

All this channel framework is connected and squared by two heavy plates, each of which covers half the length of the platform and runs the entire width, forming the floor of the locomotive. The whole forms a simple and substantial design.

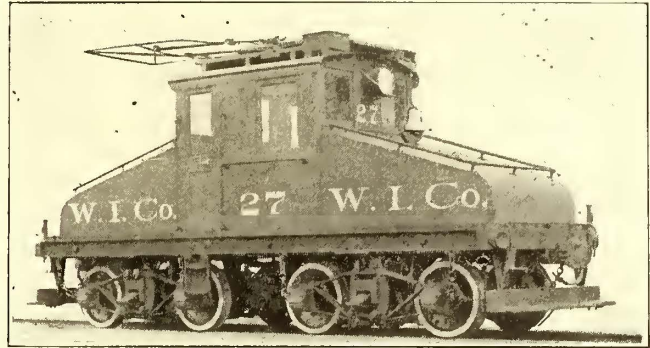
The draft gear is a Climax No. 3 M.C.B. freight coupler with 5-in. x 5-in. shank fitted with yoke springs and follower plates. It is carried in an extension of the drawhead casting, which is riveted to the center sills and end frame, so that hauling and buffing stresses are transmitted directly to the principal members of the locomotive frame. An oak buffer beam cushions buffing shocks.

The center pin is a steel casting riveted to a bolster formed of upper and lower plates, each 3/4 in. x 17 3/4 in. Of these the lower plate passes under all three sills and is riveted to them, while the upper plate passes under the center sills, and turning sharply upward butts against the outer sill near the floor plate. Thus there is formed a truss of great vertical rigidity which assists in transmitting the weight of the platform to the center pin.

The ballast consists of 2-in. rolled bars lying between the sills and running the whole length of the platform. They are notched over the bolster plates and bolted to the sills, thus strengthening the platform framing instead of serving merely as dead weight.

The members of the truck side frame are forged bars 4 in. wide. The journal boxes are steel castings carried between the top bar and tie bar by pedestal bolts and fitted with bronze bearings and wedges. Malleable-iron bolster guides are bolted in between top bar and arch bar with 1 1/2-in. bolts and a spring plank consisting of a 12-in. steel channel is riveted to these bolster guides. The bolster itself is a steel casting of a box girder design approximately 8 in. x 10 in. deep, with the lower center pin formed in the upper surface of the casting. Cast-iron side bearings are bolted to the outer ends of the bolster. The weight of the bolster and center pin load is carried on full elliptic springs built up of 3/8-in. plates 6 in. wide and designed for a normal load of 12,365 lb. each. The brake rigging is inside hung. A 12-in. x 12-in. brake cylinder is located midway between the trucks and attached to the center platform sills. The brake piston is attached to the truck levers through a system of

doors and windows and of stiffening the cab sheets. The view of an end cab removed shows the arrangement of the auxiliary apparatus. At the outer end of the platform are located the air reservoirs and sand boxes. Next to them the rheostats are located on one side and a bank of contactors upon the opposite side, the latter supported on a channel iron framework built up from the floor of the locomotive. All wiring in the locomotive is drawn through conduits which were built into the locomotive during construc-



Slow-Speed Locomotive for the Woodward Iron Works

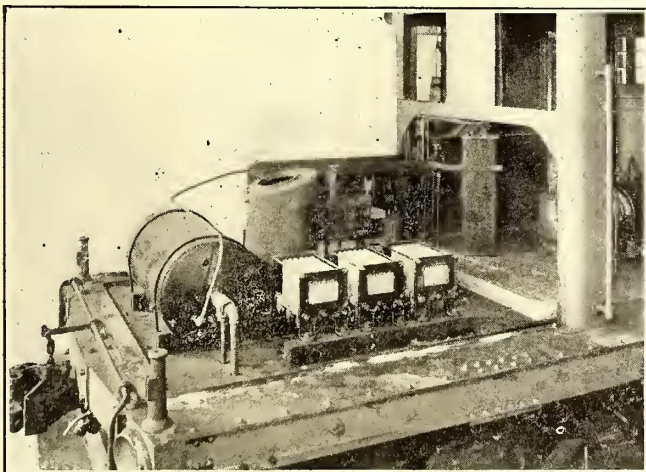
tion. The conduits and piping in the main cab are bracketed against the walls. A false flooring of wood in the main cab covers all the conduits and pipes which are cleated to the iron floor beneath. In the center of the main cab there is a CP-28 air compressor.

The locomotive operates at 220 volts. The motor equipment consists of four GE-57-H motors furnished with gearing giving a ratio of 4.25 to 1. The motors can develop a tractive effort of 10,000 lb. at the rated one-hour load with a speed of 6 m.p.h.

A US-106 bow trolley on the cab roof will make contact with a trolley wire having a variation in height from 15 ft. to 22 ft. above the rail heads. The fuse box and lightning arrester are also mounted on the cab roof.

The engineer's operating seats are placed at diagonally opposite corners of the main cab. A C-74-A controller is located near the engineer's left hand. Directly in front of the engineer are located the handles for sander and brake valves. One brake valve operates the automatic air system for braking the train, the other the straight air system applied to the locomotive alone. The air compressor furnishes air also for dumping the cars and for closing the doors of the coke ovens. An illuminated duplex air gage is placed at the right-hand side of the engineer's window. The headlights are of the G.E. luminous arc type. A switchboard in the interior of the main cab contains the switches for the auxiliary circuits, including one main auxiliary switch, two switches for headlights, one for cab lights, one for compressor and two switches for control circuits. All these auxiliary switches are of the MS-46 type.

A 50-lb. bell is mounted on one end and an air-operated whistle on the other. These are operated through bell and whistle ropes leading to the engineer's positions. The locomotive is fitted with a tool box and other miscellaneous equipment, such as flags, screw jacks, oil cans, etc. The general dimensions and main specifications of this locomotive follow:



Apparatus of Woodward Locomotive in Place with Cab End Removed

floating levers arranged symmetrically on the two sides of the locomotive.

The central cab contains the apparatus directly manipulated in the control of the locomotive, while the auxiliary end cabs contain the auxiliary apparatus. The width of all the cabs is slightly less than the platform width, leaving a running board about 10 in. wide. The cabs themselves are built of soft sheet steel plates. Doors and windows are framed in small angles and channels riveted to the inside of the cab sheet and serving the double purpose of framing the

Length inside of knuckles.....	26 ft. 0 in.
Length over cab.....	22 ft. 6 in.
Height over cab.....	10 ft. 9 in.
Height with trolley down.....	12 ft. 0 in.
Width over all.....	8 ft. 6 in.
Total wheel base.....	18 ft. 0 in.
Rigid wheel base.....	6 ft. 0 in.
Track gage.....	4 ft. 8 1/2 in.
Weight electrical equipment.....	17,400 lb.
Weight mechanical equipment.....	52,600 lb.
Weight, total.....	70,000 lb.
Air compressors.....	General Electric CP-28
Compressor capacity.....	25 cu. ft. per minute
Control.....	Type "M" single unit
No. steps series parallel.....	6
No. steps parallel.....	4

## ELECTRIC RAILWAY LEGAL DECISIONS

## LIABILITY FOR NEGLIGENCE

**Georgia.**—Landings for Passengers.

Generally the duty which the law imposes upon an ordinary railroad company to provide and maintain a safe place for landing its passengers is not applicable to a street car company operating its line along a public street of a city and not stopping at regular places selected by it, or providing places for passengers to get on and off its cars, but stopping such cars at street crossings or various intermediate places upon signal from a passenger.

Under such circumstances it is the duty of the company and its agents or employees representing it to use due diligence to select a reasonably safe place for landing its passengers, and to make such selection with reference to getting off the car while it is at rest. (*Turner v. City Electric Ry. Co.*, 68 S. E. Rep., 735.)

**Massachusetts.**—Controllor Explosion—*Res Ipsa Loquitur*.

That an explosion occurs in the controllor box of a street car which up to the time of the explosion was running smoothly is not, under the doctrine of *res ipsa loquitur*, a showing of gross negligence on the part of the operatives of the car. (*Martin v. Boston & N. St. R. Co.*, 91 N. E. Rep., 159.)

**Massachusetts.**—Rights of Travelers on Street—Collision.

That a passenger of an elevated railroad was injured by falling over parcels negligently left in the doorway of the car by another passenger does not render the carrier liable for the injury, in the absence of a showing that defendant had notice of the obstruction, or that it had existed for such a length of time that defendant should have known thereof. (*Lyons v. Boston Elevated Ry. Co.*, 90 N. E. Rep., 419.)

**Massachusetts.**—Injuries to Person on Track—Excessive Speed.

A street railroad is liable for injuries resulting from a collision with a motorcycle at a crossing of a city street, where the car approached at the rate of 40 miles an hour and, if it had approached at a reasonable speed, plaintiff could have seen it in time to have crossed in safety. (*Robbins v. Dartmouth & W. St. Ry. Co.*, 89 N. E. Rep., 1039.)

**Massachusetts.**—Injuries to Passengers—Contributory Negligence.

Where a passenger while boarding a street car was injured by placing his hand on the door as it was opening, the fact that in feeling for the handle plaintiff may have accidentally put his hand on the door before it was entirely open would not constitute contributory negligence if he was in the exercise of due care and the injury which he received was due either to the negligent manner in which the door was operated or to a defect in the construction of the car. (*Carter v. Boston & N. St. Ry. Co.*, 91 N. E. Rep., 143.)

**Massachusetts.**—Injuries to Passengers—Negligence.

In an action for injuries to a passenger falling into the space between the car and the platform while attempting to board a car at a subway station, it appeared that the clearance of 3 in. between the cars and the platform was the minimum clearance necessary. The distance between the center of the end door of the second car and a five-car train was normally 8 in. and might vary 2 in. more or less, owing to the swing of the car. The passenger attempted to board the second car through the end door, and fell into the space between the car and the platform, estimated at 9½ in. Held as a matter of law not to show the carrier's negligence in failing to use a movable platform or other appliance, so as to lessen the space between the platform and the car.

That an elevated railway took steps to prevent a repetition of an accident occasioned by a passenger falling into the space between the car and the platform while attempting to board the car was not evidence of prior negligence. (*Anshen v. Boston Elevated Ry. Co.*, 91 N. E. Rep., 157.)

**Michigan.**—Master and Servant (Sec. 185\*)—Negligence of Fellow Servants.

Plaintiff, a street car conductor, was injured while on the running board by his foot coming in contact with a loaded wheelbarrow negligently left too near the track by one of the company's sectionmen for such a short time that it did not have actual or constructive notice of the obstruction.

Held, that a master is not liable for injuries caused by a transitory act of a co-servant in using a safe appliance negligently, so that the company was not liable for plaintiff's injuries, the car and roadbed being a safe place of work in absence of the servant's negligence. (*Wickham v. Detroit United Ry.*, 125 N. W. Rep., 22.)

**Michigan.**—Personal Injuries—Excessive Damages.

A female passenger on a street car was injured in a collision. She testified that she was struck on her forehead and became unconscious, and that she was injured on her nose, arm, chest, mouth and ankle, and that since the accident she had always been sick and dizzy, while before the accident she had been in perfect health, doing her own work and earning wages besides. A physician who had treated her up to thirty days of the trial, occurring about twenty months after the accident, testified that she had recovered as far as could be seen. Held, that a verdict for \$2,000 was not excessive. (*Plozke v. Detroit United Ry.*, 127 N. W. Rep., 700.)

**Missouri.**—Injuries—Negligence—Failure to Stop Car.

That a four-year-old child after leaving the curb merely hesitated for a brief time in the street from childish indecision before advancing on to the track did not give the motorman the right to proceed under the idea that the child did not intend to go on to the track. (*Simon et al. v. Metropolitan St. Ry. Co.*, 132 S. W. Rep., 250.)

**Missouri.**—Damages.

Plaintiff, who was injured by being thrown from defendant's street car, was forty-four years old, in good health, and earned \$35 to \$40 a month for eight months in the year as a school teacher. Her injuries were permanent, and it was probable that she would never be able to earn anything in the future, and she had suffered great pain from her injuries. Held, that a verdict for \$5,000 was not excessive. (*Torreyson v. United Rys. Co. of St. Louis*, 129 S. W. Rep., 409.)

**Missouri.**—Injuries to Travelers—Negligence—Contributory Negligence—*Prima Facie* Case.

Where plaintiff before driving on a street car track at night looked to see whether there was a car coming, and his companion thereafter kept a constant lookout for cars while plaintiff was driving on the track, where he was struck and injured by a car approaching without a headlight, in violation of an ordinance, such facts established a *prima facie* case of defendant's negligence and plaintiff's freedom from contributory negligence. (*Maness v. Jopin & P. Ry. Co.*, 130 S. W. Rep., 87.)

**Missouri.**—Injuries to Passengers—Care as to Enfeebled Person.

Where an old lady in an enfeebled condition boarded a street car, the conductor who had watched her was negligent in giving a signal to start the car before she had had a reasonable time in which to take a seat, rendering the railroad liable for injuries sustained to her by being thrown against the side of a seat by the starting of the car. (*Brady v. Springfield Traction Co.*, 124 S. W. Rep., 1071.)

**Missouri.**—Carriage of Passengers—Street Railways—Care Required—Contributory Negligence.

It is the duty of a street railway company to exercise that high degree of care for the safety of passengers that a very careful person would use under like circumstances.

In an action for injuries to a street car passenger struck by a cross-beam near the track on a curve, evidence that one track at that place was higher than the other, causing a car passing the beam, in rapid motion, to lurch, throwing the car near to the beam, was admissible on the question of the company's negligence.

In an action by a street car passenger for injuries from being struck by a beam near a track, evidence tending to show that he was riding with a portion of his arm protruding through the car window is sufficient to take the case to the jury on the question of contributory negligence.

Such an act of the passenger would not be negligence per se, preventing a recovery. (*Gardner v. Metropolitan St. Ry. Co.*, 122 S. W. Rep., 1068-9.)

**Nebraska.**—Care Required at Street Intersection.

The employees in charge of the operation of a street car are held to great caution when crossing a street intersection at a point where a car upon the opposite track is, or has



been very recently, discharging passengers. The motorman should keep a sharp lookout, give ample and timely warning of the approach of the car, and have it under such control that it can be readily stopped if necessary. (*Stewart v. Omaha & C. B. St. Ry. Co.*, 129 N. W. Rep., 440.)

**New Jersey.—Injury to Pedestrian—Contributory Negligence.**

Plaintiff left the sidewalk to cross a public street. When between the sidewalk and a street car track he looked and saw a car about 50 ft. away, approaching rapidly the point at which he intended to cross the tracks. Without paying any further attention to the car he walked in front of it and was struck by it. Held, that he was guilty of contributory negligence. (*Kraut v. Public Service Ry. Co.*, 75 At. Rep., 165.)

**New York.—Injuries to Passengers—Contributory Negligence.**

Where the speed of a street car, running at 10 or 12 m.p.h. as it struck a curve in the track, did not endanger the safety of passengers remaining in the seats provided for them, the act of a passenger in getting on the running board, when the car maintained that speed before and as it struck the curve, the existence of which he knew, was negligence as a matter of law, precluding a recovery for his injuries by being thrown from the car. (*Maercker v. Brooklyn Heights R. Co.*, 122 N. Y. Sup., 87.)

**New York.—Injuries—Contributory Negligence—Failure to Stop and Look.**

Where a pedestrian's vision of street cars is obscured by darkness, obstructions, etc., he, as well as the motorman, must exercise increased vigilance in looking out for a street car in crossing the track and may even be required to make repeated efforts to determine whether a car is near before crossing the track.

Plaintiff, in attempting to cross the double tracks of a street railway where they ran under the pillars of an elevated railway and while 20 ft. from the point at which he was struck, saw a car approaching some 125 ft. away, but did not try to determine its probable speed or again look at it, relying upon it giving him time to cross safely. Held, that plaintiff was negligent in crossing without attempting to obtain further information upon which to base his judgment that he could cross safely. (*Wecker v. Brooklyn, Q. C. & S. R. Co.*, 120 N. Y. Sup., 1020.)

**New York.—Operation of Cars—Right-of-Way—Collisions—Negligence—Proximate Cause.**

The right of a street car, while operated in a block and not at street intersections, is paramount, and the motorman may expect that a driver on the street in the block will not drive in front of an approaching car though he is headed in that direction, and the mere fact that his team is so headed does not call for the sounding of gongs and the giving of warnings until it is apparent that the driver is intent on going on the track or that he is obstructing the paramount rights of a car, since the motorman need only exercise reasonable care.

A wagon of plaintiff was drawn up near the curb. The wagon of a third person was similarly drawn up and the driver thereof drove on the street car track in front of an approaching car and was struck by it so that his wagon was forced against the wagon of plaintiff, damaging it. There was nothing to apprise the motorman of any danger until the car was within 15 ft. of the point of collision and the car was not operated at a reckless speed. There was no evidence that the car could have stopped in time to have avoided the accident, though the danger of collision was apparent when the car was 50 ft. away. No gong was sounded. Held, that the proximate cause of the accident was the act of the third person, making him alone liable for the damages sustained by plaintiff. (*Stern v. Brooklyn Heights R. Co. et al.*, 124 N. Y. Sup., 1043.)

**Pennsylvania.—Injury to Pedestrian—Automobiles.**

A passenger alighting from a street car is not free from contributory negligence where, without looking, he steps from the car and then, suddenly seeing an automobile approaching, stops and is struck by it. (*Kauffman v. Nelson*, 73 At. Rep., 1105.)

**Washington.—Injuries to Pedestrians—Contributory Negligence.**

Plaintiff, a Scandinavian of a low degree of intelligence, attempted to cross a street in the middle of a block and, after waiting for a car to pass her, stepped in front of a car moving on the further track in the opposite direction and was struck and injured. She had lived in the vicinity of the accident for several months and was familiar with the tracks and the running of cars thereon. She had also seen the car by which she was injured approaching and had noticed that it was moving rapidly. Held that if plaintiff was a person of ordinary understanding and intelligence she would have been guilty of contributory negligence as a matter of law precluding her recovery. (*Hovden v. Seattle Electric Co.*, 180 Fed. Rep., 487.)

**Wisconsin.—Construction of Cars—Plans—Statutes—Master and Servant—Competency—Negligence—Damages.**

The passage of Laws 1907, Ch. 390, providing for the use of fenders on street cars to go into effect at a future date makes manifest at once the legislative intent of the necessity for such a safety device.

Where, in an action against a street railway company for the death of a person struck by a car, the competency of the motorman was in issue, evidence of his competency when he first began work was admissible as bearing on his competency at the time of the accident, in view of his limited experience before that time.

Under St. 1898, Sec. 1862, providing that street railways must be constructed on the most approved plan, and under the franchise of a street railway company requiring it to use all reasonable care to prevent injury to persons and property, the testimony of an expert as to the proper equipment of street cars and that the most approved plan of construction requires a fender to pick up objects in front of the car, is competent as against the company. (*Fisher v. Wau-paca Electric Light & Ry. Co.*, 124 N. W. Rep., 1005-6.)

MISCELLANEOUS

**Montana.—Master's Liability for Acts of Servant.**

Where an employee is made a special officer, the employer is liable for his acts during the course of his duty, even though they are done in excess of his authority. (*Rand v. Butte Electric Ry. Co. et al.*, 107 Pac. Rep., 87.)

**New York.—Costs—Assault on Passenger.**

Where plaintiff obtains a verdict of \$25, and enters judgment thereon, for an assault in ejecting him from defendant's street car, costs held properly taxed by the clerk at \$25, under Code Civ. Proc., Sec. 3228, Subd. 3. (*Lynch v. Syracuse Rapid Transit Ry. Co.*, 124 N. Y. Sup., 169.)

**New York.—Master and Servant—Injuries—Contributory Negligence.**

In an action by a motorman for personal injuries in a collision, plaintiff held guilty of contributory negligence for not fixing a curtain on the door so as to exclude the light from the vestibule, or for not opening the vestibule window to enable him to see ahead better, or for not running the car slowly enough to enable him to avoid collision. (*Forton v. Crosstown St. Ry. Co. of Buffalo*, 121 N. Y. Sup., 749.)

**Washington.—Master's Liability for Injuries to Servant—Assumption of Risk.**

A party working on a tower erected on a flat car in putting up trolley wire, who was familiar with the work and knew all the dangers incident thereto, that the trolley wire often slipped and was liable to do so any time, and that he would be injured by grasping a live wire, cannot recover for injury due to the trolley wire slipping and causing him to lose his balance so that he involuntarily grasped a live wire, since he assumed the risk of such injury. (*Shore v. Spokane & I. E. R. Co.*, 106 Pac. Rep., 753.)

**Washington.—Master and Servant—Injury to Servant—Safe Place to Work—Delegation of Duty.**

Where the foreman of a crew of linemen when he saw the approach of a work train ordered his men to push a tower car across a bridge, it was his duty to protect them and not to permit them to go any further than they could with safety from the approaching train, and his negligence in not performing such duty was the negligence of the company. (*Hillis et al. v. Spokane & I. E. R. Co.*, 110 Pac. Rep. 625.)

# News of Electric Railways

## Changes in the Personnel of the Spokane & Inland Empire Railway

Carl Raymond Gray has been elected president of the Spokane & Inland Empire Railway, Spokane, Wash., to succeed Jay P. Graves, and C. A. Coolidge has been elected first vice-president and general manager of the company to succeed A. L. White and C. M. Graves, respectively. Waldo G. Paine, who has been second vice-president and traffic manager of the company, continues in those capacities. F. V. Brown, counsel for the Great Northern Railroad, and George T. Reid, counsel for the Northern Pacific Railroad, Carl Raymond Gray and C. A. Coolidge have been elected directors of the company to succeed Jay P. Graves, A. L. White, W. G. Paine and Clyde M. Graves. W. G. Graves, Fred B. Grinnell and Aaron Kuhn remain as directors of the Spokane & Inland Empire Railroad. Mr. Gray, the new president, issued the following statement on June 24, 1911, in regard to the changes in the personnel of the company:

"Jay P. Graves, since disposing of a controlling interest about eighteen months ago, has, by request, retained direction of the company's affairs, with the understanding that at some future date he would be relieved of the responsibility. His action in this respect has been greatly appreciated by the owners, and they are glad indeed to know that they will have his friendship and support.

"These changes in management do not mean, and should not be construed to mean, any material change in the policies of the Spokane & Inland Empire System, and this is true with particular emphasis in so far as its relation to Spokane is concerned. This is peculiarly and distinctly a Spokane railroad, a home institution, and the constant aim of the new management will be to retain and deserve the friendship and good will of the Spokane business men and the Spokane public.

"The only change beyond my own introduction into the question will be that C. A. Coolidge, who has been the efficient and successful manager of the Oregon Electric Railway, will in addition to his present duties assume charge of the operating department.

"Both Mr. Coolidge and I will maintain our Spokane & Inland Empire offices here and will spend a very considerable portion of our time in Spokane studying the property, its service and possibilities.

"No department of the road will be moved away from Spokane. Its business will continue to be handled and all of its departments will remain in its present general office building in Spokane."

## Conference Suggested on Transit Matters in Pittsburgh

Mayor Magee of Pittsburgh, Pa., presented a long message to the Council of that city on June 27, 1911, in which he referred to various civic questions and suggested that the officers of the Pittsburgh Railways should be invited to confer with the city officials in regard to transit improvements, saying that "the future growth and development of the city are dependent more upon a wise solution of this subject than any other one factor." He referred to the reports on traffic conditions in Pittsburgh which were made by Emil Swensson and Bion J. Arnold and to the appeal by the city to the State Railroad Commission, and suggested that if the conferees failed to reach a mutually satisfactory conclusion "in regard to the rights and duties of the parties to the conference" the members of the Railroad Commission should be invited to act as umpires. The Mayor also referred to the employment of D. T. Watson by him as advisory counsel, and said that if the effort to settle the matter by conferences failed Mr. Watson had evolved a theory of legal action to be followed by the city which would bring the subject before the courts for settlement. In referring to the claims of the city he said:

"The city, on behalf of itself and the patrons of the road, claims:

"First—The implication exists in all the grants made to the underlying companies of the Pittsburgh Railways that they or their operating company are charged with the duty of rendering to the public adequate service, regardless of their financial condition.

"Second—That the expressed conditions contained in the old charters and ordinances are still in effect and enforceable.

"Third—That the duties imposed in the general regulating ordinance of 1890 in regard to street repair and street cleaning are enforceable.

"Fourth—That the capitalization of the railway system, based on the various leases and mergers, is fraudulent."

In concluding his message the Mayor said:

"This is by far the largest, the most complicated and the most difficult problem before your honorable body for solution. It seems to me to be almost beyond the comprehension of a single mind in all its phases and, without intending to anticipate the result of your deliberations, altogether beyond the capacity of the Pittsburgh Railways to contend with. Improvements necessitating the investment of many millions of dollars and capital investment that will require the additional payment of many hundreds of thousands of dollars of fixed charges to a corporation which last year failed to meet its present fixed charges by \$1,300,000 seem to be almost a hopeless case."

The Mayor's message was referred to the committee on public service and surveys.

At the same meeting of the Council at which the Mayor presented his message the Rapid Transit Subway Company applied for the right to construct a downtown loop subway, a subway in the East End District and a branch subway to Schenley Park. The names of those interested in the company were not given. This measure was referred to committee. There is now pending before the Council an application from the Pittsburgh Subway Company for the right to construct subway lines in the city.

## Transit Affairs in New York

The Board of Estimate on June 29, 1911, received a report of the committee of the Board of Estimate and the Public Service Commission which is designed to bring about an immediate solution of the subway problem. This report recommends the acceptance of the modifications proposed by the Brooklyn Rapid Transit Company as a condition of its taking the lines partitioned to it in the compromise plan and presents an agreement by the Brooklyn Rapid Transit Company that it will operate the entire extended subway system on the same terms if the city requires it. The Board of Estimate has the verbal assurance of Timothy S. Williams, president of the Brooklyn Rapid Transit Company, which will be confirmed in writing, that his directors and his bankers will abide by his agreement. As to the Interborough Rapid Transit Company, the supplemental report of the city's committee provides that the company be notified that the general modifications granted to the Brooklyn Rapid Transit Company shall be made applicable to it in case it accepts the city's offer, and also grants more liberal terms to the Interborough Rapid Transit Company in two particulars:

First—That if the Interborough Rapid Transit Company accept the elevated third-track franchises and the subway lines both, under an arrangement, in the case of the elevated lines, providing that the increased net profits over present earnings be divided equally with the city, any deficit below the amount of present net earnings on the elevated which might be realized after third-tracking shall be made cumulative, to be made up out of the future increased profits before the division with the city begins.

Second—That in the leveling of the present leases to 49-year terms the city forego the right to claim an adjustment of the rental at the end of the original terms of each lease, namely, 50 years from the beginning of operation on the Manhattan and Bronx division of the subway and 35 years from the beginning of operation on the Brooklyn extension.

No agreement was reached as to the time the company would have to make known its wishes under the amended terms.

The Public Service Commission has sent to the Board of Estimate a set of resolutions laying out a new rapid transit railroad under the East River from the Battery to Atlantic Avenue, Brooklyn, which will, under the subway plan adopted by the Board of Estimate recently, serve as the connecting link between the Brooklyn Rapid Transit Company's Broadway line in Manhattan and the Fourth Avenue subway in Brooklyn. The proposed route will be 1.9 miles in length and its cost, the larger part of which is represented by the construction of the new tunnel under the river, will be \$8,200,000. The subway will have two tracks under the East River and four tracks through Atlantic Avenue.

#### Toronto Municipal Railway

The Ontario Municipal & Railway Board has approved of the city of Toronto's plans for proposed municipal car lines in the suburbs, which were referred to in the *ELECTRIC RAILWAY JOURNAL* of May 13, 1911, page 849, in a report from the city engineer showing the estimated cost of the St. Clair and Greenwood Avenue lines. In making the order approving the plans the board gave the following reasons:

"From the estimates submitted it looks as if the new lines might pay, but it is not necessary for the board at this stage to determine this question. We do know that there are a large number of people in the territory recently annexed to the city that require street cars, and should have them. The city is receiving a large sum of money each year from the Toronto Railway as the city's share of the gross receipts.

"It is only fair that the ratepayers who have street cars and who profit by the revenue, should spend some of that revenue in providing services for their less happily circumstanced citizens.

"We think we should facilitate the city in doing justice to the annexed districts by providing them with street car transit."

Some years ago the city made an attempt to compel the Toronto Railway to extend its lines into the annexed districts, and increase the present system within the older limits, but the case was defended by the company through the courts to the Imperial Privy Council at England, which court decided that the city had no power, under the agreement with the company, to compel it to build any extensions.

#### Governor Foss of Massachusetts Urges Utility Legislation

C. H. Scovell, who was retained by Governor Eugene N. Foss, of Massachusetts, to report to him in regard to the regulation of public service corporations in Massachusetts, says in part in his report:

"Regulation of public service commissions in Massachusetts not only lacks uniformity, but in many instances there is equally conspicuous lack of efficiency. Theory of regulation has been to restrict operations of companies by stringent laws, especially in respect to capitalization, rather than provide a rational system of regulation through a commission vested with large discretionary powers, such as in Wisconsin and New York.

"It appears to be the expressed policy of the Massachusetts Railroad Commission to act rather as 'an advisory than an executive board—one constituting in a general way a link between the community and the corporations, depending for its influence chiefly on the right to look into everything, and to make recommendations appealing to the reason and interests of the corporations.'

"In the near future Massachusetts must adopt a broader policy, particularly with respect to oversight of operations and policies of private management which are concerned with adequacy and efficiency of facilities and thus largely determine growth and prosperity of the Commonwealth.

"While there would be a substantial saving to the State from organization of one comprehensive commission rather than from development or expansion of present organizations, the greatest gain would be in the resulting uniformity

of State policy in regulation of public service corporations."

In transmitting the report by Mr. Scovell to the Legislature Governor Foss said in part:

"Our present State regulation of public utilities does not safeguard the public; the policy is narrow and short-sighted in regard to such control, and a remedy may be found either in giving each commission broader power and making each live up to it, or by combining all these commissions in a single public service commission with powers to cover the whole field.

"Such joint commission may consist either of experts or men of general training. In the latter case expert assistance can be retained as needed. This latter method is followed in New York. Our present commissions are a compromise between these two methods and appear inadequate.

"Proper supervision of public service corporations by the State, to insure satisfactory service, has now become a necessity we should demand. Future growth and welfare of the commonwealth require it.

"We have fourteen commissioners supervising public utilities named, drawing aggregate pay of \$59,500, and all having large and costly organizations under them. In New York this work is done under a single commission of five for the metropolitan district and a similar commission for the rest of the State. They draw larger pay than our commissions, but give their whole time and are undoubtedly the best men for their work. By combining commissions into a single board we could economize on clerical costs, as much of this work is of the same character in all present commissions.

"The greatest gain would come from resulting increase in uniformity of control over public service corporations. With such a board, properly constituted and empowered, we would get better service from the corporation, far better value for public expense incurred and a better chance of properly developing the trade, commerce and transportation of our State."

#### Public Utility Legislation in New York

The Public Service Commission of the First District of the State of New York, in answer to the request of the State Senate, has expressed its views on what legislation it considers necessary. It has declared that the Public Service Commissions law should be amended so as to prohibit the right of review by certiorari of the commissions' decrees regarding rates and services of public service corporations, and also that the stock corporation law should be altered so as to place under the approval of the commission the securities to be issued by reorganized companies.

The first recommendation springs from a consideration of the status of the transfer question. The commission reviews the history of transfers in New York from the time the Metropolitan Street Railway system went into the hands of receivers. Both the Appellate Division and the Court of Appeals have decided that the order for the establishment of transfers between the Metropolitan Street Railway and the Central Park, North & East River Railroad was reviewable by certiorari, and the Legislature has also made the question more difficult. Before 1910 the courts had held that the companies were entitled to a reasonable return only on the present value of the property in use, but in that year the Legislature provided that there must be consideration as well of the earning of a reasonable return on capital actually expended.

The commission already, it points out, has carefully appraised the value of the property of the street railways, and it considers that it will be much more difficult to make any order for the reduction of a rate. However, it hopes that the workings of the 8-cent and 10-cent transfers between the Central Park, North & East River Railroad and the Metropolitan Street Railway will throw valuable light on the situation.

Referring to the decision of the Appellate Division reviewing the commission's refusal to approve the reorganization plan of the Third Avenue Railroad bondholders' committee, the commission points out that the bondholders wished to issue securities until the total of the road's ob-

ligations reached \$70,000,000, while its own appraisal of the property to be represented by these securities was only \$40,000,000. It remarks: "The court apparently holds that the commission must approve of the plan of reorganization, if the necessary statutory steps have been taken, and is without power to limit the amount of securities to the value of the property."

In suggesting that the Legislature should exempt its power to make a rate from review by certiorari, the commission points out that the federal courts do not exercise any such rights over the acts of the Interstate Commerce Commission. Moreover, it asks whether the securities of a new company arising from a reorganization should not be submitted to the same supervision as the securities of an entirely new concern, which has not yet gone into the hands of a receiver.

**The Toledo Valuation.**—The appointment of Judge John M. Killits as arbitrator in the traction valuation at Toledo was discussed by the directors of the Toledo Railway & Light Company at their regular monthly meeting on June 29, 1911, but their decision had not been announced on July 1, 1911. Albion E. Lang, president of the company, stated that he was preparing the reply, but that he would have nothing to say until his letter was received by the City Council.

**Fostoria-Fremont Railway.**—Service has been begun on the new connecting link between Cleveland and Western Ohio known as the Fostoria & Fremont Railway. This line, of which F. D. Carpenter, Lima, Ohio, is president, is 21 miles long and connects the Western Ohio Railway at Fostoria with the Lake Shore Electric Railway at Fremont. At present, pending the completion of ballasting, only local cars are being operated, but on July 15, 1911, a two-hour local schedule will be supplemented with a high-speed through schedule from Lima to Cleveland, the limited cars making the run in five hours. The new road has been built according to the latest standard designs for d.c. operation. It is all on private right of way except through villages, and the track is laid with 70-lb. rails. The overhead work is supported by chestnut poles. The transmission system consists of a three-phase No. 4 copper wire 33,000-volt circuit; No. 000 grooved trolley and a 600,000-circ. mil copper trolley feeder. One substation containing two 300-kw Westinghouse rotaries has been built and is in operation. The track is being ballasted with crushed rock placed 1500 yards to the mile.

**Report of Civic Committee on Electrification at St. Louis.**—The Civic League of St. Louis, Mo., is distributing copies of the report of the committee on terminal-railroad electrification of that body, of which Prof. A. S. Langsdorf has been acting chairman. The committee was appointed in 1909 to consider the problem of the electrification of the St. Louis terminal system, largely on account of the smoke nuisance. The committee was not vested with legal power and relied on such general information as it was possible to secure from officers of the Terminal Railroad Association of St. Louis. On this account it has limited the estimate of cost to the electrical installation alone. The estimated cost of electrical equipment follows: Power house, 40,000 kw at \$125, \$5,000,000; locomotives, 150 at \$45,000, \$6,750,000; signals, 262 miles at \$5,000, \$1,310,000; transmission and distribution, \$1,400,000; direct current, 262 miles at \$5,000, \$1,310,000; alternating current, 20 miles at \$4,500, \$900,000; substations, \$1,100,000; contingencies, 10 per cent, \$1,556,000; a total of \$17,116,000. Total average cost per mile (262 miles), \$65,300. The committee having accomplished its task, has been discontinued by the executive board.

## LEGISLATION AFFECTING ELECTRIC RAILWAYS

### CONNECTICUT

The minority utilities bill passed the House on June 27, 1911, with the amendments that were made to it in the Senate, where it originated, and is before the Governor for signature. The bill provides that within fifteen days after its passage the Governor shall nominate and the General Assembly appoint three commissioners to serve for two,

four and six years respectively. Each of the commissioners is to receive \$5,000 a year and necessary expenses. The railroad commission is abolished. Appeal from a decision of the new commission may be made to the Supreme Court.

### MASSACHUSETTS

The electrification bill before the present session has been postponed to the next General Court. The pending bill contained a provision placing the responsibility of naming dates and particulars of electrification upon the Railroad Commission, and a majority of the board has declared itself in favor of compulsory electrification. A bill has been prepared by Representative Washburn, House chairman of the committee on railroads, providing for the enlargement of the powers of the Railroad Commission. Under the terms of the act the board will have mandatory powers regarding rates and service. The commission is given power, either upon its own motion or upon complaint, to fix rates, determine facilities and examine into financial conditions. The bill has the approval of Chairman Hall, of the board.

Governor Foss has signed the bill giving a certificate of public concurrence and necessity to the Boston & Eastern Electric Railroad, which has for about five years been seeking the right to build a high-speed interurban railroad between Boston, Lynn, Salem, Beverly and Danvers, at an estimated cost of \$11,000,000. The act as passed gives the company a certificate in spite of a recent adverse decision of a majority of the Railroad Commission, and is an unprecedented piece of legislation. The company announces that it expects to cut in half the running time from North Shore points to the heart of Boston. A feature of its plans is the construction of a tunnel under Boston Harbor to a terminal at Post Office Square. Bonds to the amount of \$50,000 are to be filed with the State, and the tunnel, which was authorized by the Legislature of 1910, is specified to be turned over free to the city of Boston at the end of forty years. Bills were introduced into the Senate on June 27 which provide for the construction of subways in Boston from Park Street to Dorchester, under Boylston Street and in the West End, by the city; for the extension of the existing subway leases for twenty-five years from July 1, 1911, and for the consolidation of the West End Railway and Boston Elevated Railway.

### NEW YORK

Governor Dix of New York has signed a bill giving the Public Service Commissions power to fix and regulate commutation rates on railroads. The measure amends a section of the public service law by making it conform with those sections relating to the power of the commission for the Second District over telephone and telegraph corporations. In approving the measure the Governor said: "In fixing the standard upon which the commission shall determine the just and reasonable rates, fares and charges for certain classes of railroad transportation, this bill provides that the commission shall do so with due regard, among other things, to a reasonable average return upon the value of the property actually used in the public service." After a protracted debate, led in behalf of the opposition by Senator Hinman, the Senate adopted the Pollock resolution calling upon the Public Service Commission of the First District of New York to explain why it has not put into effect legislation making compulsory the issuing of transfers between the various surface car lines in New York. The Assembly on June 27, 1911, passed the bill of Senator O'Brien providing for a 5-cent fare between Railroad Avenue and Flatbush Avenue, Brooklyn, on the Long Island Railroad. This is almost exactly similar to the O'Brien bill which Governor Dix vetoed a month ago, excepting that it provides for a smaller fine against the company for infractions. The Governor has instructed Public Service Commissioner Cram to urge the Public Service Commission to action on the merits of the case, and the Public Service Commission has called a hearing for July 6, 1911. On June 29, 1911, the Assembly passed the bill introduced by Assemblyman Goldberg to require the immediate restoration of free transfers between all surface street railways running north and south and those running east and west in the Boroughs of Manhattan and the Bronx.

# Financial and Corporate

## ANNUAL REPORTS

### Tri-City Railway & Light Company

#### New York Stock and Money Markets

July 3, 1911.

Business has been rather dull in Wall Street in the past week, and the market has been irregular and weak. Trading to-day was light, influenced by the holiday. A fractional decline took place at the opening. The bond market continues active, characterized by return of interest in the long-term issues. Inquiry for call and time money was light to-day, with only mild demand for large loans. Quotations July 3 were: Call,  $2\frac{1}{4}$ @ $2\frac{1}{2}$  per cent; ninety days,  $2\frac{3}{4}$  per cent.

#### Other Markets

All of the exchanges have been quiet by reason of the holidays. Dulness prevailed in Philadelphia, and trading to-day was the highest for some time.

In Chicago there was a fair amount of trading at the close of the past week, with gains made in most of the elevated issues.

Nothing of great importance took place in the Boston market to-day and business dragged throughout the session. Price changes of the week were few and chiefly of a fractional nature.

Most of the trading in Baltimore in the latter part of the week was in the bond market. United Railways issues were in good demand.

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

	June 27.	July 1.
American Light & Traction Company (common).....	a295	295
American Light & Traction Company (preferred)....	a108	108
American Railways Company.....	a43 3/4	a43 3/4
Aurora, Elgin & Chicago Railroad (common).....	a40 3/4	*40 3/4
Aurora, Elgin & Chicago Railroad (preferred).....	a85 3/4	*85 3/4
Boston Elevated Railway.....	a128 1/2	a129
Boston Suburban Electric Companies (common)....	a14 1/2	a15
Boston Suburban Electric Companies (preferred)...	a75	a75
Boston & Worcester Electric Companies (common)...	a12	12
Boston & Worcester Electric Companies (preferred)..	a57	a59
Brooklyn Rapid Transit Company.....	81 5/8	81
Brooklyn Rapid Transit Company, 1st ref. conv. 4s..	86	86 3/8
Capital Traction Company, Washington.....	127 9/8	*127 3/8
Chicago City Railway.....	a195	a190
Chicago & Oak Park Elevated Railroad (common)...	2	3
Chicago & Oak Park Elevated Railroad (preferred)...	6	5
Chicago Railways, pteptg., ctf. 1.....	a85	85
Chicago Railways, pteptg., ctf. 2.....	a24	24
Chicago Railways, pteptg., ctf. 3.....	a9 1/2	9 1/2
Chicago Railways, pteptg.....	a5 1/2	*130 1/4
Cincinnati Street Railway.....	130 1/2	*96
Cleveland Railway.....	a96	*96
Columbus Railway (common).....	*96	*101
Columbus Railway (preferred).....	*101	*101
Consolidated Traction of New Jersey.....	a76	76
Consolidated Traction of N. J., 5 per cent bonds..	a105 1/2	105 1/2
Dayton Street Railway (common).....	a30	a30
Dayton Street Railway (preferred).....	a100	a100
Detroit United Railway.....	a74	74
General Electric Company.....	162 1/4	160
Georgia Railway & Electric Company (common)....	a155	a153
Georgia Railway & Electric Company (preferred)...	a93	a93 1/2
Interborough Metropolitan Company (common)....	18	17 1/2
Interborough Metropolitan Company (preferred)...	50	a50
Interborough Metropolitan Company (4 1/8s).....	78 1/2	78 1/4
Kansas City Railway & Light Company (common)...	a19	19
Kansas City Railway & Light Company (preferred)...	a44	44
Manhattan Railway.....	a137 1/2	137 1/2
Massachusetts Electric Companies (common)....	a22 3/4	a23
Massachusetts Electric Companies (preferred)....	a91 1/2	*91 1/2
Metropolitan West Side, Chicago (common).....	a26	a26 1/2
Metropolitan West Side, Chicago (preferred)....	a74 1/4	a75
Metropolitan Street Railway, New York.....	15	15
Milwaukee Electric Railway & Light (preferred)...	110	110
North American Company.....	74 3/8	73 3/4
Northern Ohio Light & Traction Company.....	48	*48
Northwestern Elevated Railroad (common).....	a28 1/2	a29
Northwestern Elevated Railroad (preferred)....	a69	a69
Philadelphia Company, Pittsburgh (common)....	a56	a56
Philadelphia Company, Pittsburgh (preferred)....	a43 3/4	a43 3/4
Philadelphia Rapid Transit Company.....	a19 1/2	a19 1/2
Philadelphia Traction Company.....	a86 1/2	a86 1/2
Public Service Corporation, 5% col. notes (1913)...	101	101
Public Service Corporation, ctf.....	a107 1/2	107 1/2
Seattle Electric Company (common).....	a112	a110
Seattle Electric Company (preferred).....	a102 1/2	a102 1/2
South Side Elevated Railroad (Chicago).....	a80	a79
Third Avenue Railroad, New York.....	10 1/2	10 1/2
Toledo Railways & Light Company.....	8	8
Twin City Rapid Transit, Minneapolis (common)...	a108 1/2	*108 1/2
Union Traction Company, Philadelphia.....	a49 1/4	a49 1/4
United Rys. & Electric Company, Baltimore.....	a19 1/2	*19 1/2
United Rys. Inv. Co. (common).....	a39	39
United Rys. Inv. Co. (preferred).....	69 7/8	69 7/8
Washington Ry. & Electric Company (common)....	a35 3/8	35 3/8
Washington Ry. & Electric Company (preferred)...	a90	90
West End Street Railway, Boston (common).....	a90	a89
West End Street Railway, Boston (preferred)....	a103 1/4	a103
Westinghouse Elec. & Mfg. Co.....	75 3/4	a75 3/4

a Asked. \*Last sale.

The annual report of the Tri-City Railway & Light Company, Davenport, Ia., for the year ended Dec. 31, 1910, shows the following résumé:

Gross earnings.....	\$2,513,486
Operating expenses and taxes.....	1,481,967
Net earnings.....	\$1,031,519
Deduct:	
Interest and discount on bonds and loans.....	481,408
Sinking fund instalments.....	\$550,111
	50,000
Surplus for the year.....	\$500,111
Dividends on preferred stock.....	169,572
Net surplus for year.....	\$330,539

J. F. Porter, the president, says in part in his report to the stockholders:

"The statement compared with the previous year shows an increase in gross earnings of \$473,999, or 23.24 per cent; an increase in operating expenses and taxes of \$341,059, or 29.89 per cent, and an increase in net earnings of \$132,939, or 14.79 per cent. Interest charges paid and the proportion of discount on the company's 6 per cent three-year redeemable gold notes during the year amounted to \$481,407; sinking fund provisions called for \$50,000, leaving a surplus for the year of \$500,111. From this amount there have been declared and paid on the outstanding preferred stock four quarterly dividends each of  $1\frac{1}{2}$  per cent, aggregating \$169,572, leaving \$330,539 over all disbursements, which has been transferred to surplus account, this being an increase of \$123,919, or 59.97 per cent over the amount transferred in 1909.

"There has been charged against the surplus account of your subsidiary companies \$321,640, representing deferred charges to operation incidental to the issue of the 5 per cent first lien collateral trust sinking fund gold bonds.

"During the year you authorized an issue of \$20,000,000 trust sinking fund gold bonds were issued in place of a like amount of the 6 per cent first mortgage gold bonds of the Davenport & Rock Island Railway—\$33,000 par value of these bonds were canceled on July 1 in accordance with the sinking fund provisions, and the same amount of the Tri-City Railway Company 5 per cent bonds were issued and are owned by your company.

"During the year you authorized an issue of \$20,000,000, first and refunding, 5 per cent gold bonds, and your directors issued \$500,000 of this amount up to Dec. 31, 1910.

"Extensions of franchise rights for a period of twenty years on Illinois side and twenty-five years on Iowa side, covering existing tracks, and privileges for some new extensions, were secured from the authorities in each of the three cities during the spring of 1910.

"These ordinances required the company to perform a certain amount of double tracking, extensions and paving during the next few years, and all necessary work provided for in 1910 was completed.

"The extension ordinances granted the Tri-City Railway and the People's Light Company also provide for the building of an interurban road to Muscatine. The Davenport & Muscatine Railway was incorporated during the year for this purpose and satisfactory progress is being made on the survey and acquirement of rights-of-way. The length of this road is approximately 30 miles. The cost of this line is estimated at \$750,000.

"Fifteen new cars of the modern pay-as-you-enter type were purchased and put in service during the past six months, which considerably relieves the congestion of traffic during rush hours, and adequate service is now being supplied on all lines.

"Generally the street railway properties in the three cities are in excellent physical condition, with the exception of the track on Fifth Avenue, between Fifteenth and Twenty-third Streets, Moline, which will be relaid during the present year.

"The franchises of the electric companies on the Iowa and Illinois sides of the river now extend until 1935 and 1943 respectively, and the conditions contingent upon such extension are not unduly burdensome. One of the most important requirements is the placing of the feeder wires in

conduits below the surface of the streets in the fire district of Davenport, and this work is progressing rapidly.

"All work called for to maintain the integrity of the franchises in 1910 was carried out, and when that required in 1911 has been completed only such improvements and extensions as will enable the companies to keep up their properties and provide for new customers and business will be necessary.

"The sum of \$739,168 was expended for new construction on the properties of your company in 1910.

"All your properties have been well maintained, the sum of \$110,046 having been charged to maintenance during the year. This is an increase of \$29,118 over the amount charged in 1909."

#### Brunswick Terminal & Railway Securities Company

The City & Suburban Railway, Brunswick, Ga., is carried on the balance sheet of this company as of Dec. 31, 1910, at \$954,000. The statement of the securities company for the year 1910 shows the following: Rents, \$2,990; interest and dividends, \$17,048; total, \$20,038. Expenses, \$2,576; salaries, \$2,979; taxes, \$6,375; building repairs, \$222; fire insurance, \$168; total, \$12,320. Surplus to profit and loss, \$7,718.

T. D. Rhodes, the president, says in part:

"Your board submits herewith the results of its management of the company's affairs during the fiscal year, the first since it acquired the public utilities of the city and necessarily to some extent a period of transition. The unsettled conditions of the business world have had the same deleterious effect upon our enterprise that has been experienced by many others which, like it, were organized for the commercial and industrial development and upbuilding of the country, and the success and prosperity of which depend largely upon the confidence and encouragement inspired by stability and freedom from vicious assaults upon capital. Brunswick, Ga., the seat of our investment, has in common with other business communities during the past year been affected by the unfavorable general conditions but to a less extent than many others, owing to its natural advantages and the absence of anything fictitious or 'boom'-like in its growth, which has been legitimate and healthful and shows every evidence of continuance in an even greater and more prosperous ratio.

"Several large manufacturing plants have been induced during the year to locate in the city or its environs and when these plants are completed and in operation they will add very materially to the volume of business and population of the city.

"The State commission has authorized the capitalization of the City & Suburban Railway in the sum of \$175,000 bonds and \$100,000 capital stock, which will be issued at once to cover the amount expended by this company in the purchase of the property together with the sums advanced for its extensions and betterments, and will become a free asset in the treasury of this company.

"Instead of the annual deficit heretofore shown the company's acquirement of public utilities has enabled it to pay all the carrying charges on its property and to accumulate the nucleus of a surplus.

"There has been expended during the year by the City & Suburban Railway Company in extending and improving its property \$31,000. A number of additional turnouts and sidings have been installed at points where improved service required them, and six additional cars have been purchased. The company has leased from the parent company two plots for amusement parks, erected the necessary improvements thereon, and the results of their operation have been very satisfactory both in increased earnings from the cars, and in gate and privilege receipts from the parks. The earnings of the company have shown a gratifying increase and your board believes the property will yield a very gratifying return on the amount invested therein."

**American Cities Railway & Light Company, New York, N. Y.**—The stockholders of the American Cities Railway & Light Company on June 28, 1911, ratified the sale of the property and assets of the company to the American Cities Company in accordance with the plans mentioned in the *ELECTRIC RAILWAY JOURNAL* of May 27, 1911, page 930.

**Boone (Ia.) Electric Company.**—It is officially announced that Dow, Read & Smith, Cedar Rapids, Ia., have exercised the option which they secured recently on the property of the Boone Electric Company, mention of which was made in the *ELECTRIC RAILWAY JOURNAL* of July 1, 1911, page 63.

**Catskill (N. Y.) Traction Company.**—The Catskill Traction Company has applied to the Public Service Commission of the Second District of New York for permission to issue \$160,000 of 5 per cent thirty-year first mortgage bonds to defray the cost of an extension from Leeds to Cairo.

**Columbus Railway & Light Company, Columbus, Ohio.**—The meeting of the stockholders of the Columbus Railway, called for June 26, 1911, was adjourned to Aug. 28, 1911, in order to give all those interested time to determine the necessity of increasing the stock from \$7,000,000 to \$10,000,000. Butler Sheldon, president of the company, recommended this step after he had read his report. D. Meade Massie and John A. Poland, Chillicothe, Ohio; C. L. Poston, Athens, Ohio, and Edward Orton, Jr., and A. W. Dunn, Columbus, Ohio, were appointed a committee to investigate the relations between the company and the Columbus Railway & Light Company which operates the Columbus Railway under lease.

**International Traction Company, Buffalo, N. Y.**—It was announced that the semi-annual interest on the fifty-year 4 per cent collateral trust gold bonds of the International Traction Company, which matured on July 1, 1910, would be paid at the office of J. P. Morgan & Company, New York, N. Y., on and after July 1, 1911, together with 5 per cent interest thereon from July 1, 1910, to July 1, 1911. The committee which represents the holders of the fifty-year 4 per cent collateral trust gold bonds has announced that more than 97½ per cent of these bonds has been deposited under the modified plan dated Jan. 20, 1911, and that the necessary arrangements have been made for an advance to the holders of certificates of deposit of the interest due July 1, 1911, on the bonds.

**Northwestern Elevated Railroad, Chicago, Ill.**—The consolidation of the elevated railways of Chicago as the Chicago Elevated Railways, under the terms proposed by the syndicate organized by Henry A. Blair, was declared operative on July 1, 1911. The terms of the merger were given in the *ELECTRIC RAILWAY JOURNAL* of June 10, 1911, page 1035.

**Omaha & Council Bluffs Railway, Omaha, Neb.**—Redmond & Co., New York, N. Y., are offering for subscription at 97½ and interest to yield 5¼ per cent \$200,000 of first consolidated mortgage 5 per cent gold bonds of the Omaha & Council Bluffs Street Railway, dated 1902 and due Jan. 1, 1928. The authorized issue is \$10,000,000, of which amount \$6,814,000 is outstanding. Of the remaining bonds \$2,500,000 are reserved to retire all prior liens, which must be retired at maturity on May 1, 1914, and the balance, \$686,000, is reserved for extensions, etc.

**Republic Railway & Light Company, New York, N. Y.**—The Republic Railway & Light Company, the proposed organization of which was mentioned in the *ELECTRIC RAILWAY JOURNAL* of July 1, 1911 page 62, was incorporated in New Jersey on June 28, 1911, with power to own the securities of companies operating or controlling electric light, power, gas, electric railway and other public utilities. The company has under option and is acquiring more than 97 per cent of the outstanding capital stocks of a number of companies, most of which have been in the past controlled by the Mahoning & Shenango Railway & Light Company. The officers of the company follow: James Parmelee, president; De Forest Candee, vice-president; George A. Galliver, vice-president and treasurer; G. F. Ravenal, secretary; Samuel McRoberts and Thomas A. Reynolds, National City Bank, New York; Myron T. Herrick, Society for Savings, Cleveland; Anson W. Burchard, assistant to president General Electric Company; R. E. Breed, president American Gas & Electric Company; Henry H. Wehrhane, Hallgarten & Company; Ray Morris, White, Weld & Company; James Parmelee and Parmely Herrick, Cleveland Electrical Illuminating Company; De Forest Candee and George A. Galliver, Federal Utilities, Inc.; Norman McD. Crawford, president Mahoning & Shenango Railway & Light Company; Harrison Williams, American Gas &

# Traffic and Transportation

## School Fares in New Jersey

In the ELECTRIC RAILWAY JOURNAL of June 17, 1911, page 1088, brief mention was made of the ruling by the Supreme Court of New Jersey affirming the order of the board directing the Public Service Railway to maintain 3-cent fares for school children and teachers. The question of the interpretation of the section of the New Jersey public utility law which prohibits discrimination in fares came before the court on a writ of certiorari secured by the Public Service Corporation to test the authority of the commission to suspend the order issued by the company on May 1, 1911, which required school children and school teachers to pay full fare on the lines of the Public Service Railway. In affirming the order of the board, Judge Minturn said:

"The Legislature having conferred the power of regulation and administration upon the commission, this court will not interfere in the discharge of that duty, except, in the language of the thirty-eighth section of the act, where it clearly appears that there was no evidence before the board to support reasonably such order, or that the same was without the jurisdiction of the board. Neither of these conditions existing in this case, the order of the Board of Public Utilities Commission under review will be affirmed.

"The concrete question involved is whether a system of 3-cent fares, maintained by the railway company for many years, was abrogated by the enactment of the so-called public utility law (P. L., 1911, Ch. 195). The contention that it was abrogated is based by the company upon a construction given by the Interstate Commerce Commission to Section 3 of the Interstate Commerce Act, which is substantially similar to Section 18 of the act sub judice.

"I am of the opinion that the construction adopted in that case should not be followed here—first, because the act is not the same enactment in terms; and, secondly, because the Interstate Commerce Commissioners are an administrative and not a judicial body, and their decision as an administrative body on a detail of the act is not a judicial determination. (Interstate Commerce Commission vs. Bunson, 154 United States, 447.)

"The Public Utility Act does not abrogate the system of 3-cent fares maintained by the company, because Section 18 applies only to such preferences as are undue or unreasonable. This was not the enactment of a new condition nor did it create a new legal status. It was the immemorial rule of the common law.

"The contention of the company that the effect of the enactment was to repeal this beneficent condition does not accord with the spirit and intent of the act. The clear legislative purpose was to administer and to regulate in their operation these instrumentalities, quite properly denominated public service companies, which are chartered pro bono publico and are compensated by public individual contributions for the service performed."

**New Folder of Chicago & Southern Traction Company.**—A new timetable, including map of the territory south of Chicago which is served by the Chicago & Southern Traction Company between Seventy-ninth Street and Kankakee, has just been issued by Robert A. Barnett, traffic agent of the company.

**Detroit United Lines.**—The Detroit (Mich.) United Railway has issued a folder, "Rides by Trolley," in which it describes the company's fast electric service between the principal cities of Michigan. There is a relief map, showing the connections made by the Detroit United Railway with the interurban lines to Toledo, Port Huron, Kalamazoo, Lansing and St. Johns and Saginaw and Bay City.

**Trolley Trips In and Out of Baltimore.**—The United Railways & Electric Company, Baltimore, Md., has issued a descriptive folder with a map of its system showing places of interest in and about Baltimore, and telling how to reach them. The map of the system used in the folder is the very striking general relief view which was reproduced in the Souvenir edition of the ELECTRIC RAILWAY JOURNAL for 1910.

Electric Company, Federal Light & Traction Company, Federal Utilities, Inc., president Springfield Railway & Light Company; J. J. Bodell, Bodell & Company, Providence, director American Textile Company; John R. Turner, the Corporation Trust Company, Jersey City, directors. The advisory committee will be Frank A. Vanderlip, C. A. Coffin and J. J. Storrow.

**Toledo & Indiana Railroad, Toledo, Ohio.**—The formal transfer of the property of the Toledo & Indiana Traction Company to the Toledo & Indiana Railroad was made on the afternoon of June 27, 1911. The capital stock of the new company was increased from \$10,000 to \$1,040,000, which represents the purchase price of the property. Officers were chosen as follows: S. C. Schenck, president; S. D. Carr, vice-president; C. F. Chapman, secretary; D. B. Schenck, treasurer. The property was bid in at receiver's sale by S. C. Schenck almost a year ago.

### Dividends Declared

Athens Railway & Electric Company, Athens, Ga., 2½ per cent, preferred.

Boston & Northern Street Railway, Boston, Mass., 2 per cent, common.

Boston Suburban Electric Companies, Newtonville, Mass., quarterly, \$1, preferred.

Ft. Smith Light & Traction Company, Ft. Smith, Ark., quarterly, 1¼ per cent, preferred.

Holyoke (Mass.) Street Railway, 4 per cent.

Memphis (Tenn.) Street Railway, quarterly, 1¼ per cent, preferred.

Norfolk & Portsmouth Traction Company, Norfolk, Va., quarterly, 1¼ per cent, preferred.

Old Colony Street Railway, Boston, 3 per cent, common.

Ottumwa Railway & Light Company, Ottumwa, Ia., quarterly, 1¼ per cent, preferred.

Quebec Railway, Light, Heat & Power Company, Ltd., Quebec, Que., quarterly, 1 per cent, common.

St. Charles Street Railway, New Orleans, La., 3 per cent.

Springfield & Xenia Railway, Springfield, Ohio, quarterly, 1¼ per cent, preferred.

Thirteenth & Fifteenth Streets Passenger Railway, Philadelphia, Pa., \$6.

West Penn Traction Company, Pittsburgh, Pa., quarterly, 1½ per cent, preferred.

Youngstown & Ohio River Railroad, Leetonia, Ohio, quarterly, ¾ per cent, preferred.

### MONTHLY ELECTRIC RAILWAY EARNINGS

#### CHATTANOOGA RAILWAY & LIGHT COMPANY.

1m.,	May,	'11	\$77,738	*\$43,884	\$33,854	\$19,905	\$13,949
1 "	"	'10	70,811	*42,472	28,339	18,265	10,074
5 "	"	'11	368,045	*211,728	156,317	97,741	58,576
5 "	"	'10	33,715	*204,220	131,495	90,402	41,093

#### EAST ST. LOUIS & SUBURBAN COMPANY.

1m.,	May,	'11	\$193,181	*\$105,656	\$87,525	\$45,610	\$41,915
1 "	"	'10	183,478	*107,859	75,619	45,230	30,389
5 "	"	'11	905,984	*519,076	386,908	227,332	159,576
5 "	"	'10	918,799	*517,653	401,146	225,932	175,214

#### GRAND RAPIDS RAILWAY.

1m.,	May,	'11	\$98,137	*\$56,438	\$41,699	\$15,018	\$26,681
1 "	"	'10	93,207	*50,412	42,795	14,894	27,901
5 "	"	'11	451,713	*262,192	189,521	75,344	114,177
5 "	"	'10	430,871	*240,261	190,610	75,909	114,701

#### LEWISTON, AUGUSTA & WATERTVILLE STREET RAILWAY.

1m.,	May,	'11	\$46,110	*\$26,557	\$19,553	\$13,346	\$6,207
1 "	"	'10	44,669	*27,820	16,849	13,355	3,494
11 "	"	'11	481,123	*303,256	177,867	145,011	32,856
11 "	"	'10	478,221	*285,222	192,999	158,400	34,599

#### MILWAUKEE LIGHT, HEAT & TRACTION COMPANY.

1m.,	May,	'11	\$131,786	\$39,749	\$92,037	\$71,393	\$20,645
1 "	"	'10	130,404	40,002	90,402	70,053	20,350
2 "	"	'11	611,270	187,771	423,499	346,800	76,699
2 "	"	'10	586,271	176,672	409,598	388,988	70,610

#### MONTREAL STREET RAILWAY.

1m.,	May,	'11	\$431,690	\$216,730	\$214,959	\$60,346	\$154,613
1 "	"	'10	370,234	199,616	170,617	48,977	121,640
8 "	"	'11	3,006,914	1,787,922	1,218,992	339,890	879,102
8 "	"	'10	2,707,236	1,607,443	1,099,792	306,148	793,645

#### PORTLAND RAILWAY, LIGHT & POWER COMPANY.

1m.,	May,	'11	\$527,931	*\$243,949	\$283,982	\$122,162	\$161,820
1 "	"	'10	466,436	*216,613	249,823	113,465	136,358
5 "	"	'11	2,560,045	*1,241,964	1,318,081	613,668	704,413
5 "	"	'10	2,166,734	*1,027,829	1,138,905	561,509	577,396

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

1m.,	May,	'11	\$88,759	*\$56,350	\$32,409	\$19,379	\$13,030
1 "	"	'10	79,587	*49,376	30,211	18,583	11,628
5 "	"	'11	435,301	*264,894	170,407	97,022	73,385
5 "	"	'10	408,614	*247,764	160,850	90,859	69,991

**Lake Shore Electric Railway and Cleveland, Southwestern & Columbus Railway Will Handle Freight.**—At the instance of the Cleveland Chamber of Commerce the Lake Shore Electric Railway and the Cleveland, Southwestern & Columbus Railway will arrange early in the fall to handle freight. The Lake Shore Electric Railway will carry freight in sealed cars to Fremont, where it will be delivered to the Western Ohio Railway, by which it will be distributed over western Ohio and eastern Indiana. Both will also haul freight over their entire systems.

**Service Order in Milwaukee.**—The Railroad Commission of Wisconsin has issued the following order in regard to service over the Walnut Street line of the Milwaukee Electric Railway & Light Company: "That there be a regular schedule of headway on the line of eight minutes throughout the day, additional cars or trippers to be added at times so as to establish the following time space of cars during the maximum period of travel: From West Water Street and Grand Avenue to the end of the line at Lisbon Avenue from 6 a. m. to 8 a. m., three-minute headway; from 5 p. m. to 7 p. m., three-minute headway."

**Directors of Lake Shore Electric Railway Make Inspection Trip and Hold Monthly Meeting Aboard Private Car.**—On June 27, 1911, the officers and directors of the Lake Shore Electric Railway inspected their own line and the Fremont & Fostoria line, which has been recently put into operation. After visiting Lima the party went to Toledo, where the night was spent. The following day they made a trip over the Toledo & Western Railroad. Members of the party were Henry A. Everett, E. W. Moore, Charles Currie, B. Mahler, J. B. Hanna, J. B. Hoge, W. H. Price, J. P. Witt and F. W. Coen. The private car, "The Northern," which belongs to Mr. Everett, was used.

**Ohio Electric Railway Summer Schedules.**—The Ohio Electric Railway, Cincinnati, Ohio, has issued a folder showing summer schedules over its lines. Complete timetables are given of all local and limited trains between Cincinnati, Columbus, Toledo, Dayton, Hamilton, Springfield, Zanesville, Fort Wayne, Lima, Richmond, Newark, Bellefontaine, Urbana and Union City. There is a map of the Ohio Electric Railway and connecting electric railways and steam lines. The rules governing rates for children, baggage and excess baggage are explicitly set forth. The Ohio Electric Railway has also issued an illustrated folder entitled "Buckeye Lake and Indian Lake," in which both these resorts are described.

**Wisconsin Commission Orders Reduction in Fare.**—The Railroad Commission of Wisconsin has ordered the Rockford & Interurban Railway, Rockford, Ill., to discontinue its present rate of 10 cents for passenger fare from points within the city limits to Janesville, Wis., to points about the yards of the Chicago & Northwestern Railroad in South Janesville, and substitute a 5-cent fare. South Janesville is about 80 rods outside the city limits. The petitioner for the reduction alleged that the 10-cent fare worked a hardship on the 200 or more railroad men whose business takes them to South Janesville. An analysis of the company's earnings in Wisconsin revealed the fact that the loss in revenue occasioned by the 5-cent fare will result in a decrease in total earnings of the company of about one-tenth of 1 per cent.

**Transfer Hearings in New York.**—The Public Service Commission of the First District of New York has issued an order directing representatives of all the surface lines in Manhattan to appear on July 6, 1911, and show cause why the transfer system that was in force before the Metropolitan Street Railway went into the hands of receivers should not be restored. The lines affected by the order of the commission follow: Metropolitan Street Railway, Third Avenue Railroad, Dry Dock, East Broadway & Battery Railroad, the Forty-second Street, Manhattanville & St. Nicholas Avenue Railway, the Kingsbridge Railway, the Second Avenue Railroad, the Central Park, North & East River Railroad; the South Shore Traction Company and the Twenty-eighth and Twenty-ninth Street Crosstown Railroad.

**Fare Hearing in Trenton.**—A hearing has been held by the Board of Public Utility Commissioners of New Jersey

on the complaint of Cochran, Drugan & Company, manufacturers, whose works are located across the line dividing Hamilton Township from Trenton. The Trenton & Mercer County Traction Company charges a 10-cent fare to this point, which the complainant alleged is more than is charged for greater distances in other directions by the same company, and placed it at a disadvantage in employing labor. The company contended that the terms of its franchises do not admit of its collecting more than one fare in Hamilton Township, and that if it extended the 5-cent fare zone beyond the boundary line it would be unable to collect an additional fare for a trip of several miles through the township.

**Interurban Service North of Chicago.**—The Northwestern Elevated Railroad on July 3, 1911, began running two through trains daily from the Union Elevated Loop in Chicago to Ravinia Park on the Chicago & Milwaukee Electric Railway. The two trains which leave for the park each afternoon enter the loop, one at 6:31 and the other at 6:41 p. m. Returning trains leave Ravinia 10 and 20 minutes after the closing of the park entertainment. These trains operate as "expresses" on the Northwestern Elevated Railroad for 12 miles to Central Street, Evanston, and as non-stop "limiteds" on to Ravinia Park, which is about 30 miles north of the Chicago Loop district. Round-trip tickets are sold at any of the stations of the elevated railroad, and through trains may be boarded at any express station. Tickets for the round trip, including admission to the park, are sold at 70 cents at stations within the city limits of Chicago and at 60 cents at stations within the Evanston city limits.

**Right of Indiana Commission to Order Track Elevation.**—The Indiana Supreme Court has upheld the right of the Railroad Commission of Indiana to order the elevation of railroad tracks when the safety of the public is involved. In 1909 the commission ordered the Wabash Railroad to elevate its tracks at a highway crossing near Topeka, Ind. The court said that it is well settled in Indiana that the right of a railroad to cross a public highway with its tracks carries with it the duty on the part of the company to restore the highway to its former condition of usefulness and safety and keep it so, and if this cannot be done by a grade crossing the company must do it by constructing tracks over or under the highway, or the highway over or under the tracks. The company contended that it was the duty of the township trustee to order the grade improved. The court held that the trustee may do it, but that the Railroad Commission also has the power to order the elevation. The railroad contended that the order made by the Railroad Commission was not a reasonable and practical one, but the court held that the facts clearly show that it was. The decision has an important bearing on the question of eliminating crossings at grade between steam and electric railways.

**Detroit United Railway Agrees to Submit Differences with Platform Men to Arbitration.**—Owing to the fact that the Detroit United Railway and its motormen and conductors could not agree upon certain sections of a service contract between them both sides have concluded to submit the matter to a board of arbitrators. The contract contains twenty-five sections, and all but four of these are to be arbitrated. George F. Monaghan and Judge James Phelan have been selected as two members of the board and they are to choose a third. The present wage agreement reads as follows: "For all motormen and conductors who have been in the service less than six months, 23 cents per hour; for all motormen and conductors who have been in the service over six months and under 18 months, 26 cents per hour; for all motormen and conductors who have been in the service 18 months or over, 28 cents per hour. No single trip shall be considered as less than one hour. It is agreed that for the purpose of rating men as to pay who may be employed after the signing of this agreement the date on which they shall receive the next highest scale of wages shall be six months from the first day of the month succeeding the day on which they were employed." The men at first made a demand for a flat rate of 30 cents an hour, but this was finally changed to a request for a uniform advance of 2 cents an hour.



## Personal Mention

**Mr. R. T. Chiles** has been appointed superintendent of the lines of the Virginia Railway & Power Company, Richmond, Va., in Norfolk.

**Mr. C. Colburn** has been appointed superintendent of the lines of the Virginia Railway & Power Company, Richmond, Va., in Berkeley.

**Mr. E. A. Bishop** has been appointed superintendent of the lines of the Virginia Railway & Power Company, Richmond, Va., in Portsmouth.

**Mr. John E. Havell** has been appointed superintendent of the Petersburg division of the Virginia Railway & Power Company, Richmond, Va.

**Mr. E. R. Johnston** has had his jurisdiction with the Illinois Traction System extended to include outside shops as well as the shop of the company at Decatur, Ill.

**Mr. E. S. Ely** has been appointed chief engineer of the Portsmouth, Norfolk and Ocean View divisions of the Virginia Railway & Power Company, Richmond, Va.

**Mr. H. Pollard** has been appointed superintendent of railway terminals and parks of the Richmond division of the Virginia Railway & Power Company, Richmond, Va.

**Mr. H. L. Smith** has been appointed superintendent of railway lines and schedules of the Richmond division of the Virginia Railway & Power Company, Richmond, Va.

**Mr. John G. Baukat** has been appointed superintendent of equipment of the Lehigh Valley Transit Company, Allentown, Pa., to succeed Mr. C. E. Lenhart, resigned.

**Mr. James McC. Moffett** has resigned as purchasing agent of the Metropolitan Street Railway, Kansas City, Mo., and Mr. E. E. Stigall has been appointed to succeed him.

**Mr. T. Norman Jones, Jr.**, has been appointed chief engineer of the Richmond, Interurban and Petersburg divisions of the Virginia Railway & Power Company, Richmond, Va.

**Mr. W. F. Bryce** has been appointed by the Virginia Railway & Power Company, Richmond, Va., as superintendent of railway lines of the Interurban division and the line to South Richmond.

**Mr. J. L. Adams** has been appointed general superintendent of the railway and ferry lines of the Portsmouth, Norfolk and Ocean View divisions of the Virginia Railway & Power Company, Richmond, Va.

**Mr. W. A. Whitney**, superintendent of the Western division of the Southern Pacific Railroad, San Francisco, Cal., has had placed under his jurisdiction the new electric lines of the Southern Pacific Company in Alameda, Oakland and Berkeley.

**Mr. Charles C. Johnson**, who has been purchasing agent of the Virginia Railway & Power Company, Richmond, Va., has been appointed purchasing agent and assistant to the general manager of the company and assistant general manager.

**Mr. Charles H. Hubbell**, formerly an official of electric railways in the Middle West, and more recently associated with Mr. Frederic W. Throssell, a certified public accountant, of Cleveland, Ohio, has entered the employ of the Ohio Tax Commission at Columbus, Ohio.

**Mr. R. C. Taylor** has been appointed master mechanic of the Chicago, Ottawa & Peoria Railway, part of the Illinois Traction System, with headquarters at the new shops at Ottawa, Ill. Mr. Taylor was formerly in charge of outside shops of the Illinois Traction System.

**Mr. W. M. Cutlip** has been elected secretary and treasurer of the Muskogee (Okla.) Electric Traction Company, and took up his headquarters in Muskogee on July 1, 1911. Mr. Cutlip will also retain his position as secretary of the Shawnee-Tecumseh Traction Company, Shawnee, Okla.

**Mr. E. C. Hathaway**, general manager of the Norfolk & Portsmouth Traction Company, Norfolk, Va., has been appointed assistant general manager of the Virginia Railway & Power Company, Richmond, Va., which on July 1, 1911, absorbed the Norfolk & Portsmouth Traction Company.

**Mr. C. B. Buchanan**, who has been general superintendent of railways of the Virginia Railway & Power Company, Richmond, Va., has been appointed general manager of the

company. On July 1, 1911, the Virginia Railway & Power Company absorbed the Norfolk & Portsmouth Traction Company.

**Mr. C. A. Coolidge**, who has been general manager of the Oregon Electric Railway, Portland, Ore., has been elected first vice-president and general manager of the Spokane & Inland Empire Railway, Spokane, Wash. Mr. Coolidge succeeds Mr. A. L. White as first vice-president of the company and Mr. C. M. Graves as general manager.

**Mr. Charles W. Ford**, formerly superintendent of the Oklahoma Railway, has been appointed general superintendent of the Grand Junction & Grand River Railway, Grand Junction, Col., a new property which includes a railway and light, gas and ice services. The property was described in the *ELECTRIC RAILWAY JOURNAL* for October 15, 1910, page 832.

**Mr. Jacob W. Gerke**, whose appointment as master mechanic of the Wilmington & Philadelphia Traction Company, and the Southern Pennsylvania Traction Company, with headquarters at Wilmington, Del., was noted in the *ELECTRIC RAILWAY JOURNAL* of July 1, 1911, was formerly superintendent of the Washington, Arlington & Falls Church Railway, Washington, D. C., in which capacity he served for eight months. He was for five years previously assistant superintendent and master mechanic of the company. He resigned from the Washington, Arlington & Falls Church Railway to become connected with the Tri-City Railway & Light Company.

**Mr. J. N. Shannahan**, who resigned recently as vice-president and general manager of the Washington, Baltimore & Annapolis Electric Railway to become railway manager of the operating department of J. G. White & Company, Inc., New York, N. Y., was presented with a silver service by the employees of the Washington, Baltimore & Annapolis Electric Railway. The service is contained in a massive mahogany case, upon which is inscribed "Presented to J. N. Shannahan by his co-employees of the W., B. & A. R. R. Co. as a token of their regard and esteem. 1907-1911." A farewell banquet was given Mr. Shannahan at the Rennett Hotel, Washington, by the heads of the various departments of the company.

**Mr. W. F. Raber**, general manager of the Ottumwa Railway & Light Company, Ottumwa, Ia., has been placed in charge of the Pueblo & Suburban Traction & Lighting Company, Pueblo, Col., temporarily by H. M. Byllesby & Company, Chicago, Ill., by whom the property at Pueblo has been taken over. Mr. Raber is a native of Ohio. He entered business with the Bell Telephone Company more than twenty years ago, but soon took up street railway and electric lighting work. He managed lighting plants for some time and finally became general manager of the Mansfield Railway, Light & Power Company, Mansfield, Ohio. He next became connected with H. M. Byllesby & Company, Chicago, and served them for some time as manager of electric light, power and gas plants in Oklahoma. In 1906 he was appointed by H. M. Byllesby & Company as manager of the Ottumwa Railway & Light Company.

**Mr. A. D. Kimmett**, whose appointment as master mechanic of the Lackawanna & Wyoming Valley Railroad, Scranton, Pa., to succeed Mr. F. J. Stevens, resigned, was noted in the *ELECTRIC RAILWAY JOURNAL* of July 1, 1911, entered railway work in the shops of the Central Railroad of New Jersey at Mauch Chunk, Pa. Subsequently he was appointed a car inspector by this company and the following year was transferred to Ashley, Pa., where he filled various clerical positions in the office of the assistant superintendent of motive power. In 1903 he was made piecework inspector at the machine shops of the company, and in November, 1904, he commenced an apprenticeship to become a machinist. In December, 1908, Mr. Kimmett entered the employ of the Illinois Traction System at Decatur, Ill., as an air-brake inspector, and remained with that company until Jan. 1, 1910, when he accepted the position of assistant master mechanic of the Lackawanna & Wyoming Valley Railway.

**Mr. Carl Raymond Gray**, who was elected president of the United Railways, the Oregon Electric Railway, the Oregon Trunk Railway, the Pacific & Eastern Railway, the Spokane, Portland & Seattle Railway and the Astoria and Columbia River Railroad, with office at Portland, Ore., early in 1911,

to succeed Mr. John F. Stevens, has been elected president of the Spokane & Inland Empire Railroad, to succeed Mr. Jay P. Graves. Mr. Gray was born on Sept. 28, 1867, and was educated at the Arkansas Industrial University. He entered railway service in 1882 as a telegraph operator with the St. Louis & San Francisco Railroad, and he served that company continuously until he was elected to the United Railways, the Oregon Electric Railway and other properties previously mentioned. While with the St. Louis & San Francisco Railroad Mr. Stevens filled the position of telegraph operator and general claim agent, clerk in the transportation department, commercial agent, division freight agent, division superintendent, superintendent of transportation, general manager, second vice-president, general manager and first vice-president.

Mr. J. F. Vail has retired as treasurer, general manager and purchasing agent of the Pueblo & Suburban Traction & Lighting Company, Pueblo, Col., the property having been purchased recently by H. M. Byllesby & Company, Chicago, Ill. Mr. Vail entered street railway work with the Grand River Street Railway, Detroit, Mich., in 1879. In 1880 he became connected with the Denver Horse Railroad, then operating twelve cars. A year later he went to the Northwest, but returned to Denver in 1883 and re-entered the employ of the Denver Horse Railroad. In December, 1888, he was made manager of the Pueblo Horse Railway, which then operated eight cars. In 1890 the property at Pueblo was rebuilt and extended to Lake Winnequa under the supervision of Mr. Vail under a new franchise. In February, 1901, the Pueblo Horse Railway was sold, and Mr. Vail resigned to assist in organizing the Citizens' Electric Light & Power Company, Pueblo. This company built and operated a power plant under the management of Mr. Vail, but when this plant and other properties at Pueblo were taken over by the Pueblo & Suburban Traction & Lighting Company in 1897 Mr. Vail was appointed general manager of the company. The employees of the company recently presented Mr. Vail with a diamond stud as a token of esteem.

Mr. J. C. Collins, secretary and auditor of the New York State Railways, Rochester, N. Y., who was elected secretary of the Street Railway Association of the State of New York at the annual meeting which was held at Coopers-town, N. Y., on June 27, 1911, began his railroad career as assistant to the vice-president of the Norfolk & Western Railroad in charge of accounts. He next became connected with E. W. Clark & Company, Philadelphia, Pa., who control a number of electric railways. He was subsequently made assistant secretary of the Camden & Suburban Railway, Camden, N. J., controlled by E. W. Clark & Company, but later he returned to the main office of Clark & Company in Philadelphia, where he remained until July 1, 1904, when he was transferred by the firm to Rochester. Later he was made secretary of all the electric railways centering in Rochester in which Clark & Company were interested. Mr. Collins continued with the Rochester Railway & Light Company when the property was taken over by the Andrews-Vanderbilt syndicate and was later made secretary and auditor of the Rochester Railway & Light Company. When the New York State Railways was organized to take over the electric railways at Rochester he was made secretary and auditor of that company.



J. C. Collins

#### OBITUARY

William N. McGee, superintendent of the Griffin Car Wheel Company, Chicago, Ill., died on June 25.

N. W. Halsey, of N. W. Halsey & Company, bankers, New York, N. Y., died in New London, Conn., on July 1, 1911.

## Construction News

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

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

#### RECENT INCORPORATIONS

\***West Peak Railroad, Meriden, Conn.**—Incorporated in Connecticut to build an electric railway from the connection with the Connecticut Company's line at Southington to the summit of West Peak in Meriden. C. J. Danaher, Meriden, is interested.

\***Chicago, Waukegan & Fox Lake Traction Company, Chicago, Ill.**—Incorporated in Illinois to build an electric railway from Waukegan to Woodstock through the Counties of Lake and McHenry. Headquarters: Chicago. Capital stock, \$2,500,000. Incorporators and first board of directors: Charles A. Spenny, Columbus, Ohio; W. P. MacCracken, Irving D. Stevens, Peter B. Olsen and H. S. Hedberg, all of Chicago.

\***Hamilton (Ill.) Railway.**—Application for a charter has been made in Illinois by this company to build an electric railway from the bridge over the Mississippi River between Hamilton and Keokuk to Hamilton and Warsaw. Capital stock, \$11,000. Incorporators: George Higginson, Winnetka; J. D. Harney, Geneva; J. L. Valentine, W. Walls and A. W. Harro, Carthage.

\***Camp Creek Railway, Bozeman, Mont.**—Application for a charter has been made by this company in Montana to build a 20-mile line from Manhattan into the Camp Creek country. Preliminary surveys have been made and most of the right-of-way has been secured. Capital stock, \$100,000. Incorporators: A. M. Harvey, Livingston; Charles L. Anceny, Salesville; F. L. Benepe, A. J. Walrath and H. S. Buell, all of Bozeman.

\***Columbia Falls & Southern Railroad, Columbia Falls, Mont.**—Incorporated in Montana to build an electric or steam railroad south from Columbia Falls. Capital stock, \$100,000. Incorporators: A. L. Jordan, J. T. Robinson, John Laux, W. P. Snow and H. F. Jessup.

\***Republic Railway & Light Company, Trenton, N. J.**—Incorporated in Trenton on June 28 to take over certain properties in accordance with plans as recorded in the ELECTRIC RAILWAY JOURNAL for July 1, page 62. Capital stock, \$17,500,000. Incorporators: M. Gregg Latimer and William Henry Hoyt, Brooklyn, and John D. Marsh, New York.

\***Rapid Transit & Terminal Railway, Cleveland, Ohio.**—Incorporated in Ohio to build underground terminals in Cleveland and to give terminal facilities to all the inter-urban lines entering Cleveland. It is said that the company will spend \$50,000,000 for this work if the co-operation of other roads can be secured. Capital stock, \$100,000. Incorporators: W. R. Hopkins, B. F. Hopkins and A. G. Newcombe.

\***National Power Company, Pittsburgh, Pa.**—Chartered in West Virginia to build an electric railway from Point Marion to parallel the Cheat River. Incorporators: F. B. Parriott, W. B. Beecher, E. J. Cole, W. H. Young and S. B. Kelley, all of Pittsburgh.

\***Amarillo (Texas) Traction Company.**—Chartered in Texas to build an electric railway in Amarillo and extend it to San Jacinto Heights. Capital stock, \$24,000. Incorporators: Mark Logan, W. W. Lynch and N. A. Brown. [E. R. J., Oct. 29, '11.]

\***Gilmer & Parkersburg Railway, Glenville, W. Va.**—Chartered in West Virginia to build a 12-mile electric railway between Gilmer station, on the C. & C. Railroad, and Glenville, W. Va. Grading will be done in the fall. Robert L. Ruddell, Glenville, general manager.

#### FRANCHISES

\***Tuscaloosa, Ala.**—F. G. Blair and H. B. Foster, Tuscaloosa, have asked the Council for an electric railway franchise in Tuscaloosa.

**Little Rock, Ark.**—The Little Rock Railway & Electric Company has received a franchise from the City Council to

extend its South Main Street line into the extreme southern limits of Little Rock.

**Burlingame, Cal.**—The Town Trustees have passed a resolution granting to the highest bidder a franchise for an electric railway from the Southern Pacific station at Easton through the Easton additions to Burlingame. [E. R. J., April 22, '11.]

**Fowler, Cal.**—The Fresno, Hanford & Summit Lake Interurban Railway, Fresno, have received a franchise from the City Council in Fowler.

**Modesto, Cal.**—The Tidewater & Southern Railroad Company, Stockton, has received a franchise from the Council in Modesto.

**Oakland, Cal.**—The Oakland & Bay Shore Railway has received a 35-year franchise from the City Council in Oakland. [E. R. J., April 29, '11.]

**San Jose, Cal.**—The Peninsula Railway has asked the Town Board to advertise for sale a franchise for an electric railway extending on the Milpitas Road from Twelfth Street to the Berryessa Road and thence on the Berryessa Road to Fourteenth Street in San Jose.

**Santa Clara, Cal.**—The Peninsula Railway, San Jose, has asked the Board of Trustees for a franchise to extend its tracks over several streets in Santa Clara.

**Turlock, Cal.**—The Turlock Traction Company, Modesto, has received a 50-year franchise in Turlock. This line will connect Turlock, Newman and Modesto. [E. R. J., April 29, '11.]

**Williamsburg, Col.**—B. F. Foor, representing the Florence Interurban Electric Company, Florence, has received a franchise in Williamsburg. This is part of a plan to build an electric railway between Florence, Williamsburg, Rockvale and Coal Creek. [E. R. J., June 10, '11.]

**Kissimmee, Fla.**—The Citrus Southern Electric Railway, Orlando, has received a franchise from the City Council in Kissimmee. The franchise also provides for a dock and wharf extending into Lake Tohopekalie. This line will extend from Sanford, where it will connect with the Clyde Line of steamers, via Orlando, with its terminus at Kissimmee. T. K. Miller, Orlando, president. [E. R. J., June 24, '11.]

**Becket, Mass.**—The Berkshire Street Railway has asked the Board of Selectmen for a franchise to extend its tracks from the Lee line through West Becket and South Becket to the Otis line in Becket.

**Worcester, Mass.**—The Worcester Consolidated Street Railway has received a franchise from the Aldermen to double track several of its lines in Worcester.

**East Lansing, Mich.**—The Michigan United Railways has asked the Council for a franchise to double track its line in East Lansing and straighten its Pine Lake division.

**East Syracuse, N. Y.**—The Syracuse Rapid Transit Railway has asked the Village Trustees for a franchise to double track some of its lines in East Syracuse.

**\*Oklahoma City, Okla.**—W. F. Harn, John F. E. Winans and Homer S. Hurst representing the Citizens' Traction Company, Oklahoma City, will ask the City Council for a franchise to build 15 miles of track in Oklahoma City.

**East Youngstown, Pa.**—The Mahoning & Shenango Railway & Light Company, Youngstown, has asked the Council for a franchise to double track its line in East Youngstown.

**Providence, R. I.**—The Old Colony Street Railway, Boston, has received a franchise from the Board of Aldermen to extend its Columbia Street line in Providence.

**\*Rock Hill, S. C.**—J. M. Cherry and associates have asked the Chamber of Commerce to indorse their request for a 60-year franchise to build an electric railway from Rock Hill to connect with the Seaboard & Catawba Valley Railroad near Catawba Junction, giving through connection from Rock Hill to Great Falls.

**Milwaukee, Wis.**—The Milwaukee Electric Railway & Light Company has asked the Common Council for two franchises in Milwaukee. One is for the continuation of the Twenty-seventh Street line north to the city limits and the other to extend its tracks on Teutonia Avenue.

**Milwaukee, Wis.**—The Milwaukee Western Electric Rail-

way has asked the Common Council for a new franchise to operate its cars over the tracks of the Milwaukee Electric Railway & Light Company on the Walnut Street line in Milwaukee.

#### TRACK AND ROADWAY

**Little Rock, Pine Bluff & Eastern Traction Company, Little Rock, Ark.**—It is reported that this company has secured the right-of-way of the Little Rock & Pine Bluff Traction Company, amounting to 37 miles. This line will connect Little Rock and Pine Bluff, via Altheimer, Stuttgart, Helena and Clarendon. C. C. Kavanaugh, president. [E. R. J., May 20, '11.]

**Pacific Electric Railway, Los Angeles, Cal.**—It is reported that this company contemplates the immediate construction of an extension between San Bernardino and Rialto, and probably to Ontario.

**\*San Bernardino, Cal.**—William G. Kerckhoff, Los Angeles, president of the Ontario & San Antonio Heights Railroad, states that he will build an electric railway between San Bernardino and Upland, connecting at Upland with the Pacific Electric Railway, thus affording through service to Los Angeles. Right-of-way and franchises will be secured at once.

**Peninsular Railway, San Jose, Cal.**—Plans are being made by this company to build an extension south from San Jose to Palo Alto toward Paraja.

**Vallejo & Northern Railway, Vallejo, Cal.**—The Sacramento & Woodland Railway, a subsidiary of this company, will build the first division in the chain of railways to be built by the Vallejo & Northern Railway. This line will extend along the Sacramento River on the east side for about 15 miles and then across the Yolo basin to Woodland. The terminal will be in West Sacramento. T. T. C. Gregory, Suisun, president. [E. R. J., June 24, '11.]

**Baltimore & Washington Transit Company, Washington, D. C.**—This company has applied to the Public Service Commission of Maryland for authority to issue \$50,000 of 5 per cent second mortgage bonds. The company contemplates an extension to Sandy Spring, Md., 14 miles.

**\*Forest Park, Ill.**—Henry J. Mohr, Forest Park, and associates plan to build an electric railway between Berwyn, Forest Park, Lyons and Cicero.

**\*Princeton, Ill.**—C. N. Gerard, Bradford, plans to build an electric railway between Kewanee, Henry, Elmira and Bradford, a distance of about 40 miles.

**Indianapolis, Chicago & Meridian Railway, Indianapolis, Ind.**—Preliminary surveys have been made and construction will begin within the next few months by this company on its double-track electric railway to connect Indianapolis, Sheridan, Flora, Monticello, Francisville, Koutz, Valparaiso, Hobart, Wheeler, Gary, Hammond and Warsaw. Negotiations are being made with the Illinois Central Railroad to use its tracks from Hammond to Chicago. M. J. Moreland is interested. [E. R. J., June 10, '11.]

**Vincennes, Washington & Eastern Traction Company, Vincennes, Ind.**—This company increased its capital stock from \$100,000 to \$600,000. The construction of this line has been begun between Vincennes, Washington and Loogootee. [E. R. J., July 1, '11.]

**Davenport-Muscatine Railway, Davenport, Ia.**—This company advises that it has begun the construction of its 30-mile electric railway between Davenport and Muscatine. It will buy power from the Tri-City Railway & Light Company, and it will furnish power for lighting purposes. It will also use the repair shops of the Tri-City Railway & Light Company. Capital stock, authorized, \$1,000,000. Officers: J. F. Porter, Davenport, president; J. R. Lane, vice-president; H. E. Weeks, Davenport, secretary; J. M. Thayer, treasurer; George G. Kuhn, Rock Island, Ill., purchasing agent, and J. G. White & Co., Davenport and New York, electrical engineers. [E. R. J., July 1, '11.]

**Southwestern Traction Company, New Orleans, La.**—This company advises that it will begin work within sixty days on the first 17-mile section between New Iberia and Jeanerette. Headquarters, Hennen Annex, New Orleans. R. E. L. C. Reis, secretary. [E. R. J., June 10, '11.]

**\*Tolland County Street Railway, Stafford Springs, Mass.**

—This company, which was granted a charter several years ago has just organized to build an electric railway between Stafford Springs and Staffordville. Directors: A. S. May, B. I. Spockland and N. S. Buckingham.

**Battle Creek, Coldwater & Southern Railway, Battle Creek, Mich.**—The J. T. Adams Construction Company, Columbus, Ohio, has been awarded the contract by this company to build its 28-mile electric railway between Battle Creek and Coldwater. It is expected to begin work in the fall. A. C. Kingman, Battle Creek, president. [E. R. J., June 3, '11.]

**Saginaw & Flint Railway, Saginaw, Mich.**—Surveys are being made by this company to build an extension from Saginaw to Bay City.

**Minneapolis Northern Suburban Railway, Minneapolis, Minn.**—Work has been begun by this company on its 15-mile electric railway between Minneapolis and Little Falls. [E. R. J., June 1, '11.]

**Cape Girardeau-Jackson Interurban Railway, Cape Girardeau, Mo.**—Preliminary surveys are being made by this company to build an extension from Cape Girardeau to Jackson, Illmo, Edna and Chaffee.

**Missouri & Kansas Interurban Railway, Kansas City, Mo.**—This company has filed an application with the Kansas State Board of Railway Commissioners for permission to issue \$300,000 of stock to double track its line from Thirty-ninth Street, Kansas City, to Overland Park, and reballast the entire line, and for the acquisition of additional power equipment.

**Omaha, Sioux City & Northern Railway, Omaha, Neb.**—The Kansas Construction & Irrigation Company, Garden City, Kan., has been awarded the contract by this company to build its 90-mile electric railway to connect Omaha, Blair, Tekaman, Decatur and Sioux City. B. M. McCue and E. A. Tennis, Garden City, are interested. [E. R. J., May 20, '11.]

**Suffolk Traction Company, Patchogue, N. Y.**—This company has completed and placed in operation its line from Main Street, Patchogue, to Blue Point. It expects to have its extension to Port Jefferson completed this summer. The company has also been granted an extension of time in which to build its line down Ocean Avenue to the Great South Bay.

**Western Ohio Railway, Lima, Ohio.**—An extension from Fremont to Tiffin is being considered by this company.

**Oklahoma (Okla.) Railway.**—This company is about to begin the construction of another extension over one of the three following routes, viz.: Yukon to El Reno, Moore to Norman or Edmund to Guthrie. Just which one of the extensions will be built at the present time will depend upon the decision of the board of directors, which will be made within the next ten days.

**Johnstown (Pa.) Traction Company.**—Surveys have been begun by this company to build an extension from Johnstown to Westmont.

**Ephrata & Lebanon Street Railway, Lebanon, Pa.**—Construction will be begun at once by this company on its 23-mile electric railway between Ephrata and Lebanon. The company is now on the market for construction material. M. H. Shirk, Lincoln, secretary. Headquarters: Mentzer Building, Ephrata. [E. R. J., June 24, '11.]

**Pittsburgh (Pa.) Railways.**—The Carnegie Company has been awarded a contract by this company for 500 tons of rails.

**West Penn Railways, Pittsburgh, Pa.**—The Crossen Construction Company, Brownsville, has been awarded the contract by this company for the grading and masonry work for a 2-mile extension from Masontown on the route to the Martin works. This is part of the contemplated extension from Masontown to Morgantown, W. Va.

**Chattanooga Railway & Light Company, Chattanooga, Tenn.**—The double tracking of the Oak Street division in Chattanooga has been begun by this company.

**Nashville-Gallatin Interurban Railway, Gallatin, Tenn.**—H. H. Mayberry, Nashville, president of the Fidelity Securities Corporation, which will build this line, states that contracts will be awarded to build the following bridges: One

truss, 100 ft.; one through girder, 60 ft.; one deck girder, 60 ft.; one deck girder, 65 ft., delivery to be made at Nashville within 60 days. The Fidelity Securities Corporation has increased its capital stock to \$300,000 which it has announced is fully subscribed. The number of directors has been increased from five to nine. [E. R. J., June 24, '11.]

**Amarillo Improvement Company, Amarillo, Tex.**—A contract has been made by this company and the Amarillo Water, Light & Power Company whereby the San Jacinto Heights electric railway will be operated by electricity. The line will extend from Amarillo to San Jacinto Heights. The service will begin on Nov. 1. [E. R. J., March 27, '11.]

**Dallas, Tex.**—E. T. Moore, manager of the Dallas Consolidated Electric Street Railway, Dallas, advises that a company has not yet been organized to build the 30-mile electric railway between Dallas and Waxahachie, via Lancaster, Red Oak and Sterrett. Stone & Webster, Boston, Mass., will build the line. E. Moore, Dallas, manager. [E. R. J., June 24, '11.]

**\*Ebenezer, Tex.**—The Alamo Land & Sugar Company will construct a 16-mile line to extend from Ebenezer to various points upon its tract of 32,000 acres of land. The construction will begin soon. It is proposed to operate gasoline motor cars at first, but later the line is to be electrified.

**Gray's Harbor Railway & Light Company, Aberdeen, Wash.**—Plans are being made by this company to build a three-mile extension of track in Aberdeen.

**Twin City Electric Company, South Bend, Wash.**—Ray Fulcher and P. Pristoni, San Francisco, said to represent Sanderson & Porter, New York, N. Y., have taken charge of the preliminary work and construction of this railway between South Bend and Raymond. J. O. Cray, who obtained the franchise for this line, has assigned it to Sanderson & Porter. [E. R. J., March 18, '11.]

**Walla Walla (Wash.) Traction Company.**—This company is rebuilding and repaving some of its tracks in Walla Walla.

**Fairmont, Clarksburg & Grafton Railway, Clarksburg, W. Va.**—Final surveys have been made, the necessary stock sold and construction will soon be begun by this company on its 22-mile electric railway between Fairmont, Clarksburg and Grafton. Charles F. Sutherland, Morgantown, president. [E. R. J., May 13, '11.]

**Fairmont & Pittsburgh Railway, Fairmont, W. Va.**—The entire right-of-way has been secured by this company for its 80-mile electric railway between Fairmont, W. Va., and Pittsburgh, Pa.

**\*Wheeling, W. Va.**—Albert M. Schenk, Wheeling, and associates have plans under consideration to build an electric railway between Wheeling, Parkersburg, Moundsville and Sistersville. Franchises will be asked for at once.

**Badger Railway & Light Company, Milwaukee, Wis.**—The Railroad Commission of Wisconsin has authorized this company to issue 2550 shares of common stock of the par value of \$100 each. Stock of par value \$216,000 is to be issued and exchanged for the right-of-way and the grading on which the company proposes an electric railway between Whitewater and Lake Geneva, a distance of about 22 miles. Stock of the par value \$39,000 is to be sold for not less than par to provide funds for the expenses of construction. Gustav Pickhardt, 711 Majestic Building, Milwaukee, chief engineer. [E. R. J., March 11, '11.]

## SHOPS AND BUILDINGS

**Vallejo & Northern Railway, Vallejo, Cal.**—This company expects to build a terminal station and repair shops at West Sacramento. T. T. C. Gregory, Suisun, president.

**Indianapolis & Cincinnati Traction Company, Indianapolis, Ind.**—Plans are in progress by this company to remodel its two-story depot at Rushville.

**Des Moines (Ia.) City Railway.**—In connection with its plan to spend about \$500,000 in improvements this company is considering the construction of a new carhouse. No site has as yet been selected for the structure.

**Iowa City (Ia.) Electric Railway.**—This company will construct a new waiting room in Iowa City at the north

end of its line where it intersects with the road leading to the city park at Park Bridge.

**Blue Grass Traction Company, Lexington, Ky.**—A two-story passenger and freight station will be constructed by this company at Paris.

**Northern Ohio Traction & Light Company, Akron, Ohio.**—This company has secured another block of land at the corner of Boulevard and Lakeside Avenues, Akron, Ohio, which will be added to that already purchased for its new carhouses. In addition to the carhouses the company has planned to erect a large repair and machine shop on a portion of the land.

**Portland Railway, Light & Power Company, Portland, Ore.**—Work will be begun at once by this company on the erection of a consolidated carhouse in Portland. The cost is estimated to be about \$500,000.

**Tacoma Railway & Power Company, Tacoma, Wash.**—This company is having plans prepared for the erection of a depot, construction on which will be begun shortly.

**Fairmont & Clarksburg Traction Company, Fairmont, W. Va.**—The Owego Bridge Company, Owego, N. Y., has been awarded the contract by this company to build its new carhouse in Clarksburg. The structure will be located on the land adjoining the present interurban station. It will be 200 ft. long and of metal construction with a steel trussed roof and upon concrete foundations. It will be five tracks in width. The cost is estimated to be about \$15,000. James O. Watson, Fairmont, general manager.

**POWER HOUSES AND SUBSTATIONS**

**Connecticut Company, Hartford, Conn.**—This company has completed the necessary changes in the power house at Buckland and West Streets in Hartford. [E. R. J., May 27, '11.]

**Indianapolis, Chicago & Meridian Railway, Indianapolis, Ind.**—It is reported that this company intends to build its new power stations at Monticello and at Indianapolis. M. J. Mooreland is interested. [E. R. J., June 10, '11.]

**Boone (Ia.) Electric Company.**—This company has awarded a contract to the Allis-Chalmers Company for two 1000-kw turbines, and another contract has been placed with the Edge Moor Iron Company for three 400-hp boilers. In addition to its street railway service the Boone Electric Company has a central station which has just secured a contract from the Chicago & Northwestern Railway to supply power for the operation of extensive new car shops at Boone.

**Des Moines (Ia.) City Railway.**—This company has announced that at the power house on East Maple Street and the river an addition will be constructed on the river end of the present plant to contain a 2000-kw low-pressure turbine with necessary condensers, switchboard and transformers. A new coal and ash-conveying plant and an electrically operated 30-ton crane will be installed at the power station. Besides the 300-kw rotary converter to be located at Klondike Junction, north of Grand View Park, a 500-kw rotary will be located at Flint Junction.

**Mahoning & Shenango Railway & Light Company, Youngstown, Ohio.**—Additions and improvements will be made by this company at once at its North Avenue power house in Youngstown. The capacity of the plant will be increased 50 per cent, making the total capacity 13,000 kw. The addition will be a one-story brick structure containing over 1500 sq. ft. of floor space. The new equipment has been contracted for and will include a 4000-kw turbine, a 12,000-sq. ft. surface condenser, a 200-hp pump for supplying water for the condenser, and two 500-hp boilers, in addition to boiler feed pumps and various other necessary auxiliaries.

**Portland Railway, Light & Power Company, Portland, Ore.**—This company has completed its 8,000-hp steam plant at the foot of Lincoln Street in Portland. This plant is to provide for emergencies when transmission wires break down. The structure is 160 ft. x 130 ft. and of reinforced concrete construction. The plant consists of 16 boilers, one reciprocating engine, two steam turbines and 2000-kw motor generators. In addition, there are vacuum and circulating pumps. The cost is estimated to be about \$200,000. [E. R. J., March 19, '11.]

**Manufactures & Supplies**

**ROLLING STOCK**

**Columbus, Marion & Bucyrus Railroad, Marion, Ohio,** has purchased four 30-ton standard steam railroad gondola cars.

**Portland Railway, Light & Power Company, Portland, Ore.,** has ordered through Pierson, Roeding & Company six Brill 21-E trucks without wheels.

**Morris County Traction Company, Morristown, N. J.,** has ordered ten quadruple equipments of No. 101-B-8 railway motors with type K-28-B control from the Westinghouse Electric & Manufacturing Company.

**Marshall (Tex.) Traction Company** has ordered two double equipments of No. 307 interpole railway motors with type K-10 control from the Westinghouse Electric & Manufacturing Company.

**Philadelphia (Pa.) Rapid Transit Company** will shortly be in the market for thirty elevated cars. The plans for the rehabilitation of the property call for two hundred additional surface cars, but the company states that no definite time has been set for the purchase of these cars.

**Houston (Tex.) Electric Company,** noted in the ELECTRIC RAILWAY JOURNAL of May 6, 1911, as having ordered five double-truck, single-end cars from the St. Louis Car Company, has specified the following details for this equipment:  
 Seating capacity.....40  
 Length of body....26 ft. 6 in.  
 Over vestibule....38 ft. 6 in.  
 Width over sills...8 ft. 4 in.  
 Over all .....8 ft. 7 in.  
 Height, rail to sills, 3 ft. 1½ in.  
 Sill to trolley base.....8 ft.  
 Body .....semi-steel  
 Interior trim.....mahogany  
 Roof .....arched  
 Underframe .....composite  
 Control .....GE K-36  
 Couplers .....radial  
 Curtain material...Pantasote  
 Destination signs....Hunter  
 Wheel guards .....H-B  
 Hand brakes.....Ackley  
 Headlights ....Crouse-Hinds  
 Motors .....2 G. E.-219  
 Seats .....Heywood  
 Trolley base....Sterling-M.  
 Trucks .....Brill 39-E  
 Wheels .....chilled iron  
 Drivers .....33 in.  
 Pony .....21 in.

**Greenville, Spartanburg & Anderson Railway, Greenville, S. C.,** has included the following in its specifications for the seventeen four-compartment high-speed interurban cars which are being built by the Jewett Car Company:

Seating capacity.....60  
 Weight (body only).38,000 lb.  
 Bolster centers, length, 39 ft. 5 in.  
 Over vestibule.....60 ft.  
 Width over sills....9 ft. 2 in.  
 Over all.....9 ft. 4 in.  
 Height, rail to sills, 3 ft. 8 in.  
 Sill to trolley base..9 ft. 9¾ in.  
 Body .....wood  
 Interior trim.....mahogany  
 Headlining .....Agasote  
 Roof .....monitor  
 Underframe .....Composite  
 Air brakes...West. A. M. M.  
 Axles .....6 in.  
 Car trimmings .....bronze  
 Control....for 1500 volt d.c.  
 Couplers .....Tomlinson  
 Curtain fixtures...C. S. Co.  
 Curtain material...Pantasote  
 Fenders.....loco. type, pilot  
 Gongs .....12 in.  
 Heaters .....Consol.  
 Headlights ....Crouse-Hinds  
 Journal boxes, A. E. R. A., Std.  
 Motors .....4-1500-volt dc.  
 Motors .....inside hung  
 Sanders .....air  
 Sash fixtures.....Edwards  
 Seats....H. & K. Walkover  
 Seating material, leather and frieze plush  
 Trolley retrievers...Knutson  
 Trucks,  
 M. C. B., 7-ft. wheel base  
 Wheels ...36-in. rolled steel  
 M. C. B., 7-ft. wheel base

The six cars ordered by the Piedmont Traction Company will also be built in accordance with the specifications of the Greenville, Spartanburg & Anderson Railway.

**TRADE NOTES.**

**Indian Refining Company, New York, N. Y.,** announces that its general and executive offices are now located permanently in the Whitehall Building, 17 Battery Place, New York.

**Ackley Brake Company, New York, N. Y.,** reports the receipt of additional orders for Ackley brakes from Seville, Spain and the Sao Paulo Tramway, Light & Power Company, Sao Paulo, Brazil.

**Haskel & Barker Car Company, Michigan City, Ind.,** has awarded a contract to the American Bridge Company for

about 2500 tons of structural material to be used in the construction of its new steel car shops.

**Duffy & Boyd Hardened Copper Company, Gardiner, Me.**, has been chartered in Maine to manufacture copper trolley wheels. The authorized capital stock is \$100,000. C. A. Messer is president and J. Boyd, Togus, is treasurer.

**Rush, Otis & Company, Chicago, Ill.**, has been formed by C. G. Rush and H. B. Otis to continue the old business of C. G. Rush & Company. The new firm will act as electrical contracting engineers, with offices at 69 West Washington Street, Chicago.

**Sangamo Electric Company, Chicago, Ill.**, has removed its Chicago office to 617-631 West Jackson Boulevard, where it will occupy joint offices with the Delta-Star Electric Company, whose president, H. W. Young, is also manager for the Sangamo Electric Company.

**Pittsburgh, Transformer Company, Pittsburgh, Pa.**, announces that its Western sales agency is now conducted by the Delta-Star Electric Company, 617-631 West Jackson Boulevard, Chicago, Ill. The Western agency was formerly held by the Republic Electric Company, controlled by stockholders of the Delta-Star Electric Company. The officers of the Delta-Star Electric Company are: H. W. Young, president, and A. S. Pearl, secretary.

**Wonham, Sanger & Bates, New York, N. Y.**, are circulating a significant passage from the report of the Birmingham (Eng.) Tramways for the year ending March 31, 1911, to the effect that the adoption of C-H ampere-hour meters on the cars resulted in a current saving of about £5,000 for the first nine months' service. As previously noted in these columns, the successful work of this meter abroad led to its introduction to American electric railways by Wonham, Sanger & Bates.

**Col. Henry G. Prout**, vice-president and general manager of the Union Switch & Signal Company, Swissdale, Pa., and formerly, for sixteen years, 1887-1903, editor-in-chief of the *Railroad Gazette*, received last week from the University of Michigan the honorary degree of Doctor of Laws. Colonel Prout graduated from the University of Michigan in 1871, with the degree of C. E., and in 1902 received from Yale University the honorary degree of Master of Arts.

**The J. G. Brill Company, Philadelphia, Pa.**, has received the following orders for export: M. E. Curwin, London, Eng., fifty Brill 21-E trucks; Noyes Brothers, for Wanganui Corporation Tramways, New Zealand, eight Brill 21-E trucks without wheels and axles; Agar Cross & Company, for La Plata Electric Tramways Company, Argentina, ten Brill 21-ft. 4-in. semi-convertible car bodies mounted on Brill 21-E trucks; Sao Paulo Tramway, Light & Power Company, Brazil, 25 Brill 21-E trucks without wheels; Thomas Barlow & Son, for Durban Corporation Tramways, Durban, Natal, six Brill 21-E trucks without wheels and axles.

**Davis-Bournonville Company, Chicago, Ill.**, announces that it has been appointed by the Davis-Bournonville Acetylene Development Company and the National Pneumatic Company to act as their exclusive selling agent for welding and cutting apparatus, and has added largely to its working capital and executive force. The business of the Davis-Bournonville Company will be divided into the Eastern department, with offices in its present quarters, 90 West Street, New York, N. Y., and the Western department, with offices at 515 Laflin Street, Chicago, the present quarters of the welding department of the National Pneumatic Company.

**American Mason Safety Tread Company, Boston, Mass.**, has shipped to the American Car & Foundry Company, New York, at its Jeffersonville, Ind., shops red car karbolith surfacing material for 19,500 sq. ft. and car karbolith for 21,000 sq. ft. for new passenger coaches for the Baltimore & Ohio Railroad. This company is shipping to the Pressed Steel Car Company car karbolith for flooring twenty-five postal cars for the New York Central & Hudson River Railroad; also 17,760 sq. ft. of red karbolith for passenger coaches, and 2280 sq. ft. of karbolith for table tops. The Interborough Rapid Transit Company, New York, has re-

cently received several consignments of carborundum karbolith surfacing material.

**Jones & Laughlin Steel Company, Pittsburgh, Pa.**, on July 1 opened its own office in the Penobscot Building, Detroit, Mich. It has been represented in Detroit heretofore by F. A. Goodrich & Company. Frederick H. Holt, now in charge of the office of F. A. Goodrich & Company, will be district sales manager in Detroit. The Jones & Laughlin Company will also open offices in the Pierce Building, St. Louis, Mo., where the F. A. Goodrich Iron & Steel Company has been representing it. E. D. Batchelder, now in the sales department of the general offices of the Jones & Laughlin Steel Company, will be district sales manager in St. Louis. A. C. Pollock, in the sales department of the general offices, has been put in charge of the newly established Pittsburgh sales district.

**Westinghouse Electric & Manufacturing Company, Pittsburgh, Pa.**, has received orders for power equipment from the following companies: Chicago, Ottawa & Peoria Railway, Ottawa, for substation equipment consisting of nine 110-kw, 33,000-volt oil-insulated, self-cooling transformers, three five-panel switchboards and the necessary lightning protective apparatus; Merchants' Light & Power Company, Ogden, Utah, for four 500-kw oil-insulated, water-cooled transformers and five 75-light metallic flame arc lamp outfits; Kentucky Electric Company, Louisville, Ky., for one 1500-kw air-blast transformer with blower outfit. Foreign railway motor business recently secured includes an order from Walter Brothers & Company, Rio de Janeiro, Brazil, for fifteen double equipments of No. 101-G motors with type K-10-A control.

**Standard Underground Cable Company, Pittsburgh, Pa.**, calls attention to the longevity of one of its underground cables which was removed from a duct in Philadelphia Sept. 22, 1910, owing to a re-arrangement of circuits. This cable was installed during May, 1886, having been manufactured by the Standard Underground Cable Company. It had been in operation therefore continuously for over twenty-four years, and at the time of its removal showed absolutely no indication of deterioration in any way, notwithstanding the fact that while the cable was sold to operate under a working pressure of 600 volts, the circuit had for years been used for 2000-volt arc-light service. The insulation is of a saturated fiber, a type that, due to the increasing demand for higher voltage, has been largely superseded. The cable is a No. 4 B & S. gage stranded conductor made up of sixteen No. 16 B. & S. gage wires. The original specifications called for a braid of cotton yarn over the lead and its saturation with No. 2 P. & B. paint, to protect the lead cover against chemical action.

#### ADVERTISING LITERATURE

**Ansonia Brass & Copper Company, New York, N. Y.**, is mailing a 36-page catalog which describes Tobin bronze. The publication also contains tables showing the results of various tests and commendatory letters from users of Tobin bronze.

**Standard Steel Works Company, Philadelphia, Pa.**, has issued a new catalog on steel tires, giving in detail the specifications which were adopted by the American Society for Testing Materials. Illustrations, diagrams and a facsimile of dimension blank for sending orders are included.

**General Electric Company, Schenectady, N. Y.**, has issued Bulletin 4818, which describes and illustrates its flange and flexible couplings. Bulletin 4832 describes a line of commutating-pole generators in which commutating trouble is eliminated. These range in capacity from 20 to 150 kw and are wound for 125, 250 and 575 volts. They may be equipped with sliding base or with belt tightener, as desired. Bulletin 4846 describes the company's alternating-current switchboard panels. Bulletin No. 4852 contains a description of the company's standard 50-ton electric locomotive and its equipment, and a statement of features of construction which have made it particularly suitable for the requirements of the heaviest interurban roads. The bulletin also contains an information sheet for the use of those considering the adoption of such a locomotive. Bulletin 4829 describes and illustrates electric locomotives for industrial railways. These locomotives are built for both standard and narrow gage.