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CONTENTS.

The Milwaukee Valuation

Different values were determined by the companies and the Railroad Commission of Wisconsin in connection with the Milwaukee fare case. The values on which the company claimed a return were published in the issues of the ELECTRIC RAILWAY JOURNAL at the time of the hearings in the case before the commission during 1909. The Railroad Commission has now made public its figures of the values in connection with the announcement that a final decision in this long-pending case will be rendered by this fall. One of the problems which enter into the consideration of this case is the fair division of the total values between the different elements of the plant which furnish the railway service and the electric power and lighting service respectively. Many questions of fundamental importance are concerned in this segregation. The report of the commission indicates that in its segregation it allowed 62 per cent of the total cost new of the property of the Milwaukee Electric Railway & Light Company for the railway plant. Of the balance the principal item was the light and commercial property, which is placed by the commission at 27 per cent of the total cost fixed. By reason of its joint operation of railway and electrical power and lighting plants the company is able to conduct its business at a lower cost than if as an independent railway company it produced the smaller amount of power that would be sufficient for the needs of the railway alone. Probably both the railway and the power and lighting customers of the company would like to secure the benefit of this saving, but this appears to be one of the advantages arising from economical management and combination which should accrue to the company as one of the returns to which it is entitled because of its form of organization.

Philadelphia Transit Report

The Philadelphia Rapid Transit Company gave publicity on July 17 to its annual report for the year ended June 30, 1911, and both the statistics and the discussion, published elsewhere in this issue, contain indications of the new policy upon which the system is now operated. The new method of the provision of 15 per cent of gross earnings for maintenance and renewals is that recommended by Thomas E. Mitten, the expert adviser to the interests represented by Mr. Stotesbury. One of the principal features of the report is the improvement in gross passenger earnings. The aggregate receipts from passenger sources are much larger than in any previous calendar year, showing an increase of 14.57 per cent over the results reported for the fiscal year ended June 30, 1910. In that year the operations were affected adversely by the strike of trainmen. The gross

passenger earnings of $20,612,687 reported for 1911 compare with $18,317,530 for 1909 and $18,300,080 for 1908. It is of particular interest to note that in connection with the readjustment of the affairs of the company which is now under way Mr. Mitten, in estimating future requirements and probable earnings, figured upon an average annual increase of 4 per cent in gross earnings for five years. The actual increase from 1902 to 1909 averaged 4.2 per cent per annum. This average was exceeded in 1911, not only as compared with 1910, but when the average increase from 1909 to 1911 is computed. Another change is in the operating ratio, which, including taxes and the larger provision for maintenance and renewals, amounted to 61.07 per cent of total gross earnings from all sources. Interest and rentals were 40.86 per cent of the total revenue, leaving a net deficit equal to 1.93 per cent. In the fiscal year 1909 rentals and interest were equal to 43.6 per cent of gross.

Employees' Social Organizations

The transportation employees' social clubs of the Public Service Railway of New Jersey, which are described elsewhere in this issue, demonstrate how successful such associations can be when the men are thrown practically on their own resources for means of entertainment. The management does little more than to provide an assembly room in each carhouse, to offer prizes for divisions competing in a few lines of sport and, occasionally, to make up a deficit arising from some sociable. The men do the rest and do it well, too. The Public Service Railway has a very large mileage, which is spread over a great deal of territory. As a result the clubs are quite numerous and in some cases as independent of one another as if they were on the properties of different companies. Most of these organizations are, therefore, comparatively small. This condition, however, is really a benefit because it enables a much larger percentage of the men to take an active part in the work than is the case on railways where there is but one association to cover all divisions. The officials make it a point to be present at the festivities as often as possible, but in accordance with the policy of the management they wisely refrain from talking "shop." The time to talk business to the men is at business meetings, which are also held on the Public Service Railway, and not when the men are surrounded by their families and friends. It is often a matter of astonishment, when such organizations are formed, to discover the amount of latent talent for different forms of entertainment which will be found among the men. Some of this will be in the musical line, and it is not at all uncommon on systems of even moderate size to find an amateur band superior to many of the professional organizations of similar character in the same city.. Dramatic talent is also not unusual. We have seen performances given by men whose daily work is on the platform of an electric car which would be of credit to any vaudeville stage in New York or Chicago. Athletes there will be, of course, in abundance and of all kinds, and where an electric railway system has several divisions contests for supremacy in baseball, boxing, bowling and other sports between teams representing these different divisions can usually be arranged with ease, without interfering with the regular work and to the benefit of all.

THE JOINT USE OF POLES

The joint use of poles by telephone and telegraph, electric light and electric railway companies involves many complex questions of engineering practice, franchise requirements and public policy. The National Electric Light Association has already adopted a standard form of agreement and specifications for the joint use of poles by electric light and telephone and telegraph companies which was prepared by its committee on overhead line construction in co-operation with representatives of the telephone and telegraph companies. The committee on power distribution of the American Electric Railway Engineering Association also has been drafting a form of agreement and specifications which it expects to present at the next October convention. At the Cooperstown meeting of the Street Railway Association of the State of New York, W. J. Harvie presented still another form of agreement and specifications as the report of a committee of that association. The latter agreement and specifications differed in many important respects from those adopted by the National Electric Light Association, and were accepted and referred back to the committee for further consideration. While some preliminary steps have been taken looking toward a general conference at which an agreement and specifications acceptable to all concerned will be drawn up, nothing yet has been done along this line.

Because of the extended use of poles by two or more companies on the basis of joint ownership or rental for attachments applied, it is very desirable that a standard form of agreement and specifications covering the construction of all classes of attachments on such poles be formulated and used wherever joint occupancy is necessary or economical. Such an agreement should provide first of all for standard types of construction which will insure maximum safety to all circuits on the poles and to employees who may be working on the poles. Secondly, it should be broad enough to cover the wide variety of conditions which are to be found in large cities, small towns, and in open country; and, finally, it should provide for practicable working arrangements in such matters as maintenance, liability for damages, apportionment of rental charges, abandonment of attachments and extensions of lines not covered in the original agreement.

For such a purpose the standard forms of the National Electric Light Association would be inapplicable, one reason being because they have been drafted primarily for the joint use of poles by electric light and telephone and telegraph companies only. Provision for wires of railway companies is made in one article in the specifications, but seems to have been inserted only as an afterthought. Even this article does not cover poles used for lighting and railway attachments. As a matter of fact, the National Electric Light Association form agreement and specifications are substantially the same as those prepared and generally used by the American Telephone & Telegraph Company. Some of the construction drawings accompanying the specifications are copies of those used by the telephone company and the notes contain references to such titles as "chief engineer" and "division plant engineer." The agreement also contains certain restrictions which might prevent its

use by many companies. Thus, in Article 11 the right is denied the lighting company to permit any other telephone or telegraph company to use any of its poles for any purpose whatever within the territory already occupied by the telephone company. The same restriction applies to the telephone company, with respect to competing with the electric light companies. Such restrictions are contrary to the spirit which should underlie a general and equitable agreement, designed for use by any and all interests.

The form of agreement and specification submitted to the Street Railway Association of the State of New York is much broader than that of the National Electric Light Association and the text has been greatly simplified and condensed. It includes ten of the twelve construction plates which form part of the National Electric Light Association specifications. Plate 6 is modified so as to show railway bracket-arm attachments on poles carrying electric light wires, telephone wires, railway feeders and an arc lamp attached to the pole. Plate 9 is modified to show electric light wires, telephone wires and telephone cable boxes. The right to sell, assign, lease or in any way dispose of any portion of any of the poles or attachments covered by the agreement is conditional upon obtaining the written consent of all parties to the agreement, but it is specifically stated that this shall not be construed to limit the right of any party to the agreement to make a general lease or assignment of all its rights, property and franchises or to enter into any combination authorized by law. Another important difference between this agreement and that of the National Electric Light Association is in the matter of liability for damages. The latter specifies that the liability assumed by each of the two companies is one-half of the damages for injury to persons not in the employ of either of the companies, one-half of the damages for injury to property not belonging to either of the companies and the entire damage for injury to each company's employees. The New York agreement provides that each party shall be responsible for the effect of its own attachments and the acts of its employees and agents.

It is not necessary at this time to discuss at length other differences in the two forms of agreement and specifications which have already been made public. There are no insurmountable obstacles preventing the drafting of a form of agreement and specifications which will be fair to all interests concerned and will provide safe and economical construction. It may be necessary for each of the companies to waive its preferences on some points, but we feel sure that none of the interests involved would seriously insist on the incorporation of provisions which were unfair to any of the others.

Such an agreement would be beneficial to all of the coöperating companies in other ways than simply in the reduction of the cost of construction and maintenance of their aerial lines. In many cases it would remove the principal cause for a demand for the burial of all overhead wires, which has some excuse when an unreasonable attitude of the different electrical companies requires three, four and even five sets of poles on the same street. But where this unsightly forest is replaced by a single line of neat overhead structures to carry all of the wires there is very little to which even a most captious critic can object.

THE NEW YORK SUBWAY SITUATION

The feature of the subway situation in New York City during the present week has been the rejection on July 20 by the Board of Estimate of New York of the final proposal of the Interborough Rapid Transit Company to build the subways assigned to it by the McAneny committee. At the time of going to press with this issue the indications were that the city authorities would grant to the Brooklyn Rapid Transit Company the opportunity of constructing the subway lines north on Lenox Avenue into Bronx Borough and of building the Queens extensions and the Eastern Parkway line, declined by the Interborough; but the situation changes so rapidly that it is impossible to predict what the outcome will be.

From the beginning of the negotiations and up to within a week ago Mayor Gaynor seemed to be favorable to the general plan under which the Interborough Rapid Transit Company was to construct a portion of the rapid transit system. But his announcements of July 13 and July 20, in which he stated that he was strongly opposed to any guarantees by the city of the rate of return to the railway companies under the proposed franchises, showed clearly that the Interborough plan could not expect his approval. The profits which would have been derived by the company if it had constructed the routes covered by its proposal are, of course, entirely a matter of conjecture. Its experts believed that these profits would not have been large; the experts of the city took a more optimistic view. But the majority in numbers (although not in votes) of the Board of Estimate had agreed that the offer of the company should be accepted.

Undoubtedly the Interborough decided that it would be better not to jeopardize its present excellent financial condition for the problematical benefits of a greatly extended subway system under any less advantageous terms than those which it offered. Its decision is closely parallel to that reached by the Berlin Elevated & Underground road some years ago. That company, like the Interborough, had a financially successful rapid transit enterprise in the heart of Berlin and was urged by the city to extend this system into the suburbs, but declined. The outcome in that case has been the construction by one outlying suburb, which is a separate municipality, of an extension which is to be operated as part of the main subway system on a profit-sharing basis by the old company. In London the situation was, or is, not greatly different. The success of the Central London Railway, the first long underground tube line in that city, was followed by the construction of a number of other similar lines which have not proved so profitable. In Paris the subway system is still confined to the congested parts of the city, and it yet remains to be shown that subways can be built and operated at a profit except in the cities of the largest size and on routes of the greatest traffic.

The Interborough has always claimed that the terms accorded it were less favorable than those offered to the Brooklyn Rapid Transit Company, on which it would now seem the problem of providing rapid transportation within the greater city may devolve. Such an undertaking would be greater than ever before assigned to any urban railway corporation, but we have no doubt that it would be vigorously prosecuted and successfully accomplished.

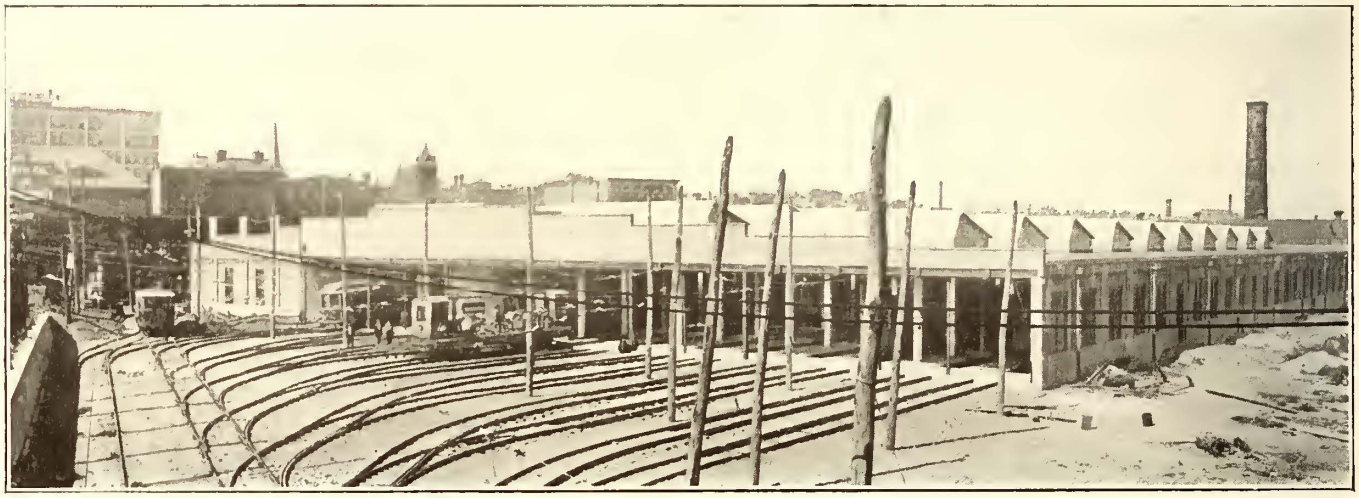
Combined Carhouse and Shop, Bridgeport, Conn.

This Building Is a Noteworthy Example of a Reinforced Concrete Fireproof Carhouse, Supplemented by an Elaborate Aisle Sprinkler System.

The Connecticut Company, which operates most of the electric railway mileage in the State of Connecticut, recently completed a car maintenance structure which will serve as the principal storage and repair depot of the lines of its Bridgeport division. The new building is interesting not only for its durability and fireproof construction, but also for the incorporation of various conveniences for the employees of the car maintenance and transportation departments.

The structure is of the double-ended type, and comprises a ground floor, 331 ft. 8 in. long x 241 ft. wide, with an upper floor, 210 ft. long x 51 ft. 8 in. wide, for part of the shop and transportation department quarters. As shown on the accompanying plan, the ground floor is divided as follows: A car storage section, 134 ft. 4 in. wide, which contains ten through tracks, spaced 12 ft. or 15 ft. centers, depending upon the position of the roof columns; a truck overhauling section, 120 ft. 10 in. long x 54 ft. wide, which contains four tracks, two of which are continued into the carpenter shop, which extends to the opposite end of the carhouse, and the other two into the paint shop; a utilities section, 49 ft. wide throughout. The utilities rooms on the first floor comprise a blacksmith shop, 30 ft. 10 in. long; a machine shop, 120 ft. long; a fan room, 30 ft. long; a fire pump room, 15 ft. x 24 ft. 6 in.; a carpenter shop and mill room, 30 ft. long; a main stock room, 79 ft. 8 in. long, and toilet, locker and office rooms, with a hallway leading to the Congress Street end. The second floor arrangements, shown on another plan, comprise a hallway, office, locker and toilet rooms; men's room, 34 ft. 8 in. x 49 ft.; men's locker room, 30 ft. x 49 ft.; stockroom, 15 ft. and 75 ft. x 49 ft.; and armature room, 30 ft. x 39 ft. Access to the second floor is had by stairways in the hall, from the lower to the upper stock room, and from the machine shop to the armature room. There is also a 1-ton capacity electric freight elevator between the lower and upper stock rooms, and a 1-ton capacity trolley electric hoist working through the extended hatchway at the stairs between machine room and armature room, with a track over the benches of the latter room.

The several divisions mentioned are separated by fireproof partitions of various kinds. The carhouse proper has no partitions, but is divided into seven bays by reinforced concrete columns which are spaced 15 ft. apart. This car storage section is separated from the several repair shops by a 12-in. brick wall, furnished with five pairs of gravity fire doors. The other side of the repair shop section is separated from the utilities rooms by a similar brick wall and double fire doors leading into each room. The paint shop, which is a part of the general shop section, is isolated from the rest of the structure by the first 12-in. brick wall mentioned, by a fireproof partition made up of 6-in. porous hollow tile blocks and by rolling steel doors at each end. The block partition mentioned is also furnished with three gravity fire doors. The several utility rooms are separated by fireproof partitions of 6-in. tile. In general, the openings in these partitions are protected by gravity fire doors, which, like those in the rest of the structure, are 2½ in. thick, covered with tin and fitted with fusible links and other appurtenances of approved fire doors. All of the doors shown on the first and second floor plans are of the sliding type except the hinged doors in the stock and armature rooms on the second floor.



Bridgeport Carhouse—General Exterior View of Track Work, Carhouse Entrance, Side and Skylights; Also Shop Section at the Left

GENERAL CONSTRUCTION

The nature of the ground on which this structure was erected is such that part of the foundation is on rock and part on piling. The footings are of concrete. The walls and main partitions are of brick, while terra cotta tiling is used for coping the walls and parapet. The carhouse portals are formed by steel columns made up of L's and plate which carry horizontal steel girders composed of paired I-beams supporting the brick front. The roof beams are of reinforced concrete. The roof is of hollow tile, covered with slag, and between skylights it is pitched ½ in. to the foot in the carhouse section. A terra cotta tile parapet 4 ft. high separates this section from the rest of the first floor roof, which is pitched ¾ in. to the foot. The first floor roof is built to carry its own weight plus 40 lb. live load per square foot, while the floor on the same level over which the second story portion is built can carry a live load of 150 lb. per square foot.

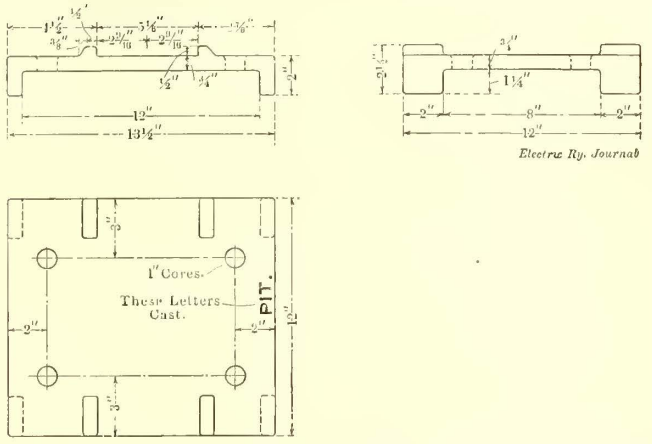
Concrete is also used in the construction of the carhouse floors and for the devil strips. The floors are laid on 8 in. of gravel and are 5 in. thick, with a 1-in. cement finish. The devil strips are built up on steel beams, expanded metal and concrete, with a like cement finish, and

are capable of carrying a live load of 100 lb. per square foot. All flooring in the carhouse, except that of the pits, is divided into 4-ft. x 4-ft. squares, with sand joints for the full depth. All of the tracks throughout the storage and repair sections are finished with open pits, as shown in the halftone illustrations on page 150.

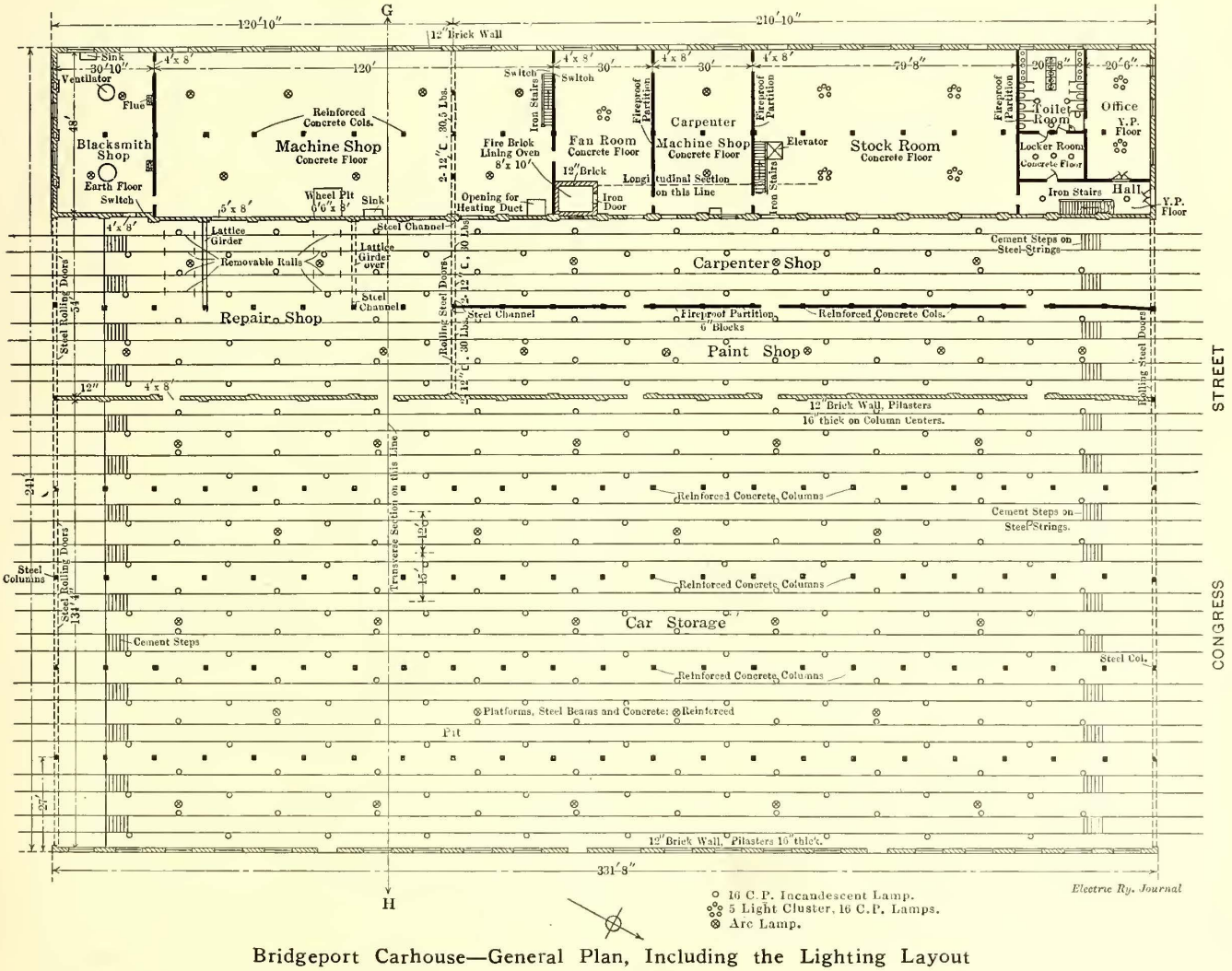
The devil strips are carried on concrete piers 5 ft. high. One of the accompanying drawings shows the cast-iron shoe with which each pit pier is fitted to give a base for the girder running rails. The pit floors are pitched ⅛ in. to the foot to 6-in. drains under the devil strips, as shown in the cross-section of the carhouse, so that the pits are dry at all times. These drains lead to a main cross drain, which in turn leads into a manhole where an electric sump pump of 100 gal. per minute capacity raises the water through a trapped discharge pipe to the sewer, the pump starting automatically when the water reaches elevation 90.0, the pit floor being at elevation 94.6. The carhouse is on the harbor front and mean tide is at elevation 93.0, with a maximum high tide some 2 ft. higher. To prevent back flooding, the discharge from the pump is carried up to elevation 96.0 and then dropped to the sewer at elevation 94.0. The pits are illuminated by lamps placed under the devil strips at intervals of 15 ft. The pit steps are made up of steel channels filled with cement.

steel angles, bolted to the steel channels and covered with 1¼-in. slate treads. This stairway has a wooden railing.

Different mixtures of concrete were used in the construction of this building, according to the service required. The concrete for walls, floors and other non-reinforced sections was made up of one part of cement, three parts of



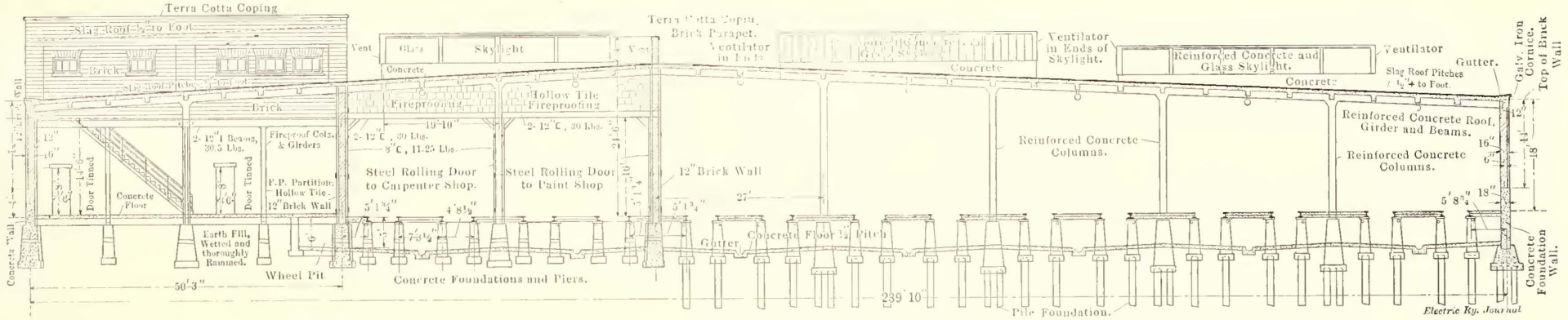
Bridgeport Carhouse—Cast-Iron Shoe for Girder Pit Rail



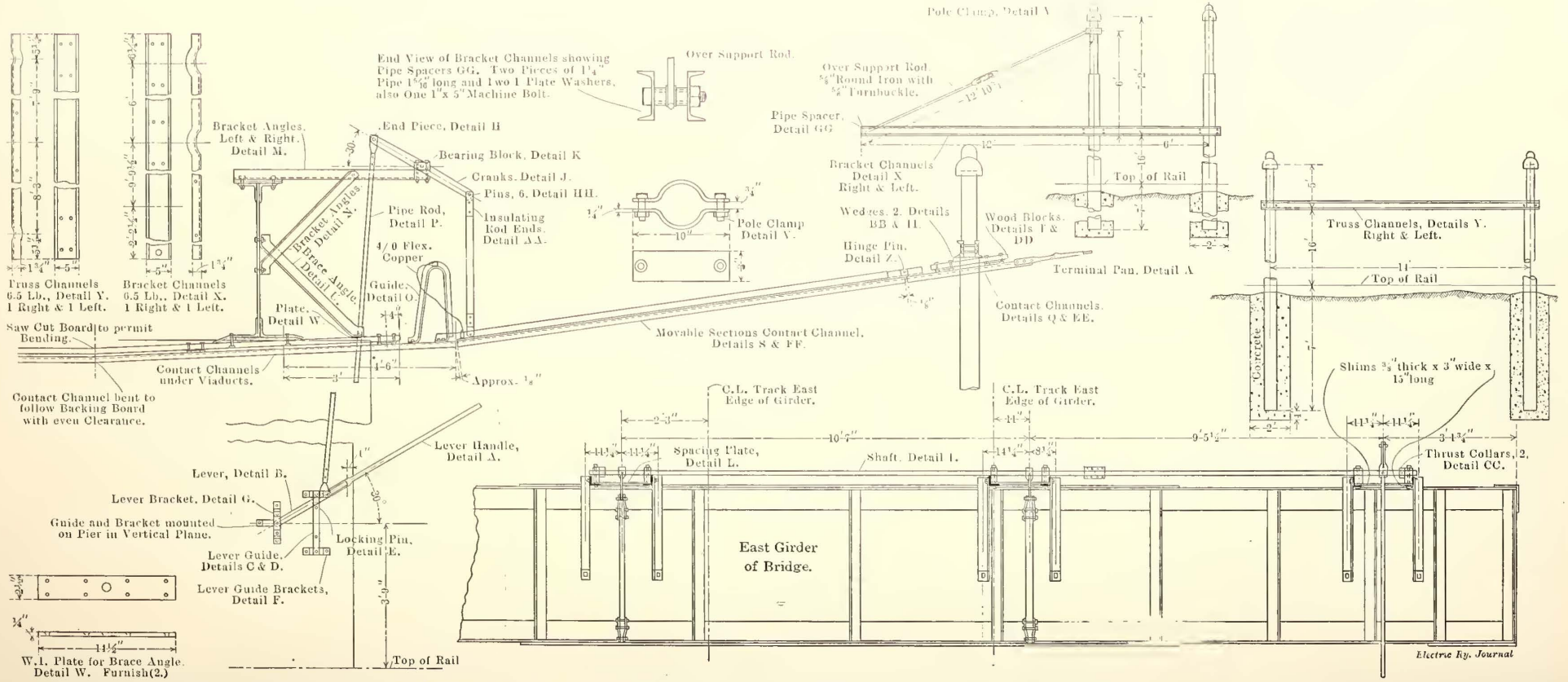
Bridgeport Carhouse—General Plan, Including the Lighting Layout

The general construction of the utilities section is also fireproof except that in some of the offices and employees' rooms wooden floors are used over the concrete and that ash wainscoting is installed. The stairways in the machine and stock sections are built up of channels, cast-iron treads with open risers and a pipe railing. The stairway in the main entrance hall at the Congress Street end is built up of

sand and five parts of broken stone or gravel. The concrete for reinforced work, such as columns and roof girders for the floor or roof slabs, was composed of one part of cement, two parts of sand and four parts of gravel or broken stone, the broken stone not being permitted to exceed ½ in. in diameter. Partly for efficient protection from fire, the minimum concrete coats specified were as follows: Reinforced



Bridgeport Carhouse—Transverse Section through the Line H-H on the General Plan of the First Story.



Bridgeport Carhouse—Elevations and Other Details of the Trolley Lift Devices

columns, 2 in.; steel in reinforced slabs, 1 in.; girders and beams, 1½ in.

All windows opening into the carpenter, repair and paint shops on the first floor, and the windows on the second floor which open on the roof, have double wrought-iron shutters. Wire glass of double thickness is used for all windows opening onto the repair and carpenter shops from the west wing of the building; also from all windows which face the second story roof.

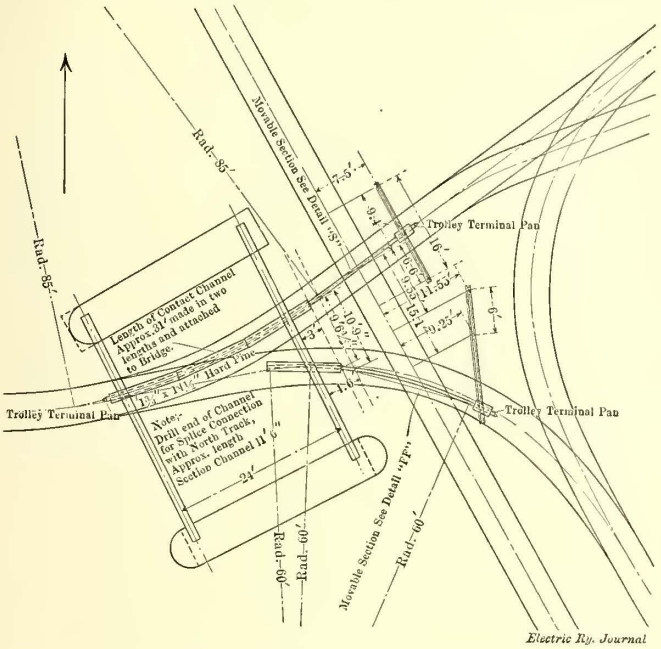
FIRE PROTECTION

The fireproof nature of this structure is clear from the preceding description, but its construction alone will not be relied upon to prevent fires. As shown in the half-tone illustrations on pages 150 and 151 there has been installed a comprehensive system of automatic sprinklers with sprinkler heads spaced to cover not over 200 sq. ft. of floor area per head. The main storage structure has aisle sprinklers opposite the upper sash of car windows, and spaced 7 ft. apart, all on the dry-pipe system. No ceiling heads are used in this section. Aisle sprinklers also are used in the paint, carpenter and repair shops, but as these sections are well heated they are on the wet-pipe system, as are the heads in the utility section, where ceiling heads only are used. In controlling wet and dry valves, pump, pressure tank and annunciator are in a fireproof pump room with no opening into the rest of the structure. Water is supplied by the city mains, through a 4500-gal. pressure tank. An electric pump of 1500 gal. per minute capacity automatically maintains a pressure of 80 lb. per square inch in case the city pressure drops below this pressure, while a 12-in. suction to the harbor gives an independent supply in case of the total failure of the city service. Steamer and hose connections outside the building permit the fire department to reinforce the system or the pump to be made available against exposure fires.

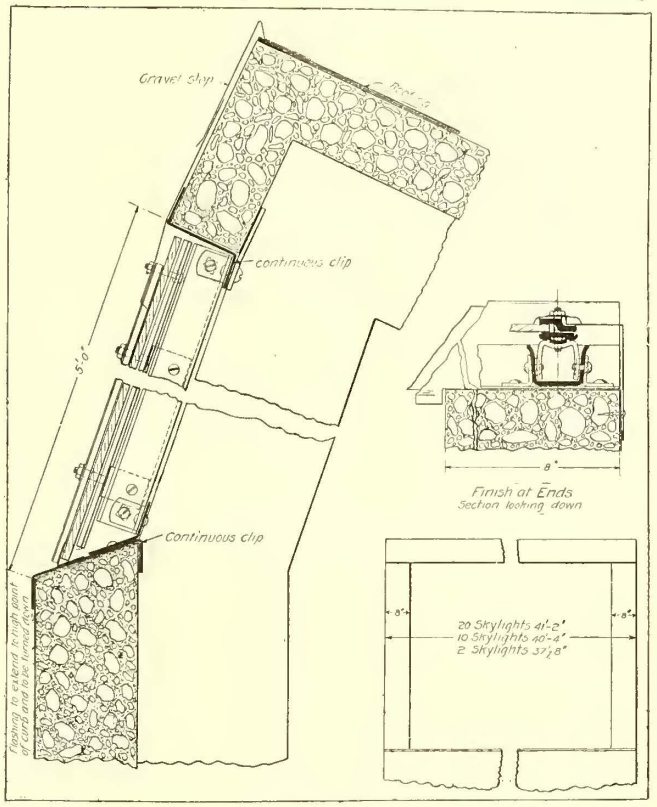
There is further a system of alarm boxes in the building, connected with a private box of the Bridgeport fire department, while an extension of the annunciator circuit of the sprinkler system gives duplicate indication in the main office, as well as in the valve room. The patrol inspection is checked by a watchman's clock system.

TRACK ENTRANCES

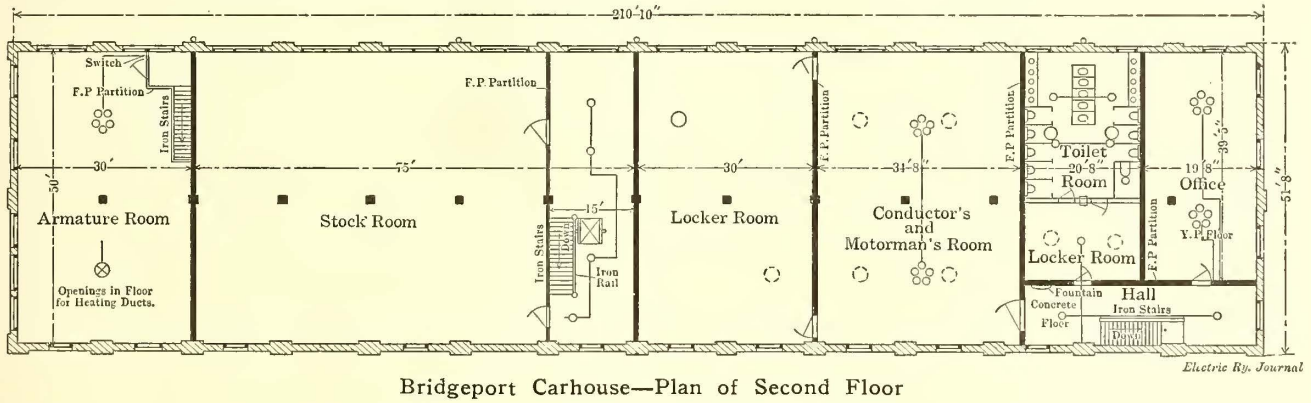
The track entrances at both sides of the carhouse are protected by rolling steel doors which are built in two sections with central guide post because the width of 27 ft. to 27 ft. 6 in. between the columns required too heavy single doors for hand operation. As the width of the carhouse was too limited to give good clearance for both tracks, the sections were made unequal. One section in each door gives full clearance for the largest car; to handle large cars on the other track requires raising both doors and swinging up the post by means of the chain tackle shown in the illustration.



Bridgeport Carhouse—Track Layout and Application of Trolley Lift Device



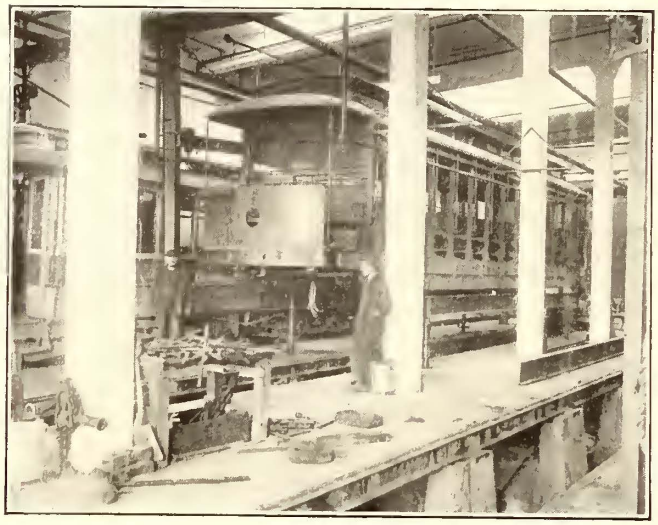
Bridgeport Carhouse—Section and Details of Puttyless Saw-Tooth Skylight



Bridgeport Carhouse—Plan of Second Floor

LIGHT, VENTILATION AND HEATING

The excellent natural lighting of the carhouse is obtained through thirty-two saw-tooth skylights, each approximately 40 ft. long, 5 ft. wide and totaling 6500 sq. ft. in area. These skylights are inclined at an angle of about 71 deg. Each light of glass is bedded on cow hair with a top covering of cow-hair felt and a rust-resisting metal cap which is held by brass nuts to brass studs placed at intervals of 16 in. and set into the skylight rib. As no cement or putty is used, this construction permits the easy removal of any light of glass at any time for cleaning or replacement. The illustration on page 149 of a typical saw-tooth skylight also shows the continuous clip which permits the light to be attached to the building structure despite the differences in the angle of the concrete at each end.



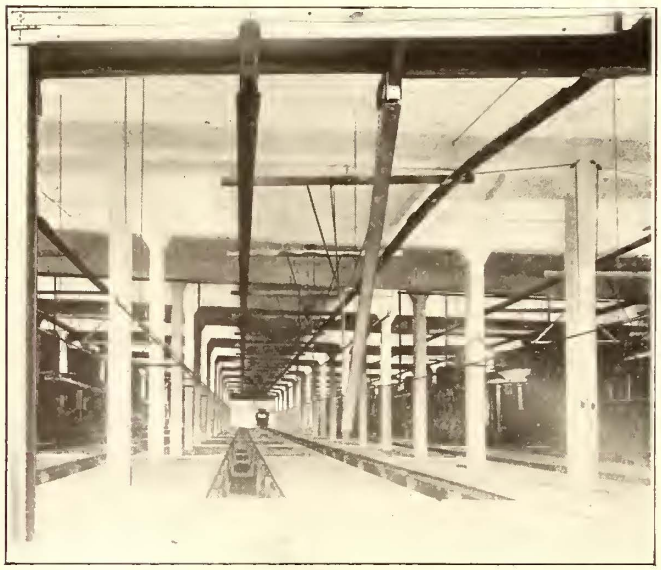
Bridgeport Carhouse—Maintenance Section, Adjacent to the Machine Shop

Bridgeport Carhouse—Steel Shutter for Isolating the Paint Shop from Rest of Maintenance Section

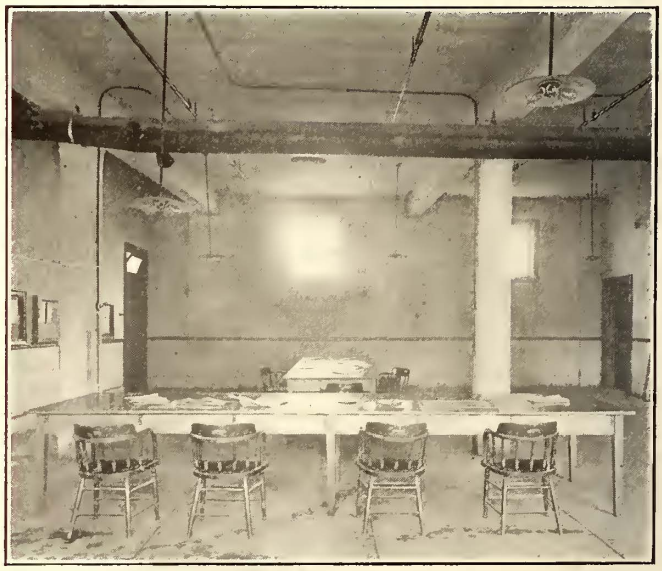
The artificial illumination of the carhouse is furnished by 100-volt series arc lamps with clear globes overhead, and 110-volt series 16-cp incandescents in the pits. Arc lamps are also used in the shop rooms in addition to incandescent lamps placed singly or in clusters, as shown on the general plan.

The carhouse is ventilated through louvers which are set at both ends of each skylight. The carhouse proper, the shops and the various utility rooms are heated on the indirect system from an equipment which is installed on the first floor of the utilities section. The apparatus consists of two single-inlet, multiple-vane fans, each of which can deliver 60,000 cu. ft. of air per minute at its normal speed. These two fans are set side by side. Their inlets are connected by a steel plate inlet box to the chamber formed by the jacket surrounding the heater coils. Each is driven by a direct-connected center-crank horizontal engine which operates the fans at normal speed with a steam pressure of only 25 lb. An outside-packed, brass-fitted pump with receiver is placed near the heating apparatus to return the water of condensation from the heating coils to the boilers which are located in a passenger station adjoining the carhouse. The exhaust steam from the fan engines is utilized in the heating coils and the rest of the steam required is supplied from the boilers at a pressure of 25 lb., as noted before.

The air from the fans is carried across the carhouse by means of a galvanized-iron duct from which branches are run to the underside of the devil strips. These branches have outlets at suitable intervals so that the hot air is discharged directly into the pits. The utilities sections, both on the first and second floors, are heated by means of galvanized-iron ducts with outlets in each room, all of which are supplied from a galvanized-iron riser from the fan-discharge chamber.



Bridgeport Carhouse—View Through a Storage Bay



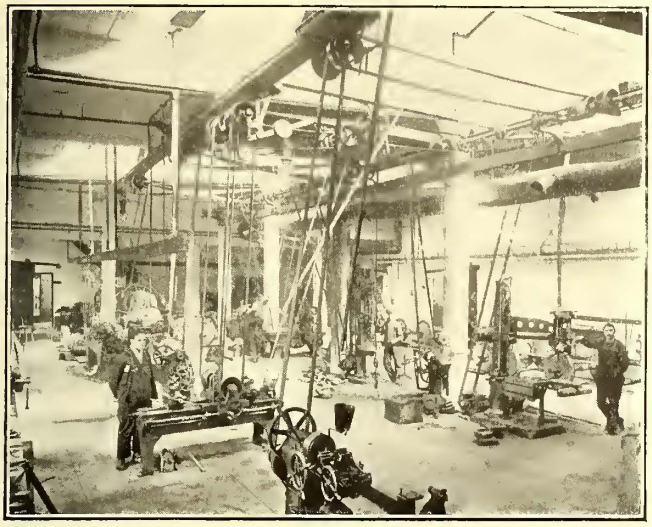
Bridgeport Carhouse—Motormen's and Conductors' Room

In order to make the heating as economical as possible, most of the air is taken from within the operating portion

of the building. This is done by connecting together the ends of one row of skylights on the roof so that they form a continuous passage and then bringing a connection from the fan room up through the second story of the building and continuing it to the end of the return duct thus formed.

UTILITIES ROOMS

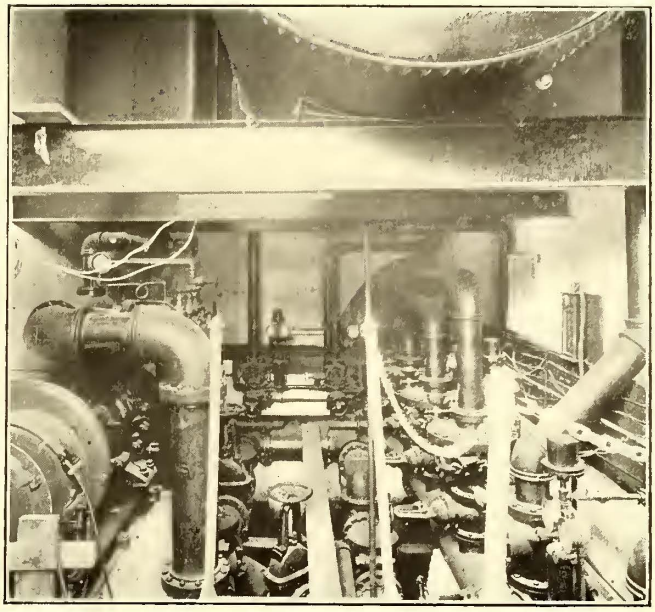
The dimensions of the utilities rooms on the first floor have already been given. The blacksmith shop contains two down-draft forges with motor-driven blowers and ex-



Bridgeport Carhouse—Machine Shop Section on the First Floor

hausters, one 150-lb. helve hammer, a combined punch and shear, and a babbitting furnace. The hammer and punch are driven by a shaft extended from the machine shop.

The main machine shop has a 42-in. steel-tire wheel lathe with motor-operated tailstock, a 300-ton wheel press, a 200-ton wheel press and a vertical-wheel boring mill, each with individual motors. In addition, there are two vertical-drill presses, a horizontal cotter and key seat slotter, a 36-in. radial-drill press, a 25-in. back-geared shaper, three engine lathes, a pipe-threading machine, a small planer, a babbitt boring mill, a double 12-in. emery grinder, a 30-in. automatic knife grinder and a magazine hack saw, all belt-driven from a 15-hp motor. An overhead trolley rail carries a 1-ton triplex hoist which serves the larger tools; in addition, the wheel drill has a small motor-operated crane attached to its pillar.



Bridgeport Carhouse—Valve Room with Fire Protection Apparatus

The wood-working shop contains a two-spindle shaper, a single-head tenoner, capacity 20 in. x 7 in., a 20-in. x 84-in. buzz planer, a 26-in. x 8-in. single-surface planer, a 36-in. band saw, a rip saw, a 14-in. variety saw bench, a 16-in. swing saw, a mortiser and borer, two vertical wood-boring machines, and a 14-in. emery wet grinder, all belt-driven from one 7-hp motor, also a 20-in. patternmaker's lathe with individual-motor drive.

The armature room on the second floor has an electric hoist for handling armatures from the machine shop below

Bridgeport Carhouse—Interior, Showing Construction of Roof, Aisles and Pits; Also Aisle Sprinkler System

to the benches, an oven, and the motor-driven combination banding, heading, grooving and turning lathe. The electrically heated armature oven has brick compartments with counterbalanced sliding doors of iron and asbestos. It is a modification of a design originated by W. D. Wright, master mechanic of the Rhode Island Company.

REPAIR SHOP

In the repair shop on the ground floor of the main section is a motor-driven wheel grinder for truing wheels without removing from car; two 5000-lb. capacity pneumatic jib cranes with 11-ft. arms and 5-ft. lift; and four car lifts, each consisting of four screw jacks, two on each side, each pair carrying a 12-in., 31½-lb. I-beam 30 ft. long. Needle beams placed on these and under the car body allow the jacks to lift the latter. The jacks are motor-driven by worm gears affording a positive lock in all positions, each hoist having its own motor. One of these lifts is shown in an illustration on page 150.

In addition, air piping with outlets every 25 ft. is provided for small pneumatic tools, and there is a portable vacuum car cleaner.

MISCELLANEOUS

The overhead trolley circuit inside the building consists of a 2-in. x 2½-in. 3.7-lb. angle on a 2-in. x 12-in. strip of spruce hung from the roof beams. Outside, a No. 0000 grooved trolley wire is used. An interesting feature is the drawbridge shown on page 148. The track from Congress Street passes under a low viaduct with but 13-ft. 7-in. clearance, immediately alongside of which is a service freight track over which must be had at least 15-ft. clearance to pass large box cars. This condition made a fixed trolley wire impossible for either the straight crossing or for the crossing by a branch-off to the run around the carhouse track. The problem was solved by an angle-iron conductor, hinged at one end to an overhead support and at the other to a bell-crank lifting device with a locking quadrant about 4 ft. from the ground. As a precaution against attempted mischief the operating lever can be detached and kept in the carhouse office except when needed.

This structure was designed and built for the Connecticut Company by the engineering department of the New York, New Haven & Hartford Railroad under the direction of E. H. McHenry, vice-president in charge of engineering; Edward Gagel, chief engineer; Charles Rufus Harte, assistant engineer in charge of the construction department; C. W. Lord, chief draftsman, and R. J. F. Gerstle, resident in charge. The track work, overhead work, tool installation and lighting were done by company forces; all other work was done by contract.

BULLETIN ON ATLANTIC CITY HOTELS

The American Electric Railway Association has issued convention Bulletin No. 2, which presents information on the hotel rates and facilities for the next convention, to be held in Atlantic City, N. J., Oct. 9 to 13, 1911, inclusive. The exhibit of the Manufacturers' Association will again be held on Young's Million Dollar Pier. The hotels selected as headquarters for the 1911 meeting of the several associations are as follows: American Association and Manufacturers' Association, Marlborough-Blenheim; Accountants' Association, Chalfonte; Engineering Association, Dennis; Claim Agents' Association and Transportation & Traffic Association, Traymore. The schedule of rates and accommodations given in the bulletin covers the thirty-three hotels which have combined to defray the expenses necessary to provide proper facilities for convention purposes. Reservations should be arranged for directly with the hotels. Mistakes may be avoided by stating that such reservations are desired in connection with the convention. The request should be accompanied by an explicit statement as to the kind of room desired, whether with or without bath, and the dates of arrival at and departure from the hotel. Special rates have been made with the understanding that hotel charges will be for the full time of reservation. It is recommended that convention visitors communicate promptly with their respective hotels regarding reservations in order that the best choice of rooms may be obtained. The bulletin contains a half-tone of the exhibit pier and a map of Atlantic City showing the location of the principal hotels. Subsequent bulletins will give details of transportation matters, registration, programs, meeting halls, etc.

HEARING ON TAUNTON AND PAWTUCKET FARES

The Massachusetts Railroad Commission recently gave a public hearing at Boston upon the petition of Representative Bellamy for the introduction of free transfers on the Taunton & Pawtucket Street Railway between Taunton, Attleboro and Pawtucket. Mr. Bellamy represented the petitioners, and the company was represented by J. W. Burke, Attleboro, Mass. The principal points brought out by the company follow: The Bristol County Street Railway, preceding the Taunton & Pawtucket Street Railway, had a total through fare in 1904 of 15 cents, divided in three 5-cent fare zones. In 1905 the company went into the hands of a receiver, and was purchased by the present interests. The earning capacity, after the property had been improved, was tested and the necessity of raising fares became apparent. In 1908 four zones of 5 cents each were established, making the through fare 20 cents. The mileage in the different townships required that in Taunton, where the ride was more than 6 miles, the mileage would have to be split so as to provide a full zone and part of another zone. In connection with the establishment of the four zones a petition for a change was presented to the Railroad Commission, and the board approved of the new fares.

The petition presented by Mr. Bellamy aimed to permit all riding in Taunton to be enjoyed for 5 cents, embracing a present zone wholly in Taunton and in addition a part of an adjacent zone. No change by way of increase in the total earnings of the company warranted such a concesssion. Nothing in the earnings of the company warranted the change; the number of local passengers affected was found to be very limited, and the petitioners appeared to fail to consider the effect of a change upon the company's through fares. The commission has since sustained the company in the following finding:

"The petition, briefly stated, is an application for a recommendation by the board that the Taunton & Pawtucket Street Railway establish a 5-cent fare zone coextensive with its line in Taunton. However desirable a single 5-cent fare within the limits of a municipality may be, the question reserved for the board's consideration in all cases of this character must be the reasonableness of the rate. Among other factors to be taken into consideration, and by no means the least important, in making any adjudication with respect to such reasonableness, is the return upon the capital invested, and the necessity of permitting the carrier to make adequate provision for maintenance.

"On May 21, 1908, the board dismissed a petition for a recommendation that there be a decrease in rates then effective on the Taunton & Pawtucket Street Railway. At that time the board made a careful study of the whole situation, including the finances of the company. A further examination, made at this time, convinces us that the fares established by the company on that part of its line in the city of Taunton are not unreasonable. Upon the filing by the company of the return for the year ending June 30, 1911, the board will have before it certain additional information that may tend to modify its present views, and in such event will be prepared to modify this finding if in its opinion the public interest so requires."

Social Activities of Employees of the Public Service Railway

The Transportation Employees of This Company Have a Remarkable Group of Social Organizations Which Have Done Much to Foster Good Feeling Throughout the System.

The Public Service Railway Company, which operates throughout the greater part of New Jersey, has always been a strong believer in the policy of maintaining the most pleasant relations among the employees themselves and between the employees and the officials. As a result of this attitude there are in existence on the Public Service system to-day a large number of social organizations made up of the transportation men of the various divisions. There are five clubs on the Essex Division, four on the Hudson Division, two on the Central Division, one on the Southern Division, etc. The dues paid by the members are nominal, namely, 5 cents or 10 cents a month, except for slight assessments to cover the expense of special entertainments. The clerk of the local division headquarters always acts as the secretary-treasurer and the expense accounts may be seen by interested parties at any time.

Public Service Employees—A Hallowe'en Celebration at the Camden Carhouse

All of these bodies are of a purely social character. They have no financial connection with the sick benefit and pension fund which was instituted the first of this year by the Public Service Railway Company, nor with the original employees' sick and death benefit societies, which were organized long before the different properties were consolidated under one management. The direct financial participation of the company is limited toward making good any small deficits which a club would find embarrassing if it relied entirely upon the resources of the men. It is not the policy, however, to promise any predetermined sum for such purposes.

The headquarters of every society is the club room at the carhouse. These club rooms vary in size according to the number of men employed, but in all cases their seating capacity is large enough to seat an additional number of people at entertainments; thus the West Hoboken club room serves 400 employees but has room for 600 people. Officers of the company, prominent local citizens and public officials are frequently invited to attend the entertainments and annual dinners given by the men, but there is an unwritten law that the visitors must not unburden themselves of speeches on "shop" subjects. When the management considers it necessary to give a talk on discipline, rules or similar matters the superintendent of transportation, his assistant or division superintendents provide a special smoker where nothing but the subject of the meeting is discussed as man to man.

It is natural that in an organization employing thousands of men there should be found all kinds of musical, dramatic and athletic talents for club room festivities. Each organization has plenty of entertainers in its own ranks, but occasionally "star" performers from one division are invited to entertain at other club rooms. The men greatly favor the presentation of comedy sketches, such as "Ye Olde Districkt Skule," because they give many of them as well as their families an opportunity to appear in all kinds of amusing costumes. Barn dances are also very popular for the same reason. Two of the accompanying illustrations show the high degree of skill in make-up attained by participants in theatricals of this kind.

At Camden, in the Southern Division, the regular organization is reinforced by a Ladies' Auxiliary composed of relatives of the motormen and conductors. The auxiliary renders much help in decorating the club room for gala occasions, and on several occasions has arranged entertainments for the trainmen in the carhouse auditorium. One of the illustrations shows the interesting effects obtained by the use of pumpkins and holly at a Hallowe'en celebration. The Camden club is the only one that has a ladies' auxiliary. It is also unique in possessing a brass band of twenty pieces. The instruments were furnished by the company.

Christmas, of course, is the time when the entertainments are devised with the special view of pleasing the children. The club rooms are appropriately decorated and jolly-spirited carmen discard their customary uniforms for the

traditional garb of Santa Claus to distribute toys and candies to the eager youngsters. The funds for these donations are raised by the men by means of annual balls, barn dances and the like. In addition, every married man is taxed 25 cents and every bachelor 50 cents. Each man is entitled to distribute two gift tickets. One of the illustrations shows a typical Christmas celebration at the West Hoboken club room. At Paterson last year Santa Claus was provided with a sleigh which was driven by a horse, as reindeer are not found in the environs of the Silk City.

Public Service Employees—The Pavonia Boys Ready for a Barn Dance

Public Service Employees—Santa Claus in the Carhouse at West Hoboken

Practically all of the club rooms are equipped with gymnastic apparatus of some kind, including boxing gloves and wrestling mats. Two employees of the company are professional bag-punchers, who go on tour for two months every year and serve the company as trainmen the rest of the time. Probably the greatest attention has been paid to boxing at the West Hoboken carhouse, owing to the fact that it is the training headquarters of a noted colored pugilist who was formerly a car cleaner on this system. Quite a number of the men have become proficient boxers under his instruction.

Aside from the local entertainment, to which members from foreign divisions are always welcome, other events are given to bring together men from several districts. The main attraction is a general entertainment and ball which is given twice a year at the expense of the company. This affair is conducted both afternoon and evening, so that the greatest possible number of men will be able to attend with their families. An interclub feature which has always aroused considerable interest among the men is the annual pool tournament for the silver loving cup offered by the president. It has been decided to provide a new cup for the ensuing year, owing to the fact that the Montclair carhouse has won this cup for five years in succession, and shows no likelihood of losing it in the immediate future.

At the present time there is a baseball league composed of eight teams, each of which plays twenty scheduled games. First, second and third prizes are awarded to the teams which have scored the greatest number of runs respectively. These prizes are usually presented by the winning nines to their best or most popular players. The pennant-winning team becomes the custodian of a silver loving cup which is an object for annual competition. The carhouse teams also play games with nines from the police department, fire department and large manufacturing organizations. To enable the men to enjoy this athletic feature to the greatest advantage the company has laid out a park at Springfield Avenue and Forty-third Street, in the suburbs of Newark. The first baseball game at the new field was played on Saturday, May 20. These grounds have been laid out for baseball, football, cricket and the various sports of the cinder path.

Public Service Employees—Characters in the Comedy Sketch "Ye Olde Distrikt Skule"

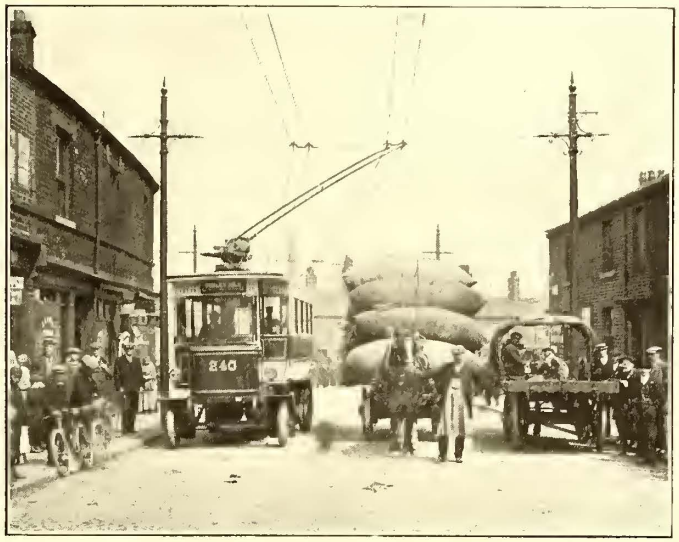
Aside from the entertainments made possible through the facilities furnished by the company, the clubs also have outside entertainments, such as picnics, fishing parties and bowling. In order to encourage the growth of the last-named sport the company is planning to build one bowling alley at the Springfield club house and another at West Hoboken.

TRACKLESS TROLLEYS IN BRADFORD AND LEEDS, ENGLAND

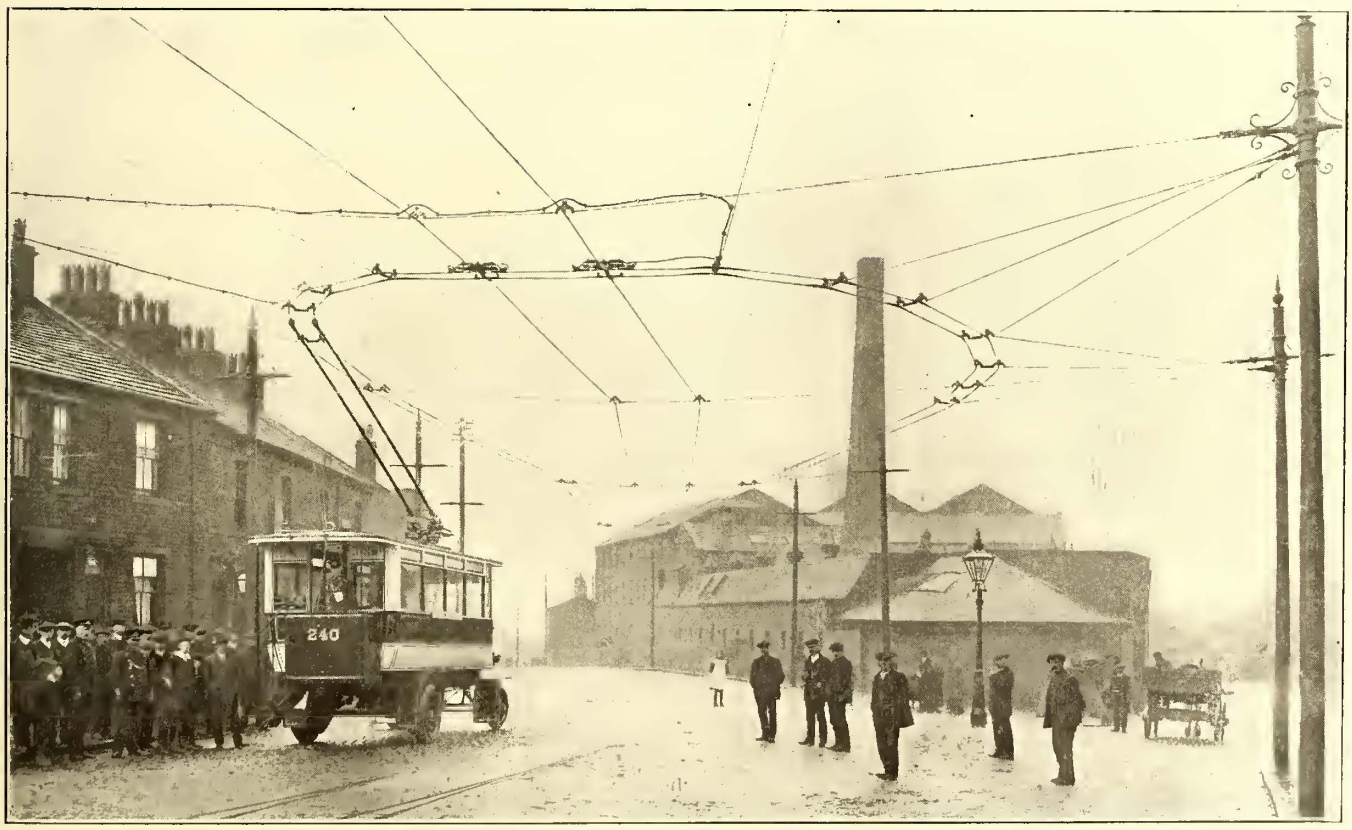
On June 20 a trackless trolley line in Bradford and another in Leeds, England, were opened with appropriate ceremonies. These are the first trackless trolley lines in Great Britain. The line in Leeds extends from the center of the city to Farnley, a distance of about 4½ miles. It traverses a thinly populated territory which heretofore has had no transit facilities. The Bradford line is shorter, being a trifle less than 1½ miles long. Unlike the line in Leeds it traverses a thickly populated manufacturing district and connects with tramway lines at each end. The construction features of the Bradford and Leeds lines are very similar, as the work was carried out under the joint supervision of J. B. Hamilton, general manager of the Leeds tramways, and C. J. Spencer, general manager of the the Bradford tramways. The adoption of the trackless trolley system for these two lines followed a visit of the Leeds tramway committee to the Continent two years ago to inspect the trackless trolleys then in operation in Germany and Italy. The contract for both lines was given to the Railless Electric Traction Company, Ltd., London, which owns the patents on the apparatus employed.

The overhead construction consists of four No. 0000 grooved copper trolley wires which are suspended in pairs from yoke hangers. Span wire construction using ornamental iron poles at the curb line is employed in Bradford, but in Leeds the trolley wires are carried by bracket arms 18 ft. long. The two positive wires carry current at 525 volts and they are sectionalized at distances of about ½ mile. The negative wires are not sectionalized and wherever possible they are bonded to the rails of intersecting or parallel tramway lines so as to decrease the drop in the return circuit.

The trolleys on the cars are of the double under-running type and are mounted on the roof near the forward end. Both the trolley base and the trolley wheels are free to revolve about a vertical axis, and the length of the poles is such that the car can travel at a distance of 15 ft. outside the center line of the trolley wires. One of the illustrations shows one of the Bradford cars passing two trucks which, together with the car, occupy the entire width of the street.



Bradford Trackless Trolleys—Car Passing Two Wagons

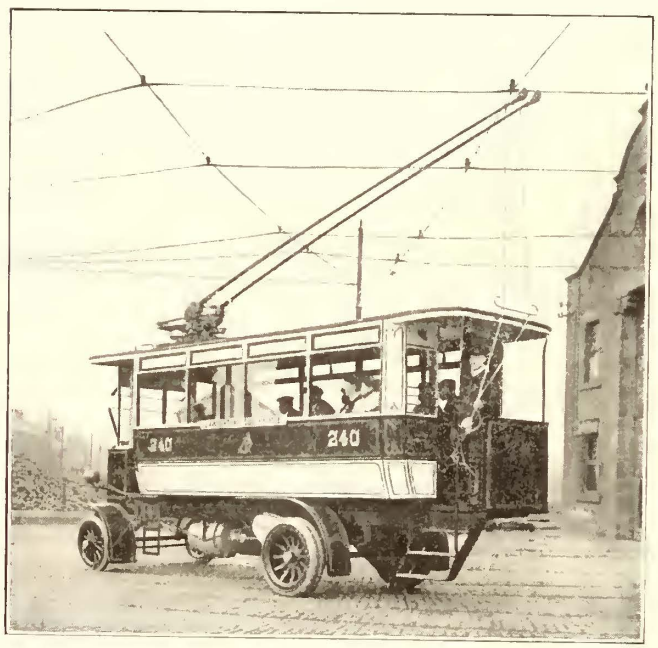


Bradford Trackless Trolleys—Overhead Construction at Terminal Loop

In Leeds the trackless trolley cars run for a distance of nearly a mile on a street in which an electric tramway is already in operation. In order to avoid the use of

two sets of overhead wires the trackless trolley cars use the positive wire of the tramway system and they are also fitted with a collector which runs on the tramway rail and makes the negative connection. This collector consists of a skate hinged at the rear end of the vehicle and arranged so that it may be raised and lowered. It permits a deviation of 5 ft. from the center line of the track.

The cars, of which two have been ordered for Bradford and four for Leeds, resemble a motor omnibus. The Bradford cars are entered from a rear platform and have a motorman and a conductor, but the Leeds cars are entered from the front platform and only a motorman is required. The bodies of both types of cars have cross seats upholstered in rattan and they have a total seating capacity for 28 passengers. The wheels are of the artillery type, with solid rubber tires. Single tires are used on the front wheels and double tires on the rear wheels. The wheel base is 13 ft. The cars are equipped with two Siemens interpole motors of 20 hp each. These motors have shunted fields and are suspended below the frame of the chassis. Each motor drives a countershaft through



Bradford Trackless Trolleys—Type of Rolling Stock

worm gearing immersed in oil and the drive from these countershafts to each of the rear wheels is by chains and sprockets which are inclosed in a metallic dust-proof case. A large part of the weight of the cars is carried on the rear wheels. This increases the tractive effort and facilitates steering by the front wheels. The motors have a maximum speed of 1050 r.p.m. on 525 volt current They are geared to give a maximum speed of 10 m.p.h. to the car. The controller is of the Siemens series-parallel type and is provided with special connections for cutting out either motor. The controller has nine positions, of which five are running positions, giving various rates of speed up to 10 m.p.h. The steering gear is designed to permit the car to be turned in a radius of 12 ft. measured from the rim of the inside rear wheel. The cars are lighted from incandescent lamps connected in the trolley circuit. Two sets of brakes are provided, one operated by a pedal and applied on the countershaft on each side and the other operated by a hand lever with a ratchet catch and applied on drums bolted on the rear wheels.

Regular operation of the Bradford line was begun on June 24 with a thirty-minute headway, the one-way fare for the journey of 1½ miles being 1 penny, equal to 2 cents in the United States.

DEPRECIATION ACCOUNT OF THE KOKOMO, MARION & WESTERN TRACTION COMPANY

After an inventory of the depreciable physical property of the Kokomo, Marion & Western Traction Company, Kokomo, Ind., Thomas C. McReynolds, the secretary and treasurer, established a depreciation account which is designed to provide for current replacements and future requirements on account of losses due to age and wear. The inventory was made at the beginning of the year 1909 and the account established to cover the operations of that year. It was then arranged to make an arbitrary charge

DISTRIBUTING LINES OF THE ELECTRIC LIGHT DEPARTMENT.

	Per Cent.		Per Cent.
Wire	2	Nernst lamps	10
Poles	7	Electric arches	20
Wire attachments	7	Signs	2
Guy wires and anchors	2	Lightning arresters	10
Street arc lamps and rigging	—	Meters	6
Commercial arc lamps and rigging	8	Transformers	6
Incandescent street light fixtures	8	High-tension transmission	3

CITY RAILWAY.

	Per Cent.		Per Cent.
Rails	3	Brick paving	5
Ties	10	Bridges	5
Spikes	5	Special work	13
Angle bars	3	Poles	7
Bolts	3	Feeder and trolley wire	2
Crossings	20	Span wires	5
Nut locks	5	Insulators, braces, etc.,	
Bonding	7	varying from	3 to 15
Excavations	3	Rolling stock	7
Track laying	3	Rolling stock equipment,	
Ballast	3	motors, trucks, etc.	7

INTERURBAN RAILWAY.

	Per Cent.		Per Cent.
Track rails	2	Tiling	3
Track laying	3	Bridges	3
Bonding	7	Paving	4
Railroad crossings	20	Rolling stock, car bodies	7
Special work	11	Rolling stock, trucks	7
Bolts and spikes	3 to 5	Rolling stock, motors and	
Ties	8	their equipment	6
Ballast	1		

SUBSTATIONS.

	Per Cent.		Per Cent.
Building	2	Rotary converter and booster	5
Lightning arresters	7	Storage battery (too low)	8
Cut-outs and transformers	5	Poles	7

DISTRIBUTION SYSTEM.

	Per Cent.		Per Cent.
Trolley wire	1-1½ to 2½	Brackets, cross-arms,	
Hangers, cross-arms,		etc., for transmission	7
etc.	5 to 10	Telephone line, cross-	
Transmission wire		arms, insulator wire	7 to 10
(aluminum)	2		

POWER PLANT.

	Per Cent.		Per Cent.
Building	2	Turbo-generators, rotary con-	
Battery buildings	2	verters, booster, etc	4 to 5
Coal trestle	6	Condensers	4
Boilers	5	Engine foundations	4
Steel smokestacks	12	Arc-lighting transformers	6
Piping, heaters	3	Lightning arresters	8
Water tanks	1½	High-tension cut-outs, etc.	10
Pumps	5	Storage batteries (too low)	8

REPAIR SHOP.

	Per Cent.
All machinery	8

CAR SHOPS.

	Per Cent.
Building	2 to 5

OFFICES.

	Per Cent.		Per Cent.
Furniture and fixtures	10	Adding machines, typewriters,	
Safe and vaults	2	addressographs and electrical	
		instruments	10

AMUSEMENT PARK.

	Per Cent.
Buildings	2

of a certain per cent against each class or division of the property. About the same percentages that are used by the Wisconsin Railroad Commission were adopted. At the end of each month there are set aside to the credit of the depreciation account for the various departments the amounts required by the percentages upon the appraisal of 1909. The annual percentages adopted by Mr. McReynolds are shown in the table published herewith.

Close account of the different departments is kept so as to demonstrate whether or not the amounts charged to each department will be sufficient to take care of the accruing depreciation. So far some accounts, such as ties and special work, have been overdrawn, while a great many other accounts have not been disturbed. That some accounts

have been overdrawn is due in part to the fact that the depreciation accounts were not started until about four years after operation of a portion of the property was started. It is believed by Mr. McReynolds, however, that the amounts now being set aside for maintenance and depreciation of ties and special work will have proved adequate at the end of ten years from the time the accounts were first established.

Mr. McReynolds says that to be really accurate the company should have taken into consideration the cost of the new construction and equipment for the year 1910, or the additions to the property, and charged off a certain percentage for depreciation. This, however, was not done, but at the beginning of the year 1912 all additions to the property since the last inventory will be taken into account and a certain additional per cent deducted for the depreciation which has taken place.

In the calculation the cost prices of apparatus were taken and the different elements were separated into electric light properties, city railway, interurban railway and other properties. In the determination of the percentage basis of annual depreciation the value of the salvage of the various articles and different materials inventoried was taken into consideration. Allowance was also made for an accumulated interest on the reserve, compounded when not used. This accounts for the low percentage on many of the items involved. During the two years and four months that have passed since the account was established the company has expended only about one-half of the amount set aside for depreciation.

Mr. McReynolds stated that the depreciation account was started as an experiment to determine the amounts that it was really necessary to set aside for the protection of each division of the property in order to maintain it properly and also to provide, where replacements could not be made from time to time, a reserve fund to take care of extraordinary replacements and future emergencies. So far the account had worked out satisfactorily and the amounts set aside, except in one or two instances, appeared to be adequate to take care of the depreciation.

Total charges for depreciation in 1909 were $20,253, of which $3,673 was spent for replacements, leaving a reserve balance of $16,580. In 1910 the total charge was the same and $13,199 was required for replacements, leaving a balance of $7,054 for the reserve fund, which amounted on Dec. 31, 1910, to $23,634.

The company received gross earnings in 1910 of $261,485, divided as follows: Interurban railway, $99,420; city railway, $62,146; light and power department, $99,919. Operating expenses were as follows: Interurban, $44,490; city railway, $30,531; light and power, $38,364; total, $113,385. Against the net income of $148,100 the following were charged: Bond interest, $50,000; preferred dividend, $6,000; taxes, $8,220; miscellaneous, $4,749; depreciation, $20,253; and common dividend, $30,000. The surplus was $28,878.

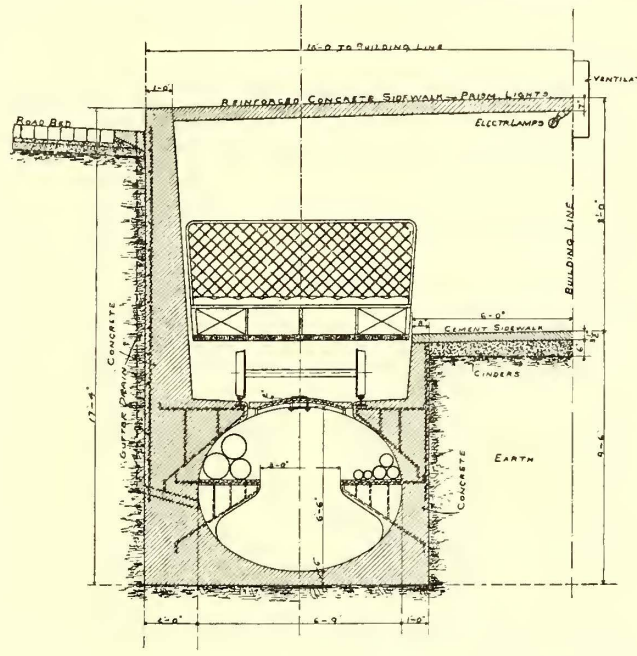
Total track mileage is 36½, of which 28 miles are in the interurban department and 8½ miles in the city department. Three passenger cars and one freight car are operated on the interurban line and six cars on the city road in Kokomo. The interurban departments ran 359,107 car miles last year and the city road 292,753 car miles. In the light and power department there were 2090 consumers.

H. Hall, vice-consul at Montevidco, Uruguay, reports that a local engineering firm, representing a syndicate of French capitalists, has been authorized by the Uruguayan Ministry of Public Works to make surveys for an electric railway from Montevideo along the coast to Maldonado and Punta del Este, a distance of 75 miles. The power is to be generated by means of low-grade coal and peat, of which there are large deposits in the neighborhood of Maldonado.

CURIOUS SUBWAY SUGGESTIONS

Following its policy of giving a hearing to all comers with suggestions relating to the proposed passenger subways in Chicago, the local transportation committee of the City Council of Chicago has given one or two hearings to proposals which seemed to be of an impracticable nature.

One of these was presented by J. H. Farrar, and was called by him a "sub-sidewalk railway rapid transit system." He said that he had been trying to bring his plan before the city authorities for thirty years, but without success. Mr. Farrar proposes to utilize only the space under the sidewalks for his combined subway and underground-utilities arrangement. The accompanying cross-section illustrates the inventor's proposal. The sewers are to be placed at each side of the street, under the sidewalks. They may be circular in shape, or, as illustrated, oval in section. The proposed sewer is about 7 ft. in diameter, and is much larger than really needed. Space is consequently afforded for brackets at the side which will support water and gas pipes and electric conduits, as well as other underground utilities. The top of this sewer is about 10 or 11 ft. below the surface of the sidewalk and,



Cross-Section of a Proposed Sub-Sidewalk Railway Rapid Transit System

as it is to be made of reinforced concrete, it is utilized for the tracks of the subway railway, which will run immediately under the sidewalk, the latter being made largely of glass, to admit light.

Mr. Farrar contends that his system would cost only $300,000 a mile for one side of the street, or $600,000 a mile for both sides, while the space occupied would only be from 10 to 20 per cent of that of the other systems proposed. The cars would have no roofs, and would be provided with cross benches seating 48 or 50 passengers. The total depth of the system, including the sewer, would be about 17 ft. or 18 ft. Mr. Farrar thinks there would be no objection to grade crossings in such a system, although if desired one line could be made to dip under another in the central part of the city. He insists that such a system would be pleasant to ride in, easily ventilated and very accessible, as well as economical. A speed of 30 m.p.h. could be attained by the cars. The entrance to the subway would be gained through rented stores in adjoining buildings, with basement connection. The inventor declared that the betterments to adjacent property would more than equal in value the total cost of

the proposed system. The committee did not seem to be greatly impressed with the idea, however, and only a few questions were asked.

J. W. Jenkins was another inventor who addressed the committee briefly. His idea, which is not particularly new, is to have a system of feeder cars running on auxiliary tracks, side by side with the express tracks. These feeder cars are to be brought from rest to the speed of the express trains, with arrangements for transferring passengers from one car or train to the other while both are going at full speed. This is to prevent the necessity of starting and stopping the express trains. During the operation of transfer the motorman of the express train is to control electrically both trains while they are running side by side. This idea also struck the committee as impracticable, and several objections were enumerated.

A suggestion of a more practical nature was that of Max E. Schmidt, of New York, who has urged the use of moving platforms or "sidewalks" as auxiliary means for handling heavy short-haul traffic in the new Chicago subways when built. Mr. Schmidt declared that his patented devices will permit practically noiseless platform operation at speeds up to 12 m.p.h., and cited engineers' opinions to show that for distances under 4 miles the continuous moving platform is actually quicker than a combination of express and local train travel, such as is employed in the New York subway. The continuous moving platform, he added, would avoid waiting for trains, would provide seats for a far greater number of passengers, would permit passengers to board and leave platforms at any point, and would obviate the heavy power demand necessary to accelerate ordinary trains. A platform operating at 12 m.p.h. would have boarding platforms traveling parallel to it at 9 m.p.h., 6 m.p.h. and 3 m.p.h. respectively. Mr. Schmidt offered no definite plan for the use of his continuous-transit system in connection with the proposed Chicago subways, but urged the device as an auxiliary to the regular train service in conveying large masses of people over short hauls, thus offsetting the heavy costs of the regular long-haul travel. In case the moving platforms were built pathways for pedestrians might be provided alongside, with merchants' windows opening onto these underground arcades.

MEETING OF THE COMMITTEE ON EXPRESS AND FREIGHT TRAFFIC

A meeting of the committee on express and freight traffic, American Electric Railway Transportation & Traffic Association, was held at the New York headquarters of the association on Tuesday, July 18. The committee members present were: Chairman H. E. Reynolds, assistant general manager Boston & Northern Street Railway; F. W. Watts, general freight agent Utica & Mohawk Valley Railway, and F. D. Norviel, general passenger and freight agent Indiana Union Traction Company. The committee discussed a draft of its proposed report to the 1911 convention. The final report will be based on replies made to the questions on data sheet No. 72 by 110 companies, of which ninety are doing an express or freight business. These replies relate to population, character of industries, class and limitations of franchises, solicitation and advertising, method of handling claims, transportation of newspapers, baggage, milk and cream service, accounting methods, contracts with express companies, etc.

Mr. Norviel proposed that the committee embody in its report some suggestions as to whether or not the express and freight department should receive credit for the transportation of departmental supplies. Advance copies of the report will be mailed by Chairman Reynolds to certain freight and express business managers, who will be asked to open the discussion on one or more of the subjects mentioned in the report. The meeting closed after a number of eliminations had been made in the committee's original synopsis and the tabulation of data upon which the ultimate report will be based.

AWARD OF ARBITRATORS IN THE RICHMOND CASE

An award has been made by the board of arbitration appointed to consider the value of operating rights over certain tracks of the Virginia Railway & Power Company, Richmond, Va., demanded by the Richmond & Henrico Railway, and the amount which each company should pay for the privilege of transferring passengers to the lines of the other company. The Richmond & Henrico Railway is an interurban line recently constructed to enter Richmond, while the Virginia Railway & Power Company owns the local system. The board of arbitration consisted of three members, of whom H. W. Fuller, general manager of the Washington Railway & Electric Company, was selected by the Virginia Railway & Power Company; William W. Cole, of Dodge, Day & Zimmerman, Philadelphia, was selected by the Richmond & Henrico Railway, and R. E. Danforth, general manager Public Service Railway, was selected by these two arbitrators.

The award of the arbitrators is dated July 6, 1911, and specifies the tracks of the Virginia Railway & Power Company which the cars of the Richmond & Henrico Railway will be allowed to use. It then states that for the use of these tracks the Richmond & Henrico Railway should pay 7½ cents per car mile. While on these tracks the cars and their employees are to be under the control of the Virginia Railway & Power Company and must comply with its rules and the orders of its officials. The equipment of the cars is to be at least as efficient as that on the cars of the local company, and in weight and dimensions of car body and wheels the cars should be able to be operated without injury to the tracks, except as regards ordinary wear and tear. The cars of the local company are to have the right-of-way at all crossings or connections. The Richmond & Henrico Railway is to be responsible for all damages caused by its cars or employees when operating over the local tracks, except where the Virginia Railway & Power Company or its employees are responsible.

The conditions laid down as to transfers provide that the Richmond & Henrico Railway is to redeem all of its transfers which are collected by the Virginia Railway & Power Company at 3 cents each, whereas the latter company is to redeem all of its transfers collected by the Richmond & Henrico Railway at 1 cent each.

The Richmond & Henrico Railway is to pay for the power used by its cars while on the tracks of the Virginia Railway & Power Company 4½ cents per car mile, unless the cars weigh over 42,000 lb. In that case the sum per car mile is to be increased by 0.225 cent per car mile for each 2000 lb. or part thereof in excess of 42,000 lb.

The contract provides for the maintenance of complete records by each company and other usual clauses in contracts of this kind, and also that all payments between the companies for the car miles run or transfers collected during each calendar month shall be made on or before the tenth of the following month.

In the argument before the arbitrators in the matter of transfers, attorneys for the existing lines represented that on the basis of mileage the Virginia Railway & Power Company had nineteen and one-half times the mileage of the new; on the basis of car mileage in operation it had ten times; on the basis of average distance to be traversed by passengers boarding at transfer points it would carry passengers four and one-half times as far. It was also represented that the new line would not originate traffic, but merely divert patronage from existing lines, since it goes into no new section of the city and serves to develop no new territory. The findings of the board of arbitration are understood to have been accepted by both companies.

COST OF MAINTAINING MOTOR CAR EQUIPMENTS ON THE BROOKLYN RAPID TRANSIT SYSTEM

The mechanical department of the Brooklyn Rapid Transit System maintains mileage card records and separate costs of the principal electrical elements of both the surface and elevated motor cars. This practice makes it easy to determine the mileage cost of any one or all of these items whenever such data are desired for comparison with earlier periods or with the costs of other companies. The electrical car maintenance costs of the Brooklyn Rapid Transit System are of particular interest because they show what can be done with old motors when every effort is made to maintain them in the best possible condition. As a matter of fact no new surface motors have been installed since 1907, the latest designs being the GE-80 and Westinghouse No. 101. The elevated motors, however, include the new Westinghouse No. 300 interpole design. Practically every motor on the system has a slotted commutator.

TABLE I.—SURFACE CAR MOTORS USED FOR THE 1910 SUMMER SCHEDULE OF THE BROOKLYN RAPID TRANSIT SYSTEM. (JULY-AUGUST-SEPTEMBER.)

No.	Type.	Motors per Car.
732	Westinghouse No. 68	{ 43-4 motor { 280-2 motor
1794	Westinghouse No. 81	2
424	Westinghouse No. 93	2
1136	Westinghouse No. 101	4
184	GE-64	2
500	GE-80	4
40	GE-57	2

4810 motors in all.

TABLE II.—SURFACE CAR MOTORS USED FOR THE 1910 WINTER SCHEDULE OF THE BROOKLYN RAPID TRANSIT SYSTEM. (OCTOBER, NOVEMBER, DECEMBER.)

No.	Type.	Motors per Car.
378	Westinghouse No. 68	{ 43-4 motor { 103-2 motor
1530	Westinghouse No. 81	2
424	Westinghouse No. 93	2
1136	Westinghouse No. 101	4
184	GE-64	2
500	GE-80	4
40	GE-57	2

4192 motors in all.

TABLE III.—MOTOR EQUIPMENT FOR THE ALL-YEAR SCHEDULE ON THE ELEVATED DIVISION OF THE BROOKLYN RAPID TRANSIT SYSTEM.

No.	Type.	Motors per Car.
874	Westinghouse No. 50-L	2
72	Westinghouse No. 50-B	2
172	Westinghouse No. 50-E	2
202	Westinghouse No. 300	2

1320 motors in all.

TABLE IV.—DETAILED COSTS OF MAINTAINING ELECTRIC CAR EQUIPMENT ON THE BROOKLYN RAPID TRANSIT SYSTEM FOR THE LAST SIX MONTHS OF THE YEAR 1910.

Total surface mileage 24,079,484
Total elevated mileage 17,055,340

		Total Cost.	Per Car Mile.
Armatures	Surface	$30,105.19	$0.00125
	Elevated	17,889.02	0.00105
Commutators	Surface	2,778.10	0.00011
	Elevated	1,384.32	0.00008
Fields	Surface	5,330.34	0.00022
	Elevated	742.84	0.00004
Car control	Surface	45,903.94	0.00190
	Elevated	45,300.71	0.00265
Gears, pinions and gear cases	Surface	27,151.11	0.00112
	Elevated	4,834.05	0.00028
Motor bearings	Surface	20,763.10	0.00086
	Elevated	831.36	0.00005
Brush holders	Surface	5,789.66	0.00024
	Elevated	4,725.22	0.00028
Motor miscellany	Surface	13,532.34	0.00056
	Elevated	4,374.27	0.00025
Cost per mile of all surface equipment parts listed			$0.00626
Cost per car mile of all elevated equipment parts listed			0.0047

The general character of the Brooklyn surface equipments is shown in Tables I and II, which present the lists of motors used for the summer and winter schedules respectively. Only one list of elevated motors is presented in Table III, as the elevated schedule does not differ materially throughout the year except that for three months no cars are in the shop for varnishing.

The detailed costs of maintaining the two classes of car equipment for the last six months of 1910 are given in Table IV. It will be noted that the total cost of the elevated equipment is only 0.47 cent per car mile as compared with 0.626 cent per car mile for the surface equipment. This is due to the fact that the maintenance cost of the individual elevated items is much less with the exception of control and brush holders. Furthermore, the control is the most costly item in both classes of equipment, the respective car-mile costs for surface and elevated (multiple-unit control) being 0.190 cent and 0.265 cent. In general, the term "maintenance" as applied in this table includes all labor and material charges for inspection and repairs.

The accompanying cost figures would not be complete without mentioning some of the items for which extraordinary amounts have been required to make comparatively old equipments approximate the reliability of new motors. Thus a great expenditure was required to slot all the commutators on the system in order to secure the operating advantages of high-grade brushes. In like manner, it has also been found advisable to begin reboring and relining all motor shells.

OPEN DOORS ON CLEVELAND PAY-WITHIN CARS

As stated in a recent issue, Street Railway Commissioner Dahl, of Cleveland, has issued an order that the doors on the rear platforms of the pay-within cars on the Cleveland Railway Company should be kept open during warm weather while the cars are in operation. In an interview with a representative of this paper Mr. Dahl stated that the primary reason for this order is to secure better ventilation, and he denied that the order was issued because of accidents caused by the closing of the doors on women's skirts, as reported.

EXHIBIT COMMITTEE OF THE MANUFACTURERS' ASSOCIATION

H. G. McConnaughy, of the Dearborn Drug & Chemical Works, has been appointed chairman of the exhibit committee of the Manufacturers' Association for the 1911 convention. Mr. McConnaughy has held this position for several years. He will assist E. H. Baker, of the Galena Signal Oil Company, who, as has already been announced, has been appointed vice-president of the Manufacturers' Association in charge of exhibits. The other members of the exhibit committee of the Manufacturers' Association, besides Messrs. Baker and McConnaughy, are:

L. R. Ashhurst, Jr., William Wharton, Jr., & Company, Philadelphia.

A. E. Carrier, National Carbon Company, New York.

E. F. Chaffee, O. M. Edwards Company, Syracuse, N. Y.

F. J. Drake, Lorain Steel Company, Philadelphia.

A. R. Foley, Home Rubber Company, Trenton, N. J.

F. H. Gale, General Electric Company, Schenectady, N. Y.

N. M. Hench, Carnegie Steel Company, Pittsburgh, Pa.

William M. Henderson, Pennsylvania Steel Company, Steelton, Pa.

J. A. Kucera, ELECTRIC RAILWAY JOURNAL, New York.

Frank Martin, Jenkins Brothers, New York.

J. C. McQuiston, Westinghouse Electric & Manufacturing Company, Pittsburgh, Pa.

F. W. Sargent, American Brake Shoe & Foundry Company, Mahwah, N. J.

Charles H. Thomas, Galena Signal Oil Company, Franklin, Pa.

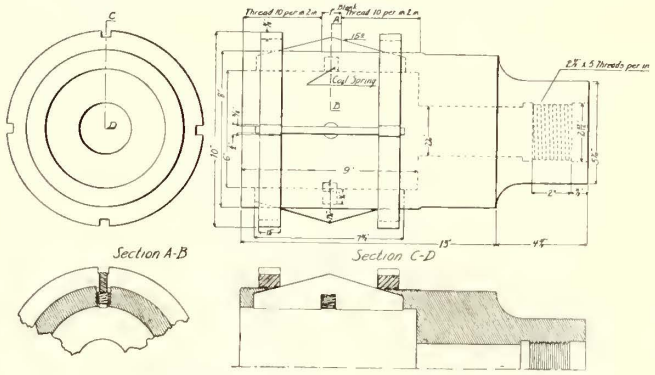
J. V. E. Titus, Electric Service Supplies Company, Philadelphia.

S. M. Wilson, The J. G. Brill Company, Philadelphia.

Among the exhibits at the American Land & Irrigation Exposition to be held in Madison Square Garden, New York, N. Y., next November, the Pennsylvania Railroad will exhibit models showing the evolution of its rolling stock from the Conestoga wagons to the electric trains.

CHUCK FOR BORING BEARINGS

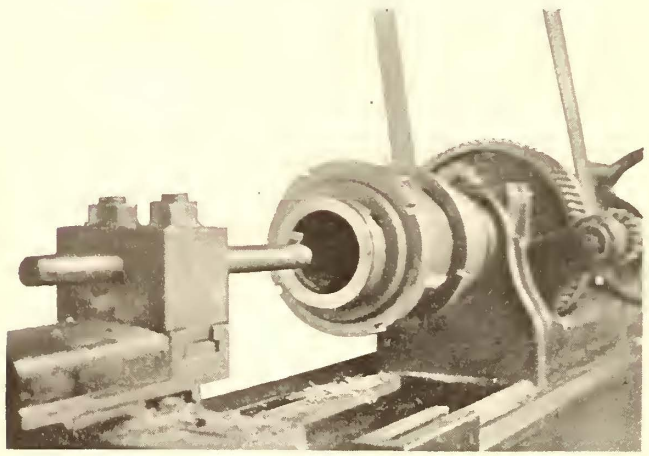
The accompanying drawing and half-tone show the details and application of a chuck which was designed principally for boring split bearings as built by F. J. Stevens, then master mechanic of the Lackawanna & Wyoming Valley Railroad, Scranton, Pa., and now master mechanic of the Ft. Wayne & Northern Indiana Traction Company. The old way of boring these bearings was to place a clamp on one end before putting the bearings in the lathe chuck.



Detail of Motor-Bearing Chuck

After the bearings were in the chuck some time was required to line them up properly before the cuts could be started. Now the bearings are placed in the chuck and tightened with two ring-nuts. The bearings are bored absolutely true both as to center and end or face, while the work itself is done in less than one-half the time required by the old method.

The chuck consists of a cast-iron cylinder, one end of which is of a size that can be threaded to fit the lathe spindle and the other large enough to admit the bearing. First the casting is put in the lathe and the threads are cut for the spindle, whereupon it is put on the spindle and the remaining machine work finished. In this way the



Chuck Applied to Motor Bearing

chuck is made absolutely true. After this four slots are cut 90 deg. apart for the jaws and then threaded from each end toward the center with right and left-hand threads for the two ring-nuts. The ring-nuts are also slotted on the quarter to permit the use of a spanner wrench for tightening. The inner side of each ring-nut is tapered to fit the taper of the jaw. A recess is cut in the jaw (section *A B*) and cylinder to admit a coil spring. This spring serves to hold the jaw in place as well as to release the grip on the bearings when the latter are finished and the ring-nuts are released.

This chuck can be used also on solid bearings of any size that can be put in it. The taper of the jaws can be made to fit the conditions. The range of the device for split bearings is limited by the size of the collar on the end of the bearing. To insure an absolutely true face on each half of a split bearing it is necessary to have something with which it can be lined up and placed in the same position in which it would be on the motor. The chuck is a great labor saver where there are many bearings to bore, since it saves time in truing up bearings and the grip is tight enough to admit the taking of deep cuts up to the finish cut. The work can be concluded with a light cut at a high speed, as there is no danger that the bearings will become loose o that the chuck will be thrown out. The dimensions of th. chuck can be varied to suit conditions.

VALUATION OF MILWAUKEE PROPERTIES

The Railroad Commission of Wisconsin has made public its valuation of the property of the Milwaukee Electric Railway & Light Company, the Milwaukee Light, Heat & Traction Company and the Milwaukee Central Heating Company. The valuation was made by the commission in connection with the hearing of the case started by the city of Milwaukee to secure a lower rate of fare on the Milwaukee street railway lines. J. H. Roemer, chairman of the commission, announces that a final decision in the fare case will be rendered before fall. The figures announced by the commission put the cost of the properties of the three companies new at $23,877,906 and the present value at $18,850,937. These figures are divided by the commission as follows:

	Cost New.	Present Value.
Milwaukee Electric Railway & Light Co.	$16,310,947	$12,485,260
Milwaukee Light, Heat & Traction Co.	6,920,911	5,725,777
Milwaukee Central Heating Co.	646,948	639,900
Totals	$23,877,906	$18,850,937

The details of the values placed by the commission upon the property of the Milwaukee Electric Railway & Light Company are as follows:

	Cost New.	Present Value.
Land	$1,308,200	$1,308,200
Roadway	2,323,631	1,533,224
Transmission and distribution	3,252,592	2,733,703
Buildings, fixtures, and grounds	1,969,888	1,649,705
Power plant and equipment	2,163,454	1,450,795
Rolling stock and equipment	2,476,560	1,591,631
Paving	539,504	356,073
Totals	$14,033,829	$10,623,331
Overhead, 12 per cent	1,684,059	1,274,800
Totals	$15,717,888	$11,898,131
Materials and supplies	592,159	587,129
Grand totals	$16,310,047	$12,485,260

The values are further segregated by the commission as follows:

THE MILWAUKEE ELECTRIC RAILWAY & LIGHT COMPANY.

	Cost New.	Present Value.
Railway	$10,147,745	$7,591,764
Light and commercial	4,367,418	3,494,310
Heat	103,059	88,799
Investment	431,760	424,704
Non-operating	1,260,065	885,683
Totals	$16,310,047	$12,485,260

MILWAUKEE LIGHT, HEAT & TRACTION COMPANY.

	Cost New.	Present Value.
Railway	$6,132,999	$5,110,211
Light and commercial	414,606	315,057
Investment	49,028	49,028
Non-operating	324,278	251,481
Totals	$6,920,911	$5,725,777

In the report of the commission the miles of single track of the railway companies are stated as follows: Milwaukee Electric Railway & Light Company, 147.002; Milwaukee Light, Heat & Traction Company, 229.173.

A summary of the brief in the fare case, filed for the company by Miller, Mack & Fairchild, attorneys, and Sullivan & Cromwell, counsel for the company, was published

in the ELECTRIC RAILWAY JOURNAL of June 10, 1911, page 1025. Full accounts of the various hearings before the commission in this case were published in the ELECTRIC RAILWAY JOURNAL of 1909.

COMMUNICATION

THE ARCH ROOF

CLEVELAND, OHIO, July 17, 1911.

To the Editors:

I note your editorial on the name of arch roof cars in the JOURNAL of July 15. The Niles name for this car, as used in all our literature and advertising, has been "single-arch roof," and we believe this is the best descriptive name for this type of car as the roof is a single arch in all directions in distinction from the monitor deck style, which consists of two or three sections of broken arches. We shall continue to refer to this style of car as single arch for the reason that it is the best descriptive name.

This merely as a matter of interest.

J. A. HANNA.

CREOSOTED WOOD PAVING IN THE CHICAGO BUSINESS DISTRICT

Charles K. Mohler, consulting engineer of the Loop Protective and Improvement Association, of Chicago, is distributing a sixty-two-page pamphlet containing a report and suggestions for improving the pavement in the congested business district of Chicago. This report considers methods for laying street substructures so that sinking of the pavement will be avoided, presents designs for manhole covers, criticises concrete pavement foundations and includes general observations and recommendations regarding paving, cross-walks, gutters, etc. That part of the report of particular interest to electric railway engineers includes the following regarding the junction of paving with the rails:

"To secure a satisfactory junction between the roadway paving and the rail is a problem which is seldom settled with entire satisfaction. On Madison Street west of Dearborn Street the new paving has been in only a little over a year and that adjoining the car track is already in very bad condition in many places. Failures of the kind developed on Madison Street seem to be the result of improper methods of laying rather than any inherent fault of wood block paving. In fact, granite block failures from the same apparent causes are very common.

"The causes of failures are probably as follows:

"First.—Open spaces or voids in the concrete. The vibration and jar produced from cars and traffic tend to work the sand of the bed on which the blocks are laid into these voids. The failures may be in part due to the above cause or any of the following:

"Second.—The spaces about and under the rails are not completely filled and the sand bed works in and allows the paving to settle.

"Third.—When the concrete bed has not had enough time to set before the paving is put in place and traffic resumed it may become more or less granular and loose, allowing the sand of the bed to work into it.

"Fourth.—Too great depth and too fine sand in the bedding of the blocks. With a deep bed of fine sand there is a tendency under a line of concentrated traffic for the sand to be forced out from under the more frequently loaded blocks and in under those less frequently loaded. That in time will result in depressions and ruts. Examples of this result are often very noticeable in brick pavements and to a less degree in granite. With a deep bed of fine sand there is nothing to keep a heavily loaded block from sinking but the friction of the confined sand and the force that prevents the adjoining blocks from rising. Under frequently repeated concentrated loads the blocks are eventually displaced."

Mr. Mohler has the following to say regarding the Chicago type rail with the beveled head:

"The rail used in Chicago has one feature that appears to be quite objectionable in connection with wood block paving. That is the beveled edge on the outside of the rail head. It is believed that better results would be obtained if the head were practically flat to the outer edge, so that the paving could be brought up flush with the side and even with the top, for the following reasons:

"First.—When a heavy load, carried on a narrow tire and drawn parallel to the rail, is just at the point of taking or leaving the rail, there is ¾ in. of its width that is without support. As a result a concentrated load is thrown on the edge of the pavement blocks.

"Second.—The edges of the blocks which stand out next to the beveled edge of the rail become broomed and worn.

"Third.—Water which finds its way into the groove formed by the bevel of the rail and the edge of the pavement cannot drain out. This keeps the broomed edge of the blocks constantly damp or wet, lowers their crushing resistance and thus contributes to the more rapid wear of the pavement.

"Fourth.—If the top of the paving is only brought up even with the beveled edge of the rail, then a bad condition results, producing at least three detrimental effects: (a) A wagon wheel passing over the rail will first rise and then drop, giving a rough road surface. (b) The drop from the rail to the pavement will tend to produce ruts and broom the surface of the blocks; this will be particularly liable to happen on lines of concentrated travel. (c) When the wheel crosses from the pavement to the rail at an acute angle it will tend to slide along the rail before mounting. The result will be that the fiber of the blocks will be torn, not only by the wheel next the rail but by the other one as well."

BLOCK SIGNALS TO BE TESTED IN IN[illegible]

At a recent meeting of the block signal committee appointed by the Indiana Railroad Commission M. H. Hovey, signal expert of the commission, was authorized to secure proposals on continuous-track circuit block signals using lights instead of semaphores to be installed on sections of three of the important interurban roads in the State. The proposals are to cover signal equipment for 18 miles of track of the Indiana Union Traction Company, 15 miles of the Terre Haute, Indianapolis & Eastern Traction Company and 10 miles of the Indianapolis, Columbus & Southern Traction Company. If the prices asked for signal equipment of this type are not prohibitive these trial installations will be made in order to determine the relative merits of the continuous-track circuit system and the short-track circuit system which is being tried by some of the Indiana companies.

SPECIAL COMMITTEE ON ASSOCIATE MEMBERSHIP OF THE AMERICAN ELECTRIC RAILWAY ASSOCIATION

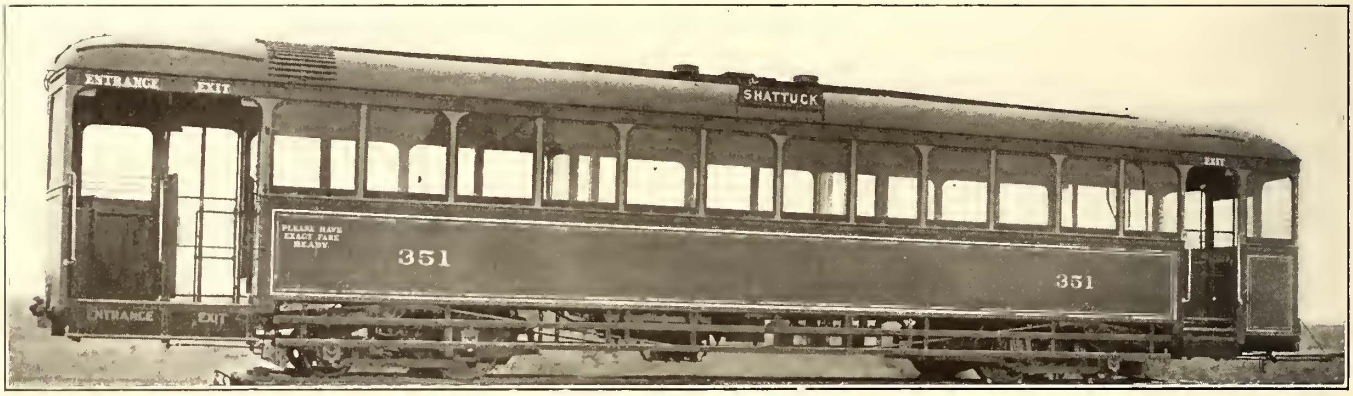
President Arthur W. Brady, of the American Electric Railway Association, has appointed James F. Shaw, Thomas N. McCarter and Gen. George H. Harries a special committee to consider certain adjustments in the present plan of associate membership. This committee will meet with a committee of three, consisting of Henry C. Evans, James H. McGraw and Edwin H. Baker, who have been appointed by President Charles C. Castle, of the Manufacturers' Association.

PREPAYMENT CARS FOR THE "KEY ROUTE," CALIFORNIA

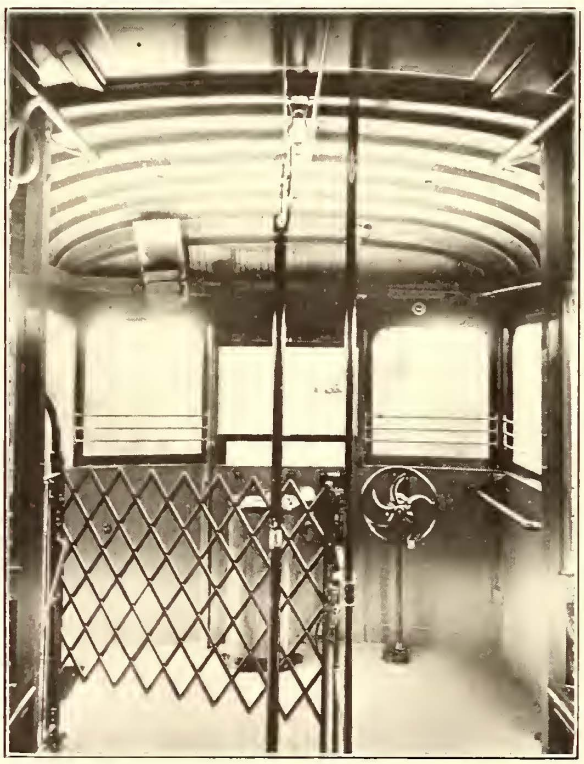
The interesting car shown in the accompanying cuts is one of sixty now being completed by the St. Louis Car Company for the San Francisco, Oakland & San José Consolidated Railway known as the "Key Route." This design is for prepayment service, but gates instead of doors will be used on the vestibuled platforms. The body is divided into three compartments by two bulkhead partitions which have single sliding doors. The end sections have a 5-ft. 6-in. open entrance from the platforms and a 16-in. wide single sash placed opposite the ends of the longitudinal seats which are used throughout. The side sash are stationary. The use of composition steel and wood for the underframe and of an arch-type roof were important factors in obtaining low weight. Although the car body is 48 ft. over the crown pieces, it weighs only 15,000 lb. The longitudinal seats carry forty-eight passengers, while the inside standing capacity is seventy-two. The other principal dimensions follow: Length over the corner posts, 35 ft. 2 in.; length of the vestibules, 6 ft. ½ in.; width over the side sills, 8 ft. 6¾ in.; width over the side posts, 8 ft. 11¾ in.; height from the bottom of sill to top of roof, 8 ft. 7½ in.; distance between truck centers, 25 ft.

All wooden members of the bottom framing are mortised and tenoned to each other with double tenons. The side sills are of composite steel and wood construction. They consist of 8-in. channels, extending in one length along the side of the car and bent around the ends. They meet in the center and are bolted together by means of a 6-in. x ½-in. splice plate. A yellow pine sill, 1⅝ in. x 2½ in., is bolted on the outside of this channel. The whole side sill is trussed with a 1⅛-in. rod upset to 1⅜ in. ends, resting on bolsters, extending through the end sills and having two cast-iron struts in the center of the car. The end sills are composite construction, comprising oak bolted against channel ends and having a sub-sill. The cross sills are of yellow pine, 2⅞ in. x 4 in., fitted with blocks into the side channel and bolted to the same by means of wrought-iron angles. The diagonal bracing consists of 1¾-in. x 6-in. yellow pine, notched over and bolted to all cross and side sills. The flooring is of yellow pine with maple strips.

The bolsters are of wrought iron, 8 in. x 1 in. and 8 in. x ⅞ in. The top and bottom members are of the truss-plate type constructed with cast-iron filler. They have



Side View of Prepayment Car for the "Key Route," California



View of Rear Platform

View of Front Platform

malleable-iron side bearings. Wrought-iron rub plates are used to suit conditions of truck and center plates.

The body framing is arranged for twelve stationary sash on each side of car. One corner of each sash is rounded to a radius of 6 in. and the sash is arranged to give a double-window effect. End bulkheads are provided; also two intermediate bulkheads, which divide the car into three sections of approximately 11 ft. 5 in. each. The bulkheads of the center compartment are provided with single sliding doors, sliding toward the same side of the car to clear the register rod. The end bulkheads have open entrances. The corner posts are of white ash, 2½ in. by 3 1/16 in. in one piece. The side posts are of white ash, 1⅛ in. x 2 in., bolted directly to the side frame and extended straight to the vertical top plate. The opening between the side posts is 33¾ in. The sheathing is 1-in. x 6-in. tongued and grooved yellow pine and is placed on the inside of the body posts between the steel sill and window rail. It is continuous from end to end of car. The window rails are gained into the side posts and held with flat-head steel screws. The top corners of the body framing are provided with malleable-iron castings for guards. An inside truss rod, 2½ in. x ⅜ in., with a substantial malleable-iron stand is installed at the bolster on the inside of the car behind the seats. The side panels are of straight-side construction made of V-cut tongued and grooved poplar, ½ in. x 2 in., extending from the window rail to the top of the bottom steel plate on the side sill.

The roof is of the turtle-back pattern. It extends the entire length of the car body and is supported on one continuous steel carline over each pair of side posts securely fastened to top plate of car. There is a steel carline 1½ in. x ⅜ in. over each post, so placed and blocked with bolted wooden carlines as to prevent any sagging or vibration of roof due to trolley pole connections. The wooden carlines are of white ash, ¾ in. x 1⅛ in., spaced about 10 in. apart and extending from rail to rail. Two star ventilators are installed in the roof of the closed central compartment of the car.

The vestibules are of the curved-end type extending the full width of the platform. Each vestibule front above the dash consists of three sash, the center sash lowering inside of front framing of the vestibule. An illuminated sign is installed over the center sash. The outside of vestibule front, below the cash, is sheathed with tongued and grooved matched poplar like the side panels and is provided with a suitable water-tight molding at the bumper. The platform flooring is white maple ⅞ in. thick. The platforms are arranged for prepayment service with suitable railings and gates at the entrances and exits. The steps at the exits are operated simultaneously with the gates. The step at the entrance side is folded by hand. The motorman's side of vestibule is inclosed for a distance of 2 ft. 10 in. from end toward the car body. The entrance side of the vestibules are open 6 ft. 6 in. from the end of the car body. The exit side is open 2 ft. 8 in. from the end of the car body. The step from the platform to the floor of the car is 11 in. high. The gates are of two types; a vertical rod gate is used at the exits and a channel iron gate is used at the entrances and for forming the partition between the entrance and the exit on the rear platform.

The platforms are supported on the sides by a 7 in. 9.75 lb. channel extending under the side sill up to the bolster and securely hung from the inside end sill channel in a malleable-iron casting by ⅞ in. bolts and secured by a wrought-iron stirrup. The center platform knees are of oak 3¾ in. x 4¾ in., reinforced under the end sill by 4 in. x ½ in. plate bent to reach against the center sills and bolted to the knee and center sill. The bumpers are formed of 8 in. steel channels rivcted to the platform knees and intermediate sills with angle clips.

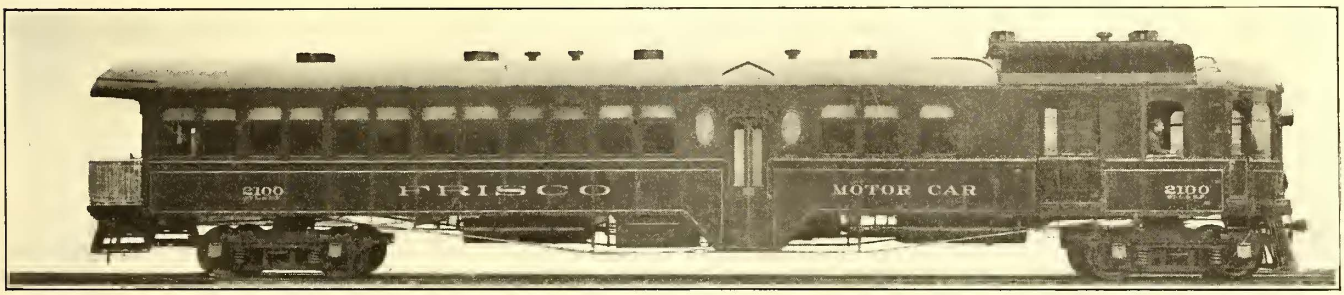
The side sash are single, made of mahogany, with one corner rounded. All bulkhead sash are stationary, except in the center bulkheads where door pockets require double sash, the inside one being hinged to give access to the door pocket. The doors in the center bulkheads are single, made of mahogany 1 1/16 in. thick. The interior finish of the car is plain mahogany. The headlinings are of mahogany, triple veneer, with plain strips of black-edged silver leaf, without any decoration. All trimmings are of bronze. The curtains are of pantasote.

The operating equipment includes the car builders vertical wheel brakes and illuminated signs. The weight of these cars without electrical equipment is approximatcly 25,800 lb., divided as follows:

Car body	15,000 lb.
Trucks	9,600 lb.
Air-brake equipment	1,200 lb

LARGE GAS-ELECTRIC MOTOR CARS

The accompanying illustration shows one of the six gas-electric motor cars built by the General Electric Company for the "Frisco Lines," and referred to by W. B. Potter, chief engineer railway and traction department General Electric Company, in the paper read by him at the annual meeting of the Street Railway Association of the State of New York, Cooperstown, June 28. These cars are 70 ft. long and 10 ft. 5 in. wide over all. The width, inside measurement, is 9 ft. 6 in. The seats are nearly 4 ft. long, and as they have no arms three people can comfortably occupy one seat. The aisle is narrower than is customary on steam railroad cars, but nevertheless is wider than on many electric cars. Aside from the passenger section, which seats ninety-eight passengers, the car has a 6-ft. baggage compartment. The gas-electric equipment consists of an eight-cylinder gasoline engine driving an electric generator. The motors are of standard railway type and the car is controlled by varying the voltage of the generator combined with series parallel connection of the motors. The engine control has a combination air valve and gas throttle by which the engine is started on compressed air and as soon as it begins running on gasoline the air is shut off. With this arrangement the engine need be run only when the car is being propelled. The auxiliary equipment includes a gasoline-electric set for lighting and means for securing compressed air. The car described has a maximum speed of about 50 m.p.h. on level track and a scheduled speed of 25 m.p.h. with stops 2½ miles apart.



Gas-Electric Motor Car for "Frisco Lines"

ORDERS FOR NEAR-SIDE CARS

The Philadelphia Rapid Transit Company announced this week that it had placed an order for fifty near-side cars with The J. G. Brill Company, and that the cars will be put in operation on the Twelfth and Sixteenth Street lines in Philadelphia within the next few months. The near-side car has been put in operation in Buffalo, as described in the Electric Railway Journal for July 8. As stated in that issue, this car was developed by Thomas E. Mitten. A "car full" sign will be used. In this connection the statement issued by the management says:

"The fifty new cars of the near-side type, now ordered, have a seating capacity of fifty-three persons, will comfortably accommodate a maximum load of eighty-three persons, seated and standing, and are provided with a 'car full' sign, which it is purposed to display when the car has become fully loaded, thus preventing the extreme overloading of the cars. The limiting of the number of persons carried, together with the extremely wide aisle possible in this type of car, will make it easy for passengers seated in the rear portion of the car to leave by way of the front platform, without experiencing difficulty in passing standing passengers."

The company also stated that illuminated destination signs in which the different routes will be indicated by a series of letters will be used.

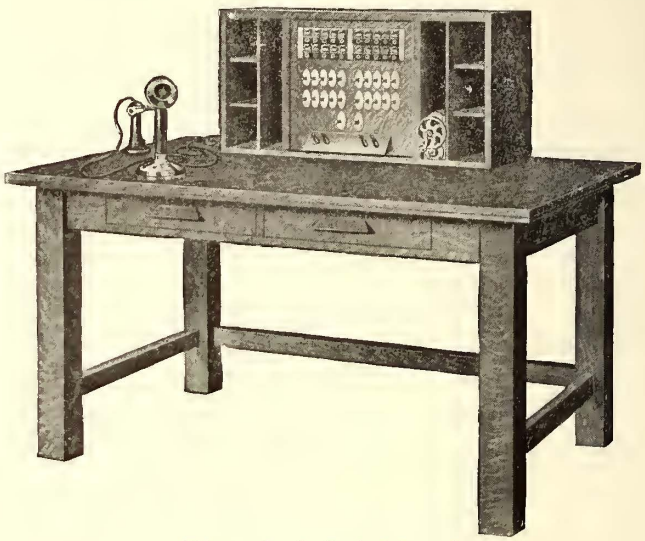
INTERURBAN CARS FOR THE BRITISH COLUMBIA ELECTRIC RAILWAY

The British Columbia Electric Railway, Vancouver, B. C., has purchased from the G. C. Kuhlman Car Company three interurban cars of the handsome design shown in the accompanying exterior view. The passenger and smoking compartments of these cars have a combined seating capacity of fifty-eight. Rattan cross-seats are used in both compartments. The principal car dimensions are as follows: Length of body, 42 ft. 9⅝ in.; length over the vestibules, 53 ft. 10⅜ in.; width over the sills, 8 ft. 3 in.; width over all, 8 ft. 4¾ in.; height from rail to sills, 3 ft. 4 15 16 in. The general construction is of steam coach style with monitor roof and Globe ventilators. The interior trim is African mahogany with sanitary finish and headlining in full Empire style. The trimmings are of bronze. There are seven arched double windows on each side with Pantasote curtains, Hartshorn rollers and Keeler eccentric fixtures. The bodies are mounted on Brill 27-M.C.B.-3 trucks carrying 34-in. diameter Midvale steel-tired wheels. Among the equipment specialties on these cars are Westinghouse A.M.M. air brakes, Tomlinson M.C.B. couplers, Hedley anti-climbers, Consolidated heaters, Crouse-Hinds headlights and Mason safety treads.

TELEPHONE APPARATUS FOR TRAIN DISPATCHING

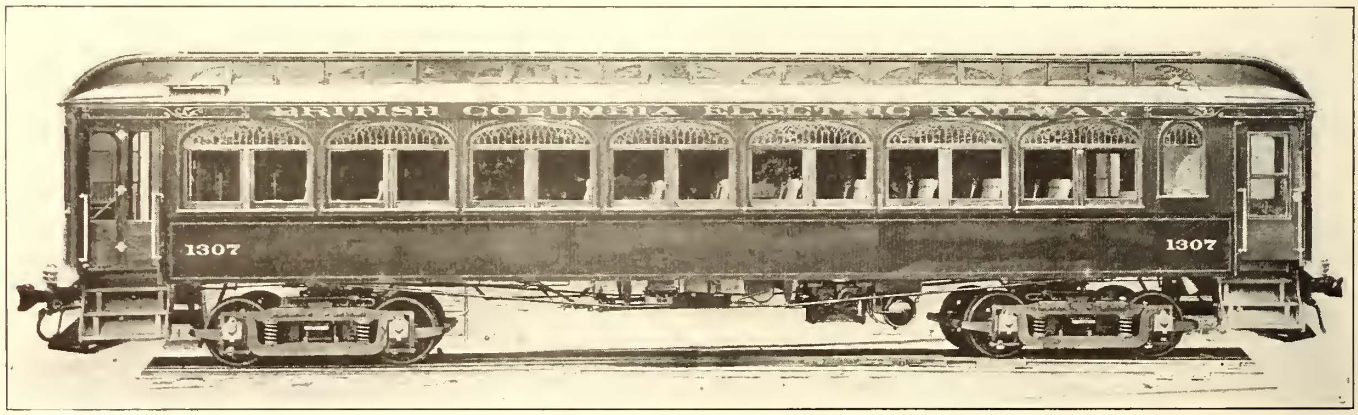
The accompanying illustration shows the dispatcher's switchboard of the telephone train dispatching system made by the Lafayette Electric & Manufacturing Company, Lafayette, Ind. The turret or switching cabinet is built for twenty circuits. It is also provided with pigeonholes and book stalls. The turret and table are made of quarter-sawed oak with durable fittings.

A strong feature of this system is that instantaneous connection can be made without plugs or cords. The drops or signals are known as the Army type because they were originally designed by the United States Signal Corps for army service. A continuously ringing bell, which may be switched off or on at will, is connected with each drop. When the operator is away from the board the continuous ringing notifies him of a call, although he may not be in a position to see the drop. Each drop has a jack through which any signal may be connected one with another as the services and operator may require. The coils used in these signals are wound for 1000 ohms and the wire is silk-insulated.



Dispatcher's Switchboard

The board has an answering key for each circuit, so that it is not necessary to use plugs and cords to answer a call, but by depressing a key lever connection is made with the circuit over which the call has been made. These keys have long phosphor-bronze springs. Each contact-making spring has platinum points to insure perfect and clear service. The key plates are nickel-plated and the key levers are insulated with rubber handles. The board also has two cord circuits for interconnecting lines as service may require.



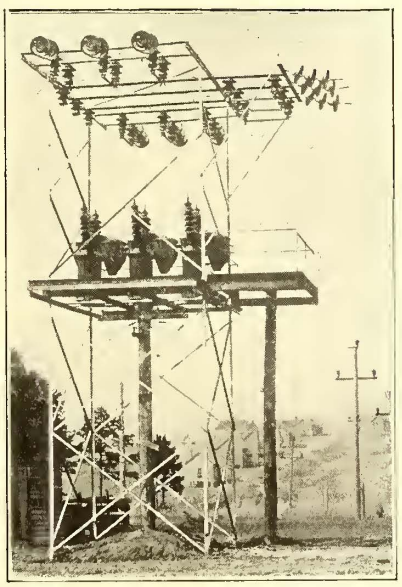
Latest Type of Interurban Car for the British Columbia Electric Railway

Each pair of plugs has ringing and listening keys to permit the dispatcher to ring on any line or circuit he may desire. A special desk telephone is used to communicate on any line or circuit at will. It is possible to furnish either an operator's telephone, as shown, or an arm and suspended transmitter. In either case there is included a double-pole receiver of the standard telephone receiver type or a head receiver with supporting band. The hand generator furnishes enough current to give loud, clear ringings at all telephones along the line if not more than thirty are in the circuit.

A call is displayed by the opening of the small shutter or drop. This denotes that some one is calling at a telephone connected with the signal mentioned. The dispatcher answers this call by depressing the corresponding key lever, which is located under the calling signal. The lever is restored to its normal position after the talk is over by touching it lightly underneath the spring mechanism. This action disconnects the line from the dispatcher's telephone. The dispatcher may talk on two or more circuits at one time or give two or more orders over circuits in different directions by depressing the proper key levers. Plugs and cords are furnished should he desire to connect one signal with another for any purpose. He does this by inserting the plug in the jack underneath the signal, turning the hand generator and depressing the key which corresponds to the plug connected to the line to be called. The operation of this system is extremely simple. The wear of the cords and plugs is negligible since they are not used except in the rare instances when the signals are to be interconnected.

OUTDOOR OIL CIRCUIT-BREAKERS

The Westinghouse Electric & Manufacturing Company has modified its type GA oil circuit-breaker for use as an outdoor high-tension switch at points on high-tension lines where it would not pay to have a substation. The breaker is like the indoor type, but has weatherproof protection for the operating mechanism and terminals. It is made for either hand or electrical operation, automatic or non-automatic, for circuits of from 44,000 volts to 110,000 volts, 300 amp capacity.



Outdoor Type Oil Breaker on Steel Tower

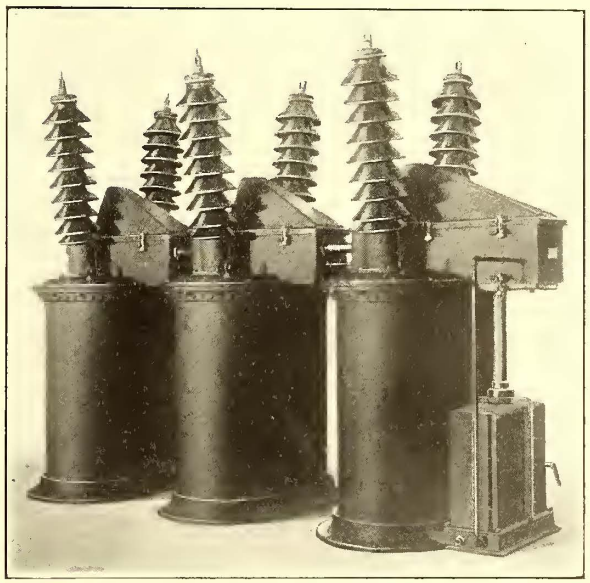
Each pole is a separate unit. A multipolar breaker consists of two or more units connected by pull-rods, which work the contacts and tripping mechanism. Each tank is made of welded boiler sheet iron with an insulating lining and is filled with insulating oil, the height of which may be determined by a sight gage. The pull-rod is surrounded by a stuffing box where it passes through the tank. This box wipes the oil from the rod and prevents its being thrown over the operating mechanism. The upper or fixed contacts are secured to the lower ends of the leads, which are of the condenser type. This upper contact consists of a circular piece of brass of greater area than the moving contact so that the entire surface of the latter will bear upon the stationary upper contact. This construction eliminates the necessity for accurately centering the contacts one upon the other. The lower or movable contacts are carried by a metallic cross-bar and consist of pieces of cylindrical brass backed by compression springs which insure alignment.

The electrically operated breakers have operating coils wound for direct current or standard voltages. They also have a tell-tale consisting of a double-throw knife switch and colored lamps which indicate the position of the contacts. The automatic breaker may be tripped by current from standard series transformers mounted at any convenient point or by special transformers built around the leads of the breaker. The latter method is considered standard and is usually furnished when the tripping current is 100 amp or over. Another method of tripping is furnished by a series relay which operates in connection with springs to trip the breaker.

These breakers are adapted to outdoor use by placing a two-part hinged cast-iron housing over the operating mechanism and rail shields over the condenser terminals. The housing forms an integral part of the breaker cover. In the electrically operated type of breaker the operating solenoid is also protected with a cast-iron housing and the operating leads are brought out through brass bushings, thus permitting the use of lead cables and wiped joints. There is also furnished a small knife switch mounted under the housing to control the incandescent lamps which may be placed at any convenient point to indicate the position of the circuit-breaker contacts.

The condenser type terminal with which these breakers are equipped has simplified the problem of successfully bringing the high-voltage leads through the tops of the iron tanks because this terminal lends itself readily to weatherproof protection by means of porcelain rain shields. These shields are porcelain petticoat insulators secured to the terminal on the inner side by a waterproof gum and on the outer side, where exposed to the weather, by a waterproof cement.

Many of these breakers have been installed by the South-



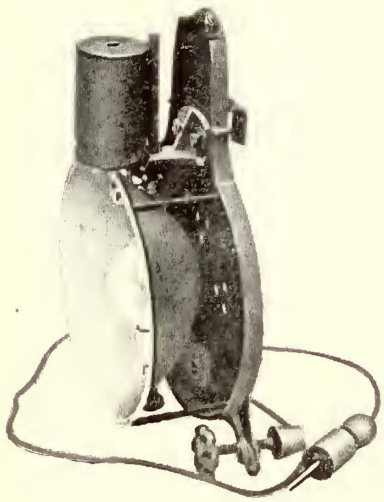
Three-Phase, 88,000-Volt Outdoor Type Oil Circuit Breaker

ern Power Company, which traverses over 1300 miles of the Piedmont section of North Carolina and South Carolina. In this region very great extremes of temperature and excessive moisture are experienced during short periods, and during the summer months there is an average of one rain and lightning storm every day. Nevertheless, the 44,000-volt and 88,000-volt breakers are said to behave very well. This company has used these breakers as sectionalizing switches in parallel lines of loops which have been built to insure continuity of service. By this means a defective section can be

cut out and a good line cut in without any interruption to the service. This would not be possible by the use of disconnecting switches alone. Some of these breakers are also used in testing the lines to locate trouble. On its 100,000-volt double-circuit steel tower trunk line the company desired to supply certain customers from either one of the two lines which might or might not be operated in parallel. This was accomplished by using two of these outdoor-type oil circuit-breakers and mechanically interlocking them so that but one breaker could be closed at a time, securing in effect a three-pole, double-throw breaker.

A SIMPLE HEADLIGHT

The Trolley Supply Company, Canton, Ohio, is now manufacturing a headlight known as the Peerless, Jr., which is notable for the small number of parts and several other points noted hereinafter. The lamp is 14 in. high to the top of the hood, 6¾ in. deep, and weighs only 22 lb. The clutch has a frictionless double lift which insures great durability. Another important feature is the use of one solid casting for the magnet bracket, carbon guide and top carbon holder. This casting is carefully machined to insure the permanent perfect alignment of the carbon. The top carbon is 9 in. x ⅜ in. in size. The bottom holder, which is made for a 4-in. x ⅜-in. carbon, is of brass and is machined to align with the upper carbon holder. The 3¾-in. x 2½-in. diameter magnet is made of double cotton-covered wire and weighs 3 lb. The carbon does not pass through the center of the magnet, but is placed at the rear to permit simple construction and a better focus point in the reflector. Instead of depending on a center screw the reflector is held by four brass posts, which are fastened to the back plate and to the rim of the reflector. The globe is 3¼ in. long and 3 in. in diameter. The resistance is 8 in. long and 7½ in. in diameter. Great care has been taken to obtain the best possible insulation from the binding posts and from the rod which holds the porcelain knobs. The covering is made of perforated steel with ample air space to keep the resistance cool. Only one hanger is used in the center of the lamp and two rubber bumpers are placed at the bottom with a screw and wheel to make certain that the light will be thrown directly in the center of the track at all times.



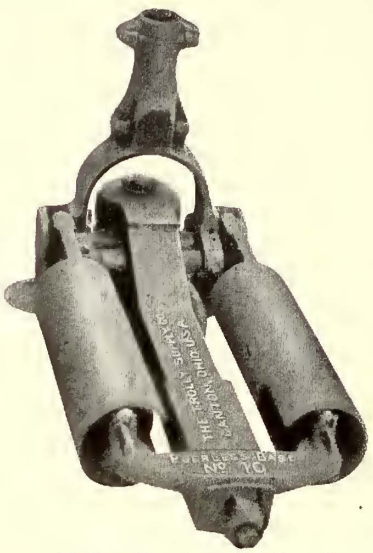
Side View of Headlight

CAR EQUIPMENT INSTRUCTION BOOK

The transportation department of the Metropolitan Street Railway, New York, has recently prepared a seventy-one-page, cloth-bound instruction book for the guidance of employees who wish to become starters, inspectors or instructors. The contents are therefore more elaborate than is usual in a book of this character. Several chapters are devoted to definitions of the principal electrical terms and to explanations of railway motor action in regular running and in emergencies. Detailed illustrated descriptions are presented of the standard air and electrical equipments of the cars; also of the contact and hand plows required for the conduit system and of the electric track switches. The list of "don'ts" offers a convenient summary of the causes which result in the greatest number of car troubles. Most of the data are in question and answer form for the convenience of the student. In preparing the text care was taken to avoid slipshod definitions and terms which would tend to confuse the learner who wants to widen his knowledge by studying standard electrical books.

ROLLER-BEARING TROLLEY BASE

The Trolley Supply Company, Canton, Ohio, is making for high-speed cars a roller-bearing trolley base known as the Peerless No. 10. One of its important features is that if perfectly balanced when set at any angle and at any pressure against the wire the base will come down on adding only ½ lb. weight. The base will not return to its previous position if the weight is removed, thus showing that the tension is stronger when the pole goes up than when it comes down. It is asserted that other bases require from 10 lb to 25 lb. to accomplish the same end. The frictionless features of this base have been obtained in part by taking the friction off the cross-pin which forms the up and down bearing of the trolley pole. This pin now carries the heavy pressure of the spring by means of a knife-edged bearing instead of the ordinary round bearing. A stronger upward tension of the pole has been obtained by changing the bearing point on the cross-pin. If the pole is pulled down on one side the cross-pin travels upward and if the pole is pulled down on the opposite side the cross-pin travels downward. The friction on the cylinder has been minimized by means of a ¾-in. ball at the rear end. Since there are two sets of bearings the pole can be used with equal ease for forward or backward running.



Roller-Bearing Trolley Base

The roller bearings are in a machined malleable housing which has a steel bushing and eight ⅞-in. x 5½-in. independent rollers. To prevent binding these rollers are supported by means of a malleable cage. The rollers work steel against steel. This is considered superior to other roller-bearing bases, which have thirty to forty ¼-in. or 5/16-in. diameter rollers whose bearing action is against a malleable casting. Such rollers tend to become embedded in the malleable iron and so prevent the base from working freely when going around curves. The springs and roller bearings are inclosed for protection from the weather. No oil is used on any part of the base. A simple adjustment of the trolley tension is secured by means of a screw nut, one turn of which increases the tension 4 lb.

The problem of repairing controller handles which have become loose from wear has been met by the Charlestown Interurban Railroad, Charlestown-Kanawha, W. Va., in the following manner: The hole into which the controller stem fits is drilled out to 1¼ in., then cross drilled three times with ¼-in. holes. The handle is set in a mold made from a controller stem and copper is poured in four holes and babbitt in two. An electric bonding machine melts the copper. Should these handles need repairs again, the babbitt and copper can be taken out and the handles refilled.

News of Electric Railways

Rapid Transit Contract Decision in New York

On July 20, 1911, the Board of Estimate, of New York, rejected by a vote of ten to six the proposed compromise embracing an annual preference payment to the Interborough Rapid Transit Company out of the earnings of the new subways ahead of the payment of interest on the city's bonds issued for construction of the extended lines, and by a vote of eleven to five declared in favor of an award of the entire new subway system to the Brooklyn Rapid Transit Company. The rules of the Board of Estimate require twelve affirmative votes to pass a resolution on its first presentation, and another meeting of the board was called for July 21, 1911, the members of the majority who voted in favor of the Brooklyn Rapid Transit Company on July 20 declaring their intention to repass the resolution. The six votes in favor of the preferential payment to the Interborough Rapid Transit Company were cast by President McAneny, of Manhattan; President Steers, of Brooklyn; President Miller, of the Bronx, and President Cromwell, of Richmond. Those against the proposal were cast by Mayor Gaynor, Comptroller Prendergast, President Mitchel, of the Aldermen, and President Gresser, of Queens. On the award to the Brooklyn Rapid Transit Company the eleven votes in favor were cast by Comptroller Prendergast, President Mitchel, of the Aldermen, and Borough Presidents McAneny, Steers and Cromwell, and the five against by the Mayor and Borough Presidents Miller and Gresser.

The subway plan which it was proposed finally to approve on July 21, 1911, involves a total expenditure by the city of approximately $123,000,000 in addition to $27,800,000 invested in lines now under construction. The Brooklyn Rapid Transit Company will spend approximately $75,000,000 in construction of new lines or reconstruction of existing lines and in the equipment of the system. There are added to the Brooklyn Rapid Transit System about 44 miles of double-track subway and various extensions to its existing elevated lines, bringing the total elevated mileage up to more than 80 miles of two-track or three-track road. More particularly the joint report of the committee of the Board of Estimate and the Public Service Commission, on which the award is to be based, proposed that the city should, under the division of territory between the Interborough Rapid Transit Company and the Brooklyn Rapid Transit Company, spend $58,400,000 in the construction of new lines in addition to the $27,800,000 investment in the Center Street loop and the Fourth Avenue subway, to which the company added $26,400,000 for construction and $24,000,000 for equipment. The addition to the Brooklyn Rapid Transit routes of most of the lines proposed for the Interborough Rapid Transit Company will bring the investment of the Brooklyn Rapid Transit Company up to $75,000,000 in round figures and will add to the city's investment for lines to be operated by that company the sum which the city previously proposed to spend for Interborough subways—$54,800,000 plus an additional sum of approximately $10,000,000.

A map showing the proposed division of territory between the Brooklyn Rapid Transit Company and the Interborough Rapid Transit Company was published in the ELECTRIC RAILWAY JOURNAL of June 17, 1911, page 1070. Under the plan of award in favor of the Brooklyn Rapid Transit Company which it was proposed to adopt on July 21, part of the lines which it was proposed to allot to the Interborough Rapid Transit Company will be awarded to the Brooklyn Rapid Transit Company, thus materially modifying the routes for the Brooklyn Rapid Transit Company which were shown on that map.

The Public Service Commission has adopted a resolution submitted by Commissioner Cram, instructing the commission's counsel to submit a form of certificate for the third tracking of the Second, Third and Ninth Avenue elevated lines of the Manhattan Elevated Railway, operated under lease by the Interborough Rapid Transit Company.

The City Club of New York has sent to the Board of Estimate and the Public Service Commission a report of its transit committee, with the suggestion of Walter Wellman that in the construction of future subways provision be made for trains of twenty cars or more, instead of eight and ten cars. The transit committee of the City Club consists of Homer Folks and Henry C. Wright. The Board of Estimate and Public Service Commission are asked to consider the suggestion, particularly in connection with the proposed Broadway subway in Manhattan.

The formal order from Judge Lacombe authorizing Adrian H. Joline and Douglas Robinson, as receivers for the Metropolitan Street Railway, to consent to the entry of an order brought by the State of New York to compel the forfeiture of certain licenses held by the Broadway & Seventh Avenue Railroad for surface tracks which have not been operated for many years has been filed in the clerk's office of the United States Circuit Court. The order will permit the tearing up of these tracks, which are considered an impediment to ordinary street traffic.

Decision in Rental Suit in Detroit

In a decision handed down recently by the Wayne County Circuit Court, Corporation Counsel Hally, of Detroit, is upheld in his contention that the city has a right to fix such rental as it sees fit for the occupany of the streets by the Detroit United Railway where franchises have expired, and that the reasonableness of the rental does not enter into the question. If the company does not choose to pay the rental fixed by the city, the court says it must vacate the streets. The case was brought against the company by Corporation Counsel Hally to compel the company to pay a rental of $200 a day in addition to what it was already paying for the use of the streets occupied by the Fort Wayne lines. The city, however, is refused judgment for the back rental since the date of the action of the City Council in increasing the rental. Ten days are given to the company in which to settle this point with the city. After the expiration of this time, if the company has not paid, the Council may take such action as it deems best.

The decision reads in part:

"The city is at all times in possession of its streets, in order to secure their proper use and enjoyment by and for the public. Its own title may be only an equitable one, but it is a paramount one for the objects stated. The rights conferred by the grant constituted an easement. A right to the use of the streets, superior in character to that possessed by any other individual or portion of the general public, was conveyed, and to that extent an interest in realty in the nature of an incorporeal hereditament passed to the defendant.

"The exercise of such an easement, in the absence of authority permitting it, is, in legal contemplation, an obstruction in the streets in the nature of a nuisance, to abate which equity has jurisdiction. There is distinct authority for this holding in our own State, and ample adjudications to the same effect in other jurisdictions.

"But it is urged that assent to continued operation is to be implied from the failure of the city to take action directing stoppage of operation, and that, therefore, the continuance of operation has been with the municipality's tacit approval. Whatever force, if any, this claim may have had, has been destroyed by the resolution of the Council of date June 13, 1911, when that is taken in conjunction with other allied facts.

"We come now to the claim that there can be no termination of a street railway franchise except by the mutual consent of grantor and grantee. Fairly stated, this position is grounded upon these propositions: The State, in giving to the street railway its charter, by which it obtained corporate capacity to accept a grant from the city (Sec. 6446 Comp. Laws), intended that the corporation should enjoy any grant received during its corporate life. Likewise, the

city contemplated a continuance of operation, subject only to the right to fix terms by mutual agreement, as required in the statute for the organization of railway companies, just cited. The whole public is said to have a right to transportation facilities of which neither the city nor the company may deprive them.

"It is difficult to deal in seriousness with a position so manifestly untenable, and so at variance at once with right reason and all established authority. Here are grants definite in their time limit. Their import is so clear that it cannot be made clearer by argument. To state them is to repel all inference of indefiniteness, and to negative all implication of extension beyond the plain letter of the grant. Moreover, the subversion of the public interest which would accompany such a denial of the city's power to control its streets under the authority conferred by its charter and by the constitution, and which would give to a limited easement an indefinite, if not a perpetual, tenure needs only to be stated to carry its own refutation.

"Guided by the evidence herein, and planting our position upon legal principles which receive universal recognition, the conclusion must be reached that the franchises have severally expired as claimed.

"The defendant insists that the fee for continued operation must be subjected to the test of reasonableness. If it deprive the company of a fair net revenue it is said to be invalid as confiscatory. The language of the city charter gives the city a very free hand in the regulation of its streets. The Common Council determined the manner in which the company could continue use of the streets beyond the grants, by the terms of the resolutions passed before the franchises had expired. Being revocable at will, the authority granted was not subject to the constitutional requirements of a referendum. The resolutions permitted a temporary use of the streets to one whose occupancy otherwise was without right. In the absence of any right to be in them, the company is in no position to question the city's terms.

"By virtue of its conferred powers of regulation we can find no limitation upon the municipality in prescribing the conditions upon which one without right of user may be given temporary, revocable use. The authority to determine the character of the conditions rested in the Common Council, and its legislative discretion, upon the facts here presented, is not subject to judicial review."

Report of Cleveland Railway for June

The report of the Cleveland (Ohio) Railway for June, 1911, shows a deficit of $63,064.74 and the surplus in the interest fund, which amounted to more than $200,000, has been reduced by $67,780.58. The deficit was caused by the heavy traffic and the fact that the lines are now operated at a straight fare of 3 cents. The franchise provides for the expenditure of 12½ cents per car mile for operation in June and 6 cents for maintenance. The actual expenditure for operation was 11.81 cents per car mile and 6.49 cents for maintenance. The car mileage for the month was 2,419,909. The statement follows:

		Cents per car mile.
Maintenance of property	$157,160	6.49
Operating expenses	285,807	11.81
Taxes	32,168	1.29
Interest	117,514	4.86
Total cost of operation	$591,649	24.45
Earnings from operation	524,896	21.69
Miscellaneous income	3,687	.15
Total earnings	$528,584	21.84
Deficit	$63,064	2.61

Councilman French has announced that at the meeting of the City Council on Aug. 28 he will offer a resolution asking Street Railway Commissioner Dahl to report on the cost of constructing a crosstown line on East Seventy-ninth Street. This is about midway between the Fifty-fifth Street and the 105th Street lines. At the last meeting of Council Messrs. Shimmon and Townes offered resolutions calling for a report on the cost of an extension of the 105th Street line to Denison Avenue across the Denison-Harvard bridge. These matters are coming up because of the agreement of the company to expend $2,500,000 in extensions and betterments at once.

Strike in Trenton

On July 17, 1911, twenty-two of the forty employees of the New Jersey & Pennsylvania Traction Company, Trenton, N. J., went on strike to enforce their demands for a flat rate of pay of 25 cents an hour and a closed shop. The company has always paid a graduated scale of wages. When the strike was declared this scale was as follows: First year, 21 cents; second year, 23 cents; third year, 25 cents. A few weeks ago some of the men who received 21 cents an hour formed a union and by intimidation, coercion and misstatement they succeeded in getting about twenty-two men out of the total of forty men to join them in demanding that C. M. Bates, president and general manager of the company, sign an agreement for two years giving a flat 25-cent rate and a closed shop.

On July 17 the men demanded that one of the organizers who had been brought to Trenton should be received in conjunction with the committee of employees to discuss the agreement. Mr. Bates refused to receive the men under such conditions, but told them he would discuss any alleged grievances with the employees. Four hours later, without any notice or warning, the men turned in their cars. The company arranged to run its full schedule with men who had remained loyal to the company, but during the night the strikers and their sympathizers cut the signal and telephone wires, spiked the switches and greased the rails on grades. This made it impossible for the company to run cars except on the Lambertville division, where repairs were made at once. On July 18 Mr. Bates received a committee of three employees and it was agreed to submit the differences to arbitration, as required by Section 30 of the ordinance of the city of Trenton. At none of the conferences was anybody present but Mr. Bates, representing the company, and employees of the company.

The Toledo Valuation

On the evening of July 10, 1911, the committee of the whole of the City Council of Toledo, Ohio, authorized Mayor Whitlock to inform the Toledo Railways & Light Company by written communication that the city is unwilling to consider the appointment of any one but Judge John M. Killits, of the Federal Court, as arbitrator in the valuation of the company's property. The company had suggested that an engineer would be better fitted to perform the duties of arbitrator.

The letter from the company regarding the appointment of Judge Killits was read to Council by Mayor Whitlock. He said he believed the city had been fair to the company in selecting Judge Killits and that as a rule experts leaned toward the companies. The vote to reject the suggestion for appointing an expert stood 15 to 1.

Mayor Whitlock's letter follows in part:

"Inasmuch as the gentleman to be selected to represent your company will, as you say, undoubtedly be as skilled and experienced in this service as is Professor Bemis, we are confidently of the opinion that they together would encounter only negligible differences in agreeing on the value of the physical property, and that therefore the chief points of variance necessarily would arise in ascertaining the extent of those intangible values to which the company lays claim. The principles applicable to the evaluation of the intangible elements of the property are largely, if not wholly, of a legal or abstract nature, and have been discussed and applied by the judges of the courts and announced in their reported decisions.

"We incline the more strongly, therefore, on this account to the conviction that in Judge Killits we would be fortunate in having to our aid not only a distinguished citizen of our own city, in whom the people have confidence, but a jurist abundantly qualified to pass on these recondite questions, and the city is ready now to proceed in a joint evaluation with him as the determining arbiter. While he would not, of course, as you say, possess in that capacity the legal power to issue subpœnas, he no doubt would be ready to be enlightened by the opinions of the professional gentlemen of whom you speak, and we are sure that on further reflection the reasonableness of this view will more seriously impress you and that thereby will be removed the

only immediate obstacle to that satisfactory, creditable and just solution of the transportation problem which we all so much desire."

City Solicitor Schreiber has been instructed by the committee to investigate the franchises under which the company operates with particular reference to their forfeiture. In an interview Mr. Schreiber was reported to have stated that he thought the Robison line franchises could be forfeited because the company has not paid the 1 per cent of the net earnings which it is claimed is due under the contract. These lines include the Huron Street, South Street and Bancroft Belt routes.

Valuation of Washington Water Power Company's Property.—Prof. C. L. Cory has been retained by D. L. Huntington, president and general manager of the Washington Water Power Company, Spokane, Wash., to make an independent valuation of the company's holdings.

Municipal Railway Considered in Los Angeles.—The construction of a municipal railway from the business center of Los Angeles to the harbor district was discussed at an executive conference held by Mayor Alexander and members of the City Council recently. Those who favor the construction of the line urge that at least $200,000 or $250,000 of the city's reserve fund could be spared to start the work.

List of Members of Central Electric Railway Association.—A. L. Neereamer, secretary of the Central Electric Railway Association, Indianapolis, Ind., has issued "Yellow Book No. 2," dated Indianapolis, July 15, 1911, which presents a list of the officials of each of the roads which is a member of the Central Electric Railway Association and a list of the members of the association who are connected with the supply trade.

Three Reports Required of Electric Railways in Ohio Each Year.—Under laws recently enacted in Ohio electric railways are required to make three annual reports. One of these goes to the new Public Utilities Commission and the other two go to the State Tax Commission. One of the reports to the State Tax Commission requires a statement of the gross earnings of the companies on which a tax of 1.2 per cent is to be collected. The other one requires a full exposition of the business.

Need for Comprehensive Subway System in Chicago.—William Schuyler Jackson, who represents the Chicago Municipal Subway Company, in presenting the plan of that company to the committee on local transportation of the City Council of Chicago on July 13, 1911, said: "To attempt to build a small subway loop in the downtown district would be a makeshift policy, would tend to add to congestion and would not provide any additional transportation facilities for the straphanger. A comprehensive system which can be expanded with the city's growth can be had without delay. Such a system alone is practicable and worthy of the dignity of the present and future Chicago."

Hearing on Power Brake Ordinance in Pittsburgh.—The committee on public service and surveys of the City Council of Pittsburgh, Pa., met on July 13, 1911, to consider the ordinance to compel the Pittsburgh Railways to equip all its cars with power brakes. S. L. Tone, second vice-president, represented the company. Mr. Tone asked that the committee amend the ordinance so as not to require power brakes on trail cars, and to permit hand-brake motor cars to be run on routes like the Carson Street line, where there are no severe grades. Mr. Tone said that only fifty cars out of nearly 1800 motor cars were not equipped with power brakes. These fifty were of a type that the company hoped eventually to replace with new cars. When the Smithfield Street bridge was widened the company would be willing to run cars equipped with power brakes on the Carson Street line. Mr. Tone suggested that the company be allowed a year to equip or replace the fifty cars to which he referred. It was finally decided to recommend to the Council that the company should be required to equip all motor cars with power brakes by Jan. 1, 1912, and to equip all new double-truck trailers with power brakes. The company will, however, be permitted to continue to use hand brakes on its single-truck trail cars.

Hoosac Tunnel Inspected.—A party of 200 Boston and other Massachusetts newspaper men inspected the newly electrified Hoosac tunnel on July 11, 1911, under the guidance of Vice-president Byrnes, of the New York, New Haven & Hartford Railroad. A special train took the party to North Adams. Mr. Byrnes stated that the capacity of the tunnel has been doubled since electrification. The return trip through the tunnel was made aboard two open freight cars attached to the special train. This gave the newspaper men an excellent opportunity fully to note the improved atmospheric conditions. Other railway officials besides Mr. Byrnes who made the trip were Vice-president Frank Barr, of the Boston & Maine Railroad; Assistant General Superintendent G. H. Folger, Superintendent A. S. Cheever, of the Fitchburg division; Superintendent G. L. R. French, of the terminal division, Boston; H. H. Fabian, manager of purchases and supplies; Assistant Superintendent J. D. Tyler, of the Fitchburg division; C. M. Burt, general passenger agent; W. L. Pratt, Western passenger agent; B. T. Wheeler, engineer of construction; W. S. Murray, electrical engineer; E. H. Ryder, secretary to the president; E. P. Lyon, of the press department of the New York, New Haven & Hartford Railroad, and H. A. Moulton, press representative of the company in Boston.

LEGISLATION AFFECTING ELECTRIC RAILWAYS

CONNECTICUT

Governor Baldwin, of Connecticut, has signed the public utilities bill passed recently by the General Assembly. The bill provides for a commission of three members to succeed the Railroad Commission and have supervision over all public service corporations. The Governor has named the members of the present Railroad Commission to be members of the new commission. The appointees and their respective terms follow: Richard J. Higgins, Winchester, until July 1, 1917; Theodore V. Ford, Bridgeport, until July 1, 1915; John H. Hale, Glastonbury, until July 1, 1913.

NEW YORK

Senator Pollock has introduced a bill to give the Public Service Commissions the right to supervise the issuance of securities when public service corporations are reorganized. The bill was introduced primarily on account of the appeal by the Third Avenue Railroad to the Appellate Division of the Supreme Court in the case of the reorganization of the Third Avenue Railroad, the claim being made by the attorneys for that company that the commissions are empowered at present only to regulate the issuance of securities of new or going concerns and have no control over reorganization issues. The cities committee of the Senate has reported favorably the bill introduced by Assemblyman Goldberg to compel the restoration of free transfers in Manhattan Borough, New York, without waiting for action by the commission to compel the companies to re-establish the transfers which were discontinued following the segregation of the street railways in New York. The motion of Senator MacManus to have the Senate pass the MacManus-Boylan bill over the veto of Mayor Gaynor of New York was defeated on July 17. The MacManus-Boylan bill sought to compel the New York Central & Hudson River Railroad to remove its tracks from Eleventh Avenue, New York, and was vetoed by Mayor Gaynor on the ground that the act was unconstitutional in that it did not outline a route for other tracks to take the place of those which is sought to remove.

The Assembly has passed the Jackson resolution proposing an amendment to the Constitution so that the Legislature may pass an employers' liability act. The amendment would give the Legislature authority to make provision for the security and protection of the lives, health, and safety of workmen; for compensation for injuries to workmen caused by accidents arising out of their employment, and for insurance against accidents, sickness, or old age. There was considerable objection to the resolution on the ground that it was too broad in scope, but on Mr. Jackson undertaking to have it modified in the Senate, the Assembly approved the resolution. After a public hearing on July 18, 1911, on the McClelland-Walker bill, which provides for the removal of the tracks of the New York Central & Hudson River Railroad from Eleventh and Twelfth Avenues, New York, under an agreement to be made between the railroad and the city, Mayor Gaynor signed the measure and returned it to Albany.

Financial and Corporate

New York Stock and Money Markets

July 19, 1911.

News of approaching settlement of subway matters on Tuesday caused an advance of 3 points in Interborough-Metropolitan shares, followed by gains throughout the list. Although some hesitation was shown at the opening on Wednesday, trading became active and further advances were made. Prices closed, however, at the level of the preceding day. The influence of the crop situation is a strong factor in the market. Time money is slightly firmer, but the demand is not especially heavy. Quotations to-day were: Call, 2¼@2⅜ per cent; ninety days, 2¾@3 per cent.

Other Markets

Local tractions have been the features of the Philadelphia market and new records have been reached in Philadelphia Rapid Transit and Union Traction. The latter was in good demand in to-day's market and trading in general was brisk.

Trading in Boston has been on a narrow scale. There have been but few price changes of importance. Massachusetts Electric preferred at 95½ made a new record last Saturday.

Chicago Elevated Railways preferred was traded in to-day for the first time on the Exchange. Sales were made from 85 on opening to 88 at the close. The common stock rose to 26 in the course of the day's transactions.

Nothing of moment as concerns traction issues has been shown in the Baltimore market of the week.

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

	July 12.	July 19.
American Light & Traction Company (common)	a310	a305
American Light & Traction Company (preferred)	a108	a108
American Railways Company	44	a44
Aurora, Elgin & Chicago Railroad (common)	a45	a44⅛
Aurora, Elgin & Chicago Railroad (preferred)	a87	a87
Boston Elevated Railway	a129	a129
Boston Suburban Electric Companies (common)	a15	a15
Boston Suburban Electric Companies (preferred)	75	75
Boston & Worcester Electric Companies (common)	a13	a12½
Boston & Worcester Electric Companies (preferred)	a57½	a58
Brooklyn Rapid Transit Company	83⅝	83¼
Brooklyn Rapid Transit Company, 1st ref. conv. 4s	87⅞	87¾
Capital Traction Company, Washington	a127	a130
Chicago City Railway	a190	a190
Chicago & Oak Park Elevated Railroad (common)	*3	3
Chicago & Oak Park Elevated Railroad (preferred)	*5	5
Chicago Railway, ptcptg., ctf. 1	a90	a90
Chicago Railways, ptcptg., ctf. 2	a26½	a28
Chicago Railways, ptcptg., ctf. 3	a10	a9½
Chicago Railways, ptcptg., ctf. 4	5½	5½
Cincinnati Street Railway	a130½	*130½
Cleveland Railway	a27½	a99⅛
Columbus Railway (common)	81½	*81½
Columbus Railway (preferred)	92	*92
Consolidated Traction of New Jersey	a76	a75½
Consolidated Traction of N. J. 5 per cent bonds	a105	a105
Dayton Street Railway (common)	a25	a25
Dayton Street Railway (preferred)	a100	a100
Detroit United Railway	79	74
General Electric Company	162½	162
Georgia Railway & Electric Company (common)	a163	a155
Georgia Railway & Electric Company (preferred)	93	93
Interborough Metropolitan Company (common)	18	19⅝
Interborough Metropolitan Company (preferred)	50⅝	55¾
Interborough Metropolitan Company (4½s)	78¼	81⅞
Kansas City Railway & Light Company (common)	a19	a19
Kansas City Railway & Light Company (preferred)	44	a41
Manhattan Railway	137½	141½
Massachusetts Electric Companies (common)	a23⅛	a23⅜
Massachusetts Electric Companies (preferred)	a94¾	94½
Metropolitan West Side, Chicago (common)	27½	a27½
Metropolitan West Side, Chicago (preferred)	a75	a75
Metropolitan Street Railway, New York	15	15
Milwaukee Electric Railway & Light (preferred)	*110	*110
North American Company	a74½	a73½
Northern Ohio Light & Traction Company	a49¾	*49¾
Northwestern Elevated Railroad (common)	a30	a30
Northwestern Elevated Railroad (preferred)	70	a70
Philadelphia Company, Pittsburgh (common)	56	a55½
Philadelphia Company, Pittsburgh (preferred)	a43½	a44
Philadelphia Rapid Transit Company	a20¾	a22⅜
Philadelphia Traction Company	a86¾	a86½
Public Service Corporation, 5% col. notes (1913)	101	*101
Public Service Corporation, ctfs.	a107	a107
Seattle Electric Company (common)	a111	a110½
Seattle Electric Company (preferred)	102½	102¾
South Side Elevated Railroad (Chicago)	a80½	a76
Third Avenue Railroad, New York	a10½	11¼
Toledo Railways & Light Company	a7¾	a7½
Twin City Rapid Transit, Minneapolis (common)	a108½	a110¼
Union Traction Company, Philadelphia	a50⅛	a52⅜
United Rys. & Electric Company, Baltimore	*19½	*19½
United Rys. Inv. Co. (common)	a39	a37½
United Rys. Inv. Co. (common)	a39	a37½
United Rys. Inv. Co. (preferred)	70	a70
Washington Ry. & Electric Company (common)	a42¾	a42⅞
Washington Ry. & Electric Company (preferred)	a89	a89½
West End Street Railway, Boston (common)	a89½	a88¼
West End Street Railway, Boston (preferred)	a103	a102½
Westinghouse Elec. & Mfg. Co.	75½	75⅞
Westinghouse Elec. & Mfg. Co. (1st pref.)	a120	a120

a Asked. *Last sale.

ANNUAL REPORT

Philadelphia Rapid Transit Company

The income account of the Philadelphia Rapid Transit Company for the years ended June 30, 1911 and 1910, compares as follows:

Year ended June 30	1911	Per Cent Increase.	1910
EARNINGS.			
Gross passenger earnings	$20,612,687	14.57	$17,991,100
Receipts from other sources	916,781	19.05	770,047
	$21,529,468	14.76	$18,761,147
EXPENSES.		Per Cent Earnings.	
Maintenance and renewals:			
Amount expended	$2,624,692	12.19	
Unexpended balance	604,728	2.81	
Total appropriation	$3,229,420	15.00	$2,420,220
Operation of power plants	1,427,022	6.63	1,460,677
Operation of cars	5,348,479	24.83	4,527,961
General	1,988,648	9.24	1,853,123
Taxes	1,155,491	5.37	1,194,635
	$13,149,060	61.07	$11,456,616
Net earnings from operation	$8,380,408	38.93	$7,304,531
FIXED CHARGES			
Interest	$1,469,748	6.83	$1,337,468
Rentals	7,326,220	34.03	7,296,785
	$8,795,968	40.86	$8,634,253
Deficit	$415,560	1.93	$1,329,722

Following is a statement showing the operation of the reserve fund for renewals for the year ended June 30, 1911:

Special appropriation in accordance with the Stotesbury requirement	$1,500,000
Unexpended balance of appropriation of 15 per cent of the gross earnings for the year ended June 30, 1911	604,728
	$2,104,728
From which deduct the deficit for the year; this amount representing that proportion of the total appropriation of 15 per cent of the gross earnings which is to be obtained from this renewal reserve fund	415,560
Balance of fund, June 30, 1911	$1,689,168

Charles O. Kruger, the president, says in part:

"Prior to Mr. Stotesbury's assuming financial control of the company a most exhaustive audit of the books and accounts was made, and upon the recommendation of the certified public accountants representing the city and the formal approval of Councils, an entirely new method of accounting was adopted.

"To meet the known capital requirements of the company during the five years next ensuing, a bond issue of $10,000,000, to bear 5 per cent interest annually, was arranged for. In consideration of the remaining equity in the Market Street Elevated being conveyed to it, the Union Traction Company agreed to guarantee the principal and interest of these bonds, and to pledge as security for the payment of the principal and interest of the said bond issue the entire issue of capital stock of the Market Street Elevated Railway, which represents the equity in property, over and above the first mortgage of $10,000,000.

"To insure the proper maintenance and renewal of the property, an annual expenditure of an amount equaling 15 per cent of the gross earnings was set forth as being necessary under Mr. Stotesbury's plan. Owing to the financial straits of the company the expenditure in this regard had not heretofore been in excess of an amount equaling 12 per cent of the gross earnings.

"The earnings of the company are not as yet sufficient to bear the cost of operation, including this 15 per cent, in addition to the payment of its fixed charges, which now represent an amount approximating 41 per cent of the gross earnings. The fund of $1,500,000 in current assets was required by Mr. Stotesbury to meet a deficit of $415,560 occurring this year, and to provide a sufficient reserve against the anticipated shortage of the succeeding years.

"Mr. Stotesbury's conditions having been met, and the necessary consent of the city obtained, the following new members were duly elected at the regular meeting of the board held June 5: E. T. Stotesbury, chairman; C. E. Ingersoll, H. G. Lloyd, C. S. W. Packard, T. E. Mitten. These gentlemen now constitute the members of the new executive committee, of which Mr. Mitten has been selected to act as chairman, he also acting as chairman of the board of directors during the absence of Mr. Stotesbury, who, relying upon Mr. Mitten's estimates and continued assist-

ance, is now directly represented by him in all matters pertaining to the operation and development of the property.

"The gross earnings for the current year show an increase of 14.76 per cent over the previous year. This abnormal increase is occasioned by the reduced gross earnings of the fiscal year ended June 30, 1910, due to the strike conditions which then prevailed. The normal increase in gross earnings is estimated to be slightly in excess of 4 per cent per annum, this based upon the actual average increase of 4.2 per cent per annum for the years 1902 to 1909, during which period the population increase approximated 2 per cent per annum.

"The division of the 15 per cent between the amount from earnings and that from the reserve fund follows:

		Per Cent Earnings
From earnings:		
Expended	$2,624,692	12.19
Unexpended	189,168	.88
	$2,813,860	13.07
From reserve fund:		
Unexpended	415,560	1.93
Total	$3,229,420	15.00

"The reserve fund for renewals as at June 30, 1911, contains the sum of $1,689,168, made up as follows: Securities from fire insurance fund, $1,200,000; cash appropriated from current funds of the company as at Dec. 31, 1910, to make the total reserve of $1,500,000 required by the Stotesbury management, $300,000; unexpended balance of appropriation from earnings for maintenance and renewals for year to June 30, 1911, $189,168; total, $1,689,168.

"The last two items in the above summary, aggregating $489,168, have been advanced temporarily from the reserve fund for renewals, to meet construction expenditures and the refunding of capital obligations. When renewal expenditures make it necessary the reserve fund for renewals will be reimbursed the amount of these advances for capital requirements from the proceeds of the new $10,000,000 bond issue.

"The capital expenditures to June 30, 1911, aggregated $665,026, as follows: Construction expenditures, $474,026; refunding of capital obligations, $191,000; total, $665,026. Of this total, $489,168 has, as stated, been advanced from the reserve fund for renewals, the remaining $175,858 having been taken from the current working capital of the company. Bonds of the new $10,000,000 issue will later be used to finance these capital expenditures.

"Summarized, the transactions in the surplus account for the six months ended June 30, 1911, are as follows: Surplus as at Dec. 31, 1910, $607,099; operating loss for the six months to June 30, 1911, occasioned by charging against earnings a sum sufficient to make the appropriation for maintenance and renewals 15 per cent of the gross for the twelve months to June 30, 1911, $200,745; miscellaneous charges to surplus, $48,103; balance at June 30, 1911, $358,251.

"The expense classification 'operation of cars' includes the amount paid to the trainmen, which represents 21.81 per cent of the gross passenger earnings, as follows:

Wages:		Per cent
Timetable cost	$4,414,987	21.42
Unearned wages at the rate of $2.00 per day paid to returning strikers under agreement of April 5, 1910	60,273	.29
Pension and death benefits	20,830	.10
	$4,496,090	21.81

"The fixed assets as at Dec. 31, 1910, included an amount of $934,346, which represented the unabsorbed portion of the costs of the 1910 strike. Following the recommendation of Vollum, Fernley, Vollum & Rorer, the certified public accountants auditing the books of the company, this amount will be written off to surplus at the rate of 10 per cent per annum.

"Fire insurance to the amount of $18,500,000 has been placed with companies authorized to do business in this State. This amount is considered to be sufficient fully to protect the company against loss by fire.

"Mr. Stotesbury's expressed desire and intention is to rehabilitate the physical property of the company and to improve its operating methods to the end of developing the best street car service which it is within the financial ability of the Philadelphia Rapid Transit Company to produce.

"The new capital represented by the $10,000,000 bond issue now authorized is recognized as being a very small amount with which to attempt to accomplish such a material change in conditions, and it can only by the exercise of the utmost care be made sufficient to complete the rehabilitation of the present property.

"The authorized $10,000,000 bond issue would, if marketed at an average price of 96, produce $9,600,000, of which approximately $1,600,000 will be required to pay present outstanding capital obligations which mature during the next five years, leaving an amount approximating $8,000,000 available for the capital requirements of the company.

"It is estimated that the expense, including the maintenance and renewals, will be approximately $1,500,000 in excess of earnings during the three years ensuing, to meet which deficit the company now has set aside in a special fund cash assets which will be marketed as may be found necessary. The remaining two years of the five-year period, it is thought, will result in a small earned surplus which should continue to grow larger each year thereafter.

"The estimates for the immediate future are not based upon a reduced cost of operation, as all of the economies effected, it is thought, will be offset by the larger number of seats necessary to be supplied to the public during the rush hours and the increased wage of ½ cent per hour, now approximating $100,000 per annum, which the company is under published promise to pay to its motormen and conductors on July 1 of each year. The company is also by its previous action obligated to pay a pension of $20 per month to those employees who are over sixty-five years of age and who have been in the service twenty-five years, and to pay an amount of $500 to surviving relatives at the death of any motorman or conductor who has been over two years in the service of the company.

"It is now understood that the Stotesbury management will, commencing as of July 1, 1911, pay to its trainmen that amount which in total will represent 22 cents out of every dollar collected in payment of fares. During the year ended June 30, 1911, the amount expended by the company to its trainmen represented 21.81 cents out of every dollar collected in payment of fares.

"The introduction of larger cars and better operating methods, together with proper co-operation between the men and the management, should very materially improve the operating efficiency of the company, thereby making possible such an increased scale of wages during the intervening years as should result in a maximum wage of 28 cents per hour in the year commencing July 1, 1915, or the fifth year of the Stotesbury management.

"This added increase in wages of motormen and conductors over that promised in the company's published notice of April 5, 1910, must of necessity depend upon the degree of co-operation displayed by the men in assisting the management in its efforts to improve the methods of operation. Such an increase of wages would necessarily be deferred and perhaps be made impossible should the company be put to expense on account of labor trouble with its motormen and conductors, as in that event the costs incident thereto would have to be spread over the remainder of the five-year period.

"Summarizing, the Stotesbury management will now attempt with the limited resources at the company's command, and with its very heavy expenses as compared with its earnings, to build up a perfect system of transportation and at the same time satisfy the three parties at interest.

"To the public it promises an adequate system of transportation within a five-year period, but counsels patience during the accomplishment of this object: to the motormen and conductors it promises recognition of their efforts in the way of co-operation by such wages as the resulting increased efficiency makes possible; but to the stockholders of the Philadelphia Rapid Transit Company it can only promise the building up of their property to the end that it may be a credit to its owners and productive of return upon the $30,000,000 of capital actually paid in. There can be no hope of dividend upon this stock, however, until good service to the public has become an established fact and the wages of the motormen and conductors placed upon a satisfactory basis."

American Railways, Philadelphia, Pa.—It is stated that a syndicate composed of Bioren & Company, Philadelphia, Pa., and Newburger, Henderson & Loeb, New York, N. Y., has been formed to underwrite $2,500,000 of the twenty-year, 5 per cent gold bonds of the American Railways which are to be issued to refund $2,500,000 of bonds of the company which mature on Dec. 1, 1911. The instrument which secures the bonds is a closed mortgage for $3,000,000 and the syndicate is said to have an option to purchase the $500,000 of bonds which will remain after the issue of the $2,500,000 of bonds previously mentioned.

Boston (Mass.) Elevated Railway.—The so-called Tinkham bill, which provides for the consolidation of the West End Street Railway and the Boston Elevated Railway at the termination of the lease of the West End Street Railway to the Boston Elevated Railway in 1922, has passed both branches of the Massachusetts Legislature. The terms of the consolidation provide that the Boston Elevated Railway shall issue additional capital stock to cover the stock of the West End Street Railway, of two kinds: First preferred stock, which shall be exchanged for the preferred stock of the West End Street Railway, share for share, and which shall be entitled to a preferential dividend of 8 per cent; and second preferred stock, which shall be exchanged, share for share, for the common stock of the West End Street Railway, and which shall be entitled to a 7 per cent dividend. The bill authorizing the construction of additional tunnels and subways in the city of Boston has been ordered to a third reading in the House. Two amendments proposed to the transit bills were rejected by large majorities: An amendment providing that the hours of labor on the Boston Elevated Railway be limited to nine in eleven, and one which provided for the abolition of the 1-cent toll charge through the East Boston tunnel.

Cincinnati, Georgetown & Portsmouth Railroad, Cincinnati, Ohio.—It is reported that negotiations have been closed by which the Comstock estate of Detroit, Mich., has disposed of a controlling interest in the Cincinnati, Georgetown & Portsmouth Railroad to a syndicate of Cincinnati capitalists in which E. E. Galbreath, president of the Second National Bank, Cincinnati, is interested. Mr. Galbreath and his brother are interested in the Ohio River & Columbus Railway, which intersects the Cincinnati, Georgetown & Portsmouth Railroad at Georgetown.

Chicago & Milwaukee Electric Railroad, Chicago, Ill.—Federal Judge Grosscup concluded, on July 11, 1911, a hearing on the validity of the $10,000,000 bond issue of the Chicago & Milwaukee Electric Railroad. He took the matter under advisement to be definitely decided later. It developed that virtually all the bonds issued to build the Wisconsin end of the road were sold at a discount ranging from 10 per cent to 25 per cent, whereas the bonds issued to provide funds to construct the line in Illinois were sold at par. Judge Grosscup is reported to have said at the close of the hearing: "Now, this is my present impression: With respect to the bondholders, if I can find a way in which they are entitled to participate in the proportion they paid for their bonds, I will follow such a way, because that is only fair and just. If I cannot find such a way, my present impression is that I will hold the bonded issue as an entirety without preference to anybody."

Columbus, Delaware & Marion Railway, Columbus, Ohio.—Judge Babst, in the Marion County Court, on July 11, 1911, appointed George Whysall receiver of the Columbus, Delaware & Marion Railway, on application of John B. Webb, president of the company. Mr. Whysall was removed as co-receiver with Mr. Ely West about two years ago, by order of the Franklin County Court. Mr. Whysall is also one of the receivers of the Columbus, Marion & Bucyrus Railroad.

Massachusetts Electric Companies, Boston, Mass.—By special legislation enacted early in 1911 and with the approval of the Massachusetts Railroad Commission, the Boston & Northern Street Railway on July 1, 1911, absorbed the Old Colony Street Railway. Both roads are owned by the Massachusetts Electric Companies, a voluntary holding company. The order of the Railroad Commission approved an increase in the capital stock of the Boston & Northern Street Railway of $776,700 in preferred stock and $8,004,100 in common stock.

Republic Railway & Light Company, New York, N. Y.—The Republic Railway & Light Company, the incorporation of which was noted in the Electric Railway Journal of July 8, 1911, page 94, has organized as follows: James Parmalee, president; De Forest Candee, vice-president; George A. Galliver, vice-president and treasurer; G. F. Ravenell, secretary; Henry H. Wehrhane, chairman; Anson W. Burchard, Samuel McRoberts, George A. Gallier and Harrison Williams, executive committee; J. J. Bodell, of Bodell & Company, bankers, Providence, R. I., and director American Textile Company; R. R. Breed, president of the American Gas & Electric Company; Anson W. Burchard, assistant to the president of the General Electric Company; De Forest Candee, president of the Federal Utilities, Inc.; Norman McD. Crawford, president Mahoning & Shenango Railway & Light Company; George A. Galliver, director of the Federal Utilities, Inc.; Myron T. Herrick, president of the Society for Savings, Cleveland, Ohio; Parmeley W. Herrick, director of the Cleveland Electric Illuminating Company; Samuel McRoberts, vice-president of the National City Bank of New York; James Parmelee, president of the Cleveland Electric Illuminating Company; Thomas A. Reynolds, assistant cashier of the National City Bank of New York; Henry W. Wehrhane, of Hallgarten & Company, bankers, and a member of the executive committee of the American Gas & Electric Company; Harrison Williams, of the American Gas & Electric Company, Federal Light & Traction Company, Federal Utilities, Inc., and president Springfield Railway & Light Company, Springfield, Mo., directors.

South Side Elevated Railroad, Chicago, Ill.—The directors of the South Side Elevated Railroad have declared an extra dividend of 5.9 per cent, or $5.90 a share, to be paid July 26, 1911, to the stockholders of record on July 15, 1910, out of the accumulated surplus.

Toronto (Ont.) Street Railway.—The directors of the Toronto Street Railway have called a meeting of the stockholders of the company for Aug. 14, 1911, to authorize an increase in the capital stock of the company from $8,000,000 to $12,000,000. It is intended to issue $2,000,000 of the new stock at par to stockholders in the proportion of one share per every four shares now held. In addition it is proposed to give the stockholders a stock bonus of $1,000,000, or one share for every eight shares now held. The balance of the $4,000,000 of common stock, or $1,000,000, will be retained in the treasury.

Tri-State Railway & Electric Company, East Liverpool, Ohio.—Subscription books were open at the Municipal & General Securities Company, Ltd., London, Eng., from July 3, 1911, to July 6, 1911, for the sale of $668,000 of 6 per cent first mortgage and collateral trust sinking fund gold bonds of the Tri-State Railway & Electric Company, at 95 per cent, with a bonus of 20 per cent in common stock. The bonds are part of an authorized issue of $2,500,000.

United Railways & Electric Company, Baltimore, Md.—Alexander Brown & Sons, Baltimore, Md., announce that the subscriptions to the $3,125,000 of three-year, 5 per cent notes of the United Railways & Electric Company aggregated more than $10,600,000, although the subscription list was closed a week ahead of the day originally announced. The stockholders, who were given precedence in the allotment, will receive more than 90 per cent of the notes. The remaining notes will be allotted to subscribers who are not stockholders. The subscriptions of the latter aggregated about twenty times the amount of the notes available for allotment.

Waco (Tex.) Street Railway.—The Waco Street Railway, which was incorporated recently with a capital stock of $1,000,000, has taken over the property of the Citizens' Railway Company, which was purchased recently under option by H. S. Shear, Waco, representing J. F. Strickland and his associates. It is proposed to transfer the property of the Waco Street Railway to the Southern Traction Company when it is incorporated. The officers of the Waco Street Railway Company are: J. F. Strickland, president; Osce Goodwin, treasurer; James P. Griffin, secretary; J. F. Strickland, Osce Goodwin, M. B. Templeton, Dallas, Tex.; Judson H. Boughton, Thomas H. West, J. G. Holliday and George L. Edwards, St. Louis, Mo., directors.

Dividends Declared

Albany Southern Railroad, Hudson, N. Y., ½ of 1 per cent, preferred.

Columbus (Ohio) Railway, quarterly, 1¼ per cent, preferred.

Commonwealth Power Railway & Light Company, Grand Rapids, Mich., quarterly, 1½ per cent, preferred.

Georgia Railway & Electric Company, Atlanta, Ga., quarterly, 1¼ per cent, preferred.

Grand Rapids (Mich.) Railway, quarterly, 1¼ per cent, preferred.

Havana Electric Railway, Havana, Cuba, quarterly, 1½ per cent, preferred and common.

Jacksonville (Fla.) Traction Company, quarterly, 1¾ per cent, preferred; quarterly, 1½ per cent, common.

Railways Company General, Philadelphia, Pa., quarterly, 1 per cent.

South Side Elevated, Chicago, Ill., special, $5.90.

United Traction Company, Pittsburgh, Pa., 2½ per cent, preferred.

MONTHLY ELECTRIC RAILWAY EARNINGS

AURORA, ELGIN & CHICAGO RAILROAD.

Period			Gross Revenue	Operating Expenses	Net Revenue	Fixed Charges	Net Income
1m.,	May,	'11	$152,751	$89,935	$62,816	$35,843	$26,974
1 "	"	'10	142,644	82,338	60,306	33,662	26,644
11 "	"	'11	1,574,293	912,121	662,171	380,107	282,064
11 "	"	'10	1,444,926	809,098	635,829	340,928	294,901

BATON ROUGE ELECTRIC COMPANY.

1m.,	May,	'11	$10,110	$5,853	$4,257	$2,034	$2,223
1 "	"	'10	8,937	6,127	2,810	1,938	871
12 "	"	'11	113,339	69,965	43,374	23,611	19,763
12 "	"	'10	105,176	69,302	35,875	22,890	12,985

BROCKTON & PLYMOUTH STREET RAILWAY.

1m.,	May,	'11	$10,070	$7,621	$2,449	$1,565	$884
1 "	"	'10	9,524	7,526	1,998	1,765	234
12 "	"	'11	120,146	83,543	36,603	19,044	17,559
12 "	"	'10	127,228	93,281	33,947	20,920	13,027

CAPE BRETON ELECTRIC COMPANY.

1m.,	May.,	'11	$27,651	$14,969	$12,682	$6,157	$6,525
1 "	"	'10	26,030	14,557	11,472	6,155	5,318
12 "	"	'11	328,924	170,268	158,556	73,731	84,926
12 "	"	'10	305,453	170,428	135,225	74,083	60,942

DALLAS ELECTRIC CORPORATION.

1m.,	May,	'11	$132,585	$88,079	$44,506	$27,941	$16,564
1 "	"	'10	115,593	81,398	34,194	26,621	7,573
12 "	"	'11	1,554,194	975,209	568,985	314,477	254,508
12 "	"	'10	1,383,893	892,743	491,151	326,007	165,143

EAST ST. LOUIS & SUBURBAN COMPANY.

1m.,	May,	'11	$193,181	$99,286	$93,896	....	....
1 "	"	'10	183,478	102,739	80,740	....	....
5 "	"	'11	905,984	487,222	418,763	....	....
5 "	"	'10	918,799	493,189	425,611	....	....

EL PASO ELECTRIC COMPANY.

1m.,	May,	'11	$54,161	$30,972	$23,189	$8,295	$14,894
1 "	"	'10	51,148	30,918	20,230	8,218	12,013
12 "	"	'11	658,208	381,959	276,249	98,144	178,104
12 "	"	'10	628,482	361,564	266,918	100,917	166,001

GALVESTON ELECTRIC COMPANY.

1m.,	May,	'11	$37,626	$19,594	$18,033	$8,557	$9,486
1 "	"	'10	27,954	17,939	10,015	6,462	3,552
12 "	"	'11	395,577	218,587	176,990	97,644	79,346
12 "	"	'10	364,664	228,979	135,686	77,265	58,421

NORTHERN OHIO TRACTION & LIGHT COMPANY

1m.,	May,	'11	$228,693	$124,657	$104,037	$44,329	$59,708
1 "	"	'10	207,323	111,250	96,074	43,375	52,699
5 "	"	'11	977,579	562,041	415,538	221,774	193,764
5 "	"	'10	865,662	501,105	364,557	216,542	148,015

SEATTLE ELECTRIC COMPANY.

1m.,	May,	'11	$447,989	$256,821	$191,168	$114,889	$76,279
1 "	"	'10	467,961	273,933	194,028	105,737	88,291
12 "	"	'11	5,565,586	3,122,359	2,443,027	1,329,043	1,113,984
12 "	"	'10	6,060,384	3,515,256	2,545,128	1,281,233	1,263,895

TAMPA ELECTRIC COMPANY.

1m.,	May,	'11	$55,302	$30,749	$24,553	$6,914	$17,639
1 "	"	'10	50,421	30,724	19,697	4,533	15,164
12 "	"	'11	608,447	325,455	238,293	74,247	209,046
12 "	"	'10	611,925	350,384	261,541	55,474	206,067

TWIN CITY RAPID TRANSIT COMPANY.

1m.,	May,	'11	$658,739	$311,974	$346,765	$140,079	$206,685
1 "	"	'10	627,946	289,382	338,564	140,113	198,452
5 "	"	'11	3,100,450	1,602,445	1,498,005	700,396	797,609
5 "	"	'10	2,931,643	1,446,451	1,485,192	701,029	784,163

UNION RAILWAY GAS & ELECTRIC COMPANY.

1m.,	May,	'11	$256,574	*$152,456	$104,118	$62,621	$41,497
1 "	"	'10	228,955	*139,074	89,881	57,837	32,044
5 "	"	'11	1,281,049	*756,639	524,410	301,907	222,503
5 "	"	'10	1,211,883	*730,444	481,439	290,018	191,421

UNION RAILWAY.

1m.,	Mar.,	'11	$168,446	*$141,069	$27,377	.....	.....

WHATCOM COUNTY RAILWAY & LIGHT COMPANY.

1m.,	May,	'11	$32,651	$16,136	$16,515	$10,929	$5,586
1 "	"	'10	35,404	19,143	16,261	8,370	7,891
12 "	"	'11	428,510	218,738	209,772	120,053	89,719
12 "	"	'10	418,364	237,584	180,779	101,178	79,602

*Including taxes.

Traffic and Transportation

Fare Reduction Ordered on Syracuse & South Bay Railroad

The Public Service Commission of the Second District of New York has ordered the Syracuse & South Bay Railroad to cease, after Aug. 1, 1911, charging its present 10-cent fare between Stop No. 5 and the city line of Syracuse, and to establish a one-way fare not exceeding 6 cents. Complaints on the 10-cent fare were filed with the commission some time ago. In its order the commission points out that the distance from Stop 5 to the city line is 2.46 miles, making a rate of 4 cents a mile by charging the 10-cent fare. The same fare applies from North Syracuse to the city line, although the distance is 4.27 miles, making the rate per mile about 2.3 cents.

It is further declared that the company sells round trip tickets between Syracuse and North Syracuse for 25 cents, but that these tickets are sold only in Syracuse and in North Syracuse. They are also good from Stop No. 5 into Syracuse and return, but no ticket office is provided at Stop No. 5 or at intermediate points, and the conductors are not allowed to sell tickets on the cars.

The commission relates that the regular one-way fare into Syracuse from Stop No. 5 is 15 cents, 10 cents to the city line and 5 cents from the city line into the city; that the round trip fare is 30 cents; that Stop No. 4 is only .57 of a mile nearer the city line, but that the fare from Stop No. 4 to the city line is only 5 cents and only 10 cents into the city. The commission declines to fix a 5-cent fare, but finds that the fare of 10 cents from Stop No. 5 to the city line and 15 cents into Syracuse is unreasonably high for the service rendered. The company is, however, given the option of putting in ecect a 6-cent fare or of keeping to the multiple of five basis, and thereby reducing the fare to 5 cents.

Side-Rod Prepayment Car in Cincinnati.—The Cincinnati Traction Company, Cincinnati, Ohio, has put into service a double-truck prepayment car, equipped with trucks with side rods. The car was designed by Thomas Elliott, chief engineer of the company, and was built by the Cincinnati Car Company.

Coney Island Express Service Satisfactory.—The Public Service Commission of the First District of New York has served upon the Brooklyn Union Elevated Railroad, the Nassau Electric Railway, the Sea Beach Railway and the South Brooklyn Railway an order dismissing the complaint of the Luna Park Company et al with reference to the summer express service to Coney Island.

Abusing the Baggage Privilege.—At the monthly meeting of the Western Passenger Association at Mackinac Island, Mich., on July 12, 1911, the advisability was considered of amending the rules of the association so as to prevent the growth of the practice among patrons of the steam railroads of using their mileage books to check baggage by the steam railroads and then patronizing the electric railways.

Small Children Must Be Accompanied.—Alexander Shane, general manager of the Indianapolis, Columbus & Southern Traction Company, Columbus, Ind., has issued an order that all small children who travel on the company's cars must be accompanied by some person old enough to care for them properly. Trouble experienced recently by the crew of a car in determining the destination of an unaccompanied child prompted the order.

Transfer Modifications in Louisville.—As a result of the announcement of the Louisville (Ky.) Railway that it will establish a number of additional transfer points, the ordinance now pending in the General Council of Louisville, to compel the company to institute a so-called universal system of transfers, will probably not be acted upon. Several years ago the company substituted transfers to be given by the conductor for the car-to-car transfer station arrangement.

Record Traffic in Rochester.—Traffic figures compiled by the New York State Railways, Rochester Lines, for Carnival Day, July 12, 1911, indicate that the patrol drill of the Shriners and the Water Carnical at Genesee Valley Park combined to make a new record for the company. During

the day 283,165 revenue passengers and 104,423 transfer passengers were handled, making the total 387,588, or a gain of 23,558 over the previous high record of 354,030 passengers carried on July 4, 1910.

Coney Island Fare Case Reopened.—The Public Service Commission of the First District of New York has adopted on the motion of J. Sergeant Cram an order setting a hearing for July 24 to determine whether all the compaines operating from New York to Coney Island shall not be obliged to reduce their fare to 5 cents except in the rush hours. The order just adopted affects all the companies, elevated and surface, in the Brooklyn Rapid Transit System operating to Coney Island, and the Coney Island & Brooklyn Railroad.

Decrease in New York Subway Traffic in Summer.—A comparison of traffic on the subway division of the Interborough Rapid Transit Company, New York, N. Y., for the period from July 5, 1911, to July 12, 1911, with the period from Dec. 5, 1910, to Dec. 12, 1910, shows that a total of 4,047,418 tickets were sold for the eight days from July 5 to July 12, 1911, while for the eight days from Dec. 5 to Dec. 12, 1910, 6,985,748 tickets were sold. The daily average for the eight days in July was 505,927, whereas the daily average for the eight days in December was 873,223.

Record Traffic in Portland, Ore.—Figures compiled by the Portland Railway, Light & Power Company, Portland, Ore., with regard to its passenger traffic on July 4, 1911, show that in point of numbers more passengers were carried that day than on any other day in the history of the company, not excluding the Rose Festival. The company reports as follows: Rose Festival, June 9, 1910, 372,017; June 10, 1911, 372,171; July 4, 1910, 371,979; July 4 1911, 439,154. In the compilation transfers are included, and these are estimated to total 25 per cent of the whole number. The increase on July 4, 1911, over July 4, 1910, was 67,175.

Pacific Electric Railway Uniforms.—On Aug. 1, 1911, the Pacific Electric Railway, Los Angeles, Cal., will adopt a single-breasted blue suit as standard for all its trainmen. The white caps will be replaced by black silk ones, and men who have been in the service of the company more than three years will be distinguished through a gold braid stripe on the left sleeve. For each three years' service a stripe will be attached to the wearer's uniform until the ninth year, when a star of gold braid will form the distinguishing mark. Depot masters and other employees not connected with the passenger service will wear silver trimmings in place of the gold. Stripes to designate length of service will be added in the same manner.

Increase in Wages for Chicago & Joliet Electric Railway Employees.—The board of arbitration which has been considering the question of increasing the wages of the employees of the Chicago & Joliet Electric Railway, Chicago, Ill., has decided that the men are entitled to an increase of 1 cent an hour. The award will date from July 1, 1910, and each employee will receive a bonus of about $40 in back pay. J. S. LeBosky represented the men of the board of arbitration, Clayton E. Crafts represented the company, and Chief Justice Harry Olson, of the Municipal Court at Chicago, was chosen by Mr. LeBosky and Mr. Crafts as the third member of the board. Mr. Crafts filed an opinion dissenting from the findings of Justice Olson and Mr. LeBosky.

New Destination Signs in Hartford.—The Connecticut Company has placed in service on its Asylum Avenue line, in Hartford, three cars equipped with new illuminated front, rear and side destination signs, which it is proposed to adopt as standard for use in Hartford. W. T. Bristol, manager of the company in Hartford, in referring to the signs, said: "As a whole they seem to be more satisfactory than any others we have adopted. The only car line other than the Asylum Avenue to have the illuminated sign is the one to Glastonbury. Glastonbury cars are closed. The side signs are the same as on the Asylum Avenue line. The front and rear signs differ, inasmuch as the Glastonbury cars are provided with a Pullman hood, and the sign is attached to the roof, while on the Asylum Avenue cars the front and rear signs are fastened into the window casing under the main roof of the car."

Boston & Northern Street Railway Literature.—A variety of literature has been issued this year by the Boston & Northern Street Railway, Boston, Mass. One booklet, "Trolley Facts," is devoted entirely to detailed information as to rates, fares, distances, where to take cars and where to make changes to hundreds of points on the lines of the company and connecting roads. This also has a detailed map of the section of Massachusetts east of Worcester, the southern part of New Hampshire and Rhode Island. Another folder, "Trolley Trips," is devoted to descriptions of the principal trips. In the center is an "Aero-View Map," while through the book individual route maps are used to depict more plainly the special trips referred to in the text. Besides these folders another is devoted to the special Boston and Providence summer service operated by the company, another to the Blue Hills reservation, ten smaller ones suggest trips and how to take them from the principal cities on the company's lines, and others are equally interesting. "Get the trolley habit" is the slogan adopted by the company.

Hearing on Fares and Transfers Before New Jersey Commission.—Argument was heard by the Board of Public Utility Commissioners of New Jersey at Newark on June 30, 1911, in the case of Commissioner William Mungle, of the Board of Works of Newark, against the Public Service Railway on the subject of the extension of transfers and of round-trip fares to New York. L. D. Howard Gilmour appeared for the company and Joseph G. Wolber represented Mr. Mungle. Mr. Mungle contended that the company should allow a passenger to board any car going in the direction of his destination and permit him to transfer rather than compel the passenger to wait for the car which is routed direct to where the passenger desires to go. In regard to the excursion fare to New York Mr. Mungle petitioned for an order to compel the company to meet terms of city ordinances which he contended require that the round-trip fare to New York to passengers on the South Orange line should be 20 cents and to passengers transferring to the South Orange line 24 cents. The company contended that the board had recently handed down a decision adverse to the petitioner in a similar case in Jersey City. Mr. Gilmour said that at a previous hearing no one testified that there was any demand for the 25-cent rate, and that there had been no complaints on the subject since Jan. 1, 1910. He said that the excursion rate is only 25 cents if the passenger buys ten ferry tickets at once and is only 26 cents if ferry tickets are bought one at a time.

Service Changes in Oneida.—An agreement has been reached by the Oneida (N. Y.) Railway with the city whereby a connection will be built from Madison Square through Madison and Sconondoa Streets to the New York, Ontario & Western Railway's tracks before Oct. 31, 1911. The company also is to cause local cars operated on its main line to leave the West Shore tracks at or near their intersections with Main Street and Lenox Avenue and proceed through Main Street and Lenox avenue or Central Avenue, connecting again with the West Shore R. R. at Oneida Castle, at or near the Lenox Avenue bridge, effective Oct. 31. Two additional cars are to be put on by Oct. 31, during the rush hours, between Sherrill and Oneida. The company has also agreed that on or before Oct. 31, 1911, it will sell for 10 cents a round-trip workingman's ticket between any point in Oneida on Main Street, Lenox Avenue, West Street, Central Avenue, Madison Street and Sconondoa Street and Kenwood; the tickets to be good for passage from the West Shore between Main Street and Lenox Avenue and between Sherrill and Oneida in the rush hour. The tickets in question are to be good only for continuous passage between 6.30 a. m. and 8.30 a. m. and 5 p. m. and 7 p. m. on each week day. The city of Oneida has agreed to grant the company permission to construct the extension referred to and to repeal or modify the provision in the railway company's franchise relating to the speed limit for cars in Oneida. The city has also agreed to certain other amendments to contracts and franchises now held by the company. The agreement made between the city and the company has been approved by the Public Service Commission of the Second District, with the full understanding that the commission does not relinquish any of the powers vested in it.

Personal Mention

Mr. Theodore P. Shonts, president of the Interborough-Metropolitan Company and the Interborough Rapid Transit Company, New York, N. Y., and president of the Chicago & Alton Railroad, has been elected a member of the board of directors of the Kansas City, Mexico & Orient Railway.

W. I. Barley has been appointed chief engineer of steam plants of the Portland Railway, Light & Power Company, Portland, Ore., to succeed Mr. B. W. Slocum, resigned, who has been appointed general manager of the Oregon Dry Dock Company, Portland, Ore., as mentioned in the ELECTRIC RAILWAY JOURNAL of July 15, 1911.

Mr. Frank W. Frost, assistant secretary of the Oakland Traction Company and the San Francisco, Oakland & San Jose Consolidated Railway, Oakland, Cal., has been elected secretary of the companies to succeed Mr. Samuel J. Taylor, resigned, who has been elected secretary of the People's Water Company, San Francisco, Cal.

Mr. Clarence P. King, who is president of the Washington-Virginia Railway, has been elected president of the Washington Railway & Electric Company and the Potomac Electric Company to succeed Mr. Clarence F. Norment, who resigned on account of the pressure of private matters. Mr. Norment will continue with both companies as a director.

Mr. W. T. Buchanan, who has been connected with the staff of *The Oregonian*, has been appointed publicity agent of the Portland Railway, Light & Power Company, Portland, Ore. Mr. Buchanan will have charge of the advertising of the company and the relations of the company with the press and will assist in editing the official journal of the company, *The Portland Carman.*

Mr. R. B. Grimmet will be appointed assistant superintendent of the railway department of the Little Rock Railway & Electric Company, Little Rock, Ark., the office of superintendent of transportation being abolished. Mr. Grimmet has been in the employ of the company for the last ten years. He was first employed as a conductor. He was promoted from that postion to dispatcher and has since continued as dispatcher.

Mr. Dow S. Smith has been appointed general manager of the Minneapolis, St. Paul, Rochester & Dubuque Electric Traction Company, Minneapolis, Minn. For some time past Mr. Smith has been connected with power development work in the West. From June, 1902, until July, 1907, he was general superintendent of the Brooklyn (N. Y.) Rapid Transit Company. Before that Mr. Smith was connected with the Twin City Rapid Transit Company, Minneapolis, Minn., for eight years.

Mr. Hugh Patterson, who recently resigned from the Pennsylvania Tunnel & Terminal Company, New York, N. Y., to act as electrical engineer for the Chicago Electrification Commission, to study the electrification of the steam railroad terminals in Chicago, was tendered a farewell dinner at the New York Athletic Club on July 19. There were fourteen in the party which consisted for the most part of Mr. Patterson's old associates in electric railway work. Mr. Patterson will assume his new duties on Aug. 1.

Mr. Richard Eick will be appointed superintendent of the railway department of the Little Rock Railway & Electric Company, Little Rock, Ark., vice Mr. C. J. Griffith, promoted. Mr. Eick has been superintendent of the transportation department of the company since 1904. He was formerly division superintendent of the North Jersey Traction Company, from which company he went to the United Railroads, San Francisco, Cal., as division superintendent. He resigned from the United Railroads to become superintendent of transportation of the Little Rock Railway & Electric Company, which position he has filled up to the present time.

Mr. J. V. H. Torner has been appointed foreman of shops and carhouses of the Chippewa Valley Railway, Light & Power Company, Eau Claire, Wis. Mr. Torner was born in Newport, Ohio, and was educated at the Ohio Northern University, Ada, Ohio, and at the Ohio State University at Columbus, Ohio. He began his railway career with the Chicago City Railway, and after a year of service with this company was appointed night foreman of one of its car houses, and was later transferred to the company's new carhouse at Thirty-eighth Street and Cottage Grove Avenue as night foreman. He was subsequently appointed assistant day foreman of the carhouse and shops of the Calumet & South Chicago Railway. He resigned from this company to become division shop foreman of the Rockford & Interurban Railway at Beloit, Wis.

Mr. Charles J. Griffith will be appointed general superintendent and treasurer of the Little Rock Railway & Electric Company, Little Rock, Ark., to succeed Mr. D. A. Hegarty in charge of operation. Mr. Griffith has been superintendent of the railway department of the company since 1905. He entered the employ of the Little Rock Traction & Electric Company in 1892 as master mechanic, and remained in that position until 1897, when he became general superintendent of the Southern Engineering Company, installing electric light plants and water works. He re-entered the service of the Little Rock Railway & Electric Company in 1901 as master mechanic and continued in that position until he was promoted to superintendent of the railway department, which position he has held up to the present time.

Mr. M. J. Hill has been appointed general superintendent of the Trenton, Bristol & Philadelphia Street Railway, Bristol, Pa. After completing the course in electrical engineering at the University of Wisconsin Mr. Hill entered the mechanical department of the Grand Rapids, Grand Haven & Muskegon Electric Railway, and about a year later became connected with the engineering department of the Westinghouse Electric & Manufacturing Company at East Pittsburgh, Pa. He resigned from the Westinghouse company, however, to become master mechanic and chief engineer of the Winnebago Traction Company, Oshkosh, Wis. About two years later he accepted the position of chief engineer of the Philadelphia & Western Railway. Subsequently he purchased an interest in a gas and electric company in the South and acted as president and manager of the company for several months. Mr. Hill became electrical and mechanical engineer of the Trenton, Bristol & Philadelphia Street Railway on April 1, 1910, and continued in that capacity until July 1, 1911, when he was appointed general superintendent of the Trenton, Bristol & Philadelphia Street Railway.

Mr. J. J. Doyle, who has been acting manager of the Washington, Baltimore & Annapolis Electric Railroad, Baltimore, Md., was appointed general manager of the company on July 1, 1911, to succeed Mr. J. N. Shannahan, resigned, who has become connected with J. G. White & Company, Inc., New York, N. Y. Mr. Doyle has long been connected with steam railroad and electric railway work. He was employed in the maintenance of way department of the Pennsylvania Lines, West, from 1888 to 1893 in various capacities. In 1893 he accepted a position with the freight department of the Wheeling & Lake Erie Railroad at Cleveland, Ohio, and served that company until 1895, when he entered the service of the L. P. & J. A. Smith Contracting Company. After a connection of two years with this company Mr. Doyle accepted a position with the Cleveland & Eastern Railway, Cleveland, Ohio, which he served as train dispatcher, division superintendent and general superintendent, continuing with the company until Jan. 1, 1908, at which time he entered the service of the Washington, Baltimore & Annapolis Electric Railway as engineer of track and overhead lines. On Nov. 18, 1909, he was made general superintendent of the Washington, Baltimore & Annapolis Electric Railway and continned in that capacity until July 1, 1911.

J. J. Doyle

Mr. Jay P. Graves, who recently disposed of his interest in the Spokane & Inland Empire Railroad, Spokane, Wash., and was succeeded on July 1, 1911, as president of the company by Mr. Carl Raymond Gray, as noted in the Electric Railway Journal of July 8, 1911, has been president of the company since its incorporation on Jan. 1, 1906. Mr. Graves went to Spokane from Illinois in 1887, when the estimated population of Spokane was 7000 persons. He was one of the incorporators and the first president of the Spokane Traction Company, which was organized on Feb. 18, 1903, when the estimated population of the city was 40,000. The Spokane & Inland Railway, now the Palouse & Moscow branch of the Spokane & Inland Empire Railroad, was incorporated on Dec. 13, 1904. Mr. Graves was also first president and one of the incorporators of this road, as well as of the Spokane Terminal Company, which was organized on March 5, 1905. He was one of the incorporators of the Cœur d'Alene Railway, of which Mr. F. A. Blackwell was the first president. The Cœur d'Alene Railway was purchased and consolidated with the other companies when the Spokane Terminal Company was organized.

Mr. D. A. Hegarty has resigned as vice-president, general manager, treasurer and director of the Little Rock Railway & Electric Company, Little Rock, Ark., to become general manager of the railway and lighting departments of the New Orleans Railway & Light Company, New Orleans, La., to take effect on Aug. 1, 1911. Mr. Hegarty was one of the pioneer operators in the electric field and the railway, lighting and gas business. He was educated at the University of Pennsylvania. On leaving the university he became connected with the engineering department of the Pennsylvania Railroad as rodman. He was assistant engineer of construction and maintenance of way of the Pennsylvania Railroad when he resigned from that company to become associated with Mr. A. Langstaff Johnston, pioneer electrical engineer in the railway field. When Mr. Johnston took charge of the work of electrifying the railways in Philadelphia Mr. Hegarty was engineer-in-charge of construction. On completion of the construction work he became general manager and chief engineer of the Hestonville, Mantua & Fairmount Passenger Railway. When the companies in Philadelphia were merged Mr. Hegarty resigned to accept the position of general manager and chief engineer of the Norfolk (Va.) Railway. Subsequently he became manager of the Railways Company General, an operating and construction company having railways and electric light and gas plants in Michigan, New York, Pennsylvania, Ohio and Cuba. This company also made a large number of reports and carried on construction work with properties all over the United States and in South America. Resigning this position, Mr. Hegarty became vice-president, treasurer and general manager of the Little Rock Railway & Electric Company, and has been in charge of that property for the last five years. The Little Rock Railway & Electric Company is one of the properties operated by Ford, Bacon & Davis, New York, N. Y., and is admitted to be one of the best constructed and operated public service properties in the country for a city the size of Little Rock. Mr. Hegarty has been closely identified with the progress of Little Rock, and is one of the directors of the Board of Trade and a member of the board of governors of the Chamber of Commerce. He is a member of the committee on city rules of the American Electric Railway Association and was one of the organizers of the Arkansas Association of Public Utility Operators, and was formerly president of that association. The Arkansas *Gazette* said editorially: "The Little Rock Company has always given good service and Little Rock has every reason to regret losing Mr. Hegarty, both as a street railway manager and as a citizen."

D. A. Hegarty

Construction News

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

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

RECENT INCORPORATIONS

***Benton Traction Company, Benton, Ark.**—Incorporated in Arkansas to build a street railway. Capital stock, $100,000. Incorporators: M. H. Holleman, L. L. Lansing and L. B. White.

***West Peak Railroad, Meriden, Conn.**—Incorporated in Connecticut to build an electric railway from the summit of West Peak, in Meriden, to connect with the lines of the Connecticut company at Southington. C. J. Danaher, Meriden, is interested.

***Albany Transit Company, Albany, Ga.**—Application for a charter has been made in Georgia by this company to build an electric railway in Albany. Capital stock, $75,000. Incorporators: C. W. Rawson, S. B. Brown, F. F. Putney, W. W. Pace, and others.

***St. Louis, Cedar Rapids & Minneapolis Railroad, St. Louis, Mo.**—Application for a charter will be made by this company in Missouri to build an electric railway to connect St. Louis, Mo., and Minneapolis, Minn. Capital stock, $20,000,000. The Missouri, Iowa & Minnesota Construction Company is promoting this proposed line.

Columbia Falls & Southern Railroad, Columbia Falls, Mont.—Incorporated in Montana to build a 26-mile electric railway between Columbia Falls, Jessup and Big Fork. Capital stock authorized, $100,000. Officers: A. L. Jordan, Columbia, president; H. F. Snow, Jessup, vice-president; W. P. Snow, Big Fork, secretary; John T. Robinson, Columbia Falls, treasurer, and H. E. Waggener, Columbia Falls, chief engineer. [E. R. J., May 13, '11.]

Cheat River Development Company, Pittsburgh, Pa.—Incorporated in West Virginia to build electric lines in Preston County. Capital stock, $50,000. Incorporators: Charles W. Held, William L. Hyatt, John M. Gleason, Frank P. Weaver and Glenn Hunter, all of Morgantown.

***Hancock County Electric Company, New Cumberland, W. Va.**—Incorporated in West Virginia to build an electric railway in Hancock County. Capital stock, $12,000. Incorporators: Nelson D. Miller, John F. Flood, Harry E. Armstrong, Samuel E. McCoy and Samuel G. Stewart, all of Steubenville, Ohio.

FRANCHISES

Fort Smith, Ark.—The Fort Smith Light & Traction Company has asked the Council for two franchises in Fort Smith.

Chico, Cal.—The Northern Electric Railway has asked the Board of City Trustees for a franchise to build over the entire length of Ninth Street, and on Oak Street from Fifth Street to Ninth Street.

Sacramento, Cal.—The Sacramento Electric, Gas & Railway Company has asked the Board of Supervisors for a franchise to extend its tracks through the suburbs to the east and southeast sections of Sacramento, making several loops. This application covers three sections of single or double tracks, as the company may hereafter decide.

***San Luis Obispo, Cal.**—W. G. Lincoln, San Luis Obispo, has asked the Board of Supervisors for a franchise to build an electric railway in the city and county of San Luis Obispo. He has also asked the City Council of Paso Robles for a franchise to build an electric railway in Paso Robles.

***Watts, Cal.**—The city clerk will receive sealed bids up to Aug. 8, 1911, for a fifty-year franchise to maintain and operate a railroad, with two or more tracks, along certain streets of Watts; to be operated with electricity.

Canaan, Conn.—The Berkshire Street Railway has had transferred to it, from Henry J. Loraback and S. F. Eddy, a franchise to build an electric railway from Canaan to the Massachusetts State line, to connect there with a line now being built from Ashby Falls, Mass.

New Haven, Conn.—The Shore Line Electric Railway has asked the Railroad Commission to approve two petitions for constructing its tracks in New Haven, East Haven, North Branford, Branford, Clinton, Westbrook, Old Saybrook and Essex.

Attleboro, Mass.—The Interstate Consolidated Street Railway has received permission from the Board of Railroad Commissioners to rebuild its tracks over South Main Street, in Attleboro.

***Bay City, Mich.**—Alex J. Grosbeck has asked the Common Council for a franchise to build an interurban railway over certain streets in Bay City.

Marquette, Mich.—The Houghton County Traction Company, Houghton, has received a franchise from the Village Council to build an extension on Ingot Street, in Marquette, to the railroad crossing.

***Little Falls, Minn.**—The American Engineering & Construction Company has asked the Council for a franchise to build an electric railway and power plant in Little Falls.

St. Louis, Mo.—The St. Louis & Jennings Railway has received a franchise from the Municipal Assembly to build a 1-mile electric railway from the end of the Union-Florissant line to West Walnut Manor in St. Louis. [E. R. J., July 15, '11.]

Geneva, Ohio.—The Cleveland, Painesville & Eastern Railroad, Willoughby, has received a 25-year extension on its franchise in Geneva.

Hamilton, Ohio.—The Ohio Electric Railway has asked the City Council for a franchise in Hamilton.

Beaver Falls, Pa.—The Beaver Falls, Koppel & New Castle Street Railway has asked the City Council for a franchise in Beaver Falls. This is part of a plan to build an electric railway to connect Beaver Falls, Koppel, Wampum, Mahoningtown and New Castle. It will connect with the Pittsburgh, Butler, Harmony & New Castle Railway. [E. R. J., June 24, '11.]

Butler, Pa.—The Butler Passenger Railway has received a franchise from the City Council to build a 750-ft. viaduct in Center Avenue, Butler, to span the Bessemer & Lake Erie Railroad and the Baltimore & Ohio Railroad tracks.

Greensburg, Pa.—The West Penn Traction Company has asked the Borough Council for a franchise for the Greensburg Terminal Company. This company proposes to lease the tracks of the Pittsburgh, McKeesport & Greensburg Company and the Greensburg & Southern, Greensburg, and to build extensions within the borough limits.

Lebanon, Pa.—The Ephrata & Lebanon Street Railway has received an extension of time on its franchise from the City Council in Lebanon.

Northumberland, Pa.—The Sunbury, Lewisburg & Milton Railroad, Sunbury, Pa., has asked the City Council for a franchise to build its tracks over the principal streets in Northumberland to the borough limits. W. H. Lyons, Sunbury, president. [E. R. J., Nov. 5, '10.]

Philadelphia, Pa.—The Philadelphia Rapid Transit Company has asked Councils for a franchise to extend its Chester Avenue line in Philadelphia.

Houston, Tex.—The Houston Electric Company has received a franchise from the City Council to relay its tracks over certain streets in Houston. Another franchise was granted to this company and to the Galveston-Houston Electric Company to enter into supplemental contracts with each other for the joint use of track in and around Houston.

Wenatchee, Wash.—E. J. Felt, Tacoma, representing the Wenatchee Valley Railway & Power Company, will ask the Council for a franchise to extend this line in Wenatchee to Leavenworth. [E. R. J., April 15, '11.]

TRACK AND ROADWAY

Pacific Electric Railway, Los Angeles, Cal.—Plans are being made by this company for the immediate construction of an extension on Colton Avenue, from Urbita Springs, south of San Bernardino, to Colton.

San Joaquin Valley Electric Railway, Modesto, Cal.—T. K. Beard has been awarded the contract by this company to construct an extension in Modesto from the city limit at Elm Street, to Eighth Street and F Street. As soon as this line is completed the company will build north to the Stanislaus River.

***Stockton and Bay City Short Line, Stockton, Cal.**—This company proposes to build an electric railway between Stockton and Byron, and ultimately to Antioch and Oakland. Application for a charter will be made soon.

Florence, Col.—D. F. Foor, Florence, advises that he has secured all right-of-way and franchises and that construction will be begun as soon as he has secured the necessary capital to build a 6-mile electric railway to connect Florence, Williamsburg, Rockvale and Coal Creek. [E. R. J., June 10, '11.]

***Tampa, Fla.**—James R. Reid, Augusta, Ga., it is said, plans to build an electric railway to connect Miami and Tampa, via the Everglades.

***Albany, Ga.**—Jesse & Earnest, general agents of the Dixie Pecan Orchards Company, 206 S. La Salle Street, Chicago, Ill., and Albany, Ga., are reported to be considering the construction of a 30-mile electric railway out of Albany.

Atlanta & Carolina Railway, Atlanta, Ga.—Work has been begun by this company laying its tracks from Atlanta to Oxford.

City & Suburban Railway, Brunswick, Ga.—This company will build a 1-mile extension.

***Jackson, Ga.**—It is reported that W. F. Smith, Jackson, is interested in a plan to build an electric railway from Indian Springs to Jackson, with a branch line to Griffin.

Illinois Traction System, Champaign, Ill.—This company has appropriated $100,000 for improvements on its lines in Peoria this year. Among other improvements this company will reconstruct its tracks in Averyville.

***Quincy & Western Illinois Electric Railway, Quincy, Ill.**—This company has been formed to build a 75-mile electric railway between Quincy and Niota, with branches to Keokuk, Warsaw, Nauvoo and Carthage. Construction will be begun in about three months. Henry Dayton, Quincy, president and general manager.

St. Joseph Valley Traction Company, Elkhart, Ind.—This company completed on July 15 its line between Elkhart, Middlebury, Lagrange and Angolia. A portion of the line has been operated for about five years by gasoline-electric motor cars. Electric cars are being used on the western end of the line.

***Keokuk, Ia.**—Right-of-way has been obtained to build an interurban railway from Rock Island to St. Louis via Adams, Pike and Calhoun Counties. It is reported that Stone & Webster, who are financing the Keokuk & Hamilton Water Power Company, Keokuk, are interested in the project and that power to operate the line will be obtained from this company.

***Excelsior Springs, Kan.**—D. A. McKibben and W. B. Walker, Excelsior Springs, and associates plan to build an electric railway from Leavenworth to Excelsior Springs via Bveerly and Platte City.

Kentucky Traction & Terminal Company, Lexington, Ky.—Work has been begun by this company relaying 80-pound rails in concrete in place of the lighter ones now in service.

Aroostook Valley Railroad, Presque Isle, Me.—It is stated at Presque Isle, Me., that the St. John & Quebec Railway, of which A. R. Gould is general manager, has arranged with the Canadian and the New Brunswick authorities for a subsidy for a new railroad from St. John, N. B., to Grand Falls, N. B., with a connection at or near Aroostook Junction, N. B., with the Canadian Pacific Railway branch to Presque Isle, Me. Mr. Gould obtained permission from the Legislature last winter for the Aroostook Valley Railroad (electric) to build three extensions—one to New Sweden, one to Caribou, and one westerly across northern Maine to the Canadian boundary in L'Islet County, Que., where connections might be made with a railroad from Quebec, and also obtained charter rights to acquire and electrify the Presque Isle branch of the Canadian Pacific Railroad so as to form links in a new route from Quebec to the Atlantic seaboard at St. John, N. B. In the recent announcement from Presque Isle it is not stated whether the St. John & Quebec Railway is to be operated by steam or electricity.

Boston & Eastern Electric Railroad, Boston, Mass.—This company has filed with the State Treasurer of Massachusetts a bond for $1,000,000, approved by the Attorney General of the State, to assure the construction of the road. This line will connect Boston, Beverly and Danvers. John H. Bickford, 110 State Street, Boston, chief engineer. [E. R. J., July 1, '11.]

Boston (Mass.) Elevated Railway.—Work has been begun by this company retracking Pleasant Street, in Malden.

Springfield (Mass.) Street Railway.—Work has been begun by the Fred T. Ley Company on the construction of the extension of this company's Brightwood line through East Street in Chicopee.

Detroit (Mich.) United Railway.—This company has placed in operation its extension on Detroit Street to the intersection of Court Street and Saginaw Street, in Detroit. The company will begin rebuilding its Griswold Street line between Grand River and Jefferson Avenue, in Detroit, at once.

Michigan United Railway, Jackson, Mich.—This company placed in operation on July 8 its third-rail line between Lansing and Owosso. The line is 33 miles in length and will, it is said, eventually be extended to Saginaw.

Minneapolis, St. Paul, Rochester & Dubuque Electric Traction Company, Minneapolis, Minn.—Shepard & Morse, St. Paul, have been awarded the contract by this company to grade its extension from Northfield to Faribault, ultimately to extend to Owatonna.

Cape Girardeau-Jackson Interurban Railway, Cape Girardeau, Mo.—During the next six months this company will place contracts to build 9 miles of interurban railway.

Missouri Interurban Railway, Jefferson City, Mo.—This company is constructing an extension to connect the eastern and western part of Jefferson City.

St. Louis & Jennings Railway, St. Louis, Mo.—Contracts will be awarded at once by this company to construct its 1-mile electric railway from the end of the Union-Florissant line to West Walnut Manor in St. Louis; to be operated as an extension of the Bellefontaine and the Union Avenue lines between Walnut Park and West Walnut Manor. Richard J. Baldwin is interested. [E. R. J., July 15, '11.]

Public Service Corporation, Newark, N. J.—This company is said to be planning extensive improvements in the service of its Montclair line. Plans are also being perfected for the construction of a loop on the plaza in front of the proposed Lackawanna terminal, in Montclair. A third new line for which right-of-way has been offered is to extend through Essex Falls to Roseland.

Trenton-Mercer County Traction Company, Trenton, N. J.—Richard Newton has been awarded the contract by this company to reconstruct this company's tracks over State Street, from the canal bridge to Broad Street in Trenton. [E. R. J., Oct. 15, '10.]

Suffolk Traction Company, Patchogue, N. Y.—The Public Service Commission, Second District, has determined that the crossing of the right-of-way and tracks of the Long Island Railroad on Ocean Avenue, in Patchogue, by the tracks of the Suffolk Traction Company shall be at grade. The crossing is to be protected by interlocking and derailing devices to be approved by the commission, and the expense of installing the crossing and necessary interlocking and derailing devices is to be paid entirely by the Suffolk Traction Company, and the expense of maintenance and operation of the safety devices is also to be borne by the Suffolk Traction Company.

Syracuse, Lake Shore & Northern Railroad, Syracuse, N. Y.—The extension between Fulton and Oswego has been completed by this company and will be placed in operation as soon as the work on the Fulton Bridge is finished.

Syracuse, Watertown & St. Lawrence River Railroad, Syracuse, N. Y.—It is reported that this company will soon award the contract to construct its 6-mile line from Stop 9 on the South Bay road to Brewerton. [E. R. J., July 1, '11.]

Akron, Canton & Youngstown Electric Railway, Canton, Ohio.—The filing of a mortgage for $15,000,000 by this company is said to mean that the construction of this railway to connect Akron, Canton and Youngstown will be begun this summer. [E. R. J., May 21, '11.]

***Cleveland Underground Rapid Transit Company, Cleveland, Ohio.**—The capital stock of this company has been increased from $10,000 to $3,500,000, of which $2,000,000 is common stock and $1,500,000 is 6 per cent preferred.

Hills & Dale Railway, Van Buren, Ohio.—This company has placed in operation its 1-mile electric railway between the Dayton Automobile Club and the Country Club. Eventually this line will be extended throughout Hills and Dale, a distance of about 4 miles. Edwin P. Matthews, Clayton, is interested. [E. R. J., April 8, '11.]

West Penn Railways, Pittsburgh, Pa.—Plans are being made by this company to build an extension across the Pennsylvania State line to Morgantown, W. Va. The company is also building several extensions from its main line toward the Monongahela River.

Jefferson Traction Company, Punxsutawney, Pa.—This company has completed the extension of the Mahoning Valley Street line through Big Run. It connects with the United Traction Company of Dubois, which makes a through line from Punxsutawney to Dubois.

Waynesburg & Blacksville Street Railway, Waynesburg, Pa.—The Bardella Construction Company, Fairmont, W. Va., has been awarded the contract by this company to grade and construct 5 miles of its electric railway between Waynesburg and Blacksville. The American Bridge Company received the contract to build a 140-ft., double-track steel bridge over Tenmile Creek, and the H. F. Stark Company has been awarded the contract to grade the remaining 8 miles of track on the south end of the line, leaving Blacksville and connecting with the Bardella contract 5 miles south of Waynesburg. Samuel Eakin, Wadestown, W. Va., president. [E. R. J., June 17, '11.]

Nashville-Gallatin Interurban Railway, Gallatin, Tenn.—The Fidelity Securities Corporation, which is building this 30-mile electric railway from Nashville to Gallatin, is making arrangements to extend this line northward to Franklin and Bowling Green. H. H. Mayberry, Nashville, president. [E. R. J., June 24, '11.]

Kittitas Railway & Power Company, Cle Elum, Wash.—This company has filed a deed of trust for $500,000 in the County Auditor's office at Ellensburg, as a step toward raising funds for building an electric railway between Roslyn and Cle Elum, via Ronald and Janesville. Paul L. Richards, Tacoma, president. [E. R. J., June 17, '11.]

***Clarksburg (W. Va.) Northern Railway.**—A contract has been awarded by this company to Contractor Fucci, Clarksburg, to build this electric railway between Clarksburg, New Martinsville and Middlebourne. T. Moore Jackson and I. M. Underwood are interested.

Ohio Valley Electric Railway, Huntington, W. Va.—This company plans to double-track about 8 miles of its road from Guyandotte to Camden Park, via Huntington.

SHOPS AND BUILDINGS

Northern Electric Railway, Chico, Cal.—This company will build repair shops, a carhouse and depot in Marysville.

Pacific Electric Railway, Los Angeles, Cal.—This company will build a passenger station at Azusa, Cal.

Southern Pacific Railroad, Los Angeles, Cal.—The construction of a new passenger station has been begun by this company at Sixteenth Street in Oakland. The structure will be of steel and concrete construction throughout, the exterior faced with a granite base and terra cotta glazed tile.

Oakland (Cal.) Traction Company.—Plans are being made by this company and the Oakland, Antioch & Eastern Railway and the Key Route to establish a depot and distributing station between Twelfth, Eleventh, Webster and Harrison Streets, in Oakland.

Denver (Col.) City Tramway.—This company has decided to proceed at once with the construction of an interurban electric railway station on Curtis Street, between Fourteenth and Fifteenth Streets, in Denver, following its policy of centralizing the administration and terminals.

Indianapolis & Cincinnati Traction Company, Indianapolis, Ind.—This company has plans and specifications ready for contractors for the erection of modern passenger stations in Connersville and Shelbyville and for the remodeling of the station at Greensburg. C. L. Henry, president.

Ft. Wayne & Northern Indiana Traction Company, Ft. Wayne, Ind.—Work will be begun at once by this company on its new carhouse in Ft. Wayne. The estimated cost of the structure is $175,000.

Minneapolis, St. Paul, Rochester & Dubuque Electric Traction Company, Minneapolis, Minn.—Plans have been made and work will soon be begun by this company on its passenger station, at Third Street and Linden Street, Northfield, Minn.

Great Falls Street Railway, Great Falls, Mont.—This company is now building a new carhouse and repair shops in Great Falls. The structure is 80 ft. x 170 ft., and of reinforced concrete, steel and corrugated iron construction.

Public Service Corporation, Newark, N. J.—This company is considering plans to build a new carhouse at Bell Street and Bloomfield Avenue, in Montclair.

Northern Ohio Traction & Light Company, Akron, Ohio.—This company plans to construct a carhouse at Kenmore.

POWER HOUSES AND SUBSTATIONS

San Francisco, Vallejo & Napa Valley Railroad, Napa, Cal.—This company has recently ordered the following material for use in its shops at Napa: One 300-ton Caldwell hydraulic wheel press with direct motor drive, one McCabe 36 x 54-in. double-spindle lathe, driven direct by General Electric multispeed induction motor. The 54-in. swing on the lathe will be used for turning steel wheels and tires.

Bangor Railway & Electric Company, Bangor, Me.—Plans have been made and work will soon be begun on this company's new substation near Center Street and Park Street, in Bangor. This building is to be 86 ft. x 43 ft., and of reinforced concrete construction. E. M. Waterhouse is in charge.

Waterville & Fairfield Railway & Light Company, Waterville, Me.—This company is in the market for one second-hand, 500-kw turbine for its power house in Waterville.

Marquette County Gas & Electric Company, Ishpeming, Mich.—This company expects to purchase a 200-kw rotary converter.

Cape Girardeau-Jackson Interurban Railway, Cape Girardeau, Mo.—During the next six months this company will place contracts to build a new substation in Cape Girardeau.

Trenton-Mercer County Traction Company, Trenton, N. J.—This company will make an addition of 750 kw to its power plant at Trenton.

Elmira Water, Light & Railroad Company, Elmira, N. Y.—This company has purchased a 600-hp Babcock & Wilcox boiler.

Syracuse (N. Y.) Rapid Transit Company.—This company will start work immediately on a 2000-kw substation to be located at 208 Townsend Street, in Syracuse. This station will supply energy to the Butternut, Oak, East Syracuse, Hawley and the east end of East Genesee Street lines.

Wilkes-Barre (Pa.) Railway.—This company has added to its power plant a 1500-kw Rice & Sargent compound engine direct-circuited to a General Electric generator, and has also added a battery of six Babcock & Wilcox boilers rated at 2100 hp. The boiler room has been enlarged and a new 178-ft. stack built. William H. Wheator, chief engineer.

Grays Harbor Railway, Light & Power Company, Aberdeen, Wash.—This company has placed in operation its new power house No. 2, located on the Anderson & Middleton Lumber Company's property, on Broadway Street, in Aberdeen. A 1000-kw turbo-generator and a 300-kw turbo-generator have been installed.

Washington-Oregon Corporation, Vancouver, Wash.—This company is building a new power house on the Kalamon River. A. Welch, 502 Fenton Building, Portland, Ore., general manager.

Manufactures & Supplies

ROLLING STOCK

United Traction Company, Albany, N. Y., is rebuilding twenty cars in its own shops.

Savannah (Ga.) Electric Railway has ordered three 26-ft. 6-in. car bodies from the St. Louis Car Company.

Binghamton (N. Y.) Railway expects to be in the market shortly for four or six closed single-truck car bodies.

Fonda, Johnstown & Gloversville Railroad, Gloversville, N. Y., has ordered two single-truck closed cars from the J. M. Jones' Sons Company.

Birmingham (Ala.) Railway, Light & Power Company has ordered twenty-four Brill 53-B trailer trucks from The J. G. Brill Company.

Ocean City Electric Railroad, Ocean City, N. J., has ordered two 28-ft. 8⅜-in., 10-bench open cars from The J. G. Brill Company.

Columbus Railway & Light Company, Columbus, Ohio, has purchased twenty-four Brill-22 special trucks from the G. C. Kuhlman Car Company.

Texas Traction Company, Dallas, Tex., has ordered two 28-ft. 8-in. closed trailer car bodies, mounted on Brill-57 trucks, from the Danville Car Company.

Aurora, Elgin & Chicago Railroad, Chicago, Ill., is in the market for ten heavy all-steel four-motor interurban cars. F. C. Faber, Wheaton, general manager.

Lehigh Valley Transit Company, Allentown, Pa., has ordered ten 30-ft. 1-in. pay-within convertible cars, mounted on Brill-27 MCB-1 trucks, from The J. G. Brill Company.

Warren (Pa.) Street Railway has ordered five 28-ft. 8-in. semi-convertible, pay-as-you-enter motor car bodies, on Brill 21E trucks, from the G. C. Kuhlman Car Company.

Montreal (Que.) Street Railway, noted in the ELECTRIC RAILWAY JOURNAL of July 1, 1911, as having issued specifications for twenty-five cars, has ordered twenty-five steel pay-as-you-enter car bodies from the Ottawa Car Company.

International Railway, Buffalo, N. Y., has ordered sixty motor equipments which consist of two 60-hp motors with K-36 control, from the General Electric Company. These equipments will be installed on the sixty semi-convertible, near-side cars being built by The J. G. Brill Company.

Philadelphia (Pa.) Rapid Transit Company has ordered thirty two-motor car equipments for use on its elevated division and fifty two-motor equipments for use on its surface division from the General Electric Company. The equipments for the elevated division consist of two 125-hp motors with Sprague-General Electric type M control, and will be installed on the thirty steel cars being built by The J. G. Brill Company. The equipments for the surface lines consist of two 60-hp, 500-volt motors with K-36 control, and will be installed on the fifty near-side cars which are also being built by The J. G. Brill Company.

Houston (Tex.) Electric Company has specified the following details for the ten single-end closed trailer cars being built by the St. Louis Car Company:

Seating capacity	40	Air brakes	West.
Length of body	26 ft. 6 in.	Couplers	Tomlinson
Over vestibule	38 ft. 6 in.	Curtain material	Pantasote
Width over sills	8 ft. 4 in.	Destination signs	Hunter
Height, rail to sills	2 ft. 4 in.	Wheelguards	H-B
Sill to trolley base	8 ft.	Seats	Heywood
Body	semi-steel	Trucks	Brill 39-E
Interior trim	mahogany	Wheels	chilled iron
Roof	arched	Drivers	33 in.
Underframe	composite	Pony	21 in.

Springfield (Mo.) Traction Company, noted in the ELECTRIC RAILWAY JOURNAL of July 1, 1911, as having ordered six closed motor cars from the Danville Car Company, has included the following details for this equipment:

Seating capacity	32	Fenders	Phila. rope type
Weight (car body)	12,000 lbs.	Gongs	Dedenda
Length of body	20 ft. 8 in.	Hand brakes	Brill
Over vestibule	30 ft. 8 in.	Heating system	Consol.
Width over sills	7 ft. 11½ in.	Headlights	Crouse-Hinds
Over posts at belt	8 ft. 4 in.	Journal boxes	Brill

Sill to trolley base. 8 ft. 7⅛ in.	Motors. 2 West. 323 interpole
Height, rails to sills. . 26⅝ in.	Push button signal. Brill Std.
Body ..... wood	Registers ..... Inter.
Interior trim ..... cherry	Roofs ..... plain arch
Underframe ..... wood	Sanders ..... Dumpit
Bumpers. Brill pat. angle iron	Sash fixtures ..... Brill Std.
Car trimmings ..... bronze	Seats ..... Winner
Control system.... G.E.-K-10	Seating material ..... rattan
Couplers ..... Brill Hovey	Springs ..... Brill
Curtain fixtures.. F.88 ring fit	Step treads ..... wood
Curtain material. painted duck	Trucks ..... Brill 21-E
Destination signs .... Hunter	Wheels ..... 33 in.

TRADE NOTES

American Car & Foundry Company will build a one-story steel hammer and forge shop at 2513 South Wood Street, Chicago, Ill.

Hayes Track Appliance Company, Richmond, Ind., received an order for 100 model AP derails from the Havana Central Railroad, for shipment to the United Railways of Havana, at Havana, Cuba, and shipped them on the same day the order reached it. Shipments of derails have also recently been made to Karachi and Howrah, India.

W. T. Brown, Seattle, Wash., who was formerly connected with the Washington Water Power Company at Spokane, in conjunction with W. L. Hoffman and F. H. Godfrey, has opened offices as consulting electrical and mechanical engineer at Seattle, Tacoma and Vancouver, the Seattle office being in the Bailey Building and the Tacoma office in the Bank of California Building.

Ackley Brake Company, New York, N. Y., reports the receipt of the first orders for Ackley no-staff brakes for Japan, Australia and New Zealand. Shipments of these brakes are now being prepared for England, Germany, France and Switzerland. The company also advises that inquiries concerning the new brake are being received from users of vertical wheels and screw brakes in foreign countries throughout the world.

Q M S Company, Plainfield, N. J., reports the receipt of orders for Stanwood car steps from the following companies: Wason Manufacturing Company, for the cars of the Springfield Street Railway and the Connecticut Company; The J. G. Brill Company, for the York Railways; Osgood-Bradley Car Company, for the new cars which it is building for the Connecticut Company and the Worcester Consolidated Street Railway.

Knickerbocker Construction Company, New York, N. Y., has opened a Chicago office at 912-913 Medinah Building, in charge of Russel N. Edwards, as Western manager and chief engineer. Mr. Edwards was graduated from Purdue in 1903 and served four years with the Arnold Company, following which he was associated with R. S. Feurtado, also of Chicago. The Knickerbocker Construction Company acts as engineer, constructor and operator of electric railways, electric lighting plants, transmission systems and other public utilities.

J. A. & W. Bird & Company, Boston, Mass., announce that in order to centralize the manufacture and sale of Rex Flintkote roofing and other waterproofing and insulating specialties, heretofore handled by them, and to further develop this growing business, they have disposed of and transferred their interests in these products to the Flintkote Manufacturing Company, Boston, Mass. This will permit Bird & Company to give their undivided attention to the other branches of their business. The Flintkote Manufacturing Company, a corporation whose directors and stockholders have been identified for years with Bird & Company, has taken over the roofing, waterproofing and insulating business in its entirety and will continue it upon the same general lines as heretofore.

The J. G. Brill Company, Philadelphia, Pa., reports the receipt of the following orders for export: American Railroad of Porto Rico, five 35-ft. first-class coaches, five 35-ft. steel underframes and ten all-steel first-class passenger car trucks; Cia. Limitada Ferrocarriles Vapores Nacional, Nicaragua, sixteen Brill 59-D first-class trucks and forty Brill 53-H freight trucks: M. E. Curwen for United Electric Company, Preston, Eng., 500 Brill 21-E side bars; E. G. Long Company for Hankai Electric Railway, Japan, twenty-two Brill 27-GE-1 trucks without wheels and axles; Byington & Company for eight special single-truck passenger cars. The company has also received an order from the government for a 20-ft. closed motor car mounted on a Brill 21-E truck, for use in the League Island Navy Yard.

Allis-Chalmers Company, Milwaukee, Wis., has appointed Fred L. Webster Pacific Coast manager, with headquarters at San Francisco, to succeed W. S. Heger, resigned. Mr. Webster joined the E. P. Allis Company in the erecting department, in 1892. Subsequently he did a great deal of foreign work for its factory, spending four years in South Africa. On his return from Africa, in 1891, he became chief engineer of the St. Louis Transit Company, holding that position until 1893. Then he went with the Fulton Iron Works, St. Louis, as sales manager, handling Corliss engines principally. In 1895 he returned to the Allis-Chalmers Company and was for two years head salesman of its Chicago office. Then he came to the Coast as manager of the Seattle office, which position he has held for the past three and a half years, his territory covering Washington, Oregon and British Columbia.

ADVERTISING LITERATURE

Ackley Brake Company, New York, N. Y., has issued a folder which is devoted to the new Ackley no-staff brake.

Bridgeport Brass Company, Bridgeport, Conn., is mailing a circular which discusses the merits of phono-electric trolley wire.

Kelman Electric & Manufacturing Company, Los Angeles, Cal., has issued Bulletin No. 7, which describes and illustrate high-voltage oil switches and oil circuit breakers.

Frank Ridlon Company, Boston, Mass., has issued a circular calling attention to the list of new Western Electric motors and generators which it is offering at low prices.

Niles-Bement-Pond Company, New York, N. Y., is mailing a 28-page catalog which describes and illustrates a variety of standard planers equipped with reversing motors.

Sanitary Rag Company, Kalamazoo, Mich., is mailing a card which calls attention to quality of the washed wiping cloths manufactured by the company, and to the low price at which they are sold.

Westinghouse Electric & Manufacturing Company, Pittsburgh, Pa., has issued folder No. 4206 on the Westinghouse automatic section insulator. The folder gives the applications with style numbers, sizes of wire and cross-section views.

Norton Company, Worcester, Mass., has issued a booklet entitled "Safety as Applied to Grinding Wheels," which describes and illustrates modern safety devices that can be practically applied in the use of grinding wheels and machines.

Allgemeine Elektricitäts-Gesellschaft, Berlin, Germany, has issued the first English edition of the A. E. G. Journal, dated July, 1911. The principal articles in this number are entitled: "A Tour Through the A. E. G. Turbine Works," "The Dessau-Bitterfeld Electric Railway," "The A. E. G. at Munich Electrical Exhibition," and "The Hamburg Elevated Railway."

Goldschmidt Thermit Company, New York, N. Y., in its publication *Reactions* for the second quarter of 1911, prints among others illustrated articles on "Annealing," "Repair to S. S. *Monroe C. Smith*," "The Melting Pot and Its Relation to Alloying Capacity," "Copper-Zinc Alloys," "Thermit Welding at Norfolk Navy Yard" and "Around the Railroad Shops."

Hess-Bright Manufacturing Company, Philadelphia, Pa., has issued sheets 68, 69, 70 and 71 of series 336, describing respectively "Application of Floating Bushes to Grinding Machine Spindle," "Method of Assembling an Adapter with Mountings," "D W F Adapter and the Method of Assembling It with Bearings on a Straight Shaft" and "Ball Bearings in Horizontal Molding Machines."

Delta-Star Electric Company, Chicago, Ill., has printed a sectional catalog which is devoted to an exposition of the Pittsburgh weatherproof transformers for use in securing new business along transmission lines. Recommendations are made as to the best method of installation, lightning protection and grounding of the secondary system. The catalog also describes Delta-Star high-tension specialties, for both indoor and weatherproof mounting.