

Electric Railway Journal

A CONSOLIDATION OF

Street Railway Journal and Electric Railway Review

VOL. XXXVIII

NEW YORK, SATURDAY, NOVEMBER 18, 1911

No. 21

PUBLISHED WEEKLY BY

McGraw Publishing Company

JAMES H. MCGRAW, President; C. E. WHITTLESEY, Sec'y and Treas.

239 WEST THIRTY-NINTH STREET, NEW YORK

TELEPHONE CALL: 4700 BRYANT. CABLE ADDRESS: STRYJOURN, NEW YORK.

CHICAGO OFFICE.....1570 Old Colony Building

CLEVELAND OFFICE.....1021 Schofield Building

PHILADELPHIA OFFICE.....Real Estate Trust Building

EUROPEAN OFFICE...Hastings House, Norfolk St., Strand, London, Eng.

TERMS OF SUBSCRIPTION:

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

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

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Changes of advertising copy should reach this office ten days in advance of date of issue. New advertisements will be accepted up to Wednesday, 9 a. m., of the week of issue.

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

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

The Association of American Advertisers has examined and certified to the circulation of this publication. The figures of circulation contained in the Association's report only are guaranteed.

ASSOCIATION OF AMERICAN ADVERTISERS.

No. A-82. Whitehall Bldg., N. Y. City.

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The Los Angeles Report

The report just submitted by Mr. Arnold for the reorganization and extension of the Los Angeles transportation lines advocates a most comprehensive system. The city has grown rapidly during the past ten years, and the riding upon its magnificent electric railway lines has increased in greater proportion, so it is not surprising that congestion within the city streets has been the result. But the remedies suggested are as radical as the difficulties are serious. In few other cities in this country of the size of Los Angeles, or in even larger cities, would such a proposal seem commercially practicable as the construction to a neighboring suburb (in this case part of the city) of an eight-track interurban line and its extension into the center of the city as a four-track line built there as a subway or elevated railway. Nor in many if any other cities would the double-decking of certain streets so as to provide an electric freight service on the lower deck and vehicle and pedestrian traffic on the upper deck appear financially feasible to the majority of the citizens. But Los Angeles is used to doing things, especially electric railway construction, on a large scale. The city needs double-decked streets and an eight-track line to its seaport so as to be ready to handle the traffic which it is expected will come to it with the opening of the Panama Canal. The development of its interurban lines is being hampered by the necessity for slow speed within the thickly populated portions of the city, and, as the limits of these districts are constantly extending, this improvement should come soon. For the city lines the report recommends universal transfers and for all of the transportation systems public supervision and control, with the possibility for municipal ownership of the city lines and of the city terminal of the interurban lines.

An Annual Report

An annual report of an electric railway company is the chief source of information regarding the results of operations which is available to the great body of holders of bonds and stocks. It should therefore be made as complete as possible in its presentation of all essential details. It should give the principal classes of earnings and always the full expenditures charged to each general operating expense account. A condensed balance sheet should be furnished, not entirely in a skeletonized form, but with sufficient items to enable the security holder to determine the kinds of property of which the assets are composed. A clear statement of miles of track owned and operated, with additions during the year and average mileage operated during the twelve months, should be included. Another table, relating to traffic statistics, should show the numbers of revenue passengers and transfer passengers carried, the

number of car miles run and also unit results that are computed ordinarily from these totals. The annual charges to capital account, set forth in detail, are items that the creditors and owners of the property are fairly entitled to have in their possession. In addition to these fundamental points, a discussion by the chief executive or operating official regarding the principal developments of the year will be of distinct interest. The security holders will be in closer touch with the property if they know the authorized and outstanding amounts of bond and stock issues, rates of interest or dividends, etc. A comprehensive map will lead to a greater familiarity on the part of these interested persons with the actual property operated. Of all the facts to which the owner of securities is most justly entitled, none is more important than an understanding of the policy of the management toward the upkeep of the property. If an increasing burden of deferred maintenance is being added each year he will then know that in time, unless there is a reversal of policy, the loss will be so great that bankruptcy will be inevitable; while if the management is at least taking care of the depreciation that accrues now, the property is becoming no worse in condition and through future earnings may, if managed wisely, be made better.

COMMITTEE ON SAFETY

The increased attention that has been devoted to the problem of making electric interurban travel safer has resulted in many novel practices and some very effective methods. Probably the most noteworthy results have been obtained by instructing the trainmen in the rules and the use of apparatus and in general vigilance. This schooling is, of course, supplementary to the general discipline which is or should be maintained at a high standing on every road which attempts to handle passengers at high speeds or over hazardous track.

Another and a novel means for increasing the safety of travel is the formation of committees on safety among the employees. In an editorial in the *ELECTRIC RAILWAY JOURNAL* for Feb. 18, 1911, the inauguration of a scheme of this kind by the Chicago & North-Western Railroad was commented on. The Baltimore & Ohio Railroad recently has put the same plan into effect on its entire system, and at least one electric railway, the Fort Dodge, Des Moines & Southern Railroad in north-central Iowa, has also adopted this means of preventing accidents. On this road a committee on safety, with the vice-president of the road as chairman, has been made up of five men from the general office, with one motorman and one conductor, and this committee inspects the entire property once a month. The men from the general office are the heads of the executive and operating departments, and the trainmen are chosen by the chairman of the committee and serve one month each.

On the days of inspection the committee rides regular trains at random, sees the orders delivered to train crews by the station agents, surprise-checks with regard to train numbers, lamps, markers and signals, and inspects the right-of-way and the equipment so far as this may be done easily on the road. Two days are required for this work, one for an inspection of the north half of the property and the other

for an inspection of the south half of the property. After each inspection trip a conference is held in the general manager's office, where the independently kept notes of the committee members are compared, and suggestions received from employes of the road and from the members of the committee are considered. It is clearly understood on this road that every employee is invited to make suggestions to the committee on safety, and that such suggestions, if presented through a superior officer, will be transmitted to the committee and will be considered at its first meeting. The conductors and motormen hand their suggestions to their representatives on the committee.

This form of holding regular inspection trips and conferences on the safety features of an interurban system has brought excellent results and is a work in which the department heads and employees on the road mentioned have willingly engaged. It affords a means of reporting promptly any dangerous condition of track, equipment or operation, and what is of most importance, these reports receive immediate attention from the management. The results of the pioneer work on Chicago & North-Western are said to have been very beneficial, especially in the reduction of minor accidents, which form by far the largest proportion of the annual total of claims for damages.

TWO RECENT STRIKES

Like all kinds of warfare, a strike is nearly always expensive to the winner and is usually disastrous to the loser. A manager is warranted in making every effort within reason and honor to avoid such a conflict, but if he has done this without success, we do not know of any other circumstances where the old proverb "Be sure you are right and then go ahead" applies with greater force. The inauguration of a strike means that the public will be inconvenienced to some extent and that the receipts from operation will reflect the consequent lack of patronage; hence it is safe to expect that many influences, political and other, will be brought to bear upon the management, directors and anyone else who may be thought to have some influence in making the company surrender. Capital is proverbially timid, and the experience in strikes has usually been that those representing the financial interests are the ones who first show the white feather. For this reason the next step for a management to take, after it is sure that it is right, is to convert and retain in the support of this position all of the principal persons interested financially in the property. In many cases where a company has been defeated in a strike we have heard the manager declare that he would have won if he had not been compelled to surrender by some timid but financially or politically important man or group of men in the board of directors.

Accounts of two strikes on electric railway properties are published elsewhere in this issue. One was settled by arbitration and the other by a complete rout of the strikers, but in both the company was successful. Each strike possessed unique features. In Des Moines an injunction was issued at the request of the city authorities soon after the strike began, not to enjoin the strikers and their sympathizers against the commission of violence, but to require each party to the dispute to re-establish the original status. That is to

say, the company was required to reinstate the discharged employes over whom the dispute had arisen, and the men were required under penalty of the law to return to work. As we pointed out at the time, the constitutionality of such an injunction is open to very serious question, but the author of the article on the Des Moines strike in this issue says that its legality has not yet been adjudicated in a higher court. At best it could only postpone the real crisis, which came when the same employee over whom the first strike occurred was discharged in company with others about five weeks later for an infraction of the same rule which caused his original discharge. At this time arbitration was the resort, and the decision of the arbitrators upheld the company in two of the three cases which it considered and in all of those in which there was more than one witness to the violation of the rules.

One of the most interesting features of the other strike, that on the Coney Island & Brooklyn Railroad, was that the men who took the place of the strikers were engaged by the company entirely without the assistance of any detective bureaus. This plan not only saved the commissions which are paid to the bureaus, but also enabled the company to get its information in regard to strike conditions directly from its own men. Of course, the Coney Island & Brooklyn Railroad was in an especially favorable condition to secure new men, being close to the headquarters of the labor market in New York, but the plan is worth consideration in other places. Another novel feature in the strike on the Coney Island & Brooklyn Railroad was a change from the usual method of police protection. The officers were stationed along the roadway instead of on the cars, and this enabled them more readily to close in upon the lawless element which attacked the cars.

LESSONS FROM THE CATENARY EXPERIENCES OF THE CONNECTICUT COMPANY

There is no question that some form of catenary suspension is advantageous for high-tension, high-speed railways, but many line engineers have felt that it is of doubtful value for standard direct-current lines where moderate-speed cars with wheel collectors are used. A great deal of light has now been thrown on this question by the frank account published elsewhere in this issue of the Connecticut Company's experiences with six different types of catenary construction. The likelihood that all, or nearly all, of the short steam cross-country lines in the thickly populated sections of Connecticut would be electrified eventually led the company to consider the possibility of developing a standard system of d.c. catenary construction suitable for all-electric or mixed steam and electric service on railways of this character. The company determined to try six different designs, as no one catenary system had then shown itself adapted in all respects to low-tension work. The equipments, therefore, were installed with the deliberate intention of permitting the merits and defects of each set of designs to disclose themselves by the simple process of the company refraining from all adjustments and repairs beyond those absolutely necessary for the safety of the public and of the company's own employes.

The results of this remarkable experiment are given at length in the article, but it may be well to call attention here

to some of the most important observations. Perhaps the most gratifying fact is that the simplest devices generally proved to be the most satisfactory. The best hanger, for example, was a plain strap design, having a loop or slot at the top to permit vertical movement at the catenary and a plain screw clamp ear to hold the trolley wire. Other hangers had very ingenious clamps for gripping the trolley wire, but they were unable to stand up in service without constant tinkering. Furthermore, some clamps actually interfered with proper clearances to the trolley wheels. The large number of bent hangers which developed demonstrated that the connections between the catenary and trolley wires should be so designed that they will return to their normal vertical position despite severe blows from the trolley poles. These troubles strongly emphasized the desirability of combining elasticity with strength.

The experience with brackets was another example of the simplest equipment proving the best. The single-piece brackets made of I-beams or T-beams were found to be of ample strength to carry the line. At the same time they were much easier to inspect and paint than the more elaborate two-piece brackets. The study of anchorage devices brought out clearly the fact that anchorages should be installed at the poles and not in the middle of long sections. Unless constantly watched, the anchorage wires soon begin to sag, so that in a short time they interfere with the action of the trolley wheel. The only important case where an additional number of parts seemed desirable was in the number of suspension points. It is believed that a ten-point or an eleven-point suspension between the span supports is preferable to a three-point suspension because each hanger in the latter type of suspension carries so much weight that there is danger of rigid points. Another most interesting result is the successful use on one section of a copper messenger and a steel trolley wire. The copper messenger showed enough tensile strength for service of this character and the steel wire did not give any noteworthy trouble from sparking on account of collector contact or from rusting. It was just as successful as on the high-tension lines of the New Haven Company, where a steel trolley was first used in catenary construction.

On the whole, the experiences gained by the Connecticut Company indicate that the ideal catenary system for low-tension d.c. work can be made with fewer parts than has heretofore been deemed necessary. In any event, catenary construction necessarily costs more than the ordinary types of suspension, although this difference might be reduced to a minimum if the copper feeder were used as a catenary. No matter what the merits of catenary construction may be, one cannot help but feel that if the ordinary span or bracket construction had been installed on a line of this character and left alone for an equal period there would have been far less work to do to restore the original conditions. It is apparent that, owing to the great number of places where adjustment must be made, a catenary line needs the most painstaking maintenance. Therefore, those who are contemplating the installation of new overhead work on low-speed lines should consider seriously every aspect of the question instead of blindly adopting designs which have really been developed for entirely different conditions of speed and potential.

D. C. Catenary Experiences of the Connecticut Company

This Article Describes the Results to Date of an Experiment Made with Six Different Types of Catenary Line Construction for the Same Service Conditions

In the *ELECTRIC RAILWAY JOURNAL* of Feb. 26, 1910, an article was published entitled "The Experimental Catenary Line of the Connecticut Company." This article described six different forms of catenary construction for 600-volt d.c. operation which had been placed in service in May, 1909, between Middletown and Hartford, Conn., on about 11,000 ft. of single track, 10,050 ft. of which are over the Valley Branch (steam) of the New York, New Haven & Hartford Railroad and 950 ft. over public highways. All of this catenary construction was installed by the railroad company's contractor, whose work, however, was subject to the approval of the individual supply companies. The object of the experiment was to determine the behavior of various forms of catenary construction on a line operating low-voltage, moderate-speed suburban cars at hourly intervals. Incidentally, an opportunity was given to note the effect of locomotive gases on the line material and to try a copper messenger and steel trolley wire on one of the sections. It was planned to make no adjustments or repairs whatsoever except those necessary to insure safety in operation. The following particulars are now available on the experiences gained up to October, 1911, as a result of this policy.

EARS

Ear No. 1 consists of two clamping jaws and a 1-in. threaded and tapped stud with a compression cup and hexagon nut for interlocking all parts and clamping the trolley wire. The locking is completed by bending down one of the small clinch points of the hexagon nut. The forcing nut acts directly on the stud so that no strain is imposed on the threaded end of the hanger rod. This clamp has no exposed threads nor pockets to retain moisture. It has been found too heavy, nor does it give perfect wheel clearance.

Ear No. 2 is similar in design to No. 1. It has a hinged clamp which is closed by a conical wedge screwing into conical jaws. The linemen report that some of these ears give a little trouble by slipping off the trolley wire. It is difficult to state, however, whether this trouble is due to the design or to extraordinary conditions. Thus, a certain amount of movement in the line resulted from rebuilding the overhead construction to accommodate a girder bridge which was substituted for a covered bridge. Elsewhere on this section a break in the trolley wire caused the distortion of several hangers, while at a third place the same effect was due to the bending of the hangers by a trolley pole.

Ear No. 3 is a 3½-in., three-screw mechanical clamping design similar to the screw-clamp for grooved wire. Although this pattern seems to be very light in construction, it has given no trouble beyond the breaking off of the screws on two or three ears. The principal merits of this design are lightness, the good clearance for the trolley wheels secured because of the very thin cross-section, the low cost, ease of installation and maintenance, simplicity and high efficiency.

Ear No. 4 proved so light and otherwise unsatisfactory that over 50 per cent which came off the wire have been replaced by other designs. As these clips consist of two parts which are threaded on a shank, the threads on each must be accurately matched before they can be screwed into the socket or else they will fail to grip the wire properly. Furthermore, these ears have not shown the necessary gripping strength, as the clips are soon worn off by the

action of the trolley wheel and the nuts are loosened by vibration.

Ear No. 5 has hinged ear plates with interlocking fingers. It has been found that this design does not give a positive grip on the wire nor does it possess any means of adjusting an ear after it has become loosened in service.

Ear No. 6 has jaws which rock on a ball-and-socket joint and are locked by means of a lug on one of the jaws. These clips have not loosened to any great extent, but there has been difficulty from pounding because of a certain lack of wheel clearance.

Ear No. 7 proved satisfactory in itself, but its hanger has certain faults, as will be noted later. This ear secures the grip on the wire by means of a pair of toggles, the clamping effect increasing automatically with the load. A nut and lock washers prevent the jaws from opening with the upward pressure of the trolley wheel.

Ear No. 8, which was installed with a flexible hanger, includes a pair of clamping plates and two flat-head machine screws. Flexibility is obtained by a finger from one of the plates passing through a rectangular hole in the lower end of the hanger and through a rectangular hole in the other plates. This type has suffered from a good deal of rattling, which tends to loosen the clips on the wire. It is believed that much of this trouble can be avoided if screws of greater length are provided. The large amount of metal at the clips has interfered with proper wheel movement. In fact, the marks observed on that portion of the hanger which enters the clip indicate that in time the wear will be very appreciable on account of the thin stock (1-in. x ⅛-in. section) and also because rusting and increased wear must follow from the rubbing off of the galvanizing.

STRAIGHT LINE HANGERS

The most satisfactory straight line hanger is made of 5⁄8-in. x ⅛-in. steel strap, bent to form an open loop 2½-in. long at the upper end and so shaped that the hanger will not unhook. As these hangers are free to move on the messenger, no trouble has been experienced from bending caused by the relative movement between the catenary and the trolley wire. This flexibility has been found to be a most advantageous feature because it is this movement which has been responsible for much of the bending of the various hangers which are rigidly fastened on the catenary. An interesting point of this design is the extreme lightness, the longest hanger not weighing more than 8 oz. It is felt, however, that it would be well to make the lower part of the hanger somewhat heavier for service where allowance must be made for corrosion from locomotive gases.

Hanger No. 2 is of the rigid type with a sister-hook-top connection. It has been found that while this hanger does not grip the messenger wire, it is not likely to slide on it if the trolley moves longitudinally because a slight tipping of the rod will result in a good grip. Several of these rods were found badly bent, but as there was a break on the trolley wire on the section affected, it would not be fair to ascribe the bending to faulty design entirely. Other distortions were due to the striking of the hangers by the trolley pole. Some of the sister hooks on this style of hanger were found to be so loose as to make their ultimate replacement probable. It was suggested that this loosening might be avoided if the rods were run through these

hooks so as to grip the messenger wire, but experience seems to indicate that such an installation would not be desirable.

Hanger No. 3 is of strap with a saddle-top design to grip the messenger, and it is furnished with a hinged ear.

The drawback of this type is that there is liability of the strap bending whenever there is a longitudinal movement of the trolley or messenger wire or a vertical movement of the trolley wire due to wheel action.

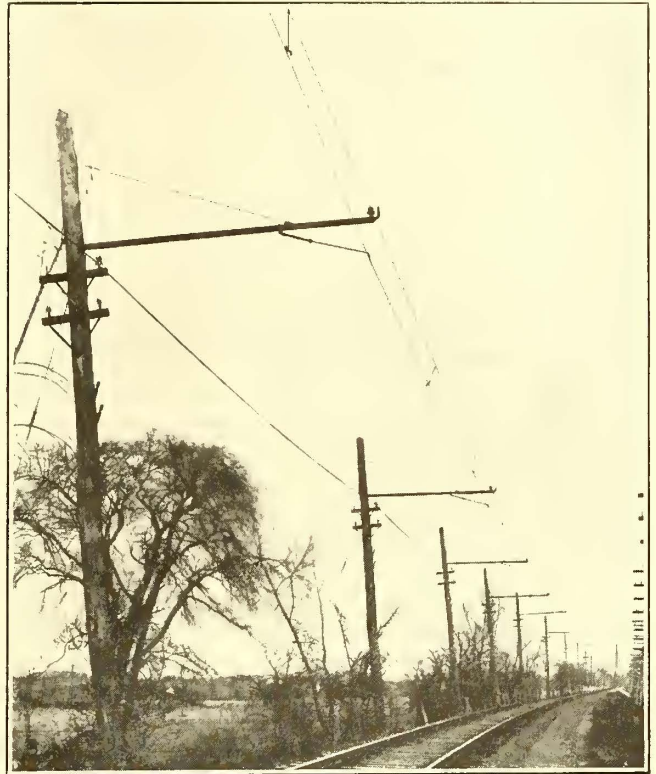
Hanger No. 4 is of strap construction with a looped top. In general it is similar to hanger No. 3, except that the upper end does not grip the messenger. Vertical movement of the trolley wire is made possible by means of the loop on the end of the strap. In this construction bending is avoided to some extent, but trouble of this kind is still likely because the hinging of the hanger at the trolley wire permits it to tip one way or the other with reference to the messenger wire when the trolley wire is raised by the wheel.

Hanger No. 5 is of the rocker type. This hanger grips the messenger wire and is hinged at the rocker arm which carries the clips. This construction gives rise to the possibility that the strap which suspends the rocker arm will bend, should the trolley wire or messenger move longitudinally because of wheel movement.

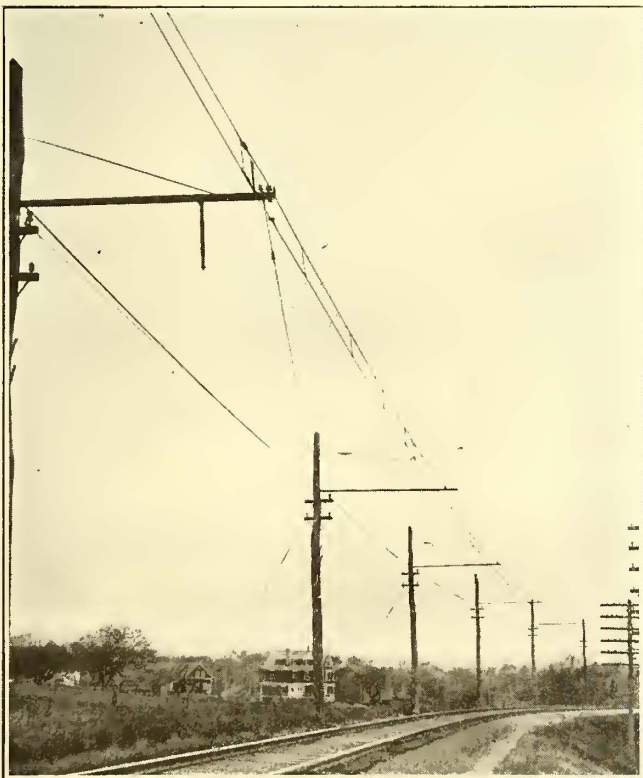
Hanger No. 6 is a saddle-top rod design with flat ends and a pin-hinged bottom used in connection with the interlocking ear No. 5, previously described. It is installed on the same section as hanger No. 7, which is similar in top construction but rigidly connected to ear No. 6, also previously described. As they grip the messenger wire, both designs, and particularly hanger No. 7, are subject to the troubles referred to in connection with the relative movement between the messenger and trolley wire.

Hanger No. 8 is installed in 1/2-in. rod and 1/4-in. strap

Hanger No. 9 is of 1-in. x 1/8-in. strap which is fastened to the messenger cable by a loop of flat stock, a bolt passing through the two loops and the upper end of the strap. Consequently this hanger grips the messenger and has also given trouble from bending on account of its strap con-



Catenary Lines After Test—Section of Line with Bent and Loosened Hangers



Catenary Lines After Test—Section of Line with Broken Steady Strain

forms with sister-hook tops. These sister-hooks are locked on the messenger by two small clinching points. This rigid connection to the messenger wire has proved undesirable for the reasons already noted in referring to the other rigid hangers. The design was also heavier than necessary.

struction. It is used with ear No. 8, previously described.

Hanger No. 10, which is used with the toggle-clamp ear No. 7, previously described, is a rigid form of rod hanger. Its messenger clamp consists of a malleable-iron hook which is screwed to the end of the hanger rod. A grooved hollow casting inside the base of this hook is forced to hold the messenger firmly against the top of the hook. This hanger has given no particular trouble except that due to its rigid grip on the messenger wire. The principal fault is the weak construction at the place where the hinged pin goes through the lower end of the suspension rods. Generally speaking, this hanger is not considered heavy enough for No. 0000 wire.

CURVE PULL-OFF AND ANCHOR CONSTRUCTION

The most satisfactory curve and anchorage construction is used on a section with a 4-deg. curve. The pull-off hangers consist of a sister-hook-rod-top hanger double-grip screw curve ear and a spool above the ear for the bridle. This scheme proved the most flexible in application. The anchor hangers, which are located at the brackets, also have a sister-hook-top rod hanger and soldered half-ears with an eye at the butt end. A guy with a turnbuckle leads from this eye over the insulator to the anchorage on the next pole. No steady strains are used. In general this anchorage method is very satisfactory if the uplift of the trolley wire is neglected. This exception, of course, applies to all other anchorage contrivances.

On a section with a 2-deg. curve an attempt was made to trim the curve by installing steady braces at every pole, the poles being spaced about 75 ft. apart. This spacing, however, has not given a smooth running wire. The anchor hanger used on this section has heavy clamp grips for the trolley wire and the messenger, the trolley wire ears being made with eyes for the attachment of guy cables. This anchorage is located at the center of a long section and

has not proved satisfactory on account of the necessarily small angle between the trolley wire and the wires which lead from the anchor to the messenger. As anticipated by the Connecticut Company's engineers, these anchorage wires have sagged until they interfere with the trolley

the insulator-pin bolt. A separate plate is bolted to the bracket on which the guys are run to adjacent poles. This anchorage device, which is always installed at a pole, is satisfactory except that there is a slight lift in the trolley wire at the anchor ear. However, as previously observed, this lifting is common to practically all forms of anchorages.

There is another design which is not very different from that just described. In this installation a plate on the bracket gives attachment first to a turnbuckle and then to a wood strain with two strands at its outer end. One strand goes to the half ear on the trolley and the other to a three-bolt clamp on the messenger. Still another construction is quite similar, but omits the turnbuckle, has a spreader a couple of feet from the attachment to the messenger and trolley wire and uses a special anchor hanger to obviate the tipping up of the ear.

BRACKETS

The two brackets which seem to give the best results are of the T-iron type with iron sockets at the pole. All parts of these brackets are accessible for painting and can be easily inspected to determine if any rusting has set in. Bracket No. 3 is of I-beam construction and has also proved satisfactory for the same reasons.

Bracket No. 4 is composed of two small channels riveted together with spacing blocks which were installed to help in fastening the fittings. Bracket No. 5 consists of two angles which are spread apart at the pole ends. It is also provided with spacing blocks. These two patterns have been found to be more susceptible to rust and locomotive gases than the single-beam designs, because their inner surfaces cannot be easily inspected or painted by the linemen. Some brackets of type No. 4 were furnished with composition yokes which did not have the required strength such as could be obtained from malleable-iron yokes.



Catenary Lines After Test—View of Anchorage on Section of Span Construction

wheel. In order to keep them clear, it has been necessary to bind them to the messenger between the point of attachment to the messenger and the anchor ear. Considerable slack is left in the anchorage, thus offering the likelihood of trouble if a break in the lines should occur.

On an all-tangent section with span construction the anchorage as installed in the middle of a span consists of a strain plate which is clamped securely to the messenger. Guys from each corner of this plate lead to the four adjacent poles, while from a pair of eyes in the center of the plate guys lead down to half ears in the trolley close to the regular hangers. Thus the anchor plate is not only in the center of the span, but also midway between the hangers. The same difficulty has been found here as in other instances where the anchor is placed in the middle of the span, because the slackening of the guys allows them to drop into the way of the trolley wheel.

On another section there is installed a semi-flexible pull-off hanger which consists of a 10-in. curve screw clamp ear, a 5/8-in. stem and clamps for gripping the messenger and adjusting the hanger lengths. The stem has an eye at one end and a "T" at the other, the eye being bolted to a clevis on the trolley clamp to allow movement parallel to the trolley wire, while the "T" is passed through the messenger clamp to limit the travel of the stem after a wheel has passed under the hanger. This pull-off hanger is entirely too heavy; furthermore, it does not permit in practice the intended freedom of movement between the trolley and messenger wire. Steady strains are not installed on this section. A malleable-iron, two-piece clamp piece with eye is used to anchor the messenger wire and a single soldered strain ear for the trolley wire. A turnbuckle is used in each anchor wire, and these turnbuckles are attached to the bracket. The strain plate is secured to the bracket by



Catenary Lines After Test—Sagging Wires at Anchorage Approaching the Trolley Wire

Bracket No. 6 resembles No. 5 only in that both used two pieces for the arm, the pole being located between these pieces at the places of attachment. This last bracket not only possesses the faults of No. 5, but is also too heavy, and its connections at the arm and pole are poorly designed.

MESSENGER WIRE

The steel messenger wire seems to be in as good condition as when it was installed. There has been no wear on it from any of the hangers, and it is only slightly blackened from the weather and locomotive gases. The copper messenger is also in very good condition, as it is slightly blackened in the same way as the steel messenger. No chemical action was observed on the section where a copper messenger is installed between galvanized hangers. There is observable only a slight rubbing on the top of the messenger wire at the point where the hanger rests. This was a point on which information was particularly desired, as it was feared the sliding hangers might cause sufficient wear to preclude their use under such conditions.

TROLLEY WIRE

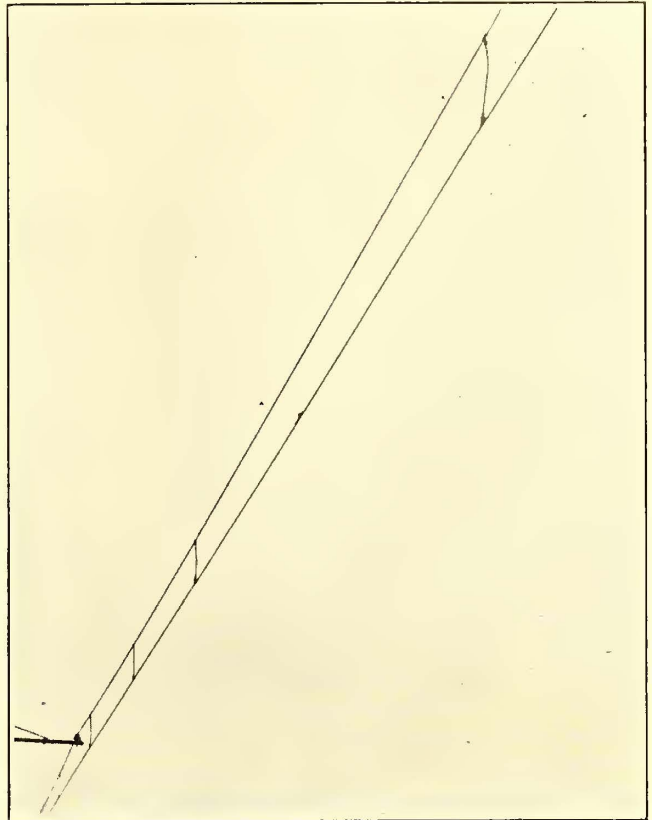
Up to the present time there has been very little wear on either the copper or steel trolley wires. There is a slight wear on the copper trolley wire section at those points where a few ears have a slight vertical tip on account of the bending of the hangers. The steel trolley wire shows some rusting on the top, but the under surface is smooth and there is no appreciable wear. The steel wire also shows no roughness such as would have been caused by pitting, due to the arcing of trolley wheels.

RECAPITULATION

After the various inspections during which the facts hereinbefore given were determined, the engineers of the Connecticut Company have reached certain conclusions on the catenary construction, although they appreciate that the observations have been made on relatively small amounts of material.

It is suggested that the most desirable type of construction for interurban trolley wheel operation is a copper mes-

this would make it unnecessary to lift the hanger, but, on the other hand, no satisfactory ear has been developed which permits a longitudinal movement along the trolley wire. It does not seem desirable to have a hinge at the lower end, when there is a loop at the top, as this permits



Catenary Lines After Test—Section with Bent and Missing Hangers

the latter to tip over when the trolley wire rises and, under certain conditions, to bind. As described, the best results have been obtained with a simple screw ear to which is rigidly attached a strap, the top of which loops over the messenger to give about 2 in. play. This device rises sufficiently to relieve the blow when the trolley passes the ear, and, if there is any creeping between the trolley and messenger, it travels along the messenger without binding, owing to its rigid connection to the trolley wire. In theory, the messenger and trolley should maintain their relative positions, but in practice slips will occur from various causes. If the hanger is rigid and grips both the messenger and trolley, a bent or broken hanger rod results; if hinged, the rod is inclined, which gives a bad appearance and causes a slight pick-up in the trolley wire. It would seem that for a trolley clamp there is nothing better than a plain screw ear with a screw of sufficient length and clinched after the ear has been tightened upon the wire. In any event, the clamp should provide opportunity for adjustment should it grow loose. It should be as simple as possible and should have few parts to work loose.

The construction used on curves varies from special eyes at the ear and at the top clamp to the tangent hanger rod to which the pull-off is tied. The last mentioned construction, which is the first described in the chapter on "Curve Pull-off and Anchorage Construction," does not add to the weight of the line and is easily adapted to any degree of curvature. For pantograph operation, such a design could probably be replaced by braces at the brackets or pull-offs at the spans. It was found, however, that a little better connection for the pull-off wire was obtained if it was tied to a curved spool, screwed on to a hanger rod, rather than if the wire was tied to the rod itself.



Catenary Lines After Test—Condition of Wires at Anchorage

senger, steel trolley, ten-point or eleven-point suspension, in spans of approximately 150 ft. length and a strap type of hanger slotted or looped at the top to allow vertical movement. It is believed that it would be more desirable to secure this movement at the trolley end of the hanger, since

The question of anchoring the line proved quite a serious matter. The wires of nearly every anchorage became slack and were in poor condition due to lack of maintenance. In two or three cases where an anchorage was installed in the middle of a section, the weight of the slackening anchor wires caused the messenger wire to sag until it almost touched the trolley. Hence short hangers had to be inserted to keep the messenger and trolley wire apart. This experience indicated that in order to avoid trouble from slack wire such device should be located at either a bracket or a span, or, if in the center of the span, the latter should be short and have messenger and trolley wire widely separated. It also seems desirable, where anchor ears are installed on the trolley wire, to add a hanger at or near such cars or use a spreader to obviate the vertical tip in the trolley wire where these hangers are not installed.

Perhaps the best design of all would be a standard double-boss anchor ear soldered to the trolley wire midway between poles not over 50 ft. apart and fitted with the standard strain plate, while level guys are laid to attachments on the four adjacent poles. Similar anchor plates with a clamping device would be attached to the messenger immediately over the trolley anchor and its guys laid to the same poles at points above the trolley guys for a distance equal to the distance between the trolley and the messenger.

None of the half-ear anchor designs gives a direct pull. The bending moment is small, but after a little time the ear takes up slightly and kinks the wire. Where this type of anchor is used, the guys usually are led to the brackets, and another guy from the corresponding anchor clamped on the messenger is brought to the same point, light turnbuckles being cut in to take up the slack if necessary. This anchor is very satisfactory aside from the tipping of the ear.

The experience with the brackets in general is that the one-piece bar is preferable to a multi-piece bar since it does not offer the same opportunity for corrosion. The support should be attached to this bar by a positive connection not depending upon a set screw. Pole collars are not considered desirable because the wood is compressed under them so that eventually there is much more slack than in the construction where the rod is passed through the pole and is held by a washer and nut on the other side. Of course, the latter construction is also open to criticism in that it weakens the pole and offers an opportunity for decay.

The reason for advocating a ten-point or eleven-point suspension rather than a three-point suspension is that on the latter the weight of the trolley wire on each hanger is so great that it is not overcome by the pressure of the trolley poles underneath, and consequently there is no vertical movement. This constitutes a rigid point in three-point suspension. In the multiple-point suspension there is very little weight on any one hanger, and hence there is less resistance to the pressure exerted by the trolley wheel when it passes under these points.

The arguments in favor of the steel trolley are that it presents a smoother running surface, is more rigid than copper, gives very little trouble from expansion or contraction and ought to show much longer wear than copper. Of course, the installation of a steel trolley makes it practically necessary to install a copper messenger to secure the proper conductivity. The copper messenger used in this case showed that it had sufficient tensile strength for the type of construction recommended.

A final important consideration in favor of the steel trolley is that it is not so liable to break as copper because of its greater tensile strength. Even if the wire should break it would tend to stay almost in its original position because of its stiffness and the close spacing of the hangers. It is likely that the hangers would merely slide a little on the messenger as the slack was thrown in.

The experimental catenary line described was installed under the direction of the construction department of the Connecticut Company.

AUTOMATIC BLOCK SIGNALS ON IOWA LINE

The Ft. Dodge, Des Moines & Southern Railroad has just contracted for the equipment of 18½ miles of its main line with automatic block signals controlled by continuous track circuits. The installation will be made by the General Railway Signal Company under the supervision of H. U. Wallace, vice-president Ft. Dodge, Des Moines & Southern Railroad and consulting engineer. The notable feature in connection with this automatic block signal installation is the use of light signals on a road operating high-speed single-unit passenger trains and 1600-ton freight trains.

The Ft. Dodge, Des Moines & Southern is now completing the re-insulation and re-equipment of its electrified steam lines for operation with direct current at 1200 volts. This road has an 87-mile line from Des Moines extending north to Ft. Dodge with a 30-mile branch from Hope to Rockwell City, an 8-mile branch from Kelley to Ames and another 8-mile branch from Fraser Junction to Ogden. These lines are all operated by 1200-volt current supplied from substations which are fed with 33,000-volt current from a central generating station at Fraser. The territory to be signaled at present includes the sections from Fraser to Boone and from Roberts to Ft. Dodge. These parts of the track include practically all of the curves on the main line and also the sections on which the larger part of the switching is done in collecting and making up freight trains.

The signaled territory will be subdivided into eight blocks averaging about 2¼ miles in length. The maximum block is about 4 miles long and the minimum block about ¼ mile long. The latter block is close to the station at Boone and will permit of trains closing up on each other when approaching this station, which is the headquarters of the operating department. The signal installation will be designed for absolute blocking for following as well as for opposing movements, and the control circuits, which will include some novel features peculiar to electric railway work and the combined passenger and freight service on this road, are now being prepared by the engineering department of the General Railway Signal Company.

The signal installation will be fed from a 2200-volt single-phase line which will receive its energy from the three-phase high-tension system of the road. This 2200-volt line through local transformers will feed the track circuits and the signal and switch lamps. By the use of the lamp signals considerable first cost for semaphore operating mechanism is avoided, and decreased maintenance of operation is anticipated. The type of reactance bond to be installed will have sufficient capacity for conducting the return current from two 40-ton locomotives drawing a 1600-ton freight train.

The signal indications will be given by red and green lenses 8½ in. in diameter, illuminated by 60 or 80-watt tantalum or tungsten lamps mounted in front of reflectors so designed as to make the intensity of illumination sufficient for an arrestive daylight indication under the most severe high-speed operating conditions. The lamp boxes of cast iron will be mounted on steel masts 12 ft. or 15 ft. high, supported on concrete foundations. Cast-iron pedestals will protect the relays and more delicate signal apparatus.

The single-phase transmission line for the signals will be built of No. 9 copper wire, and the signal control wires will be No. 10 "copper-clad" wire. Some of the longer blocks include stub sidings not regularly used, and to avoid the expense for switch-circuit controllers and distant indications of the switch position it is planned to light the switch lamps on these blind sidings through back contacts on the relays at the ends of the blocks. Thus, if a train is standing on the intermediate siding it will be advised of the presence of another train in the block by the illumination of a lamp on the switchstand.

The Strike on the Coney Island & Brooklyn Railroad

The Company Opened an Employment Bureau in New York and with Good Police Protection Soon Had Cars Running—A Number of Novel Features in Handling a Strike Were Followed

Up to Aug. 5, 1911, when the strike on the Coney Island & Brooklyn Railroad was officially declared in force, there had been no strike of street railway employees in Greater New York since 1905. In that year there was one on the subway and elevated lines in Manhattan. It lasted about three days and ended in the utter defeat of the strikers. The Coney Island & Brooklyn Railroad Company was not affected. The Coney Island & Brooklyn strike of 1911 lasted officially seventy-eight days—from Aug. 5 to Oct. 21—but, as will be described, it did not interfere materially with the traffic on the road for more than a few days or, at most, a week. As with a great many other strikes, there was no real excuse for its occurrence and if, in the lottery of the assignment of union organizers, the company had drawn one who had been more far-seeing or conservative, there probably would have been no strike. It has been thought that the following account of the events leading up to the strike and of the strike itself would be of general interest.

THE CONEY ISLAND & BROOKLYN RAILROAD SYSTEM AND ITS LABOR CONTRACTS

The Coney Island & Brooklyn Railroad Company operates about 50 miles of track in Brooklyn and over two bridges into Manhattan, and is one of the smaller companies of Greater New York, yet is the only one which at the time of the strike had a labor organization, and it had two. One of these, a Knights of Labor local, had been in existence since 1887 and was one of the few remaining branches on street railways, if not the only one left, of that once extensive organization. This union included most of the trainmen on what is known as the De Kalb Avenue division of the system. The other union was a local of the Amalgamated Association and was founded in 1903. It was made up largely of men working on the Smith Street and Franklin Avenue divisions of the Coney Island & Brooklyn Railroad.

The company had contracts with both these organizations, and as these contracts were renewed yearly they became so favorable to men in many respects, particularly in the matter of hours, runs, etc., as to work a considerable hardship upon the company. Nevertheless, as the time for each renewal arrived, employees' committees, particularly that of the Amalgamated Association, became very active in their demands for additions to the contract. The Knights of Labor committee, although anxious to secure everything within reason for its members, was always more conservative, and as a result that committee was often severely criticised by the other, and if it signed an agreement which was satisfactory to its members before the other contract had been signed it was accused of giving away its own opportunities and those of the other organization.

EVENTS WHICH LED UP TO THE 1911 STRIKE

In June, 1911, the company notified both organizations that it would renew its existing contracts for another year, but that it would be unable to do more than that. The men were quieter at this time than they had been for several years previous. The Knights of Labor local, appreciating that the company had done all it could afford to do, was willing to renew the old agreement and did renew it. The Amalgamated Association local consulted with President Mahon and, it is understood, was advised that the conditions under which the men were working were very favorable, and that it would be unfortunate from

an organization point of view to have any trouble at that time. Nevertheless, an organizer was sent to assist them in getting the best they could. The men at this time were comparatively quiet, and if properly advised there would have been no trouble, but the organizer arrived, and although he was told of the favorable conditions he assured the men that it was only necessary to put up a "stiff bluff," and that they then could secure compliance with their demands. After some days and nights of haranguing, during which time the men were becoming demoralized and the company's service suffered, they took a vote on striking which resulted in more than two-thirds being recorded in favor of a strike. By this time the younger men had become thoroughly belligerent and were anxious to strike, but the older men, who had been the backbone of the organization for years, realized the seriousness of the situation and were very much opposed to such action. After the vote had been taken the organizer held out hopes that the men might be able to secure all they desired by intervention brought about through influential people both inside and outside of the company. Matters drifted on in this way for several weeks. Finally the local organizer, disregarding the danger signals of the situation generally, and the evident readiness of the company, which would have been evident to a man of keener perception and less self-confidence, determined either with or without the approval of the other officers of his organization to pull off a strike. Accordingly, instead of voting again as to whether or not they would strike (it required a two-thirds vote to call a strike), the men voted on whether they should rescind the former resolution by which a strike vote had been carried, and in this way a majority vote only was necessary in order to call a strike. The result of this vote was said to be eighty-four for a strike and seventy-six against a strike, and it is claimed that quite a number of men who voted for the strike had not paid up their dues and were not entitled to vote. In any event, eighty-four men carried more than 400 men out on a strike, seventy-six voting against it and the remainder not voting at all.

Without any notice the men left their cars at 4 o'clock on the morning of Saturday, Aug. 5. Some of the old men of the Amalgamated Association and the members of the Knights of Labor on the Franklin Avenue line made several trips, but very soon the strike was complete over both the Smith Street and Franklin Avenue divisions. The De Kalb Avenue division, the home division of the Knights of Labor, was not affected.

PRECAUTIONS OF THE COMPANY

Fortunately a considerable number of the officials of the company, including President Huff, had had strike experience. They decided some weeks prior to the actual vote in favor of the strike to handle the situation entirely themselves and not to rely on detective agencies for men of any description. They had got in touch with a number of the strike breakers and kept lieutenants in touch with them ready for any emergency. The result was that while the final strike vote was being taken strike breakers were being hired at an office which the company had opened in New York, and within an hour after the strike order went into effect these men were on their way to the carhouses in considerable numbers. These strike breakers were paid the usual wages of \$2.50 a day and board.

There has probably seldom if ever been a strike in which the strikers made so little effort as in this to conceal their identity while committing violence. They assembled at their headquarters on the Smith Street line and immediately upon the operation of the cars by strike breakers began assaults upon them. Neither the police nor the company was prepared for this early violence, and the police protection was small compared with that furnished later. Violence was almost unprecedented during the first day, yet the nerve of the strike breakers was not shaken. After some hours of lawlessness seventeen strike breakers lay on stretchers under medical treatment in an improvised hospital in one barn, yet there were plenty of others willing and anxious to take their places on the cars. The rioting had been so persistent during the first day that at night the company considered it advisable to pull the cars in. By the following day the policing of the city lines had become very thorough and efficient, and the outbreaks were spasmodic rather than continual, although Coney Island Avenue (a 5-mile stretch to Coney Island) had not been covered so thoroughly, and there was persistent rioting on this avenue during Sunday afternoon. The following day this line was heavily policed by mounted officers as well as by foot men. This brought rioting practically to an end, although there were occasional outbreaks for several days, and, later, occasional railroad torpedoes or explosives were placed on the track. In two cases small bombs were placed under the seats of summer cars, but none of these attempts resulted in serious injury to passengers nor were they effective to any great extent in keeping passengers off the cars.

ACTION OF THE KNIGHTS OF LABOR

The De Kalb Avenue line, the home division of the Knights of Labor local, operates a line of cars to Coney Island during the summer. On the night of the first day of the strike a committee of the Knights of Labor met the president of the company and asked him not to insist upon the operation of these cars to Coney Island during the period of extreme violence. The committee said that the men whom they represented were anxious to operate the cars and thus to hold to their agreement with the company, but that they were singled out for attack. The committee was afraid that it could not get men who would stand the punishment if the cars were run through to Coney Island under the conditions then existing. President Huff replied that, if it was a question of sympathy with the strikers, either the men would run the cars through or the company would run them through with strike breakers and their agreement would be at an end, but if it was a question of fear of violence only, the service would be discontinued until the extreme violence subsided.

On the following Wednesday the men of the De Kalb Avenue line were notified that the lines were then well protected and that they would be expected to take their cars through to Coney Island. On the first day there were several refusals to do so, and on the second day a general refusal to take cars out. As fast as the men refused to take their cars they were suspended and later discharged, and the committee of the union urged other men to take their places. This resulted in the sifting out of something over forty men, all of whom were discharged and not considered for re-employment. Although the situation looked a little serious at one time so far as the De Kalb Avenue men were concerned, those on the cars who declined to serve were the more undesirable men on the force, and it was a great relief to the older and more conservative employees on this division to have them go. In fact, the company has reassured all of its employees since the strike that in the future whether there is a union or not they shall not be harassed or their positions jeopardized by agitators who might work up a following among the younger men, but that hereafter throughout the system men will be discharged for agitation as promptly as for

stealing or for accidents. With this basis established for the mutual protection of the company and its faithful employees the relations between the company and the men are very harmonious.

HOUSING THE STRIKE BREAKERS

The methods employed to house the new men during the strike on the lines affected by the strike were systematic. Fortunately, the principal carhouses of the company had flat roofs on which cots were placed. The municipal regulations as to housing were rigorously followed. The cots, which had been purchased in New York, were arranged in rows, with a space of 2 ft. between the cots on the side and of 1 ft. between the cots at the ends. It was found that only about one-fifth of the top of each carhouse had to be utilized in this way to accommodate all the men needed at the respective depots. As a protection against rain a large tarpaulin was stretched over the cots. As the strike occurred in August, these accommodations were very comfortable.

During the first day or two the men were supplied with food which was purchased at restaurants and was rushed into the carhouses in automobiles. After that the company had a well-equipped commissary department. Fortunately it had in its employ a man who had had experience along these lines with traveling shows and as concessionaire of the company at Coney Island. He was put in general charge of the department, the purchasing agent of the company attending to the purchase of supplies.

POLICE SERVICE

The service of the police was good. The responsibility of the strikers for the violence of the first two days was well understood, and within a short time a number of the men who were most active in the disturbance were serving jail sentences. Through this violence the strikers soon lost to a very great extent the public sympathy which they might otherwise have expected, and with the assistance of the police department there was a prompt resumption of travel by the public. On the tenth day of the strike the barracks at the Franklin Avenue depot were closed and the line as a whole was being operated by regular motormen and conductors employed at the main office. On the thirteenth day after the strike was inaugurated the barracks at Smith Street were closed, and the following day this line was operated normally by regular motormen and conductors employed in the usual way at the main office. Thus, within two weeks, the cars had been operated under normal schedules with three distinct sets of men; first by the strikers, a week later by the professional strike breakers and two weeks later by regularly employed men.

COST OF THE STRIKE

The strike breakers called it a "cheap" strike because of the short time they were employed. The company might also properly regard it as a "cheap" strike partly for the same reason, and also because it paid no commissions to detective agencies and was in control of its own situation.

The strike of necessity cost the company money, but the conditions might have been very much worse. As a matter of fact, although the strike began on Aug. 5, and therefore almost the entire month of August was included in the severest portion of the trouble, the reports of the company to the Public Service Commission show that it made its operating expenses and taxes, including in such operating expenses the wages to the strike breakers during August. During September the company earned its operating expenses, taxes and interest and showed some surplus, and it is not anticipated that any unfavorable financial effect of the strike will be noticeable over an extended period.

Contrary to what is usually expected, the official conclusion of the strike and of the boycott did not noticeably improve the receipts.

NUMBER OF STRIKERS RE-EMPLOYED

In the early stages of the strike the company re-employed about fifty strikers, most of whom had been in the

service of the company only a few days at the time of the strike and had not been identified to any great extent with the strike movement. The applications of others were refused as long as the strike was officially on, but when it had been officially declared off their names were taken for consideration, and about a dozen of them each week have been put back to work. As the company has all the men it needs at the present time, the re-employment of these men will be slow and they will be accepted only after a rigid investigation and physical examination.

STRIKE RELIEF PAYMENTS

The fact that the international organization paid the men on strike regularly \$5 per week for something like twelve weeks had the effect of holding well together a body of men who, as a whole, were never especially enthusiastic over the strike. They hung to this source of supply with great regularity, but the jail sentences which a number of them received during the early stages of the strike were weighty arguments against any further lawlessness. The present system of \$5 per week relief payments is undoubtedly a factor which will have to be considered by a company which is to any considerable extent dependent upon the re-employment of its former employees for the reorganization of its force. In New York, where so many men are available, it was a matter of little consequence whether the old men returned or not.

NEW FEATURES IN THE PROTECTION OF THE LINES

The police protection during the strike was unique in several respects. Contrary to the usual custom, uniformed officers were not placed upon the cars, but the districts through which the cars operated were thoroughly policed, there often being as many as six patrolmen as well as mounted officers upon one block. When rioting occurred the police rushed in from different directions, rendering it very difficult for rioters to escape being caught. The result was that there was an unprecedented number of arrests and convictions. This had a very sobering effect upon those who were riotously inclined.

To break the strike the company selected what it believed to be the pick of the professional strike breakers, and although occasionally things became so hot that the crews would desert the cars the company was never without an abundance of men who were willing to face almost any danger. The automobile was found quite valuable in some phases of the work. As already described, it was used with great success in conveying meals into the carhouses during the early days of the strike. The company also found that much time was saved and a tie-up of the line often avoided by sending relief crews in automobiles to points where cars had been abandoned or the crews beaten up, and during one stage of the strike three automobiles with reserve crews were held in waiting at three convenient points over the system, ready to be rushed to the relief of cars that might be in distress. These automobile assignments were especially attractive to the strike breakers. So much was this the case that there was a tendency of those in charge to keep on the move up and down the line rather than to remain at the point of assignment. One of these automobile crews, seeing a car surrounded by a mob, rushed up, and the mob, mistaking them for strong-arm men, gave warning, and the two leaders of the riot fled into a saloon. The two strike breakers, to whom the rôle of "strong-arm men" had strongly appealed, liked the part, and, rushing into the saloon, grabbed the riot leaders, dragged them out and turned them over to the police, who had arrived at that time.

GENERAL REMARKS

The strike situation as a whole was not complicated or difficult. There were no side issues or interference, and the strike soon settled itself down to a matter of financial loss on both sides. The directors of the company had considered the situation carefully when it became probable that the contest would be forced upon them and determined

to meet it squarely and make a finished fight regardless of complications that might arise. They instructed their president accordingly, giving him full power and leaving all matters of negotiation and detail to him, and throughout the entire contest there was no wavering from this determination nor a question as to what the outcome would ultimately be.

All of the various heads of departments of the company entered into the work of maintaining the car service with great enthusiasm and did excellent work throughout the critical period covered by the strike. The general direction of affairs, of course, was in charge of President S. W. Huff, to whom the directors of the company gave a free hand in the strike management. His previous experience with a strike in Richmond, Va., was of great assistance in this crisis. He was the right man and in the right place, and was a host in himself. It would be invidious to particularize among the other officers of the company, all of whom did their full duty and more in this trying period. It might be said, however, that Acting Superintendent of Transportation W. E. Thompson was responsible for the organization of the strike-breaking force and the reorganization of the men that succeeded them, and that G. M. Kirshner, claim agent of the company, had charge of the relations of the company with the police and press, a duty for which he was especially fitted.

ELECTRIC WELDING IN PITTSBURGH

Since Sept. 18, 1911, the Pittsburgh Railways Company has been using an electric welding outfit at its Homewood shops for the successful repair and reinforcement of all classes of metal equipment except those made of gray iron castings. During its first week this welding system saved about \$237 and every bit of material, the flux excepted, was taken from the scrap pile.

Current for welding is furnished by an old GE booster set consisting of a 30-hp shunt-wound motor and a 60-volt, 300-amp generator. Nevertheless, the actual output of the generator can be varied from 300 amp to 700 amp at 80 volts to 110 volts, according to the conditions desired. There is enough reactance in the generator to take care of sudden surges when the welding arc is broken. The shunt field of the booster is directly excited from the trolley circuit through a resistance connected in series with it across the line instead of being shunted around the series winding of the generator. The switch controlling this separately excited shunt-field circuit is locked to prevent anyone from breaking this circuit when the set is running free. The grid resistances, which are inserted in the series field in series with the armature, can be varied from 0.02 ohm to 0.045 ohm, depending upon the amperage desired.

The welding flux consists of 17 parts borax, 1½ parts brown oxide of iron and 1½ parts red oxide of iron. The electrodes are usually of carbon, but cold rolled steel is used for such work as welding sheet steel on a gear case, the melting of the electrode itself furnishing the required new metal.

The economies of this method of welding may be appreciated from the following typical cases, which give the price of certain parts new, their value as scrap and the cost of rehabilitating them for service. In each case 15 per cent is added to the shop cost to allow for overhead shop charges. Welding labor is figured at 30 cents an hour and electrical energy at ½ cent per kw-hour.

Article.	New.	Scrap Value.	Labor, Welding.	Carbons and Flux.	Overhead Power.	Savings.	Total.
Gemis side frame.....	\$26.25	\$2.18	\$0.88	\$0.37	\$1.92	\$0.48	\$20.42
Lord Baltimore side frame.....	28.00	1.83	0.33	0.05	0.72	0.17	24.90
McGuire Columbian side frame.....	35.00	1.83	0.33	0.05	0.72	0.17	31.90
Westinghouse No. 56 motor frame.....	.....	.....	0.99	0.17	2.16	0.50	.....
Westinghouse No. 62 motor gear case lugs.....	.....	.....	0.22	0.21	0.48	0.14	.....

The Recent Strike Siege in Des Moines

The First Strike Was Settled by an Injunction Which Left Matters as They Were—A Second Threatened Strike Was Settled by Arbitration in Favor of the Company

BY CHAS. L. SNYDER, CHIEF CLERK DES MOINES CITY RAILWAY

Des Moines, Iowa, was recently the scene of a ninety-eight day labor siege between the Des Moines City Railway and union car men employed on that system. The result was an overwhelming victory for the company and especially for General Manager J. R. Harrigan and General Superintendent W. E. Rolston, who bore the brunt of the company's battle, and the victory was won in the face of great odds. During this short but critical siege the company officials had to contend with one actual strike and one threatened subsequent strike. A court order forced the company to take back discharged employees, and the local municipal government refused police protection of any kind to the company in the operation of its cars.

THE EVENTS WHICH LED UP TO THE STRIKE

From July 23 to Oct. 28 Des Moines was literally a boiling caldron of street railway trouble. Encouraged by affiliated unions, local political factions, International Organizer Fred Fay and the national executive committee, the union car men, Division 441 of the Amalgamated Association of Street and Electric Railway Employees of America, made upon the management of the Des Moines City Railway one of the bitterest organized attacks that were ever repelled by any company. The initial trouble between the company and its employees commenced July 23, 1911, when Conductor B. L. Hiatt was discharged for shortage of three fares collected but not registered and discourtesy shown to his superior officer.

Hiatt had been caught short upon a car, and when openly accused by his superior officer, the division foreman who was on the car at the time, Hiatt denied the charge and cursed his superior in loud tones. General Superintendent Rolston called Hiatt into the office and Hiatt admitted that he had been discourteous to his superior officer and was discharged immediately. Hiatt then requested a hearing before General Manager Harrigan and was given it promptly. The discharge was sustained by the general manager.

The committee, headed by Fred Fay, demanded that the matter be arbitrated, but as the contract existing at that time between the company and the union did not call for arbitration as to the proper discharge of any employee but gave to the general manager the full power to discharge, subject only to the grant to the discharged employee of a hearing upon proper request, the company justly refused to allow the matter to be arbitrated. On July 26 the reinstatement of Conductor Hiatt was demanded by the union and refused by the company. On July 28 the aid of the international union executive committee was sought by the local union. On Aug. 1 the local executive committee of the union was empowered to call a strike by a mass meeting of the men. On Aug. 2 Louis Christiansen arrived from Chicago with 100 strike breakers. On Aug. 4 a strike order was issued, effective at 1:15 a. m. on Aug. 5. On Aug. 5 the men struck at 1:15 a. m.

THE STRIKE AND INJUNCTION

A bona fide attempt was made by the company at 6 o'clock on the morning of Aug. 5 to operate its cars. But the lack of police protection allowed the mobs to interfere to such an extent that trolley ropes were cut, brushes were taken out of motors, car windows were smashed and even the regular inspectors of the company, as they attempted to board the cars, were arrested by the police. The streets were in a condition that would have shamed a Russian revolution, due principally to the inefficiency of the police department.

At this point Judge Lawrence DeGraff, of the Equity

Division of Polk County District Court, issued a temporary injunction that will go down in the annals of history and equity jurisprudence as one of the most unusual ever rendered. The injunction was invented by the city legal department and was drawn up with the sole purpose of compelling the company to reinstate the discharged employee Hiatt, and in turn, required the striking employees to return to work against their will. The City of Des Moines appeared as plaintiff against the Des Moines City Railway and the union car men as joint defendants. The plea for the temporary injunction made by the city was that street railway service was a public service and, therefore, that the city had a right to intervene as a third party to maintain the public service for the benefit of its citizens.

Whether such a temporary injunction would ever have become permanent is doubtful, but the legality of the novel suit was never contested by either defendant nor was a hearing ever held on it. The company would have preferred to fight out the issue without the intervention of the courts, and President Gompers, of the American Federation of Labor, in a newspaper interview, declared the injunction to mean "back to slavery" for the union men, because it gave the court power to force them to return to work against their will. Lawyers of prominence disagreed over the legality of the injunction. The majority, however, believed that the court had probably extended its power further than precedent would allow; thus the injunction stands at the present time uncontested and not approved at any hearing or by any superior court.

This famous injunction was issued Aug. 5 at 10 p. m., while just outside of the court house the street was filled with rioting strikers and strike sympathizers and while the city police department stood by without attempting to disperse the mobs. The office windows of the Des Moines City Railway were riddled with stones and missiles. It is true that many participating rioters were boys and the younger tough set of the city, yet photographs taken at the time show thousands of workmen and not a few actual strikers engaged in the destruction of property. The injunction became effective on Sunday, Aug. 6, at 5 p. m., and with the resumption of service the better class of citizens prevailed and began to stamp their disapproval upon the law-breaking.

PEACE AND THEN A RECURRENCE OF TROUBLE

On Aug. 2 the Des Moines City Railway granted a new contract to the men effective on Oct. 11, 1911. This contract covers a period of five years and has a clause requiring arbitration of the discharge of any man who feels himself aggrieved. The matter of wages was not disturbed during the trouble and was left to be decided in March, 1912. The matter of hours was also not contested and remains practically the same under the new contract, altered only by the changes made necessary by new service on the lines.

Motorman Watson Roberts was discharged on Sept. 1 for violating a rule of the company as to smoking on duty. The discharge was based upon evidence of three detectives who were eyewitnesses. Shortly after this Conductor B. L. Hiatt was discharged the second time for shortages of fares upon five separate occasions.

Conductor J. E. Bruce was also discharged in company with some half-dozen other conductors shortly after upon a similar charge. Only the three men, however; Roberts, Hiatt and Bruce, were selected by the union to have their cases arbitrated. Most of the other discharged men turned in their badges voluntarily and thereby admitted their guilt.

SELECTION OF ARBITRATORS

A meeting was held between the men and Mr. Harrigan and Mr. Rolston to decide on some method of settling the trouble. Mr. Harrigan, upon request of the union, agreed to allow the three cases to be arbitrated, although there was no clause in the existing contract calling for arbitration of the discharge of any employee. The union agreed to select one member of the arbitration committee, the company was to select the second member, and these two members were to select a third member.

On Sept. 14 A. L. Urick, president of the Iowa State Federation of Labor, was selected by the union as its member of the arbitration board. N. T. Guernsey, attorney and secretary of the Des Moines City Railway, was then selected by General Manager Harrigan as the company's member on the board. These two arbitrators, working under the terms of agreement between the company and the men, met at their earliest convenience to select a third man. This proved a futile task, as the union sought to secure as the third arbitrator a local politician or some local man dependent upon their patronage, whereas the company insisted upon an outside man or else some local man not dependent upon local patronage. Another strike was called by the union car men on Oct. 6, to be effective at the executive committee's order. Judge W. H. McHenry, of the criminal division of the Polk County Court, was suggested on Oct. 8 by the union as the third arbitrator, and was accepted the same day by the company, but he refused to serve. G. S. Gilbertson, formerly state auditor, was suggested on Oct. 9 by the union and was accepted by the company, but he could not be located.

The union executive committee then served notice upon Mr. Harrigan that unless Hiatt, Roberts and Bruce were reinstated by 5 p. m. on Oct. 7, pending the arbitration, a strike would be called immediately. This demand was flatly refused by Mr. Harrigan. The committee then issued an order for a strike to be effective on Oct. 11. On Oct. 10 the union men prepared to strike, and notified the company of their intention, but the company ordered that all cars should be run to the carhouses at the hour appointed for the strike, and that they should be kept there until the police should give proper protection to the company's property. At the hour appointed for the strike the executive committee of the union called at the railway offices and stated that they had decided not to strike. Mr. Rolston told the committee that all cars had been ordered to the carhouses, and the committee again asked him to allow them to run the cars, as they thought the probability of a strike had passed. This was the first plain indication of the weakening of the union.

John A. Guiher, a lawyer, residing at Winterset, Iowa, a small town about 40 miles from Des Moines, was suggested as third arbitrator by the company on Oct. 11 and was accepted by the union. He accepted the position on the same day, and the hearing of the three cases was set for Oct. 18. A special agreement was drawn up, whereby the company and the men agreed absolutely to abide by the decision of the majority of the arbitration board as to the rightfulness of the discharge of Roberts, Hiatt and Bruce. The latter two men were accused of shortage of fares and the first of smoking while on duty.

Motorman Roberts was the organizer of the Des Moines car men's union. He was one of the early presidents of the union and was a member of the union executive committee at the time of his discharge. Hiatt was the bone of contention in the first strike and had also been an agitator

in the union. Upon these two cases the interest of both sides and of the general public was hinged. Bruce was a new man running extra, and neither the company nor the men contested his case with the intensity of the other two.

THE ARBITRATION CASE

The company introduced its evidence first, and after placing former officers of the road on the stand to show that the rules regarding shortage and smoking had been properly issued, the company placed upon the stand three detectives who testified to having seen Motorman Roberts smoke while on duty and to having caught Conductor Hiatt short. The evidence against Conductor Bruce also related to a shortage of fares. There were three charges against him, but they were brought by only one operative, and the board held that in this case, as in the other two cases, the burden of proof was upon the company and that the company did not have a preponderance of evidence against Bruce.

Both sides awaited the verdict of the arbitration board with eagerness, and the citizens of Des Moines were ready to give their final support to whichever side was decided by the board to be right in the matter. The majority of the leading and better class of citizens, however, had already taken a stand in favor of the company after reading newspaper accounts of the evidence introduced by the company against the three men on trial.



Scene in Des Moines on First Day of Strike

THE DECISION OF THE BOARD

The arbitration board concluded its hearing of evidence on Oct. 28 at noon. John A. Guiher, who had acted as chairman throughout the trial, issued a statement at the conclusion of the trial to the effect that he was ready to render his verdict after consultation with the other members of the board. The decision of the entire board was published in the newspapers the same afternoon and was recognized by both parties in controversy as a distinct victory for the company.

The decision approved the discharge of Motorman Roberts and of Conductor Hiatt, but ordered the reinstatement of Conductor Bruce. It also held, in effect, that when rules are issued by a company in book form and are re-issued through bulletins the company does not waive a violation of any rule by its subsequent reiteration of a previous rule; second, that statements by a company's detectives and inspectors are sufficient evidence to convict men of violating the rules; and, third, that Roberts smoked on duty.

THE COST

Arbitration proved a very expensive matter to the union. Local newspapers stated that the union's expense was

\$2,300, not including the expense of Organizer Fay or any of the expenses during the strike trouble. The union executive committee was in session almost daily from July 23 to Oct. 28, and this alone must have cost the union \$19 a day. Including attorneys' fees and many other miscellaneous expenses brought the total expense of the employees up to approximately \$3,000.

The company's expense was heavy, but not proportionately as heavy as that of the union, since the company did not have a committee nor an international organizer nor many other expenses such as the union had to meet.

On Oct. 30 Conductor Bruce, after being re-instated by the arbitration board's decision on Oct. 28, turned in his badge to the company and stated that he desired to quit the service while his standing was good. Thus the company has disposed of all three cases of the discharged men.

On Nov. 13 Councilman Zell Roe, who was in charge of the police department as Superintendent of Public Safety when the mobs were allowed to destroy the street railway property, was replaced by John MacVicar. The inability of Councilman Roe to cope with the strike trouble of the street railway was given by many as the reason for retirement. Thus, the street railway company is assisting in cleaning up the politics of our fair city.

The company entered the siege with one end in view only, and that was to secure proper discipline upon the system. On the other hand, the union seemed determined to disregard all rules of the company and put up a bitter fight to support all such violators. General Manager J. R. Harrigan and General Superintendent W. E. Rolston have gained the confidence and warm personal friendship of all the leading public men in Des Moines by the fair and impartial manner in which they conducted the company's side of the matter throughout the entire trouble, and the city railway service of Des Moines has already taken on the aspect of a metropolitan system.

TREATMENT OF TOOL STEEL

At a meeting of the New York Railroad Club held on Friday evening, Nov. 17, 1911, W. B. Sullivan, Carpenter Steel Company, Philadelphia, read an interesting paper on "Tool Steel." The author pointed out the necessity of accurate control of the temperature at which steels of different carbon content are forged and annealed in order to secure uniform and satisfactory results from the tools. Steel containing 0.90 per cent carbon remains unchanged in structure until heated to about 1360 deg. Fahr. As the temperature of the furnace is increased beyond this point the ferrite and pearlite suddenly begin to decompose. The reaction is completed at a temperature of about 1460 deg. Fahr., which is called the critical point. The ferrite and pearlite change to martensite. By quenching at this point the martensitic condition of the grain structure will be preserved and the steel will be hard and brittle. If the steel be again heated to a still higher temperature the martensite in turn will be decomposed and the original ferrite and pearlite condition will be restored. If the steel is annealed at a temperature where martensite is formed it will contain a portion of the hardening element. By a judicious application of heat it is possible to obtain almost any desired combination of ferrite, pearlite and martensite. Tools when properly handled should be heated first to the proper temperature or critical point, and then quenched. Heating above this point tends to produce decarbonization. If a tool is heated too hot and then allowed to cool slowly before quenching it will have a grain structure developed by the higher temperature which is not corrected by allowing the tool to cool before quenching. Tools should not be allowed to soak too long even at the proper temperature, as this tends to produce decarbonization on the surface.

The hardness of a piece of steel properly treated is governed by the size, character of steel, temperature of bath

and character of bath. In general, for small sections lower temperatures should be used than for large pieces. The degree of hardness depends on the rapidity with which the heat is extracted from the steel. A bath of high temperature will produce less hardness. A piece of steel quenched in water will be harder than one quenched in oil. Tests made by the Carpenter Steel Company showed that, compared with water on a basis of unity, No. 1 mineral oil had a tempering quality of 0.241; cottonseed oil, 0.161; fish oil, 0.149.

The author included an outline of the proper grades and tempers of carbon tool steel for various uses. Temper No. 1 contains 0.70 to 0.80 per cent carbon; No. 2, 0.80 to 0.90 per cent carbon; No. 3, 0.90 to 1 per cent carbon; No. 4, 1 to 1.15 per cent carbon; No. 5, 1.15 to 1.25 per cent carbon. Grade A is the highest grade steel, selling for about 16 cents per pound. Grade B sells for 13 cents per pound and Grade C for 10 cents per pound. Grade D is ordinary tool steel selling for about 7 cents per pound. The following outline shows the proper selection of temper and grade and the proper heat treatment:

Temper No. 1.	Grade	
Crowbars	D	
Pinchbars	D	
Pick Points	D	Should not be heated over 1800
Wrenches	D	deg. Fahr. for forging. Hardens at
Sledges	C	1485 deg. Fahr. Temper drawn to
Hammers	C	suit character of work.
Rivet Sets	B	Should be annealed at 1300-1350.
Temper No. 2.		
Smith Tools	C	
Track Tools	C	Should not be heated over 1800
Boilermakers' Tools	C	deg. Fahr. for forging. Hardens at
		1480 deg. Fahr. Temper drawn to
		suit character of work
		Should be annealed at 1300-1350.
Temper No. 3.		
Cold Chisels	C	
Hot Chisels	C	Should not be heated over 1750
Rock Drills	C	deg. Fahr. for forging. Hardens at
Shear Blades	B	1465 deg. Fahr. Temper drawn to
Punching Tools	B	suit character of work.
		Should be annealed at 1300-1350.
Temper No. 4.		
Machine Drills	B	
Counter Bores	B	
Milling Cutters	B	Should not be heated over 1700 deg.
General Machine Shop Tools	B	Fahr. for forging. Hardens at 1460
Carbon Lathe Tools	A	deg. Fahr. Temper drawn to suit
Taps	A	character of work.
Dies	A	Should be annealed at 1300-1350.
Reamers	A	
Temper No. 5.		
Brass Tools	A	Should not be heated over 1700 deg.
Finishing Tools	A	Fahr. for forging. Hardens at 1455
Small Machine Shop Tools	A	character of work.
		Should be annealed at 1300-1350.
		deg. Fahr. Temper drawn to suit

IDAHO CEDARMEN'S CONVENTION

The Idaho Cedarman's Association met Nov. 7, in Spokane, at the call of President Lindsley. Several matters of interest were taken up and considered, among them the adoption of a standard list of weights for poles. In the past it has been the custom for each concern to use its own weights and it was deemed advisable to adopt a standard similar to that of the Eastern cedar dealers.

A committee on publicity was appointed by the president, consisting of J. C. Davis, of the Humbird Lumber Company; H. C. Culver, of the Sand Point Lumber & Pole Company, and R. L. Bayne, of the Lindsley Brothers Company, to look into the matter of securing a greater publicity of the merits of the Western cedar poles. It is claimed that the Idaho cedar is not only superior in quality of material but is straighter, more symmetrical, has less butt rot, and is stronger by tests made by the United States Forestry Service than poles grown elsewhere in the country. It is to give publicity to these and other claims of merit for the Western pole that the committee was appointed.

The following companies were represented at the convention: Humbird Lumber Company, Valentine-Clark Company, Sand Point Lumber & Pole Company, National Pole Company, B. J. Carney & Company, the Lindsley Brothers Company, Northern Mercantile Company and E. T. Chapin Company.

Transportation Problem of Los Angeles

The Recommendations Include a Municipal Eight-Track High-Speed Railway to San Pedro with a Four-Track Entrance by Elevated and Subway Into the City, Double Decking of Certain Streets to Provide Tracks on the Lower Deck and a Highway Above, Special Right-of-Way in the City for the Interurban Lines, Free Transfers, Etc.

An abstract of the preliminary report which Bion J. Arnold, Chicago, has just rendered the City Council of Los Angeles was published in the *ELECTRIC RAILWAY JOURNAL* for Oct. 21. A full report is now available.

PURPOSES

In his introduction Mr. Arnold states that two-thirds of the growth of the population in the district of Los Angeles has occurred within the past ten years, so that the question is not only new, but is pressing for solution. The problem is, on one hand, not to hamper the transportation of passengers and freight, which is the very lifeblood of the district, and, on the other hand, not to provide facilities too far in advance of actual needs so as to lay a burden of unproductive investments on the transportation facilities.

MUNICIPAL RAILROAD

The first subject discussed by the report is that of a municipal railroad to connect the business section of the city, which is 20 miles inland from the Pacific Ocean, with the new city-owned harbor at Wilmington and San Pedro. Such a line would be built generally through what is known as the shoe-string strip of the city, a section annexed in 1906 to connect the city with the coast. The report says that the location and construction of such a railroad between Los Angeles and the sea are comparatively easy, as there are no engineering difficulties of any moment to be overcome. The right-of-way can be located through comparatively inexpensive territory and the maximum grade can be kept down to 0.4 per cent.

The report recommends the acquirement of a right-of-way at least 250 ft. in width to provide for eight railroad tracks and two automobile highways. These highways would serve not only for pleasure traffic, but for automobile trucks, because it is reasonable to expect that a large amount of the tonnage between the harbor and local delivery and collection points will be handled by means of the auto-truck. The auto-truck will make it possible to deliver from the wharf or warehouse directly to the store or factory. These highways and eight tracks would be free of grade crossings. Just before the tracks reach the residential district of the city there would be a storage and classification yard. Thence the line would extend as four tracks through an open cut or by an elevated line for about 1½ miles and then by an open cut or subway for 3½ miles through the business district to the Plaza. A subway is necessary for the latter part of the distance. It should be built by the city and rented to an operating company for a sufficient return to provide for interest on the cost and for a sinking fund of say 1 per cent per annum, which will retire the investment inside of fifty years. With an assured arrangement of this kind it would be possible, if the city charter permitted, for the city to finance the expenditure by issuing bonds outside of the debt limit and thus the city's credit could be used to secure these transit improvements without adding to the city's actual debt burden.

STEAM RAILROAD PASSENGER STATION

Each of the three transcontinental lines entering Los Angeles—the Atchison, Topeka & Santa Fé, the Southern Pacific Railroad, and the San Pedro, Los Angeles & Salt Lake Railroad—has its own independent passenger terminal and depot. The report recommends that these be consolidated into one station to be located either at the side of the present Arcade depot or contiguous to the present Pacific Electric Terminal Building at Sixth and Main Streets. The report recommends that the railroads should be encouraged to develop the subway plans for a Union Terminal

Station and adds: "If a Union Station is not possible, then it would appear better to encourage the Southern Pacific and Salt Lake roads to combine with the Pacific Electric in a splendid station adjoining and becoming part of the Pacific Electric Terminal Building. Such a station, it is believed, should have a monumental portal with an appropriate setting of open spaces, parkways and surrounding buildings.

"This gateway to the city should be convenient to the business district with plenty of main arteries leading to and from it; it should be easy of access from the street railway system, and, particularly in the case of Los Angeles, it should be a mixing chamber or clearing house between transcontinental and interurban passenger traffic."

GRADE CROSSINGS

The report states that it would be desirable to eliminate as far as possible the grade crossings within the city. On this point Mr. Arnold says: "I would class the crossings of the high speed electric interurban system as the most dangerous, the steam freight main lines and switching tracks as the most inconvenient, and the transcontinental passenger traffic at grade as the least justifiable. As a general rule I would say that it will not only be desirable but should be compulsory to bring the electric interurban roads into the city without a single grade crossing. The methods of accomplishing this result are discussed in a separate part of this report.

"The grade crossings of freight tracks could be largely eliminated by viaducts and the others to a considerable extent by the same means. The expenses of grade crossings by viaducts should be shared by the railroad companies, by the city and by the local street railway company."

FREIGHT HANDLING BY ELECTRIC LOCOMOTIVES

In most parts of the city there is plenty of room for extension of switch track systems, but the report says that there is one district directly contiguous to the retail streets which has heretofore been used largely for residents and retail business purposes but is naturally adapted for wholesale business and manufactories, if it only had the advantage of carload freight delivery. To supply this district with freight service will require the use of some of the city streets for railroad tracks, as the reaching of each parcel of property over a private right-of-way is becoming more expensive year by year. Such a plan can be justified only if this switching is done by electric locomotives on an elevated structure. The report therefore recommends double-decking Los Angeles Street between First and Sixth Streets. This would permit the handling of heavy freight on the present street level and of vehicles on an unobstructed highway at the level of the present second stories of the buildings on that street. The upper deck suggested is to be connected with proposed overhead vehicle highways at two other streets. The report adds:

"If the double-decking of some of the main thoroughfares through the industrial district should become an accomplished fact, it is very probable that the railroad officials will recognize the advantage of this arrangement and provide two-story freight houses with mechanical freight handling devices to take the place of the one-story freight depots and the hand trucks which are to-day the most effective package handling equipment available.

"In this connection the city street car lines should be encouraged to develop a system of package and light freight delivery in order to reduce the cost of staple household commodities and use the local surface lines to their full

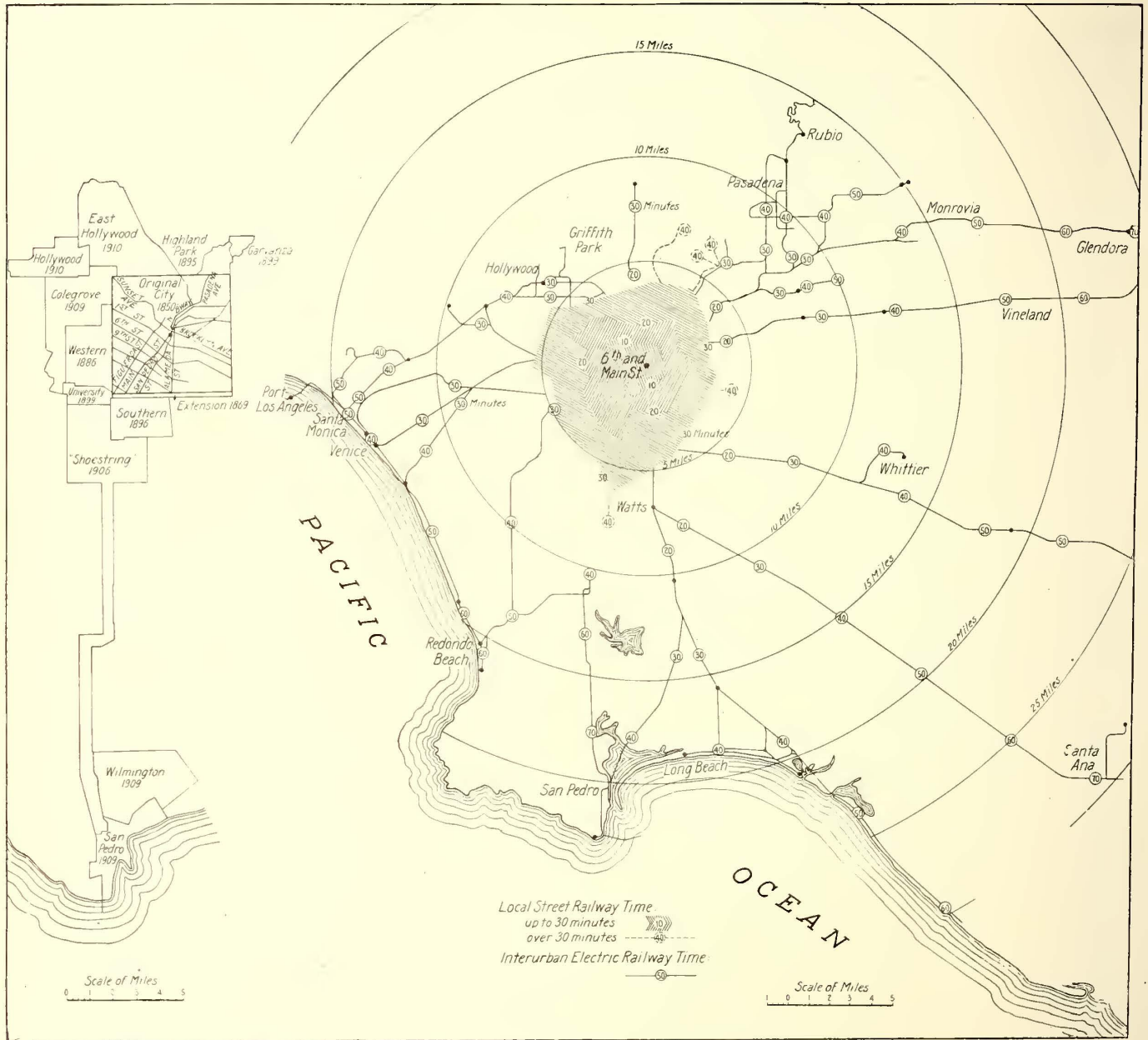
advantage. There is no reason why such a system should not be extended to include express parcels, delivery from department stores, food supplies, ice, papers and all other articles of every-day consumption. Department stores in other cities are now loading their motor trucks for delivery to substations by means of racks on what may be termed the cartridge principle, thus saving time at both ends of the line, and this same idea could be used to advantage for a similar service on the local car lines.

"The street car companies use their own tracks for the delivery of construction material for their own use and

per annum. This is more than in most other cities of the same size. It continues:

"The present city problem, so far as concerns transit requirements, is to do away with the present and future congestion in the business district; to reach a better understanding with the city in regard to future extensions, including the building of crosstown and outside circuit lines, and to provide a better pavement between and contiguous to the rails.

"The surface system is singularly lacking in crosstown and circuit lines, particularly inside the 4-mile circle.



Los Angeles Report—Maps Showing Territory Annexed to City and Time-Zones from the Corner of Sixth and Main Streets

thus secure a considerable saving. The same class of equipment which they use for this purpose could be used to equal advantage for the delivery of materials for street work and paving—and if the contractors on this kind of city work had the privilege of using the local street car tracks for carload delivery the city itself would get the benefit of the economy."

LOCAL STREET RAILWAYS

The report points out that the city system, now controlled by H. E. Huntington, is equipped with a narrow gage and the number of rides approximates nearly 365 per capita

Radiating lines have been provided with liberality and extensions into the non-paying outlying districts have been built even when the long haul and the small amount of business could mean nothing but loss to the company, but the cross-connecting lines which are usually considered as desirable parts of a system of this size have been neglected.

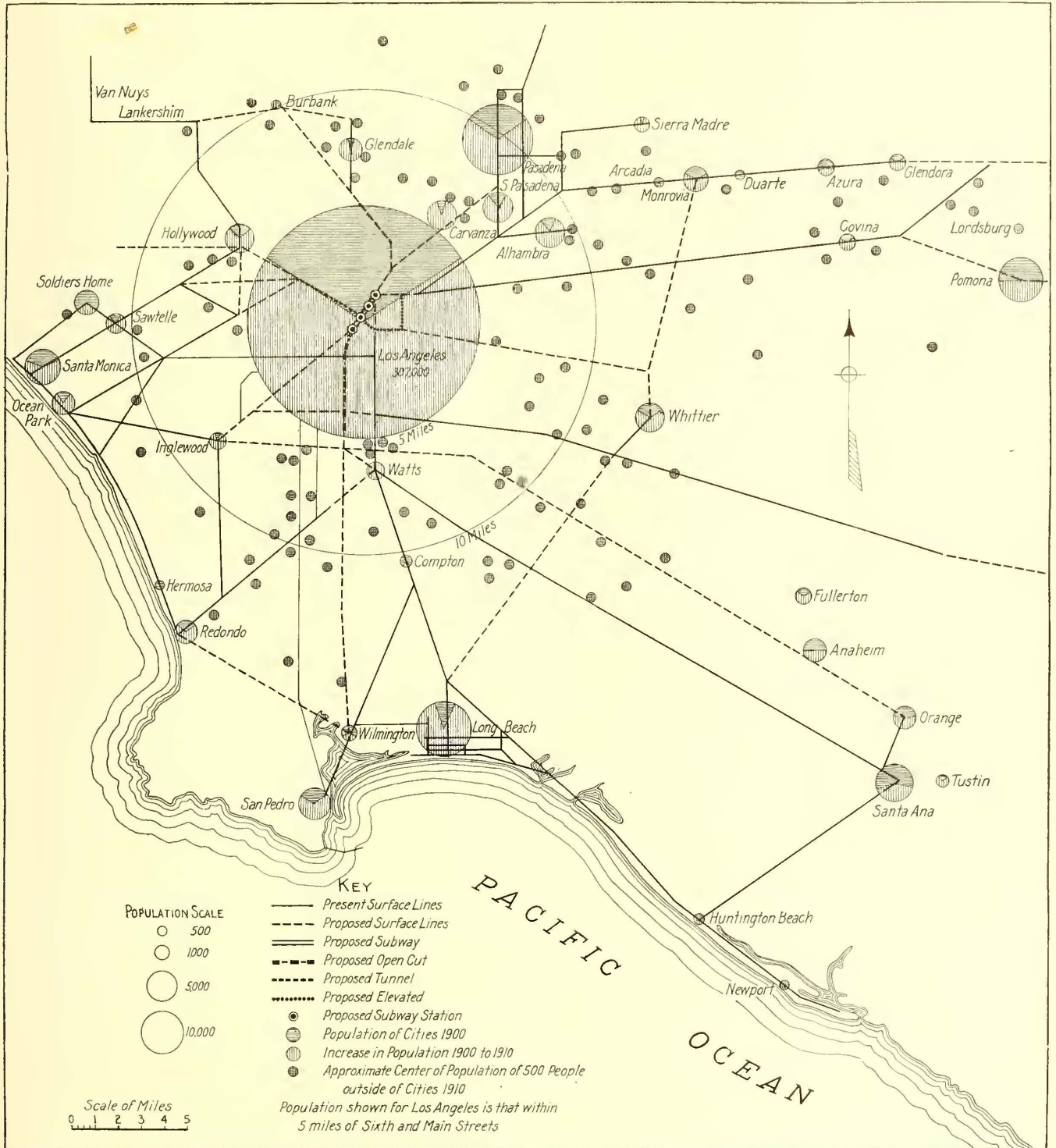
"In planning these circuit routes, two results should be sought. One is to get a route, and eventually more than one route, entirely around the city outside of the down-town congested district. The other result sought is to use parts of these crosstown lines for the connection of certain parts

of radiating lines, thus forming a series of outside loops which will make it possible to increase the service in the short-haul district without running all the cars to the extreme ends of the lines or switching them back and making the passengers take the 'next car.'

The difficulties in congestion, it is thought, may be solved very largely by working out a scheme of down-town rout-

"First: The business of urban transportation is a natural monopoly. Here is one case where competition is wasteful and ineffective. One city, one fare, through routes and universal transfers are the results of having one company serve the entire community.

"Second: This monopoly should be completely under effective municipal control, both for the protection of the



Los Angeles Report—Diagram of Rapid Transit Lines Existing and Proposed, with Populations in 1900 and 1910 Shown Diagrammatically

ing, which by connecting the routes on opposite sides of the city so as to form through routes will make it possible to have nearly all of the intersections right-angle crossings with but very few curves or loops.

FUNDAMENTAL CONSIDERATIONS AS REGARDS THE CITY SYSTEM

The report sums up the fundamental considerations relating to the city railway system as follows:

community and also for the safeguarding of the interests of the corporation itself. This control should secure adequate service at the lowest cost, should encourage the operation of the road at a constantly progressing efficiency and should provide extensions and additions in accordance with public necessity and demand. Public control means publicity of all financial and operating records, and to be effective

tive the public officials charged with the responsibility of exercising this power should be able, honest and beyond the reach of political and particularly of local influence.

"Third: On the other hand, the actual investment in the property, both present and future, should be secure and protected. Before extensions are required or rates reduced, the demands of operating expenses, taxes, maintenance renewals, amortization of intangible values, and a fair profit to capital must be recognized. If there is a surplus, the city and company should be partners and mutually decide whether the surplus is to be used for the extension of the system, for the reduction of the fares or for the betterment of the service.

"Fourth: The length of time of the franchise or permit to use the city streets should be indeterminate. The city should be in effective and continuous control of all its streets, and this result can best be secured by the company surrendering its present series of terminal franchises for a blanket permit securing a 'tenure during good behavior,' and giving the city the right to purchase the entire system at a fair value determined upon an agreed basis.

"Under these restrictions I can see no reason why the community should not continue in comparative harmony with its local public utility transit company, nor why the company should not give adequate service over a constantly growing system. If the investment is protected, the company can proceed to develop the property without fear of loss or confiscation. The advocates of municipal ownership should see in this arrangement the ultimate opportunity for the city to secure the lines at a fair price without working an injustice on the investors who have done so much to bring prosperity to the city.

"A contract ordinance adhering closely to these fundamental principles should prove as effective in Los Angeles as a similar ordinance has proven in Chicago—although it must be understood that the greater density of street car traffic in Chicago creates conditions there which are somewhat different from those in Los Angeles, and therefore it cannot be expected that the Chicago settlement will apply in all of its details to the situation here."

INTERURBAN ELECTRIC RAILWAYS

The report admits that had it not been for the broad constructive policy followed by the present management in producing the network of electric lines which binds together the different communities of the district, the city of Los Angeles itself would be less attractive both for business and pleasure. The electric railway system plays a large part in the prosperity and happiness of the people of the entire section, and it is a fortunate circumstance that the entire system is under one control. Much, however, depends upon the future attitude of the citizens of Los Angeles and the present owners of the system—the Southern Pacific Railroad.

The interurban railways should be encouraged to bring their lines into the city free from grade crossings by either an elevated structure or a subway. This entrance should be fairly independent of any other transportation system. As it will be very expensive, it should be built under a long-time franchise. Moreover the city would hardly care to acquire the right to purchase the facilities only, without acquiring the continuous lines. As regards the passenger service on these lines, the report says:

"If local stops within the city and just outside the city are to be provided in connection with the high speed interurban service, this can be done best by providing four tracks for some distance, using two of the tracks for local and two for express service, then dropping down to three tracks in the more removed districts, using the odd track for one-way rush-hour traffic into the city in the morning and away from the city in the evening of working days and always with the crowd upon holidays and Sundays.

"On account of the length of many of the interurban runs it will be found more economical to store the cars

carrying much of this one-way traffic near the central terminal during the middle of the business day, and the design of the complete terminal should include provision for these storage tracks. Transfer stations should be provided between the two high speed terminal systems where they intersect near Sixth and Main, and the subway which will serve the largest number of patrons should be located on the upper level.

"The development of high speed terminals for the interurban systems will have the same effect on the business center of Los Angeles as the moving into the present city limits of a large amount of the surrounding population. With real rapid transit to Pasadena, for instance, the 35,000 people at present living there would be as near the shopping center of Los Angeles as the residents of the city itself now living between the 3-mile and 4-mile circles. There is apparently no way in which Los Angeles can extend its sphere of influence, both for pleasure and business, as easily and as effectively as providing an unobstructed entrance and exit for the interurban electric system. The rides per capita of the people of this district are already very high, but every improvement which will make it still easier to travel from one center to all other centers will further increase the riding habit. The remarkable history of the building up of the towns and cities of this district and the correlation existing between the prosperity of the community and the activity of its people which was made possible by the splendid electric car service can only be an encouragement for still greater improvements and extensions. Of all possible betterments, the building of a comprehensive Los Angeles city terminal for the interurban system will be of the greatest benefit.

"Pending the removal of the interurban cars entirely from the surface of the streets of Los Angeles city, there should be an arrangement which will make it possible to transfer from one system to the other inside the city limits. The Pacific Electric system now operates about 70 miles of track, located upon the streets of the city, not including Wilmington and San Pedro. The carrying out of the comprehensive plan for a high speed terminal will eventually do away with the use of any tracks on the surface of the streets by the interurban cars, and at such time the operation of these street car lines should be turned over to the local company so as to secure one system for the entire city.

"To obtain practically the same result without the delay incident to the carrying out of the terminal plan, it should be possible for the two companies to enter into a local transfer agreement, covering the interchange of passengers inside the city limits only, and I would suggest that at the first opportunity such an agreement be insisted upon."

IMMEDIATE RELIEF FOR MAIN STREET CONGESTION

The report takes up at length the congestion of vehicle and surface car traffic on Main Street and other streets of the city and states that this condition is not a reflection on the designers of the railway systems or of the management but is due to the remarkable growth of the traffic. Permanent relief can be obtained only by a subway, open cut or elevated structure as described, but the congestion can be relieved temporarily by removing some of the cars, such as the interurban cars, to parallel streets. This would not only reduce the congestion but also the noise from cars on Main Street because, as the interurban cars are standard gage and the city cars are narrow gage, the crossings are noisy. The report recommends the use for this purpose of San Pedro Street, which under Mr. Arnold's plan will subsequently be used by the municipal railroad to San Pedro. The report says that these tracks might be built by the city and leased to the Pacific Electric Company, or they might be built by the latter with the understanding that the city should have the right to purchase them at any time.

MAPS

The report is accompanied by ten maps, of which three

are reproduced. That on page 1065 shows the tendency of population in the greater Los Angeles district to crystallize at centers and the growth of these centers during the past ten years. The smaller dots in this map represent 500 persons showing a scattered population throughout the district between the incorporated centers. The diagram also indicates how the present interurban lines can be combined so as to use jointly the more expensive sub-surface facilities through the heart of the city.

The diagram at the left on page 1064 shows the rapid growth of the city. The Plaza is the exact center of the original Spanish grant in 1781. Successive additions, which have been largely to the west, are shown on the map.

The map at the right on page 1064 shows how transportation distance is rated by time rather than by miles. The circles of the shaded portions show the minutes required to travel from the down-town terminal to the city. The report in referring to this map says:

"On some of the higher speed interurban lines it is now possible to go twice as far from the center of the city in thirty minutes as can be done on the local street cars, and on the interurban tracks running south the rapid transit cars get out into the country 15 miles in the time it takes a city car to reach the 5-mile circle. This latter fact illustrates the advantage of high speed terminals for the interurban lines, for the cars of the southern division of the Pacific Electric lines have the advantage of a private right-of-way and of the use of a surface entrance to their terminal which is not congested until it reaches Main Street. This right-of-way, however, is on grade and will become less an advantage as safety will dictate constantly slower speed, but the diagram serves to show the possibilities of a comprehensive high speed terminal for all the interurban cars. Provide such a terminal and there is no reason why points 20 miles from the city's center should not be reached in thirty minutes. Under these circumstances the radius of the surface systems would naturally be confined to about its present thirty-minute limit. Beyond this limit the development of the territory will be influenced more by the building of the interurban system of transportation than by the extension of the present surface street car city system."

MECHANICAL ENGINEERS DISCUSS WELDING

Several papers on various types of welding were presented at a meeting of the American Society of Mechanical Engineers held in New York on Tuesday evening, Nov. 14.

George B. Pelissier, superintendent Goldschmidt Thermit Company, first gave a brief description of the chemical characteristics of the thermit reaction. He said that two quite distinct methods are followed in applying this reaction. One is to butt-weld for such objects as pipes, tubes and small rods; the other, termed "intermediate welding," requires that a space of $\frac{1}{2}$ in. to 2 in. should be left between the parts to be welded in order to permit a free flow of molten thermit metal between the ends. The latter method, which involves the use of wax matrices, is the one applied for rail welding, engine work, large castings, etc. Mr. Pelissier then exhibited a large number of lantern slides showing the adaptability of the process for such divergent purposes as welding the stern frame and rudder post of a large vessel, flywheel, steel gear, crank shaft, etc. He also presented some figures showing the strength of the welded portions.

W. H. Brown, of the Electric Welding Products Company, described the method of spot welding as applied to sheets of metal up to $\frac{5}{8}$ -in. thickness.

J. D. Mooney, *American Machinist*, described the auto-genous or oxy-acetylene method of welding locomotive and car repair parts as carried out by the Atchison, Topeka & Santa Fé Railway. The oxygen and acetylene are made on the ground. Among the typical jobs illustrated by slides

were the building up of a crosshead fit on a piston rod, renewal of worn links, building up of teeth on a reverse lever latch, filling of blowholes in crosshead castings, repair of breaks in main framing and rehabilitation of steel cabs. In conclusion, Mr. Mooney explained how the oxy-acetylene torch had been used to good advantage in cutting up the tangled structural steel of the sunken battleship Maine.

C. B. Auell, Westinghouse Electric & Manufacturing Company, referred to the three processes of electric arc welding known as the Benardos, Slavianoff and Zerener. The Benardos process is now free to all, as the patents on it have expired. It includes a source of direct-current supply, controlling apparatus for the regulation of current and voltage, carbon electrodes, a suitable inclosure for the work, a protective covering for the operator, fireclay or other material for molding purposes, filler and flux. One desirable flux consists of 15 per cent to 25 per cent of red oxide of iron (Fe_2O_3) and 75 per cent to 85 per cent of pulverized borax ($\text{Na}_2\text{B}_4\text{O}_7 + 5\text{H}_2\text{O}$). Another flux consists of 5 per cent of oxide of copper (CuO), 15 per cent of oxide of manganese (Mn_2O), 30 per cent of red oxide of iron (Fe_2O_3) and 50 per cent of pulverized borax ($\text{Na}_2\text{B}_4\text{O}_7 + 5\text{H}_2\text{O}$). These fluxes may be used either dry or wet.

The Slavianoff process is a modified Benardos method, in which a metal electrode is substituted for the carbon. In the Zerener process, which is apparently not used in this country, the arc is drawn between two inclined carbons and is directed downward into a pencil point by means of an electromagnet. The piece to be welded is brought into the influence of the flame and is thus raised to the desired temperature. In conclusion Mr. Auell said that the oxy-acetylene and oxy-hydrogen processes appeared to have an advantage over the electric arc processes in the matter of average strength of welds and in smoothness of finish, but not as regards cost and speed.

SUIT AGAINST CLASSIFICATION OF ADDITIONS AND BETTERMENTS OF THE INTERSTATE COMMISSION

Suit has been brought in the United States Commerce Court by the Kansas City Southern Railway in reference to the system of accounts prescribed by the Interstate Commerce Commission.

The suit relates particularly to the classification of additions and betterments. In the preparation of plans for reducing grades the company found that the cheapest way of making a proposed improvement would be to secure a new right-of-way in certain places. Bonds aggregating \$1,250,000 were allotted to meet the expenses of this work. After the preparation of the engineering plans and other preliminary expenses had been incurred the Interstate Commerce Commission prescribed the classification providing that expenses for grade changes on original rights-of-way should be charged to capital account, but in case of a change of location of line only a portion of the charge should be carried to capital account. The company says that it is unjust as well as misleading to require that more than 60 per cent of the outlay for the more economical method of making the improvement must be written off as a loss and deducted from earnings by charges to operating expenses or through the profit and loss account.

It is also stated that the requirements of the commission amount to a valuation of the railway, resorting in the taking of private property without due process of law and that they exceed the authority either of commissioners or commission and violate the guarantees to the constitution.

A similar condition has arisen as the result of the proposed construction of a new shop at Shreveport, La., and the abandonment of the old facilities. The management elected to charge the net value of the abandoned property against the surplus account, but the commission required that the charge be made to operating expenses.

Changes in the Cleveland Franchise

The Changes Authorized by the Election on Nov. 7 Modify Provisions of the Existing Franchise—The Important Clauses Are Stated and Elucidated

Voters of Cleveland approved on Nov. 7 an ordinance passed by the City Council on July 10, 1911, which amends the franchise ordinance of the Cleveland Railway. One of the changes relates to additions and betterments and provides that the company shall proceed, immediately upon the ordinance taking effect, to expend \$2,500,000 in such extensions, betterments or permanent improvements as may be designated by the city. Control of the uses to which this money shall be put therefore rests with the City Council. It is expected, however, that the money will be devoted to the purchase of additional cars and power facilities.

CAPITAL VALUE

Section 16 of the original franchise ordinance is amended in several particulars. This section relates to capital value, and the unchanged paragraphs pertain chiefly to the statements of securities representing the values allowed in the ordinance. The following paragraph, involving a slight change, is substituted for one in the original ordinance:

"The company may, at any time, refund its bonds, or capitalize or issue mortgage bonds for its floating debt as defined in paragraph (b). All bonds hereafter sold by the company shall be sold at the best price obtainable therefor, and shall contain a provision making them payable on ninety days' call, at any interest maturing period, at 105 and accrued interest; and the city shall have thirty days' notice in advance of all such proposed sales of bonds by the company."

The change is in the omission of the words "provided that" after "paragraph (b)."

Following the paragraph quoted is a reference to the allowance of 5 per cent on the bonded debt or, in the event of refunding, of such rate, not exceeding 6 per cent, as the refunding bonds may bear. The latter provision is changed so as to make the rate "that rate per cent which the refunding bonds may bear, and such rate as may be necessary to amortize the discount, if such bonds are sold at a discount, the total, however, of such rate of interest and addition thereto for amortization to be not in excess of 6 per cent per annum on par."

It was provided originally that the company might sell its bonds "for not less than par except with the consent of the city." The new condition is that the company may sell its "bonds on a basis which will not be in excess of 6 per cent on par and will include in such rate provision for amortizing the discount, if such bonds are sold at a discount."

Section 19, concerning the interest fund of \$500,000, stipulated originally that this amount should be deposited and draw interest in banks. The option is now added that this fund "may be invested in such securities as may be agreed upon between the company and the city."

Section 21 of the contract stated that any surplus in the hands of the company out of the allowance per car mile for operating expenses remaining unexpended for operating expenses at the end of any period of six months should be placed to the credit of the interest fund. The period is now changed to one year.

The concluding paragraph of this section is amended to read: "No renewal or replacement charged to the maintenance, depreciation and renewal account shall be made by the company until it has been approved by the City Council or by the city street railroad commission when thereunto duly authorized by Council to act."

EXTENSIVE BETTERMENTS OR IMPROVEMENTS

Section 28 is amended so as to give the city a voice in extensions, betterments or improvements. The new first

paragraph of this section contains the following provisions: "Either the company or the city may propose extensions, betterments or permanent improvements. Whenever any extension, betterment or permanent improvement is proposed by the city estimates of the cost thereof and plans and specifications thereof shall be filed with the company by the city, and whenever any extension, betterment or permanent improvement is proposed by the company, otherwise than of the kind and subject to the limitations contained in Section 20 hereof, estimates of the cost thereof and plans and specifications therefor shall be filed with the city by the company; provided, however, that the right of the city to propose extensions, betterments or permanent improvements shall terminate whenever the unexpired term of this franchise, or any renewal hereof, is less than fifteen years."

The reference to Section 20 in this paragraph is to the treatment of small capital expenditures charged to operating expenses.

Important sentences in the ensuing paragraph, as revised, are as follows:

"When such extensions, betterments or permanent improvements proposed by the company have been approved by the Council, or when estimates of the cost and plans and specifications of any extension, betterment or permanent improvement proposed by the city have been filed with the company by the city, such extensions, betterments and permanent improvements shall be made, if the company, acting in good faith and using all usual means, can procure the necessary money, by the sale of stocks or bonds or by an increase of floating debt, unless the company shall elaim in any such case that extensions, betterments or permanent improvements proposed by the city will impair the present or future ability of the company to earn the amounts stipulated in Section 16 hereof [This section refers to the return on capital value.—EDS.] or that the company is unable to finance said extensions, betterments or permanent improvements, in either of which cases the claim of the company shall be submitted to arbitration, as provided in Section 11 hereof. Provided, however, that the expenditure of the \$2,500,000 hereinafter required shall not be subject to such arbitration." It is then provided that the capital value shall be increased correspondingly. The reference to the return to which the company is entitled on such capital value is amended so as to cover, if bonds are issued to meet the expense, the rate of interest borne by the bonds, including the amortization of the discount, if the bonds are issued at a discount.

In conformity with the intent of this change the city street railroad commissioner, instead of having the right only to employ assistance to check the estimates of the company for proposed work of this character, receives "the right to employ such assistance as he shall deem necessary for the purpose of making the estimates, plans and specifications of any extension, betterment or permanent improvement proposed by the city."

In Section 29 the clause reserving to the company alone the right to propose extensions, betterments or permanent improvements is omitted.

SUBURBAN GRANTS

Section 30, applying to suburban lines and franchises, is amended by the addition of the following:

"Provided that during any unexpired term of this franchise of more than fifteen years' duration, upon demand of the city, the company shall extend to all (or such part as the city may designate) of its existing lines in that portion of the city of Cleveland formerly known as Collinwood

all, any or such parts of the benefits of ordinance No. 16238-A [the original ordinance.—Eds.], as amended, as may be designated by the city, and such terms and conditions of such ordinance, as so amended and as so designated by the city, shall apply thereto; but the company shall not thereby be deemed to have surrendered any franchise existing in such territory."

Section 31 is changed so as to permit the company to give free transportation to motormen, conductors and inspectors, not only when in uniform, as provided originally, but also "upon presentation of badge when going to or from work." There was a provision in this section that the city street railroad commissioner might notify the company and conduct an investigation if, among various things, in his judgment any wastefulness existed in the purchase of material. This is amended to apply to the "use of" material as well.

Section 32, dealing with the reservation by the city of the right to purchase, refers, as amended, to this right "at any time during the life of this grant or any renewal thereof." The amended section makes it clear that the amount to be paid by the city—capital value plus 10 per cent on the net capital value—may be increased as provided in the ordinance or diminished by any reduction of value out of surplus earnings or otherwise, as provided in the ordinance. This clause is also added: "Should the city exercise the option to purchase hereby conferred, upon demand of the city, the company shall convert into cash, at the best price obtainable, the assets or securities then in the sinking fund provided for by Section 40 hereof, and the proceeds shall be deducted from the purchase price to be paid by the city; and in default of the city so demanding such conversion such assets or securities shall become the property of the city, but shall not be deducted from purchase price."

The sinking fund mentioned in this clause is one of the contingencies designed to assist in reduction of the capital value from surplus earnings if the unexpired term of Cleveland franchises becomes less than fifteen years and the company as a result collects the maximum rate of fare.

CITY RIGHT OF PURCHASE

Section 35 is entirely changed and now reads as follows:

"If at the expiration of this grant or any renewal thereof the city shall not have exercised the right reserved to it to purchase the said property as provided in Section 32 hereof, then and in that event the company, by the acceptance of this ordinance, grants to the city, and the city hereby reserves to itself, the rights of purchase following:

"(1) If the city then has legal power so to do, it may purchase said street railroad system with all extensions and additions thereto at the price, in the manner and on the terms set forth in Section 32 of this ordinance, except that 10 per cent shall not be added to any part of the capital value to determine the purchase price to be paid.

"(2) If the city then has legal power to acquire, own and operate street railways within the then city limits, it may purchase said street railroad system with all additions and extensions within the then city limits at the price, in the manner and on the terms provided in Section 32 hereof, except that 10 per cent shall not be added to any part of the capital value to determine the purchase price, and except that there shall be deducted from the total price of the entire system the value of such part of said street railroad, with all extensions and additions, lying outside of the then city limits, such value to be determined by agreement, or in event of a disagreement by arbitration as provided in Section 11 of this ordinance; and, if the city so desires, it may at the same time require the company to sell, assign and convey to such person, firm or corporation as may be designated by the city the part of such railroad system then lying outside the then city limits of the city of Cleveland at the value as so fixed by agreement or arbitration."

Section 36, which stipulated in the original ordinance

that the price to be paid by the city in the event of purchase under the conditions named in Section 35 should be the value for street railroad purposes and described the methods to be followed in the determination of value, is repealed.

Section 37 is amended merely to provide that, if no extension or renewal of the franchise is granted by the city and the city does not purchase the property at the expiration of the franchise, any person to whom a franchise is granted over any existing lines shall be under obligation to purchase such lines upon the terms provided for purchase by the city in Section 35.

Section 40 is amended to cover "any renewal" of the unexpired grant. The provisions respecting the exercise by the city of the right to purchase or the designation of a licensee during operation by the company in a period of less than fifteen years' franchise duration, and the terms in the event thereof, are eliminated. An amended clause in this section reads as follows:

"Should the city pass a grant in renewal hereof during a period of less than fifteen years' franchise duration, such renewal grant shall fix as the then capital value of the company, upon which interest shall be paid out of the interest fund, an amount equal to the capital value set forth in Section 6 hereof, increased as in this ordinance provided and diminished by any reduction thereof out of surplus earnings or otherwise as in this ordinance provided, and also diminished by the proceeds of the assets or securities then in the sinking fund provided for by this section, which assets or securities shall be by the company converted into cash at the best price obtainable."

Section 44 concerns the possible purchase by the city on Jan. 1, 1933, of the St. Clair Avenue line upon payment to the company of, there is now specified, the "physical" value. In the event of disagreement between the city and the company as to this value the matter shall be submitted to arbitration in the manner generally provided for other questions which may arise under the ordinance.

The Council reserves the right to repeal the ordinance amending the original contract and thereby to repeal the amendments made if within a reasonable time after passage the Cleveland Railway shall not have provided \$2,500,000 for expenditure in such extensions, betterments or permanent improvements as may be designated by the city.

COMMITTEE ON PASSENGER ACCOUNTS OF THE CENTRAL ELECTRIC ACCOUNTING CONFERENCE

President A. F. Elkins of the Central Electric Accounting Conference has announced the appointment of a standing committee on passenger accounts, the members of which will be as follows: C. M. Witt, auditor Indianapolis, New Castle & Toledo Electric Railway, chairman; C. B. Kleinhans, auditor Toledo & Indiana Railroad, Toledo, Ohio; F. T. Loftus, auditor Indianapolis & Cincinnati Traction Company, Rushville, Ind.; E. O. Reed, auditor Western Ohio Railroad, Lima, Ohio; E. J. Skehan, auditor Muncie & Portland Traction Company, Portland, Ind.

The appointment of this committee was authorized by the conference at its meeting at Indianapolis, Ind., on Sept. 23, 1911. All matters brought before the conference which relate to interline passenger accounting will be referred to this committee for action.

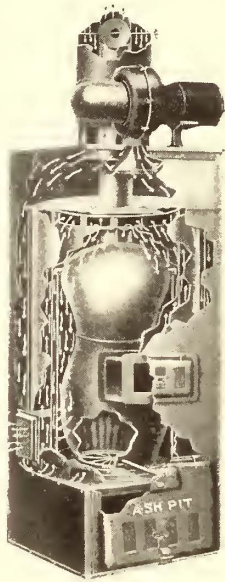
The annual meeting of the Central Electric Accounting Conference will be held at Toledo, Ohio, on Dec. 16, 1911.

The Concy Island & Brooklyn Railroad, Brooklyn, N. Y., is operating a special service during the middle of the day designed especially to accommodate persons who do their holiday shopping at the large department stores on Fulton Street between Flatbush Avenue and Borough Hall.

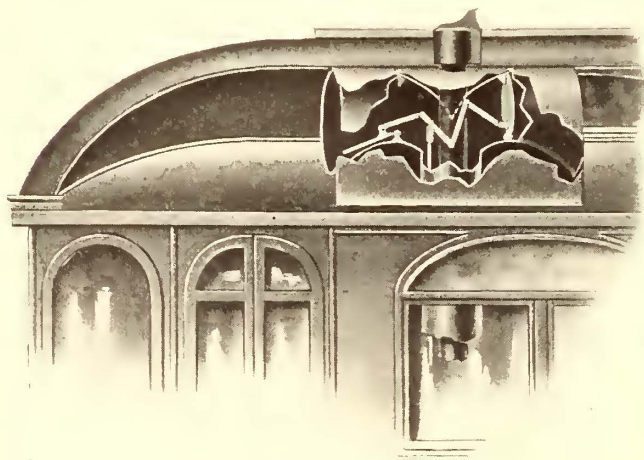
A FORCED-VENTILATION HOT-AIR HEATER

The Cooper Heater Company, Dayton, Ohio, has recently placed on the market a forced-ventilation hot-air heater, which is the invention of its sales manager, W. L. Blackwell, who also invented the Cooper pressed-steel hot-water heater. As shown in the accompanying illustrations, the heater has a blower motor and a funnel-shaped intake, which is placed in the roof of the car. It is considered that air drawn in at the top of the car is much cleaner than air taken through intakes located near the pavement. The roof intake is so designed that a blower motor is unnecessary in a car used in moderate or high-speed service. It is not essential that the air should pass through the motor. It may pass through the air duct which surrounds the stove pipe to get the benefit of whatever heat is radiated from the pipe before it reaches the heater. At that place the air strikes the funnel-shaped guard which surrounds the stovepipe just inside of the heater and is thereby directly and uniformly distributed to the outer casing of the heater. After passing down the outer casing the air enters the bottom of the second casing, rises up and enters the inner section which holds the stove proper and where the heat is most intense. It enters this section through special ports, after which it passes down around the stove to the outlet duct, which is made either right-handed or left-handed, according to the position in which the heater is to be placed. The flow of air as described is graphically indicated by the arrows in the view above.

The use of a triple by-pass instead of a double by-pass has the advantage of keeping the outer casing cool at all times. Another and even more important feature is the provision which has been made to prevent the possibility of the car burning up through the stove overheating when the motor is not in operation. In case the operator fails to open the upper front door (which is inter-connected with an



Blower Type
Heater



Funnel Intake for Heater

upper door of the inner casing) to allow the heat to pass out into the car the heat will pass out through the intake at the top of the car instead. This is accomplished by the automatic action of a slide which opens only when the motor is stopped. The smoke pipe has a jack which revolves with the motion of the car, thus discharging the gases to the rear end of the induction draft hood opposite the intake.

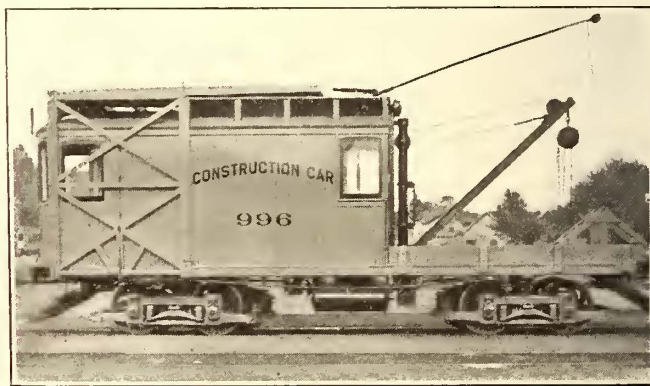
The heater is made of cast iron and steel, the outer casing being of unusually heavy gage steel to withstand rough usage. The doors are top-hinged and are made of soft grade iron. A safety spring catch provides an automatic lock to prevent the doors from being left open through carelessness. The outer casing of the heater is lined with bolted $\frac{1}{4}$ -in. asbestos millboard. The two steel inner casings were welded by the oxy-acetylene process to prevent any possibility of dust or gaseous fumes coming into contact with the fresh air and being discharged into the car. The base and frame of the blower motor are cast in one piece. The head over the commutator end has a hinged opening with concealed automatic lock, but it can be easily removed for inspection of the brushes. The motor is entirely incased to prevent the entrance of dirt and moisture. The blower is also of light and durable design. These heaters are made in three sizes: B-4, 15 in. square and 40 in. high, for cars up to 25 ft. inside length; B-6, 17 in. square and 40 in. high, for 35-ft. bodies, and B-8, 20 in. square and 42 in. high, for bodies up to 65 ft.

TOLEDO LINE CAR

The shops of the Toledo Railways & Light Company have recently constructed the combination work and line car shown in the accompanying illustration. This is a double-end car with a cab 17 ft. x 8 ft. in floor area, built at one end of the underframe. The cab contains two controllers and the tower-raising mechanism and is provided with a workbench, shelves and lockers for the tools and supplies necessary for general repair work. The doors of the body are placed at opposite ends and toward one side, so that long poles may be carried if necessary. The open platform end of the car is 13 ft. x 8 ft. in dimensions and carries a jib crane mounted against the center of the cab end. In erecting the crane care was taken to keep it insulated from any ground connections.

A movable reel jack to carry trolley or feed wire has been mounted at the outer end of the open platform, and ample space is left between it and the derrick so that sub-station transformers or other heavy equipment may be transported on the line car.

The trolley tower is of the ordinary revolving type mounted on the roof of the cab and so arranged that the standards come just outside of the car-body walls. The tower raises through a distance of 6 ft. and has a floor 5 ft. x 14 ft. in size with a collapsible railing. The tower



Combination Work and Line Car

is motor-operated, with the control placed inside of the cab, and is equipped with two push-button signals for the operator and an automatic cut-out safety device so that the lineman on top of the tower may prevent the movement of the car by the motorman. A hand-operated raising mechanism is provided for emergency use.

This new line car is mounted on two Brill trucks and is equipped with two GE-57 motors.

ELECTRIC RAILWAY LEGAL DECISIONS

CHARTERS, ORDINANCES, FRANCHISES

Connecticut.—Location of Road on Highway—Appeal from Commissioners.

The selectmen of a town in approving the route of a street railroad provided that a portion of the road should be laid outside a highway, and on appeal to the railroad commissioners it was found that the petitioner railroad company had a right to a lay-out in the highway, and that it was the commissioners' duty to give the railroad company such lay-out and also to require such changes in the highway as would protect other public uses thereof. Held, that adjoining owners claiming to be injured by such decision were entitled to review such question on appeal to the superior court. (Appeal of Norton et al., 78 At. Rep. 587.)

Georgia.—Ice as Baggage.

The court cannot say as a matter of law that 5 cents' worth of ice, wrapped so as to prevent leaking, is not personal baggage of a passenger attempting to board a street car, and he may not be refused permission to board the car with the ice. (McIntosh v. Augusta & A. Ry. Co., 69 S. E. Rep. 160.)

Illinois.—Drains—Assessment—"Property."

A street railroad's right to occupy a public street, together with ties, rails and rolling stock, is "property" within Const., Art. 4, Sec. 31, provided that the General Assembly may pass laws permitting the owners of land to construct drains by special assessments on the property benefited thereby. (Spring Creek Drainage Dist. v. Elgin, J. & E. Ry. Co. et al., 94 N. E. Rep. 529.)

Indiana.—Eminent Domain—Crossing with Steam Railroads.

Act March 3, 1903, Chap. 59, Sec. 1 (Burns' Ann. St. 1908, Sec. 5666), authorizing electric railways to condemn the right to cross steam roads, does not violate Const., Art. 1, Sec. 23, as granting special privileges and immunities not shared by steam roads, they having substantially the same rights.

Act March 3, 1903, Chap. 59, Sec. 1 (Burns' Ann. St. 1908, Sec. 5666), authorizing electric railroads to condemn the right to cross steam railroads, does not infringe Const. U. S., Amend. 14, as denying to steam roads the equal protection of the law, they being given substantially the same rights. (Vandalia R. Co. v. La Fayette & L. Traction Co., 94 N. E. Rep. 483.)

Kentucky.—Bridges—Defects—Liability.

A contract between a county, a railroad company and a traction company which provided for a change in the location of a county highway crossing the railroad track at grade, required the railroad and traction companies to construct an overhead bridge at their own expense and bound the traction company to keep the bridge in repair, contemplated that the county should be free from the burden of maintaining the bridge, and the traction company only assumed to do for the county what it otherwise would have been compelled to do and was not liable for injuries to a traveler caused by a defect in the bridge.

Though the county authorities or its representatives may be indicted for maintaining a public nuisance, occasioned by maintaining a defective highway or bridge forming a part thereof, yet there is no liability for damages to persons injured thereby. (Blue Grass Traction Co. v. Grover, 123 S. W. Rep., 264.)

Maryland.—Eminent Domain—Streets—Rights of Abutters.

The right of access is the test of an abutter's right of action for occupation of a street by a railroad.

A proper method of ascertaining damage resulting to abutters by obstruction of access to their property through occupation of a street by a railroad is to ascertain what it would cost to restore the means of access by devoting part of the property to that purpose. (Webb et al. v. Baltimore & O. R. Co., 79 At. Rep. 193.)

Michigan.—Rate of Fare—Conditions Imposed by Township.

Where a township, in pursuance of Comp. Laws 1897, Art. 6446, on granting consent to an electric railway com-

pany to construct and operate its line along the highways of the township, imposed a condition that the railway company should not charge more than 2 cents per mile for each passenger carried, provided that no single fare should be less than 5 cents, a passenger taking a car in the township was entitled to ride over the entire line at the rate of 2 cents per mile, though it extended beyond the township limits, provided that the total amount paid should not be less than 5 cents. (Ross Tp. v. Michigan United Rys. Co., 130 N. W. Rep., 358.)

New Jersey.—Contribution to Expense of Rebuilding Bridge.

The duty of constructing and maintaining roadbeds and tracks was imposed on a traction company which accepted a franchise, although the statutes did not expressly impose this duty, and as it had the power to construct its road over bridges it was bound to contribute to the expense of rebuilding a public bridge necessitated by the operation of heavier cars propelled by electricity. (Public Service Ry. Co. v. Board of Chosen Freeholders of Hudson County, 78 At. Rep. 235.)

New Jersey.—Construction of Line—Validity of Ordinance.

A street railway company operating under the act of 1893 (3 Gen. St. 1895, p. 3235) obtained in that year from Jersey City by ordinance a consent to the filed location of its route, but without a lawful designation of the location of its tracks in the streets named as constituting such route. In 1910 the city undertook to amend the original ordinance by designating such location of tracks, etc. Held, that the original ordinance conferred no right of construction, and that such right could not be acquired without compliance with the requirements of the later act of 1894 (P. L. p. 374), as modified by the further act of 1896 (P. L. p. 329). (St. Paul's Catholic Church of Greenville v. Mayor and Aldermen of Jersey City et al., 78 At. Rep., 1064.)

New York.—Workmen's Compensation Act—Validity—Deprivation of Property—Police Power.

Workmen's Compensation Act (Laws 1910, Chap. 674), Art. 14a, imposing an absolute liability on employers in certain designated occupations for injuries to a workman not caused in whole or in part by the serious and wilful misconduct of the injured workman, independent of any act of negligence or default on the part of the employer, is unconstitutional, as depriving the employer of his property without due process of law.

Where an industry or calling is per se lawful and open to all, it is beyond the prohibitive power of the legislature, and the right of governmental control is subject to such reasonable enactments as are directly designed to conserve health, safety, comfort, morals, peace and order. (Ives v. South Buffalo Ry. Co., 94 N. E. Rep. 431.)

New York.—Regulation of Fares.

The act of the Public Service Commission in requiring a street railroad company operating a road between two cities and across a bridge of a bridge company to comply with Laws 1905, Chap. 358, and thus to charge 5 cents fare, instead of 6 cents, and paying 1 cent to the bridge company, is not invalid as depriving the company of its property without compensation because reducing its revenue, where a competing company operating fewer cars charges only 5 cents fare. (People ex rel. Cohoes Ry. Co. v. Public Service Commission, Second Dist. (Francis P. Lithgow, Intervener), 128 N. Y. Sup. 384.)

New York.—Injunction to Prevent Moving of House.

Where a street railroad company sues to enjoin interference with its wires and overhead construction by a person moving a building through a city street and alleges irreparable injury, it has no ground for complaint when the order vacating the temporary injunction provides that the work of taking down and replacing its wires shall be done by its own employees and that defendant shall pay the expenses. (Western New York & P. Traction Co. v. Stillman, 128 N. Y. Sup. 363.)

New York.—Regulation—Transfers.

The charters of two street railway companies each contained a section by which each agreed to transport passengers over the entire length of any of its lines of railroad within the village of B. at a fare not over 5 cents for each continuous trip of each passenger and to allow each

passenger one transfer from any one to any other of its said lines and to transfer passengers to and from the intersecting lines of other street surface railways within said village. The terms as to the division of the fare were to be agreed upon. Held, that a refusal to issue transfers at proper points was a violation of their charter obligation and of law, and under Public Service Commissions Law (Laws 1907, Chap. 429, Sec. 57), the Public Service Commission could institute summary proceedings to compel the issuance of such transfers. (*Wilcox et al. v. Richmond Light & R. Co. et al.*, 128 N. Y. Sup. 266.)

Pennsylvania.—Franchise for Leased Cars.

A street railway, having a franchise to operate cars on the streets of a city, may operate not only its own cars but those which are the property of a company which it has leased. (*City of Pittsburgh v. Pittsburgh & C. St. Ry. Co. et al.*, 79 At. Rep. 235.)

Pennsylvania.—County Bridges—Use by Trolley Company—Compensation.

In an action by a county against a trolley company for compensation for the use of county bridges, where there was evidence showing the trolley company's system of trackage, the population of the territory it had to draw upon, cost of the respective bridges to the county and their value in the year for which compensation was sought, the amount paid for the repair of ordinary wear and tear incurred during such year, the general cost of maintenance of the bridges during that year, sizes of the bridges and how they were built, details as to the use made of the bridges by defendant company and some light on the general public use as compared to the precise use of the defendant company, the court properly allowed the jury to determine the proper compensation for the use of the bridges. (*Beaver County v. Beaver Valley Traction Co.*, 79 At. Rep., 161.)

Washington.—Exchange of Transfers.

A street railway company obtaining a franchise providing for the exchange of transfers with any other company operating street railways which shall give and receive transfers to and from the lines of the company, and stipulating for a basis of settlement, must exchange transfers with all companies operating street railways where they give and receive transfers to and from the lines of the company on the basis of settlement specified in the franchise. (*State ex rel. Linhoff v. Seattle, R. & S. Ry. Co. et al.*, 114 Pac. Rep. 431.)

Washington.—Occupation of Street—As Nuisance.

Unlawful occupation of a street by a railroad constitutes a public nuisance, which may be abated by an abutting owner suffering a special injury therefrom.

Rights of public service corporations asserted under eminent domain laws should be strictly construed. (*Sylvester et al. v. Superior Court for Benton County*, 111 Pac. Rep. 19.)

LIABILITY FOR NEGLIGENCE.

Delaware.—Negligence and Contributory Negligence.

Where the negligence of a street railway was the proximate or immediate cause of the injuries to a traveler, caused by a collision with a car, the company was liable, notwithstanding the negligence of the traveler, not then continuing, and not at the time entering into and contributing to the accident. (*McCartney v. People's Ry. Co.*, 78 At. Rep. 771.)

Indiana.—Notice to Conductor of Destination.

A passenger on an interurban railway who pays his fare and informs the conductor at the time of his destination may assume that the carrier will discharge its duty and stop at that point without further notice to the conductor, and that the carrier will exercise due care in stopping the car at the point of destination.

The burden of proving contributory negligence of a passenger suing for a personal injury received while attempting to alight from a car rests, under the statute, on the carrier. (*Indiana Union Traction Co. v. Keiter*, 92 N. E. Rep. 982.)

Massachusetts.—Injuries to Passengers from Jerks and Jolts.

Jerks while running and in stopping and starting to let off and take on passengers, jolts in going over frogs or switch points, and lurches in going around curves are

among the incidents in electric cars which every passenger must expect, and if a passenger is injured by such a jerk, jolt or lurch the company is not liable. On the other hand, a car can be started and stopped with a jerk so much more abrupt and so much greater than is usual that the motor-man can be found to be guilty of negligence. (*Work v. Boston Elevated Ry. Co.*, 93 N. E. Rep. 693.)

Massachusetts.—Care Required to Female Passengers.

A female passenger with a small child in her arms was entitled to protection from being jostled, etc., by other passengers, commensurate with the impairment of her ability to care for herself resulting from carrying the child. (*Glennen v. Boston Elevated Ry. Co.*, 93 N. E. Rep. 700.)

Massachusetts.—Damages for Future Suffering.

The court instructed, in a personal injury action, that if plaintiff's physical condition was such that it "may or may not involve future expense she would be entitled to have that considered"; that if her physical condition did not necessarily involve future expense, "but it might happen in the future, that would be a thing for you to consider as in the future"; and that "plaintiff would have the right to consider the possibility that an operation in the future might be necessary on the question of damage." Held, that the instructions were erroneous, as susceptible of being construed to authorize damages for suffering, etc., which "might" result in the future, instead of for suffering which the preponderance of the evidence showed might be reasonably expected so to result. (*Pullen v. Boston Elevated Ry. Co.*, 94 N. E. Rep. 469.)

Massachusetts.—Collisions—Liability.

A street railway company is not liable for injury to a passenger in a collision between the car and an ice wagon, caused by a sudden movement of the horses attached to the wagon, if the car was not running at an excessive speed, but is liable if the car struck the wagon while it was stationary. (*Niland v. Boston Elevated Ry. Co.*, 94 N. E. Rep. 703.)

Massachusetts.—Injuries on Crowded Elevated Car—Negligence.

When plaintiff entered defendant's elevated street car, it was so crowded that she could not obtain a seat and was compelled to stand in the vestibule, and when the car stopped to permit passengers to alight the conductor told plaintiff that she was blocking the passageway and must stand aside to permit other passengers to alight, and in the jostling which accompanied the efforts of the other passengers to alight plaintiff was pushed off the car. Held, that the company was required to exercise the highest degree of care for plaintiff's safety which was consistent with a similar duty to the other passengers, and it was not negligent under the circumstances, so as to make it liable for plaintiff's injuries. (*McCumber v. Boston Elevated Ry. Co.*, 93 N. E. Rep. 698.)

Michigan.—Injury to Passenger Alighting.

In an action for injuries to a street car passenger while alighting, the issue being whether the car started while plaintiff was getting off or whether she merely caught her foot on something, a charge which stated that it was unnecessary to define negligence in general and that if the car started up after coming to a stop while plaintiff was in a position of danger from which the starting of the car would have a tendency to throw her, it was negligence and plaintiff should recover, but if plaintiff simply slipped in alighting from the car while it was standing still, there was no negligence and plaintiff could not recover, properly submitted the issues. (*Cummings v. Detroit United Ry.*, 128 N. W. Rep. 206.)

Michigan.—Rule Regarding Stops at Railroad Crossings.

In an action against a street railroad for death of a motorman killed in a collision between his car and a railroad engine at a crossing, testimony that it was customary to stop cars so that conductors could alight on a board walk near the crossing was competent to show that decedent in stopping the car was doing what had been repeatedly done, though in violation of a rule requiring him to stop at a greater distance.

In an action against a street railroad for death of a motorman in a collision with a train at a crossing, it was not reversible error to permit an experienced motorman

who had operated the same car to testify as to the effect on the stopping of the car of a brake such as it was equipped with, though decedent after the car was repaired took it out and stated that the brakes were all right. (*Rivers v. Bay City Traction & Electric Co.*, 128 N. W. Rep. 254.)

New Jersey.—Trespass—Third-rail Right-of-way.

The plaintiff, a minor, while passing diagonally from a public byway pursued a footway alongside of the defendant's tracks and upon defendant's right-of-way and was injured by coming in contact with the third rail; held, upon demurrer, that the declaration presented no cause of action. (*Tarlucki v. West Jersey & S. R. Co.*, 78 At. Rep. 149.)

New Jersey.—Injury from Bent Trolley Pole.

Plaintiff sustained personal injuries while a passenger on an open trolley car operated by defendant. Upon the evidence submitted, the jury might have found that he was standing inside the car, leaning against the guard rail, and that while the car was running at very high speed the trolley left the overhead wire, and the pole, striking one or more cross-wires, bounced backward and downward and was bent thereby sufficiently to strike plaintiff, inflicting the injury complained of. Held a question for the jury whether defendant should not, in the exercise of proper care, have anticipated some such accident as the result of the combination of high speed and a displaced trolley and have taken measures to prevent it. (*Donohue v. Public Service Ry. Co.*, 78 At. Rep. 183.)

New Jersey.—Cars Running by Gravity.

It is negligence to turn loose a train of cars on an incline, with knowledge that they will run over a street crossing, without giving warning of their approach. (*Hackman v. Lehigh Valley R. Co. of New Jersey*, 78 At. Rep. 686.)

New Jersey.—Authority of Conductor—Employment of Physician.

A printed rule of the trolley company required the conductor of a car in case an accident should occur to take the injured person to a physician. The motorman having met with an accident by which his leg was crushed, the conductor telephoned to the plaintiff, a physician, who came and amputated the limb. Held, that the company was liable on contract to the physician for the value of the service thus rendered. (*Perkins v. Trenton St. Ry. Co.*, 78 At. Rep. 666.)

New York.—Ejection of Intoxicated Passenger.

Plaintiff's intestate, on a cold night in winter and when badly intoxicated, boarded an interurban car on defendant's electric line. The conductor collected his fare but afterward ejected him at a point three-quarters of a mile from any shelter and where the snow was 2½ ft. deep, and he was struck and killed by the returning car. Held, in an action to recover for his death, that, whether or not defendant had the abstract legal right to eject him, it was liable if it failed to exercise reasonable care for his safety in doing so, in view of his known condition, which was a question for the jury. (*Donovan v. Greenfield & T. F. St. Ry. Co.*, 183 Fed. Rep. 526.)

New York.—Care Required When Passengers Attempt to Board Moving Car.

Where a person attempts to board a moving train of cars the gates of which are closed, and seizes hold of a part of the car and gets one or both feet on the lower step, the guard is not obliged to do the best that a man of good judgment would do, but it is his duty to do what such a person of ordinary judgment and prudence would do in an effort to save such person from the consequences of his own negligent act. (*Sheehan v. Nassau Electric R. Co.*, 128 N. Y. Sup. 545.)

New York.—Damages for Death of Artist.

In an action for death, it appeared that decedent was forty-six years old and perfectly well save for shortsightedness and a slight deafness in damp weather, that he left a widow and two children, both of whom were under two years of age, that he earned from \$75 to \$100 a week, from which he gave his wife \$72 to \$75, and that he was an excellent musician who had earned the reputation of an artist. Held, that a verdict of \$30,000 was not excessive. (*Zucker v. Whitridge*, 128 N. Y. Sup. 233.)

New York.—Time to Alight—Jumping from Moving Train.

Where a carrier either did not stop the train on which

decedent was riding at all at the station where he desired to alight or did not stop for a sufficient length of time to enable him to get off while the train was stationary, decedent was not per se negligent in alighting while the train was moving slowly. (*Puget Sound Electric Ry. v. Felt et al.*, 181 Fed. Rep. 938.)

North Dakota.—Negligence and Contributory Negligence.

Unless the negligence of the plaintiff proximately contributes to the injury it does not constitute contributory negligence which bars a recovery. The party who last has a clear opportunity of avoiding the accident, notwithstanding the negligence of his opponent, is considered solely responsible for it.

One driving along the street railway track in daylight has the right to suppose that if a car is approaching from the rear a proper lookout is maintained and that ordinary care will be exercised to avoid injuring him. (*Acton v. Fargo & Moorhead St. Ry. Co.*, 129 N. W. Rep. 225.)

Ohio.—To Stone a Street Car an Offense.

A statute may include by inference a case not originally contemplated when it deals with a genus within which a new species is brought. Thus a statute making it unlawful wilfully to throw a stone at a railroad car includes an interurban or traction railway car, although such cars were not known or in use at the time the statute was enacted. (*State v. Cleveland*, 93 N. E. Rep., 467.)

Pennsylvania.—Collision with Fire Engine.

In an action for injuries to a passenger by collision at an intersecting street crossing with a fire engine, the exclusion of a rule of the company requiring cars to stop while fire engines are passing and of an ordinance requiring cars to stop at the near side of main streets is not reversible error, where the court in its instructions places as high a degree of care on the motorman as that imposed by the rule and the ordinance and there is no evidence that failure to observe either was the cause of the accident. (*Fane et al. v. Philadelphia Rapid Transit Co.*, 77 At. Rep. 806.)

Pennsylvania.—Damages for Future Pain.

In an action for personal injuries, the court should instruct the jury that the verdict should be limited to compensation, and an instruction to allow "the present worth of pain, if any is likely to be suffered in the future," is erroneous. (*McLane v. Pittsburgh Rys. Co.*, 79 At. Rep. 237.)

Texas.—Passengers—Commencement of Relations.

Where a person, without giving any signal, attempts to board a street car at a place where it slows down for a switch but does not stop, the car company's servants owe him no duty as a passenger. (*Gildemeister v. San Antonio Traction Co.*, 135 S. W. Rep. 1097.)

MISCELLANEOUS

Alabama.—"Fellow Servants"—Who Are.

A motorman on one car of a street railroad is a "fellow servant" of a conductor on another car of the same railroad operating cars over the same lines, as both work for the same master over the same lines and for the same purpose.

A street railway may not make a schedule for the car of a motorman and also make a rule which makes the schedule impossible under usual and ordinary conditions and then hold the motorman negligent in doing what is necessary to make the schedule. (*Birmingham Ry., Light & Power Co. v. Moseley*, 51 So. Rep., 424.)

Iowa.—Duty to Keep Street Safe During Repairs.

A street railway company is bound to construct and maintain its track and roadbed with reference to the surface of the street and in such manner as not to obstruct or render the street unsafe for ordinary travel, so that where its track projects above the surface it cannot insist that travelers keep off that part of the road to avoid injury to the track. (*Citizens' Ry. & Light Co. v. Forepaugh & Sells Bros. Shows*, 128 N. W. Rep., 357.)

Kentucky.—Master and Servant—Master's Rules.

While the fact that a rule is not in the employees' book of rules is not conclusive that it is not in force, a purported rule of a street car company was properly excluded, where it had been omitted from the latest revision of the rules and there was nothing to show that it was then in force. (*Poillon's Administrator v. Louisville Ry. Co.*, 131 S. W. Rep. 906.)

News of Electric Railways

The Municipal Election in Cleveland

Newton D. Baker has been elected Mayor of Cleveland, Ohio. The election of Mr. Baker is said to have been due to two causes: the personal popularity of the man himself and the failure of the present administration to accomplish as much as was expected of it. Mr. Baker was a close friend of the late Mayor Johnson, and served as city solicitor for several terms under Mr. Johnson. He is in favor of municipal ownership of public utilities and advocated a bond issue of \$2,000,000 for municipal electric light plants. This issue he succeeded in having carried at the recent election. During his campaign Mr. Baker announced that he would not reappoint G. M. Dahl as street railway commissioner.

Carl Nau, formerly city treasurer of Cleveland, and at present a member of the firm of Nau, Rusk & Sweringer, accountants, has been mentioned for the office of street railway commissioner. Mr. Nau is quoted as saying that he will not accept an appointment that will require him to sever his connection with the firm of which he is a member. On the other hand, it is stated that the firm may be engaged as accountants for the office. Ernst & Ernst are now the official accountants for the city under a fee of \$500 per month. Peter Witt, formerly city clerk, is a candidate for the place now held by Mr. Dahl. Mr. Witt is a radical in his desire to regulate public utilities. Another candidate for the office of street railway commissioner is William Stage, who was connected with the Forest City Railway Company, which was promoted by Mayor Johnson.

The amendments to the Taylor franchise were carried by a large vote. As a result the Cleveland Railway is arranging to expend \$2,500,000 for improvements. Additions to the power equipment and the purchase of new cars will probably be considered first.

S. M. Bond, chairman of the wholesale merchants' board of the Cleveland Chamber of Commerce, and Charles E. Adams, president of the chamber, have conferred with Mayor Baehr in regard to establishing freight service on the interurban electric railways which operate into Cleveland. The plan under consideration is to have the Electric Package Agency handle freight as well as express. Trains of from two to five cars would be loaded in the city in the evening and leave at night so as not to interfere with the service of the Cleveland Railway or the service of the interurban lines during the day. The consent of the City Council will have to be secured before a freight service can be started. It is probable that the matter will be placed before the Council soon.

Preparing the Detroit Ordinance

The various civic organizations of Detroit, Mich., are engaged in determining their position with regard to the Thompson plan of settling the street railway question. Many citizens believe the city is not ready for such a radical municipal ownership move as the new ordinance contemplated. On the evening of Nov. 9, 1911, the Detroit Real Estate Board adopted a resolution favoring the Thompson plan. Many of the members of the North Woodward Residents' Association also favor the Thompson plan. Objection is made occasionally to the city assuming the expense of paving between the tracks and to the municipal ownership provision. One objection which is raised is that the ordinance does not provide for the extension of the low fare to the city limits as extended.

Mayor Thompson is of the opinion that \$200,000 a year is a very liberal allowance for paving expenses. Even if that amount should be required, he argues that with the taxable valuation of the property of the city \$500,000,000 the per capita expense would be insignificant. In 1910 the expense of the company for paving was \$239,048 on 15 miles of track. This was very unusual because little paving had been done for several years previous.

Although Mayor Thompson, Corporation Counsel Hally and others have worked earnestly on the preparation of

the ordinance it has not yet been completed. A. B. du Pont, Cleveland, was called into conference on Nov. 9.

Attorney Donnelly, representing the company, prepared an ordinance embodying all the points in the tentative agreement. The work now to be done is to reconcile the language of Mr. Donnelly's draft and the one written by Corporation Counsel Hally.

Negotiations in Toledo Interrupted by Election

The plurality of Mayor Whitlock of Toledo at the recent election was more than 3000, a reduction over the votes given him at previous elections. It is not known when negotiations for the settlement of the street railway question will be resumed. Some time ago A. E. Lang, president of the Toledo Railways & Light Company, announced that he was ready to continue the negotiations, but nothing has since been done.

W. W. Miller, attorney for the bondholders of the company, was in Toledo recently. In an interview he is reported to have said that burdens such as improvements between the tracks, repairs to pavements, cleaning and sprinkling parts of the streets, taxes, etc., have to be met with money in the shape of fares secured from the passengers. Mr. Miller has been preparing plans to meet the issue of \$5,000,000 of bonds which expires in January, 1912, and \$700,000 in February, 1912. He said that no definite plans had been made in regard to improvements to be carried out in 1912.

Transit Matters Before the Council of Pittsburgh

A hearing was held before the Council of Pittsburgh, Pa., on Nov. 9, 1911, at which the subject of subways was considered. Representatives of the Pittsburgh Subway Company, the Rapid Transit Subway Company and the Pittsburgh Railways were present. A fourth subway plan was submitted by a new corporation known as the United Terminal System, incorporated under the title of the Painter's Run Railroad. A. E. Anderson, who represented this company, presented a plan for a downtown loop to connect with all the railroad terminals. Representatives of each of the companies agreed to present in writing a statement of how they expect to finance their respective projects. It was agreed that they should show their financial responsibility and file a bond.

J. D. Callery, president of the Pittsburgh Railways, asked for an extension of at least thirty days for his company to present the plans which the company has in contemplation for improving its system. Mr. Callery said:

"Plans are now well under way for a short subway, including a tunnel through Herron Hill and other connections including a downtown loop. We do not at this time feel that a long subway would justify us for the expenditure, entailing, as it would, an outlay of millions of dollars. We estimate that a subway would cost approximately \$2,000,000 per mile, including equipment."

The Council subsequently passed a resolution directing the president of the Council to write to the Pittsburgh Railways to learn when another conference can be held between the officers of that company and the Council to consider the local traction situation and work out plans of improvements and extensions.

Extension of Authority of Chicago Subway Commission Recommended.—Mayor Harrison of Chicago urged the City Council on Nov. 13, 1911, to authorize the present subway engineering commission to draw plans for the proposed harbor improvements at Chicago instead of creating a separate commission for this work. Action on the recommendation was postponed.

Bids Opened for Short Subway in Toronto.—The Board of Control of Toronto, Ont., opened tenders recently for building three miles of underground railway in the city. The tenders ranged from \$5,000,000 to \$2,600,000. The latter was the tender of M. J. Haney, and this was accepted subject to ratification by the Council. The question will be

submitted to the ratepayers after it has been passed upon by the Council.

Hearing in Regard to Change of Power on Staten Island.—A hearing will be held before Commissioner Cram of the Public Service Commission of the First District of New York, on Nov. 23, 1911, to determine whether an order should be entered by the commission to require the Staten Island Rapid Transit Railway and the Staten Island Railway, both operated by the Baltimore & Ohio Railroad, to change the motive power of their lines from steam to electricity.

Canadian Northern Railway to Build Tunnel at Montreal.—At the forthcoming session of the Dominion Parliament, the Canadian Northern Tunnel & Terminal Company will apply for authority to construct and operate a railway tunnel under Mount Royal at an estimated cost of \$25,000,000. The tunnel will give the Canadian Northern Railroad easy access to Montreal and do away with the slow handling of trains around the mountain. The line will be three miles long. Sir William MacKenzie is president of the Canadian Northern Tunnel & Terminal Company.

To Remove Unused Surface Car Tracks in New York.—Justice Pendleton has rendered a decision permitting the city to remove the unused horse car tracks of the Fulton Street Railroad in Fulton Street, New York, N. Y. The bondholders of the Fulton Street Railroad have brought a suit against the receivers of the Metropolitan Street Railway to compel the latter to keep the tracks in repair, but Justice Pendleton decided that the removal of the tracks should not be delayed until this action was settled. He held that the removal would not interfere with any rights of the bondholders.

Accidents on Brooklyn Elevated Railway.—Fifteen persons were injured early on the morning of Nov. 13, 1911, when a West End elevated train on the Brooklyn Rapid Transit Company collided with a Bay Ridge train at the Twenty-fifth Street elevated station. There was a dense fog the morning the accident occurred. The company issued the following statement: "The motorman of the West End-Culver train is wholly at fault, inasmuch as he failed to make a safety stop before going into the Twenty-fifth Street station, as is required by the rules, under such conditions as obtained this morning."

Subway in Seventh Avenue, New York, Considered Again.—Samuel Rea, vice-president of the Pennsylvania Railroad; Mayor Gaynor of New York, Borough President McAneny, Comptroller Prendergast, Chairman Willcox of the Public Service Commission of the First District of New York and ex-Mayor Seth Low of New York conferred recently in regard to increasing the scope of the present subway plans in New York so as to provide for a subway down Seventh Avenue. It is said that Mayor Gaynor favored giving the Interborough Rapid Transit Company another opportunity to make an offer to the city, but Chairman Willcox and President McAneny were not inclined to reopen the subway situation unless there was some chance for a more favorable arrangement with the city.

Appropriation Asked for Grade Crossing Work in New York State.—The Public Service Commission of the Second District of New York in submitting to the comptroller its estimate of amounts necessary to carry on its work for the next fiscal year, has asked for an appropriation of \$550,000, to eliminate grade crossings in the State outside of Greater New York. This would provide for grade crossing elimination in the district amounting to \$2,200,000, the cost being divided between the railroads one-half, the State and municipalities one-quarter each. In its communication submitting this request, the commission said: "The commission asks this year for \$550,000, and feels that the State's proportion of the eliminations which should be ordered during the year 1912 should at least reach this amount. As to the necessity of eliminating grade crossings, it submits no argument and believes that none is necessary. Both of the great political parties in their platforms of 1910 called attention to the necessity for extension of the work of grade crossing elimination and the commission believes there should be no reduction in the amount asked for in this item of the supply estimates."

Financial and Corporate

New York Stock and Money Markets

November 15, 1911.

While mild reaction on the New York Exchange followed the recent announcement of the Government suit against the Steel Corporation, and the volume of trading was curtailed, public interest in both the stock and bond markets is now increasing and prospects seem very good despite the present irregularity. The presidential election, tariff legislation and further suits under the Sherman law continue as topics of interest in financial circles. Rates in the money market are practically unchanged. Quotations to-day were: Call, 2¼@2¾ per cent; ninety days, 3@3½ per cent.

Other Markets

Traction shares have been the features of the Chicago market the present week and to-day Chicago Elevated Railways preferred sold at 94, a gain of one point. Other shares declined slightly. Trading was in moderate volume.

Nothing significant took place to-day on the Philadelphia Exchange. Yesterday's market was weak. Philadelphia Rapid Transit, Union Traction and Lehigh Valley Transit shares declined slightly.

Prices in Boston have been irregular and trading has been quiet. Copper shares declined to-day in sympathy with the drop in the price of the metal.

Aside from active trading in Seaboard Air Line, the Baltimore market has been very dull this week.

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

	Nov. 8.	Nov. 15.
American Light & Traction Company (common)....	a296	a295
American Light & Traction Company (preferred)....	a107	a107
American Railways Company.....	a44	a45 ½
Aurora, Elgin & Chicago Railroad (common).....	40	a40
Aurora, Elgin & Chicago Railroad (preferred).....	a84 ½	83 ½
Boston Elevated Railway.....	a127 ½	a128 ½
Boston Suburban Electric Companies (common).....	a15	a15
Boston Suburban Electric Companies (preferred).....	a75	a75
Boston & Worcester Electric Companies (common)....	a8	a13
Boston & Worcester Electric Companies (preferred)....	a58	a58
Brooklyn Rapid Transit Company.....	77 ½	77 ¾
Brooklyn Rapid Transit Company, 1st ref. conv. 4s....	84 ½	85 ½
Capital Traction Company, Washington.....	125	a127
Chicago City Railway.....	180	a180
Chicago & Oak Park Elevated Railroad (common)....	3	3
Chicago & Oak Park Elevated Railroad (preferred)....	5	5
Chicago Railways, pteptg., ctf. 1.....	a98	a98
Chicago Railways, pteptg., ctf. 2.....	a34	a33 ½
Chicago Railways, pteptg., ctf. 3.....	a11	a11 ½
Chicago Railways, pteptg., ctf. 4.....	a6 ½	a7
Cincinnati Street Railway.....	129 ½	a131
Cleveland Railway.....	a104 ½	a103 ¾
Columbus Railway (common).....	83	83
Consolidated Traction of New Jersey.....	a75 ½	a75 ½
Consolidated Traction of N. J., 5 per cent bonds.....	a104 ½	a104 ½
Dayton Street Railway (common).....	a25	a25
Dayton Street Railway (preferred).....	a101	a101
Detroit United Railway.....	a79	85
General Electric Company.....	153 ¾	152 ½
Georgia Railway & Electric Company (common)....	a160	a159
Georgia Railway & Electric Company (preferred)....	a93	a93
Interborough Metropolitan Company (common)....	14 ¾	14 ¾
Interborough Metropolitan Company (preferred)....	46	46
Interborough Metropolitan Company (4½s).....	79 ½	79 ½
Kansas City Railway & Light Company (common)....	*16 ¼	*16 ¼
Kansas City Railway & Light Company (preferred)....	a44	a44
Manhattan Railway.....	a140	a138
Massachusetts Electric Companies (common).....	a22	a21 ½
Massachusetts Electric Companies (preferred).....	a94 ½	a94
Metropolitan West Side, Chicago (common).....	*27	*27
Metropolitan West Side, Chicago (preferred).....	*75	*75
Metropolitan Street Railway, New York.....	*8	*8
Milwaukee Electric Railway & Light (preferred)....	*110	*110
North American Company.....	a73	a73
Northern Ohio Light & Traction Company.....	a57 ½	a57 ½
Northwestern Elevated Railroad (common).....	*30	*30
Northwestern Elevated Railroad (preferred).....	*70	*70
Philadelphia Company, Pittsburgh (common).....	a53 ¾	a53 ¾
Philadelphia Company, Pittsburgh (preferred)....	a43	a43
Philadelphia Rapid Transit Company.....	a23 ¾	a23
Philadelphia Traction Company.....	84 ¾	a84 ½
Public Service Corporation, 5% col. notes (1913)....	*94	*94
Public Service Corporation, cfs.....	a10	a112
Seattle Electric Company (common).....	a108	a108
Seattle Electric Company (preferred).....	a101	a101 ½
South Side Elevated Railroad (Chicago).....	*95 ¾	a95 ¼
Third Avenue Railroad, New York.....	11	11 ½
Toledo Railway & Light Company.....	10	10
Twin City Rapid Transit, Minneapolis (common)....	a108	a106
Union Traction Company, Philadelphia.....	a51 ¾	a51 ½
United Ry. & Electric Company (Baltimore).....	18 ½	18 ½
United Rys. Inv. Co. (common).....	35	35
United Rys. Inv. Co. (preferred).....	60 ½	61 ½
Washington Ry. & Electric Company (common)....	a43 ¾	a44
Washington Ry. & Electric Company (preferred)....	a90	a89 ½
West End Street Railway, Boston (common).....	a88	a87
West End Street Railway, Boston (preferred).....	a102	a103 ½
Westinghouse Elec. & Mfg. Co.....	65	65
Westinghouse Elec. & Mfg. Co. (1st pref.).....	a115	a118

a Asked. *Last sale.

ANNUAL REPORTS

Virginia Railway & Power Company

The statement of earnings and expenses of the Virginia Railway & Power Company, Richmond, Va., for the year ended June 30, 1911, as contained in the pamphlet report of the company follows:

Gross earnings.....	\$2,244,589
Income from miscellaneous sources.....	46,296
	<hr/>
	\$2,290,885
Operating expenses (including taxes and depreciation).....	1,284,980
	<hr/>
	\$1,005,905
Bond interest.....	\$484,440
Car trust interest.....	2,100
Sinking fund contributions.....	10,625
Other interest.....	490
	<hr/>
	497,655
Net income.....	\$508,249
Less direct charges:	
Dividends on preferred stock.....	\$228,652
Discount on sale of preferred stock and bonds and premium on bonds purchased by trustees for sinking funds.....	48,665
Miscellaneous.....	2,832
	<hr/>
	\$280,149
Credits:	
Adjustment of sinking fund instalments of underlying companies.....	\$53,974
Miscellaneous.....	5
	<hr/>
	\$53,979
	<hr/>
	226,170
Surplus.....	\$282,079

William Northrop, president, says in part in the report:

"On Feb. 20, 1911, all of the outstanding certificates of the Virginia Passenger Car Trust Association, aggregating \$36,000, a lien upon twenty-two double-truck cars operated by this company, were purchased and the car trust agreement securing the same released of record, and the title to the said cars covered by this agreement passed to the company.

"On April 10, 1911, the company sold \$2,600,000 par value of its first and refunding mortgage 5 per cent gold bonds. The proceeds of these bonds were used to reimburse the treasury of the company for expenditures previously made for additions to the property, the payment of liens and valid obligations as provided under the terms of the said mortgage and for the purpose of purchasing and retiring through the sinking funds of the Richmond Traction Company and Virginia Electrical Railway & Development Company mortgages all of the outstanding bonds secured by said mortgages.

"On May 8, 1911, the company purchased 3,201 2-3 shares of the capital stock of the Old Dominion Iron & Nail Works Company, of an issue of 3355 shares, of a par value of \$100 each, at a cost of \$219,000, for which this company paid \$253,512.50 par value of its preferred treasury stock at \$5, and the balance in cash. The Old Dominion Iron & Nail Works Company successfully operates extensive iron works upon Belle Isle, located in the James River opposite Richmond, appurtenant to which are very valuable water rights. It was deemed advisable to secure these water rights in order to give your company additional water-power so as to provide for the immediate and growing power requirements and to avoid impending litigation affecting your company's existing water rights. The purchase of the stock with preferred stock of this company was approved by the stockholders.

"On Oct. 3, 1910, Highland Park, Incorporated, a suburb of Richmond, offered for sale at public auction a thirty-year franchise granting to the successful bidder the privilege of conducting an electric light and power business, which franchise was acquired by this company. The business thus far secured is most gratifying, and it is believed will steadily increase.

"In July, 1910, one of the three Cockade Mills, in Petersburg, Va., owned by the company, was partially destroyed by fire. A satisfactory insurance adjustment was made and the property rebuilt. This was the only important fire which occurred during the year.

"The properties of the company have been maintained throughout the year at a high standard of efficiency.

"The wages of motormen and conductors were, on Jan. 1, 1911, increased from 16 2-3 cents minimum and 20 cents maximum to 18 cents minimum and 22 cents maximum per

hour. The wages of transportation department employees were increased approximately 10 per cent, and an increase was also made to the light and power department employees.

"Owing to the many improvements to property during the year, the construction of fireproof buildings for housing cars and the remodeling of old buildings, the insurance premiums on the new schedule, which became effective July 1, 1911, decreased the total premium approximately 47 per cent.

"The fire insurance carried as of June 30, 1911, amounted to \$1,862,425, and the annual premium thereon to \$20,374, an average rate of \$1.09 per \$100. Under the new schedule the insurance in effect amounts to \$1,946,270, and the annual premium thereon to \$10,840, an average rate of 56 cents per \$100.

"During the year \$75,000 was charged against operating expenses for depreciation and cash to that amount set aside as a special deposit, making a total to the credit of this fund in cash as of June 30, 1911, of \$125,000. The amount charged to operating expenses and set aside this year is an increase of \$25,000 over the previous year. This depreciation fund is carried in the bank as a separate cash account, and charges against the same are made only with the approval of the board of directors or executive committee.

"On May 22, 1911, the board of directors entered into an agreement of merger and consolidation with the board of directors of the Norfolk & Portsmouth Traction Company whereby the Norfolk & Portsmouth Traction Company was merged with and into the Virginia Railway & Power Company, as provided by the laws of Virginia. This agreement was approved by the stockholders of this company at a special meeting held on June 24, 1911, and became effective, in accordance with its terms, on July 1, 1911."

Traffic statistics for the fiscal year ended June 30, 1911, compare as follows with traffic statistics for the year ended June 30, 1910:

	Year Ended June 30, 1910.	Year Ended June 30, 1911.
Revenue passengers.....	32,298,480	35,027,263
Transfers and passes.....	12,993,051	14,403,543
Total passengers.....	45,291,531	49,430,806
Percentage of passengers using transfers.....	28.22	28.77
Average fare per passenger, including transfers.....	.032	.031
Car mileage.....	6,827,159	7,010,151
Car hours.....	834,996	856,320
Passengers per day.....	124,086	135,427
Passenger receipts per car mile.....	21.0	22.2
Passenger receipts per car hour.....	\$1.72	\$1.82

Boston & Worcester Electric Companies

The statement of the Boston & Worcester Electric Companies for the year ended June 30, 1911, shows a total income of \$20,239, consisting of interest on notes and other miscellaneous income. This compares with a total income of \$60,210 in the year ended June 30, 1910, when a dividend payment of \$30,375 was received on Boston & Worcester Street Railway shares owned. Disbursements in the fiscal year 1911 were as follows: Interest on \$300,000 notes, \$15,855; miscellaneous expenses, \$1,829; total, \$17,684. The disbursements were larger in the preceding year, including \$33,936 paid as dividends on the preferred stock. The surplus for 1911 was \$2,555. With a surplus of \$6,214 carried forward and miscellaneous credits to surplus of \$5,121 the total surplus as of July 1, 1911, was \$13,890.

William M. Butler, the president, said in part in his statement to the shareholders:

"From the comparative operating statements of the street railway company, it appears that the gross earnings for the year have increased \$45,436, a gain of about 8 per cent over the corresponding twelve months of the previous year. In this connection it should also be stated that the earnings per car hour on the main line increased from \$7.12 to \$8.26, and per car mile from 34 cents to 38½ cents, which results are most gratifying.

"As anticipated in the report of last year, the limited service between Boston and Worcester has continued to stimulate the through business, which has increased to the extent of 47,000 through passengers over the previous year.

"The expenses of transportation for the year were practically the same as the previous year. The expense of maintenance, however, shows an increase of something over \$16,-

ooo. Most careful attention has been given to the maintenance of the property for the past year, and every effort is being made to keep the track and roadway in first-class condition, and the equipment in a high state of efficiency. The block signal system is being rapidly extended to all parts of the railway, thereby improving the service and eliminating the possibility of accidents.

"The street railway company, during the year, has continued the work of double tracking its main line, and during the month of August, 1911, has completed the laying of its double track, so that the company will hereafter obtain the advantages which a through line of double track should afford in operating convenience and economy of time. The work on the highways at Framingham, in connection with the last section of the double tracking, will be completed within the next sixty days. The expenditures incident to the building of this last portion of double track will complete the outlay for new track construction on the company's property.

"The street railway company during the year sold \$397,200 of 6 per cent preferred stock to bankers; \$297,000 of this preferred stock has been delivered and a major portion of the proceeds used to purchase at par \$297,000 of common stock of the street railway company held and owned by the trust, thereby providing the trust with sufficient funds to retire the \$300,000 three-year 6 per cent notes issued July 1, 1908, and maturing July 1, 1911, leaving the trust free from liabilities of every kind.

"The balance of \$100,200 of preferred stock will be delivered to the bankers some time before Jan. 1, 1912, and the proceeds used to reimburse the treasury for expenditures for additional equipment and for the completion of the double tracking through the center of Framingham.

"The street railway company has no floating debt except \$300,000 of notes payable, held by the trust, and has an ample supply of cash on hand for its requirements.

"At the regular June meeting of the trustees no action regarding a dividend was taken. While the surplus earnings had accumulated sufficiently so that a dividend could have been paid, it was the unanimous decision of the trustees that it was for the best interests of the property and of the shareholders to allow a further accumulation of surplus earnings before the resumption of dividends."

A statement of operations of the Boston & Worcester Street Railway for the years ended June 30, 1911, and June 30, 1910, shows the following:

Year ended June 30:	1911.	1910.
Revenue from transportation.....	\$608,034	\$563,694
Miscellaneous revenue.....	7,652	6,451
Total revenue.....	\$615,686	\$570,145
Expenses of operation:		
Conducting transportation.....	\$175,637	\$175,822
For maintenance.....	121,906	105,765
For general expense.....	58,312	51,725
Total expense of operation.....	\$355,855	\$333,312
Net revenue above operation.....	\$259,831	\$236,833
Interest on funded and floating debt and taxes.....	165,364	176,123
Net surplus for year.....	\$94,467	\$60,710
Dividends paid during year.....	0	30,375
Surplus for year after dividends.....	\$94,467	\$30,335

Action Postponed on Increase in Stock of Columbus Railway

On account of dissatisfaction with the report of the special committee appointed some time ago to investigate the relations between the Columbus Railway & Light Company and the Columbus (Ohio) Railway, action on the proposed increase of the capital stock of the Columbus Railway was postponed from Nov. 11, 1911, to Jan. 11, 1912, the date of the annual meeting of the companies. The committee and the directors of the Columbus Railway & Light Company reached an agreement on the report and recommendations previous to the meeting on Nov 11, but leading stockholders objected when the report and recommendations were read. They objected especially to the proposed assessment of \$10 per share upon the stock of the Columbus Railway & Light Company.

Experts who examined the property reported that it was well maintained and operated, while the facilities for transportation were efficient in every way. Ernst & Ernst, ac-

countants, reported that the records were complete and correct. There were differences of opinion, however, as to whether certain charges should have been made against the original or the leasing company.

The committee recommended an independent board of directors for the Columbus Railway to consist of nine members instead of five. Another recommendation provided that all disputes between the two companies should be settled by the boards elected for the companies at the annual meetings, and that the accounts should be audited every year. An auditor-engineer was suggested for the Columbus Railway to aid the directors in caring for its business.

An agreement to adjourn the meeting to Jan. 11, 1912, was reached on the understanding that the call for the meeting for Jan. 11, 1912, would include a statement that, in addition to voting to increase the capital stock of the company \$3,000,000, the stockholders will also vote upon an increase of \$1,000,000, as recommended by the committee.

Gross Earnings of Ohio Roads

According to the certification of the Ohio State Tax Commission to the state auditor, made on Nov. 11, 1911, the gross earnings of the street and interurban railways of Ohio for the year ended June 30, 1911, were increased \$2,595,852 over the preceding year. For 1910 the gross earnings of the companies were \$33,143,942, while for 1911 they were \$35,739,794. The figures indicate that the people of Columbus were deprived of a reduction in fare as a result of the strike on the lines of the Columbus Railway & Light Company in the summer of 1910. The company is now selling seven tickets for a quarter and would have increased the number to eight had the gross earnings reached \$1,750,000 for the year. In 1910 the earnings were \$1,725,164. As a result of the strike, however, the earnings were only \$1,511,879. The gross earnings of the Cleveland Railway for 1910 were \$6,371,656, while in 1911 they were \$6,341,963. The gross earnings for the year ended June 30, 1911, and June 30, 1910, of the principal companies in the State as certified to the state auditor by the tax commission follow:

	1910.	1911.
Cincinnati Traction Co.....	\$4,834,451	\$5,045,387
City Railway, Dayton.....	593,871	650,934
Cleveland, Painesville & Eastern Railway.....	330,301	365,358
Cleveland, Painesville & Ashtabula Railroad.....	939,275	1,097,533
Columbus Railway & Light Co. (operating Columbus Traction Co.....	232,976	211,083
Columbus Railway & Light Co. (operating Columbus Railway).....	1,725,164	1,511,879
Cleveland & Eastern Traction Co.....	265,214	184,782
Cleveland & Erie Railway.....	6,466	704
Cleveland, Youngstown & Eastern Railway.....	89,121	106,098
Cleveland Railway.....	6,371,636	6,341,963
Detroit, Monroe & Toledo Short Line Railway.....	14,376	16,687
Lake Erie, Bowling Green & Napoleon Railway.....	53,195	52,674
Lake Shore Electric Railway.....	944,134	1,074,535
Mansfield Railway, Light & Power Co.....	204,214	223,360
Maumee Valley Railway & Light Co.....	77,352	68,990
Ohio Traction Co.....	203,080	1,129,582
Sandusky, Norwalk & Mansfield Electric Railway..	75,645	76,362
Springfield & Xenia Railway.....	66,740	71,378
Springfield Railway.....	293,096	317,366
Stark Electric Railway.....	242,705	262,505
Springfield, Troy & Piqua Railway.....	101,874	109,112
Springfield & Washington Railway.....	17,729	23,299
Toledo, Postoria & Findlay Railway.....	151,669	180,422
Toledo & Indiana Railway.....	198,986	207,808
Toledo, Ottawa Beach & Northern Railway.....	15,209	18,377
Toledo Railways & Light Co.....	2,867,619	3,113,019
Toledo, Port Clinton & Lakeside Railway.....	182,112	217,209
Toledo, Bowling Green & Southern Traction Co..	324,808	342,389
Toledo & Western Railroad.....	58,818	105,323
Youngstown Park & Falls Street Railway.....	114,390	141,337

Purchase of Control of Green Bay Companies by Clement C. Smith Interests

The following official statement has been issued in regard to the purchase of a controlling interest in the Green Bay Traction Company, Green Bay Gas & Electric Company and the Northern Hydroelectric Power Company, Green Bay, Wis., by Clement C. Smith, president of the Eastern Wisconsin Railway & Light Company, Fond du Lac, Wis., and the Wisconsin Electric Railway, Oshkosh, Wis., and his associates:

"Negotiations which have been carried on between J. H. Emmert, Detroit, Mich., representing A. M. Murphy and Frank Murphy, Green Bay, and William H. Murphy and the Murphy estate, Detroit, Mich., who control the Green Bay Traction Company, the Green Bay Gas & Electric

Company and the Northern Hydroelectric Power Company, and Clement C. Smith, representing himself and Milwaukee capitalists, have resulted in a contract being signed by which the interests represented by Mr. Smith will acquire control of the three properties at Green Bay.

"The Green Bay Traction Company and the Northern Hydroelectric Power Company are to be consolidated under the name of the Wisconsin Public Service Company. Pending the carrying out of the contract providing for the reorganization of the companies and the various financial and legal matters which are involved the management of the properties has been turned over to Mr. Smith and his organization, and he took charge of the properties on Nov. 4, 1911. The general management of the companies will be directed through Mr. Smith's office in Milwaukee in connection with the Eastern Wisconsin Railway & Light Company, the Wisconsin Electric Railway, the Lee County Lighting Company, the Sterling, Dixon & Eastern Electric Railway and the Winona Railway & Light Company and all of the purchasing and accounting will be through this office, but there is no financial connection between the companies at Green Bay and any of the foregoing except through Mr. Smith's interest in the several companies.

"The Green Bay Traction Company operates the street railways in Green Bay, the interurban railway on the east side of the Fox River to Depere and the interurban railway on the west side of the river to Kaukauna, embracing in all about 43 miles of street and interurban railway. At Kaukauna the cars of the Green Bay Traction Company connect with those of the Wisconsin Traction, Light, Heat & Power Company operating to Neenah-Menasha, a distance of 15 miles. At Neenah the cars of the Wisconsin Traction Company connect with those of the Wisconsin Electric Railway and the Eastern Wisconsin Railway & Light Company running through from Neenah to Fond du Lac, a distance of 33 miles. There is at present no plan for through operation from Fond du Lac to Green Bay."

Bristol (Tenn.) Traction Company.—The Bristol Belt Line Railway, which as noted in the *ELECTRIC RAILWAY JOURNAL* of Oct. 7, 1911, page 678, filed with the Secretary of State of Tennessee an amendment to its charter changing the name to the Bristol Traction Company and increasing the capital stock from \$100,000 to \$300,000, has filed a mortgage to the United States Trust Company, Washington, D. C., as trustee, to secure an issue of \$300,000 of 5 per cent bonds, dated Oct. 1, 1911, but callable at 105. The present issue of these bonds is \$147,000. The company owns the former Bristol Belt Line and the entire capital stock of the Holston Valley Railway, running from Bristol to Big Creek Park, on the Holston River, and has 17 miles of line in operation and 3 miles of new track under construction.

Buffalo & Lake Erie Traction Company, Buffalo, N. Y.—George Bullock, president of the Susquehanna Railway, Light & Power Company, New York, N. Y., has been appointed receiver of the Jamestown, Chautauqua & Lake Erie Railway, Jamestown & Chautauqua Railway and the Chautauqua Steamboat Company, which are included in the system of the Buffalo & Lake Erie Traction Company.

Carolina Power & Light Company, Raleigh, N. C.—Pine-gree, McKinney & Company, Boston, Mass., are offering for subscription at 92½ and interest a block of the first mortgage 5 per cent bonds of the Carolina Power & Light Company due on Aug. 1, 1938. The authorized issue of these bonds is \$5,000,000 and the amount issued to date is \$1,290,500.

Chicago (Ill.) City Railway.—The local transportation committee of the Chicago City Council has recommended that the Council pass the ordinance authorizing the Chicago City Railway to take over the property of the Chicago & Southern Traction Company. As stated in the *ELECTRIC RAILWAY JOURNAL* of July 1, 1911, page 63, the deal will be concluded on the basis of a valuation of the property of the company within the city made by Bion J. Arnold and George Weston.

Chicago & Oak Park Elevated Railroad, Chicago, Ill.—Samuel Insull, chairman of the board of directors of the Chicago Elevated Railways and president of the Commonwealth-Edison Company, Chicago, Ill., has been appointed

receiver of the Chicago & Oak Park Elevated Railroad by Judge Kohlsaas, upon application of the Central Trust Company, New York, N. Y.

Elmira Water, Light & Railroad Company, Elmira, N. Y.—The Public Service Commission of the Second District of New York has authorized the Elmira Water, Light & Railroad Company to merge all the property, rights and franchises of the West Side Railroad, Elmira, and transfer all franchises held by the West Side Railroad to the Elmira Water, Light & Railroad Company, which is the owner of all the capital stock of the West Side Railroad and leases all the property of the West Side Railroad.

Grand Valley Railway, Brantford, Ont.—The General Accident, Fire & Light Assurance Company has applied for a receiver for the Grand Valley Railway.

Macon Railway & Light Company, Macon, Ga.—A. B. Leach & Company, New York, N. Y., have concluded negotiations for the purchase of practically all the common stock of the Macon Railway & Light Company and a majority of the stock of the Central Georgia Power Company, and are organizing the Georgia Light, Power & Railways Company as a holding company for the properties previously mentioned and a new gas company which has applied for a franchise in Macon.

Metropolitan Street Railway, New York, N. Y.—The Public Service Commission of the First District of New York has received a letter from Charles F. Mathewson, counsel for the joint committee of bondholders of the Metropolitan Street Railway, asking the commission not to render any decision as yet upon the plan of reorganization of the company. Mr. Mathewson said that the committee contemplates modifying its proposal as to the manner of financing the undertaking when the reorganization is authorized, but did not state the nature of the proposed modification.

Montreal (Que.) Street Railway.—The Public Utilities Commission of the Province of Quebec has granted the application of the Montreal Street Railway and other companies to merge under the title of the Montreal Tramways Company. The terms of this merger were published in the *ELECTRIC RAILWAY JOURNAL* of Oct. 28, 1911, page 964.

Philadelphia Company, Pittsburgh, Pa.—The Philadelphia stock exchange has listed \$486,000 additional first mortgage and collateral trust 5 per cent gold bonds of the Philadelphia Company issued in exchange for \$477,000 of the \$500,000 of 6 per cent bonds of the Allegheny County Light Company, due Aug. 1, 1911, and \$9,000 of bonds of the East End Electric Light Company, deposited with the trustee, making the total listed \$5,986,000.

Rochester Railway & Light Company, Rochester, N. Y.—The Rochester Railway & Light Company has been authorized by the Public Service Commission of the Second District of New York to issue \$1,998,000 of its 5 per cent gold mortgage bonds, dated July 1, 1904, and due July 1, 1954. The bonds are to be issued in exchange, par for par, for the 5 per cent bonds of the Rochester Gas & Electric Company, due Nov. 1, 1912.

Standard Gas & Electric Company, Chicago, Ill.—The Standard Gas & Electric Company, controlled by H. M. Byllesby & Company, has filed in Delaware a certificate of an increase in its authorized capital stock from \$24,000,000 to \$45,000,000. There was outstanding on April 1, 1911, \$7,305,650 of common stock and \$4,214,300 of preferred stock. In addition to the above increase in the company's capital stock a new mortgage has been created authorizing an issue of \$30,000,000 convertible 6 per cent sinking fund gold bonds. It is dated Dec. 1, 1911, and runs to Dec. 1, 1926. The bonds are secured by bonds, stocks and notes of various public service corporations controlled and operated by H. M. Byllesby & Company. The Standard Gas & Electric Company controls through stock ownership a number of public service corporations. The proceeds of the sales of the first block of bonds, \$7,500,000, just sold, are to be used to retire the \$1,850,000 of 6 per cent notes and the \$3,000,000 convertible 6 per cent bonds; \$1,500,000 is to be used to retire purchase money obligations secured by the stock of certain of the company's Colorado properties; about \$500,000 will be used to acquire \$560,000 bonds

(pledged under this issue) from H. M. Bylesby & Company, leaving about \$575,000 for use on extensions of the Colorado properties, of which \$425,000 has been advanced and expended. The balance of the authorized issue of \$30,000,000 is reserved to provide for 75 per cent of cost of purchases of bonds, stocks and other securities to be pledged in the future. A sinking fund beginning Dec. 1, 1913, provides for the retirement of \$1,256,250 of this \$7,500,000 issue before maturity; additional issues of bonds call for a proportionate increase in the amount of the sinking fund. The Philadelphia Trust, Safe Deposit & Insurance Company is trustee.

Winnipeg (Man.) Electric Railway.—A press dispatch from Winnipeg dated Nov. 13, 1911, stated that J. P. Morgan & Company, New York, N. Y., had arranged to finance the purchase of the Winnipeg Electric Railway on the basis of \$300 a share. At the office of Morgan & Company in New York knowledge of the deal was denied.

Dividends Declared

Georgia Railway & Electric Company, Atlanta, Ga., quarterly, 2 per cent, common.
 Northern Ohio Traction & Light Company, Akron, Ohio, quarterly, 3/4 of 1 per cent, common.
 Pacific Gas & Electric Company, San Francisco, Cal., quarterly, 1 1/2 per cent, preferred.
 St. Joseph Railway, Light, Heat & Power Company, St. Joseph, Mo., quarterly 1/2 of 1 per cent, common.

MONTHLY ELECTRIC RAILWAY EARNINGS

AMERICAN RAILWAYS.						
Period.	Gross Revenue.	Operating Expenses.	Net Revenue.	Fixed Charges.	Net Income.	
1 m., Sept., '11.....	\$417,578	.....	.....	.....	.....
1 " " '10.....	392,479	.....	.....	.....	.....
3 " " '11.....	1,288,404	.....	.....	.....	.....
3 " " '10.....	1,228,813	.....	.....	.....	.....
CLEVELAND, PAINESVILLE & EASTERN RAILROAD.						
1 m., Sept., '11.....	\$34,677	\$19,535	\$15,143	\$8,641	\$6,501	
1 " " '10.....	33,647	18,167	15,479	8,116	7,364	
9 " " '11.....	279,593	151,127	128,466	74,375	54,091	
9 " " '10.....	269,381	139,046	130,334	72,607	57,728	
CLEVELAND, SOUTHWESTERN & COLUMBUS RAILWAY.						
1 m., Sept., '11.....	\$107,762	\$57,876	\$49,886	\$30,357	\$19,529	
1 " " '10.....	103,188	56,525	46,662	29,794	16,868	
9 " " '11.....	852,136	476,708	375,428	270,793	104,636	
9 " " '10.....	791,460	458,061	333,399	268,145	65,254	
DETROIT UNITED RAILWAY.						
1 m., Sept., '11.....	\$929,195	\$595,253	\$333,943	\$177,196	\$156,747	
1 " " '10.....	857,442	540,052	317,391	178,802	138,588	
9 " " '11.....	7,758,304	4,887,243	2,871,061	1,588,690	1,282,371	
9 " " '10.....	7,141,186	4,485,425	2,655,761	1,511,120	1,144,640	
EAST ST. LOUIS & SUBURBAN RAILWAY.						
1 m., Sept., '11.....	\$197,030	\$104,871	\$92,159	.....	.....
1 " " '10.....	211,249	101,989	109,260	.....	.....
9 " " '11.....	1,677,850	900,994	776,857	.....	.....
9 " " '10.....	1,756,762	926,751	830,010	.....	.....
ILLINOIS TRACTION SYSTEM.						
1 m., Sept., '11.....	\$598,350	\$352,393	\$245,957	.....	.....
1 " " '10.....	529,291	300,989	228,302	.....	.....
9 " " '11.....	5,019,711	3,083,494	1,936,217	.....	.....
9 " " '10.....	4,292,602	257,081	1,722,521	.....	.....
LAKE SHORE ELECTRIC RAILWAY.						
1 m., Sept., '11.....	\$124,767	\$62,609	\$62,159	\$34,713	\$27,446	
1 " " '10.....	115,009	54,417	60,592	34,928	25,664	
9 " " '11.....	962,236	506,229	456,008	312,401	143,608	
9 " " '10.....	913,664	473,161	440,504	313,008	127,496	
NORTHERN OHIO TRACTION & LIGHT COMPANY.						
1 m., Sept., '11.....	\$246,015	\$128,812	\$117,203	\$44,321	\$72,882	
1 " " '10.....	224,902	117,557	107,044	43,392	63,653	
9 " " '11.....	2,019,746	1,110,504	909,242	399,069	510,172	
9 " " '10.....	1,837,406	1,009,858	827,548	390,161	437,387	
TOLEDO RAILWAYS & LIGHT COMPANY.						
1 m., Sept., '11.....	\$254,243	\$152,914	\$101,329	\$84,173	\$17,156	
9 " " '11.....	3,717,072	1,428,301	867,116	717,712	149,403	

The Houston Electric Company, the Galveston-Houston Electric Railway and the Galveston Electric Company will issue a monthly magazine upon the opening of the inter-urban line between Houston and Galveston. This magazine will be devoted to general industrial and development matters in South Texas with the idea of making it a factor in the progress of the territory served by the companies.

Traffic and Transportation

Court Decision in New York Requiring Fare Reduction

As a result of the decision by the Appellate Division, Supreme Court of New York, Third Department, the Westchester Street Railroad, White Plains, N. Y., will be required to reduce its fare between Mamaroneck and White Plains from 10 cents to 5 cents. The decision of the Appellate Division affirmed a decision made by Justice Cochrane on an action by the Public Service Commission of the Second District to require the company to conform to the terms of franchises under which it was operating and to carry passengers for 5 cents.

The mortgage upon the property and franchises of the Tarrytown, White Plains & Mamaroneck Railway was foreclosed and the property sold in parcels. The Westchester Street Railway purchased the parcel extending from White Plains to Mamaroneck and immediately after it acquired possession of the property filed a tariff with the Public Service Commission increasing the fare from 5 cents to 10 cents.

The village of Mamaroneck applied to the commission for an order requiring the company to carry passengers for 5 cents. The commission, deeming itself without authority to make the order directed against the company, authorized its counsel to commence an action in the Supreme Court against the company to require it to conform to the terms of its franchises. Justice Cochrane found against the company, which appealed to the Appellate Division, where the appeal was argued in September last.

The Appellate Division has affirmed the order of the trial court with costs and given leave to the company to withdraw its demurrer upon payment of costs. The decision of the Appellate Division has finally disposed of the controversy unless the company takes the case to the Court of Appeals.

Suit to Prevent Seattle from Enforcing Recent Ticket Ordinance

The Seattle (Wash.) Electric Company has announced that it proposes to institute a suit to enjoin the city of Seattle from enforcing the ordinance passed recently by the City Council which requires the company to sell twenty-five tickets for \$1 or six tickets for 25 cents on all its cars. As stated in the ELECTRIC RAILWAY JOURNAL of Nov. 4, 1911, page 1011, Mayor George W. Dilling of Seattle vetoed the original ordinance. The measure was subsequently passed over the veto. In a statement to the public Jacob Furth, president of the company, reviews briefly the history of the franchise under which the company operates. Referring to the negotiations with the City Council in regard to the question of fares when the ordinance under which the company now operates was before the Council, Mr. Furth says:

"Some members of the City Council desired to have a provision inserted in the franchise requiring commutation tickets to be sold on the cars which would entitle a passenger to twenty-five rides for \$1. The applicants for the franchise stated that if such a provision were inserted, they would not bid for the franchise and would not accept it. The differences in reference to this matter were compromised by providing that the grantees of the franchise might establish a fare which should not exceed the sum of 5 cents, and should keep for sale for \$1 each, at their main office and power stations within the city, commutation tickets entitling a purchaser to twenty-five rides, such commutation tickets not to be transferable or entitle the owner to a transfer. The franchise embodying these provisions was awarded to the highest bidders, and subsequently transferred to the Seattle Electric Company. For more than ten years the company has sold tickets in accordance with the plain language of its franchise. In 1911 a resolution was passed by the City Council designating approximately twelve additional places where the City Council desired tickets to be kept for sale, and requesting the superintendent of public utilities to get the company to establish such places. These places were located in vari-

ous sections of the city. The superintendent of public utilities requested the company to establish these places. The company acceded to the request, and there now exist in the city fifteen places where twenty-five tickets are sold for \$1. After the company had established these places, the present ordinance was passed, over the protest of the company that it was a moral and legal violation of its contract with the city. The Mayor vetoed the bill, but the City Council passed it over the veto of the Mayor, and the bill has now become an ordinance, which will take effect on Nov. 29, 1911."

In concluding his statement Mr. Furth says:

"The ordinance if enforced will not only injure the company, but will cause inconvenience and delay to the traveling public. The pay-as-you-enter car is now extensively used in this city. The conductors upon these cars have already sufficient duties to perform. If in addition to their present duties they should be obliged to sell tickets during the rush hours to persons desiring to travel upon these cars, great delay would be caused in the operation of the cars and much inconvenience to the traveling public. On the other hand, persons desiring to purchase tickets can easily procure them at any one of the fifteen places now maintained by the company at various points in the city. The company does not feel that there is any reason for incommoding the public by the enforcement of this ordinance, or depriving the company of its contract rights, and it will therefore ask the judgment of the court in the controversy which has been forced upon it."

Report of Accidents on Electric Railways for Year

The Interstate Commerce Commission has issued Accident Bulletin No. 40, which contains a statement of collisions, derailments and other accidents to trains and casualties to persons from all causes on the railroads of the United States during the months of April, May and June, 1911, with tables for the year ended June 30, 1911, and tables showing the total number of employees in the service of the railroads on June 30, 1911. A summary of the accidents on electric railways engaged in interstate business and therefore reporting to this commission, for the year ended June 30, 1911, follows:

Causes.	Number of Accidents.		Passengers.		Employees on Duty.		Employees Not on Duty.		Other Persons Not Trespassing.		Trespassers.		Total Persons.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Collisions	176	74	984	12	85	..	5	..	1	..	..	..	86	1,075
Derailments	79	1	179	4	33	..	..	1	4	..	..	..	6	216
Accidents to trains, cars or engines, except derailments, collisions and boiler explosions	12	..	19	..	2	..	..	..	..	..	..	..	..	21
Bursting of or defects in locomotive boilers or boiler attachments.....	1	..	..	..	1	..	..	..	..	..	..	..	..	1
Total train accidents.....	268	75	1,182	16	121	..	5	1	5	..	..	..	92	1,313
Total other than train accidents.....	..	30	1,101	35	242	4	13	132	476	117	119	..	318	1,951
Total accidents exclusive of industrial accidents .....	..	105	2,283	51	363	4	18	133	481	117	119	..	410	3,264
Industrial accidents to employees ¹.....	..	..	..	10	399	..	..	..	..	..	..	..	10	399
Grand total.....	..	105	2,283	61	762	4	18	133	481	117	119	..	420	3,663

¹"Industrial" accidents are those occurring to employees of the railroads on railroad premises in which no moving cars or engines are involved

The number of employees in the service of the reporting electric railways on June 30, 1911, as shown in the report of the commission, was as follows:

	Number of Persons.
1. Trainmen ¹ (enginem, firemen, conductors, brakemen, "trainmen," rear flagmen, train baggagemen).....	20,541
2. Other persons employed on trains (dining-car employees, train porters, etc.).....	84
3. Yardmen (all employees in yard train work and switching—enginem, firemen, conductors, brakemen, foremen, drop-pers, fieldmen, etc.).....	946
4. Switch tenders, crossing tenders and watchmen.....	324
5. Bridgemen and trackmen.....	12,512
6. Others (station and miscellaneous employees, excluding all those officers, clerks, shopmen, indoor employees and others who ordinarily are engaged in work in which they are not liable to railroad accident).....	4,727
7. Total	39,134
8. Employees excluded from item No. 6.....	12,453
9. Total persons employed by electric railways reporting June 30, 1911.....	51,587

¹Includes motormen.

Compulsory Owl Service in San Francisco.—A bill has been passed to print by the Board of Supervisors of San Francisco requiring the United Railroads to operate cars on its Castro Street line between 2 a. m. and 6 a. m.

Freight Rights in Boston Desired by Boston Elevated Railway.—The Boston (Mass.) Elevated Railway has petitioned the Railroad Commission of Massachusetts for approval to become a common carrier of newspapers, baggage, express matter and freight in Boston. This petition was acted upon adversely by the City Council of Boston.

Argument Heard in Newark (N. J.) Transfer Case.—Argument was heard by the Supreme Court of New Jersey at Trenton on Nov. 8, 1911, on a writ of certiorari obtained by the Public Service Railway to review the action of the Board of Public Utility Commissioners of New Jersey regarding transfer privileges and rights in Newark.

Basis of Fare Reduction to Suburbs of Birmingham.—A. H. Ford, president of the Birmingham Railway, Light & Power Company, Birmingham, Ala., has submitted a proposal to the City Commissioners of Birmingham, Ala., to reduce the fare to Ensley from 10 cents to 5 cents; to lower the cost of arc lights to the municipality, and to lower the cost of illuminating current to private consumers, provided the city will enter into a contract with the company to furnish power for city lighting for ten years.

Testimony in Connecticut Fare Case.—The testimony has all been presented in the case before the Public Utilities Commission of Connecticut in regard to the application of residents of Manchester, Conn., for a reduction in fare from 15 cents to 10 cents over the line of the Connecticut Company between Hartford and Manchester, and an assignment has been made for Dec. 12, 1911, for presenting the arguments. A summary of the testimony presented before the commission in this case was published in the ELECTRIC RAILWAY JOURNAL of Nov. 11, 1911, page 1033.

Reduction in Train Service on the Long Island Railroad.—On Nov. 15, 1911, the Long Island Railroad reduced the train service over its lines. The company states: "The change is made necessary by delay in completing the improvements at Jamaica and the consequent continued operation of steam trains to and from Long Island City, together with the increased cost of operation to and from the Pennsylvania Railroad station and the very general increase

of all expenses. The company has endeavored to have the change affect as little as possible the convenience of daily travelers. The deficit for the year is estimated at \$630,000."

Report by Commission in Regard to Transfers in St. Louis.—The Public Service Commission of St. Louis, Mo., in its report to the House of Delegates on its investigation of the transfer system of the United Railways, St. Louis, will quote the language of the franchise of the Central Traction Company to show that the United Railways is required to give universal transfers. The report contains no recommendation regarding the enforcement of the law, but quotes the language of Section 5 of the franchise as follows: "Transfers must be given so as to transport passengers on one continuous fare from one point on the system to any other point on the system."

Hearing to Be Held in Regard to Improvements on Elevated Lines in New York.—The Public Service Commission of the First District of New York has decided to hold a

hearing on Nov. 23, 1911, to inquire whether the Interborough Rapid Transit Company should be ordered to equip the cars of the Manhattan Elevated Railway, which it operates, with centre side doors, larger platforms, wider gate openings and improved devices for operating gates and doors, wider end doors, improved couplings and draft rigging and improved braking apparatus. At the hearing the commission will also inquire whether the company should be ordered to change the location of switches and signals, to extend and widen the station platforms, to construct additional stairways, furnish additional station facilities and make such other improvements as may be necessary to increase the capacity and better the service. The hearing will be conducted before Commissioner Eustis.

Suggestion for Experimental Owl Service in Portland, Ore.—B. S. Josselyn, president of the Portland Railway, Light & Power Company, Portland, Ore., has issued a statement in part as follows in regard to the company establishing all-night service: "I am perfectly willing to make a trial of running each present last car one more round trip, which in most instances would extend the time of leaving for the last car to about 1.30, provided we are permitted to charge a 10-cent fare on this extra trip, in order that the small travel may compensate the extra expense. It may be that this addition to our present service would solve the problem, and, if so, the company is not averse to making a fair trial of the matter, say for thirty days, keeping a record of receipts and expenses so as to show the wisdom of giving the extra service."

Washington Suburban Fare Case Before the I. C. C.—Argument was heard by the Interstate Commerce Commission at Washington, D. C., on Nov. 11, 1911, in the case of the citizens of Somerset, Drummond and Friendship Heights, Md., against the Washington & Rockville Railway, the Georgetown & Tenleytown Railway and the Washington Railway & Electric Company, in which it is charged that the fare of 5 cents from Somerset to the district line and conversely is excessive. Counsel for the complainants contended that the jurisdiction of the commission was established by the fact that cars were run by the Washington & Rockville Railway past the district line without change of cars, conductors or motormen. Counsel for the companies contended that interstate commerce was not involved. No through tickets were sold from Washington to Somerset or any point in Maryland and the company had no knowledge of where a passenger was going when he boarded a car. There was a physical connection between the Georgetown line and the Rockville line at the district limits, but this did not establish interstate commerce and no division of charges by the two carriers was in effect. The defendant companies were separate and distinct corporations, notwithstanding that the stock of one was controlled by another.

Answer Filed in Wilmington Ticket Suit.—The Public Utility Commission of Delaware has filed with the United States Circuit Court in Wilmington, Del., the affidavits answering the bill in equity sought by the Wilmington & Philadelphia Traction Company to restrain the commission from enforcing its order directing the company to restore the sale of tickets at the rate of six for a quarter. Henry M. Taylor, of the commission, avers that the company was given full opportunity to put in any evidence it desired, and that at no time while the commission was in session did the company make any objection to the order to restore strip tickets on the ground that the board had not made an investigation to determine whether the rate of fare was a reasonable one. H. B. Bothum, secretary of the commission, filed a statement dealing with the proceedings before the commission. S. S. Hoff, formerly general manager of the Wilmington City Railway, testified in regard to the earnings while he was connected with it, and expressed the opinion that if \$250,000 was expended on the property for improvements the sum of \$50,000 put aside each year as a reserve fund would be sufficient to maintain the property. The company was given until Nov. 13, 1911, in which to file its answer in rebuttal. A summary of the original affidavits filed by the company in support of its bill was published in the *ELECTRIC RAILWAY JOURNAL* of Nov. 4, 1911, page 1006.

Personal Mention

Mr. C. E. Moore has resigned as superintendent of transportation of the Springfield (Ill.) Consolidated Railway to become connected with the Terre Haute, Indianapolis & Eastern Traction Company, Terre Haute, Ind.

Mr. H. C. Bixler, formerly trainmaster of the New York terminal division of the Pennsylvania Railroad, has been appointed assistant superintendent of the Philadelphia terminal division, in charge of the passenger service in and out of Philadelphia.

Mr. Charles D. Kelso has resigned as counsel for the Louisville & Southern Indiana Traction Company and Louisville & Northern Railway & Lighting Company, New Albany, Ind., and as a director of the Louisville & Northern Railway & Lighting Company to engage in private practice.

Mr. B. Collette, who has been trainmaster of the Muncie & Portland Traction Company, Portland, Ind., for more than two years, has resigned, effective on Dec. 1, 1911. Mr. Collette has been in the employ of the Muncie & Portland Traction Company since the road was placed in operation in June, 1906.

Mr. James D. Welch, formerly master mechanic of the Des Moines City Railway and the Inter Urban Railway, Des Moines, Ia., has been appointed master mechanic of the Fort Dodge, Des Moines & Southern Railroad, Boone, Ia., in charge of the passenger and freight equipment of the road, which is now operated by 1200-volt current.

Mr. J. F. Deems has resigned as general superintendent of motive power, rolling stock and machinery of the New York Central lines. In that capacity Mr. Deems has served as a member of the electric traction commission of the New York Central & Hudson River Railroad, advising on the electric locomotive and motor car equipment. He was president of the New York Railroad Club in 1908.

Mr. Henry W. Thornton, assistant general superintendent of the Long Island Railroad, New York, N. Y., and president of the Northwestern Railways, Meadville, Pa., has been appointed superintendent of the Long Island Railroad to succeed Mr. J. A. McCrea, who has been appointed general manager of the company. A biography of Mr. Thornton was published in the *ELECTRIC RAILWAY JOURNAL* of March 18, 1911.

Mr. C. A. Alderman has resigned as chief engineer of the Buffalo & Lake Erie Traction Company, Buffalo, N. Y., to become assistant chief engineer of the Wyandotte Construction Company, Kansas City, Mo., which is building the Kansas City, Clay County & St. Joseph Railway. The new road will consist of 53 miles of line between Kansas City and St. Joseph and 32 miles of line between Kansas City and Excelsior Springs.

Mr. George Kuemmerlein, who has been in charge of the Racine lines of the Milwaukee Electric Railway & Light Company, Milwaukee, Wis., as superintendent, has resigned. Before becoming connected with the Racine lines Mr. Kuemmerlein served the company in Milwaukee more than twenty years. Mr. George Kuemmerlein, Jr., one of Mr. Kuemmerlein's sons, is superintendent of transportation of all the lines of the Milwaukee Electric Railway & Light Company.

Gen. George H. Harries, who resigned recently as vice-president and general manager of the Washington Railway & Electric Company, Washington, D. C., to become connected with H. M. Byllesby & Company, Chicago, Ill., was presented on Nov. 11, 1911, with a set of handsomely engrossed resolutions adopted by the board of managers of the Washington Railway Relief Association, and with a traveling bag, containing a silver-mounted toilet set purchased by subscriptions from 1100 members of the organization.

Mr. Thomas K. Bell has resigned as assistant engineer of way of the Philadelphia (Pa.) Rapid Transit Company. With this company Mr. Bell had charge of all the special work. Mr. Bell was chief engineer of William Wharton, Jr., & Company, Inc., Philadelphia, for a long time, but re-

signed from that company in September, 1906, to accept the position of chief engineer of the Interstate Railways, with which he was associated until July, 1910, when he formed his connection with the Philadelphia Rapid Transit Company.

Mr. Wm. E. Thompson has been appointed superintendent of transportation of the Coney Island & Brooklyn Railroad, Brooklyn, N. Y., to succeed Mr. D. W. Sullivan, who has been appointed land agent of the company. Before becoming connected with the Coney Island & Brooklyn Railroad in 1908 as chief inspector Mr. Thompson filled the positions of inspector and later division superintendent of the Virginia Railway & Power Company, Richmond, Va. During the recent labor troubles of the Coney Island & Brooklyn Railroad he was acting superintendent of transportation of the company.

Mr. Morgan Jones was appointed division superintendent of the Indianapolis, Logansport and Peru lines of the Indiana Union Traction Company, with headquarters at Tipton, Ind., on Nov. 10, 1911. Mr. Jones entered the employ of the Indiana Union Traction Company in February, 1905, as night agent at Anderson. In April, 1905, he was promoted to the position of day ticket agent and in September, 1905, he was advanced to train dispatcher. On Oct. 1, 1909, Mr. Jones was made chief train dispatcher. He held this position until Jan. 23, 1910, when he was promoted to the office of superintendent of the Anderson division. Mr. Jones relinquished the last mentioned position on June 17, 1910, to become chief clerk to Mr. Charles A. Baldwin, superintendent of transportation, which position he held until his recent appointment as superintendent of the Indianapolis, Logansport and Peru lines of the company.

Mr. F. W. Finlayson has been appointed superintendent of power stations of the Worcester (Mass.) Consolidated Street Railway to succeed Mr. George W. Dunlap, whose appointment to the Public Service Commission of the First District of New York was noted in the *ELECTRIC RAILWAY JOURNAL* of Oct. 21, 1911. Mr. Finlayson entered the engineering field as an apprentice machinist with Geo. Lawley & Sons, Inc., operating marine engine shops. Subsequently he became connected with the erecting department of the B. F. Sturtevant Company, Boston, Mass. Later he served successively as engineer with the Newton & Boston Street Railway, the Worcester Consolidated Street Railway, the Western Pennsylvania Railway and the South Terminal Company, Boston. He returned to the employ of the Worcester Consolidated Street Railway as chief engineer of the Fremont Street power plant in 1906, and has remained with the company in that capacity since that time.

Mr. James A. McCrea has been appointed general manager of the Long Island Railroad, a position which Mr. Ralph Peters, president of the Long Island Railroad, has held for a number of years in addition to the office of president. Mr. McCrea entered the service of the Pennsylvania Railroad in November, 1895, as a rodman with the engineering corps of the chief engineer of the Lines West at Pittsburgh, Pa. He was with the maintenance-of-way corps of the Cincinnati and Pittsburgh division from December, 1896, to May, 1897, and the maintenance-of-way corps of the Philadelphia division from May, 1897, to May, 1898. He was assistant engineer of the Eastern division from May, 1898, to August, 1899, and engineer of the Eastern division from August, 1899, to June, 1901. From June 1901, to January, 1906, he was superintendent of the Cincinnati division of the Pennsylvania Railroad. Since January, 1906, he has been general superintendent of the Long Island Railroad. Mr. McCrea is a son of President McCrea of the Pennsylvania Railroad.

Mr. E. M. Haas, superintendent of bridges and buildings of the Illinois Traction System, has become connected with the editorial department of the *ELECTRIC RAILWAY JOURNAL* and will have headquarters at the Chicago office in the Old Colony Building. Mr. Haas has recently been engaged in the construction of the Morris-Joliet extension of the Illinois Valley Railway. He is a graduate of Purdue. Previous to his college course and during vacations Mr. Haas served on the engineering corps of the Baltimore & Ohio Railroad, the Chesapeake & Ohio Railroad and the Cincinnati, Hamilton & Dayton Railroad. After graduation he was resident engineer for the Chicago & Eastern Illi-

nois Railway on the construction of a 6000-car capacity freight classification yard at Dalton, Ill. Mr. Haas was appointed assistant engineer maintenance of way of the Illinois Traction System in 1906, and has since been engaged in maintenance and construction work. In 1907 his title with the Illinois Traction System was changed to superintendent of bridges and buildings.

Mr. Joseph O'Hara, general manager of the Chicago, Aurora & DeKalb Railway, Aurora, Ill., has been appointed superintendent of the railway department of the Springfield (Ill.) Consolidated Railway, effective on Dec. 1, 1911. Before becoming connected with the Chicago, Aurora & DeKalb Railroad, Mr. O'Hara was superintendent of the Illinois Valley Railroad, La Salle, Ill. He served in various capacities with the Grand Rapids (Mich.) Railroad for five years and was previously connected with the Père Marquette Railroad for two years and as superintendent of the Eastern Ohio Traction Company, Cleveland, Ohio, for four years. Mr. O'Hara also was superintendent of transportation of the Aurora, Elgin & Chicago Railroad, Chicago, Ill., from August, 1903, to October, 1907, when he resigned to become superintendent of transportation of the Washington, Baltimore & Annapolis Electric Railway, Washington, D. C. He resigned from the Washington, Baltimore & Annapolis Electric Railway on June 1, 1908, to become connected with the Illinois Valley Railroad.

Mr. George W. Burton, general attorney of the Illinois Traction System, Peoria, Ill., will take up general legal practice on Jan. 1, 1912, and will probably locate at Springfield, Ill. Mr. Burton has been associated with the Illinois Traction System for about seven years. During the first four years he was record and claim attorney and three years ago was made general counsel. No successor to Mr. Burton with the Illinois Traction System has been engaged, but it has been announced that after Jan. 1 personal injury claim work will be in charge of Mr. S. W. Reynolds, Springfield, Ill., who is now freight claim adjuster of the system. Mr. Reynolds will be assisted by Attorney H. C. Dillon of the company's legal department, who is now located at Springfield. The claim record department will be transferred from Peoria to Champaign, where it will be under the direction of Mr. George M. Mattis, vice-president and treasurer of the Illinois Traction System, who also supervises the work of the land department, which has headquarters at Champaign.

Mr. Howard E. Greims has resigned as traveling auditor of the Mohawk Valley Company and the New York State Railways and has opened an office in New York as an independent accountant, making a specialty of examinations of public utilities and audits and investigations of public service properties. Mr. Greims entered business with the United Gas Improvement Company in Philadelphia in 1897 and from 1897 to 1899 he had charge of the records of the money spent on improvements by the United Gas Improvement Company in Philadelphia in accordance with a contract between the company and the city. From May, 1899, to September, 1900, he was connected with the Hawaiian Electric Company. In October, 1900, he returned to the United States and was connected with the Westchester Lighting Company, Mount Vernon, N. Y., until November, 1901, as clerk at its gas works. From November, 1901, to May, 1902, Mr. Greims was storekeeper and assistant foreman at the twenty-fifth ward gas works of the United Gas Improvement Company, Philadelphia. From June, 1902, to June, 1905, he acted as general bookkeeper for the Rhode Island Company, the Rhode Island Suburban Railway and the Interstate Consolidated Street Railway, all controlled by the United Gas Improvement Company. In June, 1905, he became connected with Ford, Bacon & Davis, as traveling auditor and continued in that capacity until June, 1907. From July, 1907, to January, 1908, he represented Brown Brothers & Company, Philadelphia, Pa., at York, and merged the accounts of twenty-two companies into the York Railways and two lighting companies into the Edison Electric Light Company of York. From January, 1908, to March, 1908, Mr. Greims represented Lybrandt, Ross Brothers & Montgomery, New York, N. Y., certified public accountants. He resigned from this company to become associated with the Mohawk Valley Company and the New York State Railways.

Construction News

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

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

RECENT INCORPORATIONS

***San Francisco Transit Company, San Francisco, Cal.**—Application for a charter has been made in California by this company to build an electric railway in San Francisco. Capital stock, \$1,000,000. Incorporators: D. S. Hyde and William McPherson, San Francisco; R. J. Graham, J. Early Craig and L. H. Sage, Oakland.

***Ferdinand (Ind.) Railroad.**—Incorporated in Indiana to build an electric railway from Huntingburg to Ferdinand. Capital stock, \$60,000. Directors: Henry Beckman, J. H. Beckman, J. A. Soudermann and Mathias Olinger, Jr.

Laurel Electric Light & Power Company, Laurel, Miss.—Chartered in Mississippi to build an electric railway and power plant in Laurel. Capital stock, \$75,000. Incorporators: P. H. Saunders, Herbert Lampe and S. M. Jones. [E. R. J., Nov. 4, '11.]

***Portland & Troutdale Electric Company, Portland, Ore.**—Application for a charter has been made in Oregon by this company to build an electric railway between Portland and Troutdale, via Sandy Road. Capital stock, \$25,000. Incorporators: E. L. Thompson, C. C. Craig and Robert Tucker.

Belle Fourche & Spearfish Electric Railway, Belle Fourche, S. D.—Application for a charter has been made in South Dakota by this company to build a 12-mile electric railway from Belle Fourche to Spearfish. Capital stock, \$5,000. Incorporators: A. A. Moodie, Bruce Sebastian, Fred E. Harris and F. E. Duba. [E. R. J., Dec. 10, '10.]

***Oregon Southern Railway, Seattle, Wash.**—Application for a charter has been made in Washington by this company to build a 175-mile electric railway from Ashland, Ore., to Port Orchard via Medford, Jacksonville, Grant's Pass and Eugene. Headquarters, Seattle. Capital stock, \$2,000,000. Incorporators: J. Arnold Doyle, H. M. Farren, Boise, Idaho, and Charles Radebaugh, Corning, Cal.

FRANCHISES

***Ragland, Ala.**—Frank M. Morris has received an electric railway franchise from the Board of Aldermen in Ragland.

Phoenix, Ariz.—The Salt River Valley Electric Railway has received a 25-year franchise from the City Council in Phoenix. This 60-mile line will connect Phoenix, Scottsdale, Tempe, Mesa, Chandler, Alhambra, Glendale and Peoria. F. M. Winter, Phoenix, president. [E. R. J., Oct. 14, '11.]

Alviso, Cal.—The San José Railway has received a franchise from the Town Trustees over the two principal streets in Alviso. Work will be begun at once by this company on its 12-mile extension from San José to Alviso.

Riverside, Cal.—The City Council has accepted the offer of \$25,000 by the Pacific Electric Railway for a franchise to double track Magnolia Avenue between Arlington Avenue and Main Street in Riverside. The company has asked the City Council in Los Angeles for a franchise to construct 1 mile of track on San Pedro Street, Los Angeles, to relieve the congested traffic on Main Street.

Waterbury, Conn.—The Connecticut Company has asked the Board of Public Works for a franchise to build from the plant of the Chase Rolling Mill Company to a connection of the New York, New Haven & Hartford Railroad at Waterville.

Rome, Ga.—The Chattanooga Traction Company has asked the City Council for a franchise in Rome. C. E. James is interested. [E. R. J., Nov. 4, '11.]

Chicago, Ill.—The Chicago City Railway has asked the City Council for a franchise to double track and extend several of its lines in Chicago.

South Bend, Ind.—The Chicago, South Bend & Northern Indiana Railway has asked the City Board of Public Works for a franchise to double track its line along Mishawaka Avenue in South Bend.

Northampton, Mass.—The Northampton Street Railway

has received a franchise from the Board of Aldermen to extend its lines in Northampton.

***Austin, Minn.**—L. French and associates have asked the City Council for a 25-year franchise for an electric railway in Austin.

Nashua, N. H.—The Nashua Street Railway has received permission from the Public Service Commission for an extension on Lake Street, in Nashua.

Gates, N. Y.—The New York State Railways has asked the Town Board for a franchise in Gates.

Manheim, N. Y.—The Little Falls & Johnstown Electric Railway, Little Falls, has asked the Town Board for a franchise in Manheim. It will connect Little Falls, St. Johnsville, Ephratah and Johnstown. J. L. Hess, 103 Park Avenue, New York City, president. [E. R. J., Aug. 26, '11.]

Steubenville, Ohio.—The Steubenville & East Liverpool Railway & Light Company has received a one-year extension of time for the construction of additional track on Stanton Boulevard in Steubenville.

Grants Pass, Ore.—The Grants Pass & Rogue River Railroad will ask the City Council for a franchise in Grants Pass. This is part of a plan to build a 30-mile electric railway to connect Grants Pass, Medford and Ashland. Messrs. Doyle and Farren are the promoters. [E. R. J., June 24, '11.]

Saltsburg, Pa.—The West Penn Railways has received a franchise from the City Council in Saltsburg.

South Williamsport, Pa.—The South Side Passenger Railway has received a franchise from the City Council to extend its lines in South Williamsport to the city limits on the west.

Montreal, Que.—The Montreal Street Railway will ask the Council for a franchise on Dorchester Street and on Sherbrooke Street in Montreal.

***Morristown, Tenn.**—John Wooten, Fernwood, has asked the City Council for a franchise in Morristown. This is part of a plan to build an electric railway from Cumberland Street in Morristown to Fernwood, a distance of 4 miles.

Dallas, Tex.—The Texas Traction Company has received permission from the municipal commissioners to double track its lines on Cole Avenue from Haskell to Olive, and on Forest Avenue from Atlanta to Arza in Dallas.

Polytechnic, Tex.—The Northern Texas Traction Company, Ft. Worth, has received a franchise from the Board of Commissioners for an extension of its Polytechnic line for about 1 mile.

Richmond, Va.—The Richmond & Henrico Railway has asked the Council for a franchise to extend its lines into the western part of Richmond.

TRACK AND ROADWAY

Jonesboro & Nettleton Interurban Railroad, Jonesboro, Ark.—This company has awarded a contract to Hemingway & Company to construct its 5-mile line between Jonesboro and Nettleton. J. E. Thompson, Jonesboro, vice-president. [E. R. J., Nov. 11, '11.]

Texarkana Gas & Electric Company, Texarkana, Ark.—A bonus of \$5,000 has been secured by this company to build an extension to Westmoreland Heights from its present terminus in Rose Hill on Seventh Street.

San Joaquin Light & Power Company, Bakersfield, Cal.—It is stated that this company will double-track its lines in Bakersfield.

Pacific Electric Railway, Los Angeles, Cal.—This company will build an extension in the northwest section of San Bernardino on F Street to Seventh Street and west on Seventh Street to Mt. Vernon and to the city limits. Work has been begun by this company on its extension from Arlington to a point near the city limits to the southward. This extension is said to be part of a plan to connect Riverside with Los Angeles.

Oakland (Cal.) Traction Company.—Plans have been completed by this company for an extension of its Oakland Avenue line over Forty-first Street westerly to the western waterfront in Oakland.

Los Angeles & Redondo Railway, Redondo Beach, Cal.—This company, now controlled by the Pacific Electric Railway, ceased operation on Nov. 12 as a narrow-gage line.

and will operate by way of the Watts cut-off over the four-track Pacific Electric Railway tracks to the company's station at Sixth and Main Streets in Los Angeles. The work of building the cut-off from Homeward to Watts and the standardization of the narrow-gage line to Redondo Beach have just been completed.

Stockton (Cal.) Electric Railway.—This company is negotiating to extend its line from Stockton to Fair Oaks.

Bridgeport & Danbury Electric Railway, Bridgeport, Conn.—Work has been begun by this company on North Main Street in Bridgeport. This line will connect Bridgeport, Trumbull, Monroe, Newton, Bethel, Stepney and Danbury. [E. R. J., July 1, '11.]

Tampa (Fla.) Electric Company.—This company is said to be considering plans to construct a new line to the new Union Station.

Augusta-Aiken Railway & Electric Company, Augusta, Ga.—Work has been begun by this company on its extension from Broad Street out Center Street to Taylor Street and down Taylor to Lincoln Street, where it will connect with the main line tracks in Augusta.

Chicago (Ill.) Railways.—This company has placed in operation its new line from North Avenue to Elston Avenue on Fortieth Street in Chicago.

Peoria (Ill.) Railway Terminal Company.—Work has been begun by this company on its 1-mile section of double track on Adams Street in Averyville.

Anderson, Ind.—Wallace B. Campbell, Anderson, has revived the project to build an interurban railway from Anderson to Lebanon, via Noblesville and thence to Crawfordsville. [E. R. J., Nov. 27, '09.]

***Aurora, Ind.**—Raymond Zeitler, representing Chicago and New York capitalists, plans to construct an electric railway between Aurora and Rising Sun, a distance of 9 miles. The plan is ultimately to build this line to Cincinnati and in the other direction to Louisville.

Evansville, Chrisney & Eastern Railway, Evansville, Ind.—This company has contracted for the final survey for its proposed route between Boonville, Chrisney and Lynnville. [E. R. J., Nov. 4, '11.]

Iowa City (Ia.) Electric Railway.—Work has been begun by this company on its Dodge Street extension to the Prairie du Chien Road.

Kansas City & Ft. Scott Electric Railway, Topeka, Kan.—At a recent meeting plans were considered by this company to secure the right-of-way for its proposed railway to connect Rosedale and Ft. Scott via Stanley, Prescott, Fulton, Louisburg and Pleasanton. The following officers were elected: J. Frank Smith, president; D. A. N. Chase, secretary, and A. M. Kent, treasurer and vice-president. [E. R. J., Nov. 4, '11.]

Brandon, Man.—By a vote of two to one the ratepayers of Brandon have defeated the plan for a municipal street railway and voted to give the franchise to a private company of St. Paul and Chicago capitalists. [E. R. J., April 1, '11.]

Portland (Maine) Railroad.—This company has placed in operation its new Forest Avenue line from Monument Square in Portland to Morrills.

East Taunton (Mass.) Street Railway.—Plans to build an electric railway from Middleboro through Plympton to Kingston, where it will connect with a line from Plymouth to Brockton and Whitman, are being considered by this company.

Eastern New York Railroad, Ballston Spa, N. Y.—During the next four weeks this company will award contracts for the construction of a 24-ft. span bridge.

New York, N. Y.—The Public Service Commission of the First District has ordered that bids be advertised for the construction of section 9 of the Lexington Avenue subway to be opened on Dec. 5, because when bids were opened on Oct. 27, 1910, only one proposal was received, that from the Bradley Contracting Company, for \$3,253,072.

Staten Island Midland Railway, New York City, N. Y.—This company has obtained an extension of time for three years within which to complete construction across Richmond Terrace in Richmond, Staten Island.

***Toxaway, N. C.**—E. H. Jennings, it is reported, plans to build an electric railway to connect Toxaway, Fairfield and Sapphire.

Springfield & Xenia Railway, Springfield, Ohio.—This company plans to build an extension from Xenia to Washington C. H., via Jamestown and either through Octa, Edgefield and Milledgeville or paralleling the Jamestown pike from Jamestown.

Toledo & Indiana Traction Company, Toledo, Ohio.—This company plans to extend its line from Bryan, Ohio, to Angola, the eastern terminus of the Bucklen line. With the completion of these lines, it will be possible to establish a through route between Buffalo and Chicago.

Massillon, Wooster & Mansfield Railway, Wooster, Ohio.—W. E. N. Hemperly at a recent meeting of the Board of Trade at Massillon stated that interest has again been revived in the proposed electric railway to connect Massillon, Wooster, Turkeyfoot Lake and Mansfield. Much of the right-of-way has been secured. [E. R. J., Jan. 8, '08.]

El Reno (Okla.) Interurban Railway.—Grading has been completed and two miles of track have been laid by this company on its 12-mile extension between Yukon and El Reno. The work is being done for the Interurban Construction Company, Oklahoma City, by J. G. White & Company, Inc., New York, N. Y.

Sapulpa & Interurban Railway, Sapulpa, Okla.—Extensions are being contemplated by this company east to Tulsa and south to Okmulgee.

***Lindsay, Ont.**—Surveys are being made for an electric railway between Port Hope, Peterboro, Omemee, Lindsay and Orillia. It is proposed to connect the line at Port Hope with a line from Montreal to Toronto. It is planned to obtain power from Niagara Falls. It is reported that the Canadian Northern Railway is back of the project.

Oregon Electric Railway, Portland, Ore.—Plans are being considered by this company to build an extension to McMinnville, via Newberg.

Erie (Pa.) Traction Company.—This company is considering plans to build a more direct line between Meadville, Cambridge Springs and Erie. It is planned to enter Meadville over the tracks of the Northwestern Pennsylvania Railway. The company proposes to begin construction from Siverling's Corners, near Cambridge Springs, thus connecting with the Erie and Edinboro line and cutting off several miles from the present distance by railway between Meadville and Erie.

Southern Cambria Railway, Johnstown, Pa.—As soon as this company completes its extension from Johnstown to Ebsenburg it will construct a line to Colver and Carrolltown, a distance of nearly 10 miles. This will be built to connect with the lines of the Northern Cambria Railway at Carrolltown.

Montreal & Southern Counties Railway, Montreal, Que.—Work is progressing rapidly on this company's extension from McGill Street, Montreal, to Richelieu, 14 miles from St. Lambert. Preparations are also being made to construct further lines to Waterloo, 69 miles from St. Lambert, during 1912.

Greenville, Spartanburg & Anderson Railway, Greenville, S. C.—This company has awarded the contract for the concrete work on the main line entering Anderson and on the line between the Riverside-Toxaway and Orr Mills to Nealon & Kline, Middletown, Ohio. The contract to grade the line and lay the ties and rails of these divisions will be awarded soon.

Sioux Falls & Southern Minnesota Traction Company, Pierre, S. D.—Right-of-way is said to have been purchased by this company between Sioux Falls, S. D., and Albert Lea, Minn., a distance of 200 miles. G. P. Peterson, Pierre, S. D., is interested. [E. R. J., Nov. 11, '11.]

Nashville (Tenn.) Interurban Railway.—The extension of this company's Main Street line in Nashville has been completed a distance of 2 miles from the former terminus of the line.

***El Paso, Tex.**—The project of constructing an electric railway from the site of the Elephant Butte dam in New Mexico down the valley of the Rio Grande River, passing through El Paso and terminating about 50 miles from El

Paso, has been revived by a syndicate of Eastern men, represented by J. L. Howard, Boston, Mass. It is reported that formal application will soon be made to the County Commissioners' court and to the City Council of El Paso for the necessary franchises for the proposed line. The Stone & Webster Engineering Corporation, Boston, is said to be back of the project.

Ft. Worth (Tex.) Southern Traction Company.—This company has awarded the contract to the Texas Building Company, Ft. Worth, for the grading work for its line between Ft. Worth and Cleburne. Work has been begun. C. H. Clifford is interested. [E. R. J., Oct. 14, '11.]

***San Antonio, Tex.**—It is reported that Stone & Webster, Boston, Mass., are interested in a plan to build an 81-mile electric interurban railway to connect Austin and San Antonio, via San Marcos, New Braunfels, Kyle, Buda, Hunter and Manchaca.

Southwestern Traction Company, Temple, Tex.—This company has placed in operation its extension in South Temple from Seventh Street and Avenue H to Avenue K south and then west to Twenty-ninth Street.

Tioga (Tex.) Traction Company.—This company has been organized to construct an interurban electric railway between Tioga and Gainesville via McKinney, a distance of about 50 miles. Among those interested are J. P. Mason and Matt Bradley, Tioga. [E. R. J., Sept. 30, '11.]

Charlottesville & Albemarle Railway, Charlottesville, Va.—This company will soon build about ½ mile of new track in Charlottesville.

***Richmond, Va.**—S. W. Burt plans to build an electric railway from Richmond to Norfolk via Surry and Prince George counties.

Virginia Railway & Power Company, Richmond, Va.—Plans are being considered by this company to build an extension out Halifax Street to Hawk Street in Richmond, and the extension of the Sycamore Street line to the new viaduct of the Walnut Hill Corporation. Initial steps have been taken by the company to double-track the entire Port Norfolk & Pinner's Point division.

Parkersburg & Ohio Valley Electric Railway, Parkersburg, W. Va.—This company placed in operation on October 14 its line between Sistersville and Friendly.

Sheridan Railway & Light Company, Sheridan, Wyo.—An extension will be built by this company to the Dietz coal camp, a distance of 4 miles.

SHOPS AND BUILDINGS

Northern Electric Railway, Chico, Cal.—Plans are being made by this company to build a new passenger station at Oreville. The estimated cost is \$12,000.

Modesto & Empire Traction Company, Modesto, Cal.—Work has been begun by this company on its new depot in Modesto. The ticket office and waiting room will occupy the north end of the building and the freight department the south end. The structure will be 64 ft. x 32 ft. [E. R. J., Oct. 28, '11.]

Washington Railway & Electric Company, Washington, D. C.—This company has awarded a contract for the reconstruction of its carhouse at Water Street and P Street Southwest to James L. Parsons, Washington.

Tampa (Fla.) Electric Company.—This company has nearly completed its carhouse in Tampa.

Aurora, Elgin & Chicago Railway, Chicago, Ill.—Bids are being asked by this company for the construction of a new station in Wheaton. The building will be 41 ft. x 92 ft. and of brick and steel construction. The cost is estimated to be about \$20,000.

Illinois Traction System, Peoria, Ill.—Plans are being considered by this company for a new three-story depot and office building in Champaign. The structure will be located on the site of the old Kennard mill, which is now occupied as a freight depot.

St. Joseph Valley Traction Company, Elkhart, Ind.—It is reported that this company's carhouse and machine shops in Lagrange were destroyed by fire on Nov. 11. The loss is estimated to be about \$35,000.

Des Moines (Ia.) City Railway.—New carhouses and repair shops will soon be built by this company at East Twen-

tieth Street and Walnut Street in Des Moines. The general shops will be eventually removed from the present location at the power plant to this East Side site.

Public Service Corporation, Newark, N. J.—Work will soon be begun by this company on its new carhouse and machine shops in Newark.

Syracuse, Lake Shore & Northern Railroad, Syracuse, N. Y.—It is said that this company is considering the purchase of property in East Second Street on which it expects to build a new passenger station and freight depot.

Ohio Electric Railway, Cincinnati, Ohio.—This company has begun the construction of a new carhouse at O'Neil's, near Calvary Cemetery. The structure will be 50 ft. x 200 ft., of brick and concrete construction.

Ephrata & Lebanon Street Railway, Ephrata, Pa.—Property on South State Street in Ephrata has been purchased recently by this company on which it will construct a new carhouse.

POWER HOUSES AND SUBSTATIONS

Illinois Traction System, Peoria, Ill.—This company has ordered for its Bondville station one 750-600-volt rotary converter, three H-25 transformers and a switchboard from the General Electric Company.

Davenport-Muscatine Railway, Davenport, Ia.—Work has been begun by this company on its new substation in Davenport. The company has ordered from the General Electric Company two unit motor generating sets, five 1000-kva water-cooled transformers, one 5-kw, 1800-125-volt generator, one 2000-kva, 2300-volt transformer and a switchboard.

Kentucky Traction & Terminal Company, Lexington, Ky.—This company has ordered from the General Electric Company for its generating stations at Lexington two 2500-kw turbo-generator sets, one turbo-exciter set, one 75-kw motor generating set, two 750-kw motor generating sets, four 33,000-4000 transformers and a switchboard. For the Versailles substation one 1200-600-volt rotary converter, three 33,000-370 air-cooled transformers and switchboard. For the Frankfort substation, two 1200-600-volt rotary converters, six 33,000-370 air-cooled transformers with switchboard. For the Paris substation, one 1200-600-volt rotary converter, three 100-kw transformers. For the Nicholasville substation, one 1200-600-volt rotary converter, three 100-kw transformers. For the Georgetown substation, one 1200-600-volt rotary converter, three 100-kw transformers and a switchboard.

East St. Louis, Columbia & Waterloo Railway, St. Louis, Mo.—This company has ordered four 300-kw, 600-volt rotary converters and fourteen 25-100-kva transformers from the General Electric Company.

Omaha & Council Bluffs Street Railway, Omaha, Neb.—This company has ordered one 75-kw motor-generator set from the General Electric Company.

Western Ohio Railroad, Lima, Ohio.—This company has ordered eight K-21-35,000-volt, 300-amp switches from the General Electric Company.

Cleveland, Painesville & Eastern Railroad, Willoughby, Ohio.—This company is now engaged in enlarging its plant and changing the operating voltage from 13,200 to 22,000. In making this change the company has ordered two 1500-kw and two 50-kw, 6600-volt turbo-generator units from the Westinghouse Machine Company. The previous generating equipment was operated by reciprocating engines.

El Reno (Okla.) Interurban Railway.—This company will build a new substation at Banner in which will be installed one 300-kw rotary converter, three transformers and a switchboard.

Ephrata & Lebanon Street Railway, Ephrata, Pa.—This company has recently purchased a plot on South State Street in Ephrata as a site for a power plant.

Indiana County Street Railway, Indiana, Pa.—This company is enlarging its plant at Two Lick. It has placed an order with the Westinghouse Machine Company for one 625-kva Westinghouse-Parsons turbo-generator unit and one No. 5 Westinghouse Le Blanc condenser. This outfit will be used to supplement its present station which consists of a 1000-kva Allis-Chalmers turbine and Phoenix engine. The turbo unit will feed into the 6600-volt, two-phase, 60-cycle lines which the company is now operating.

Manufactures & Supplies

ROLLING STOCK

Des Moines (Ia.) City Railway expects to purchase ten new cars during 1912.

Boulder Electric Light & Power Company, Boulder, Col., is in the market for two new cars.

Illinois Central Electric Railway, Canton, Ill., expects to purchase one motor and three trail cars.

Merrill Railway & Lighting Company, Merrill, Wis., is considering the purchase of several single trucks.

Otsego & Herkimer Railroad, Oneonta, N. Y., has ordered one long-broom snow sweeper from The J. G. Brill Company.

Auburn & Syracuse Electric Railway, Syracuse, N. Y., has ordered six Sprague-GE control equipments from the General Electric Company.

Virginia Railway & Power Company, Richmond, Va., has ordered nineteen straight-air brake equipments from the General Electric Company.

Belvidere (Ill.) City Railway has ordered two complete equipments of GE-54 motors with type K control from the General Electric Company.

Fostoria & Fremont Railway, Fostoria, Ohio, has ordered four GE-204 railway motors and one K-34 control from the General Electric Company.

Peninsula Railway, San José, Cal., has ordered fourteen Brill 27-MCB-1 trucks through Pierson, Roeding & Company from The J. G. Brill Company.

Kentucky Traction & Terminal Company, Lexington, Ky., has ordered five four-motor equipments with type K control from the General Electric Company.

Metropolitan Street Railway, New York, N. Y., has placed an order with the Westinghouse Traction Brake Company for 640 straight-air brake equipments.

Memphis (Tenn.) Street Railway has ordered ten Brill 21-E trucks without wheels from The J. G. Brill Company for use on the ten cars being built by the St. Louis Car Company.

Ft. Dodge, Des Moines & Southern Railway, Fort Dodge, Ia., has ordered two electric locomotives, four four-motor and one two-motor equipment from the General Electric Company.

East St. Louis, Columbia & Waterloo Railway, St. Louis, Mo., has ordered six GE-203 four-motor car equipments with K-35 controllers, five straight-air brake equipments, one combined straight-air and automatic air brake equipment from the General Electric Company.

TRADE NOTES

International Steam Pump Company, New York, N. Y., has elected William Guggenheim chairman of the finance committee.

Johnson Fare Box Company, New York, N. Y., has received an order from the Seattle (Wash.) Electric Company for 331 Johnson registering fare boxes.

W. H. Schott Company, Chicago, Ill., has removed its general offices from the Steger Building to suite 1813-1816 Harris Trust Building, 111 West Monroe Street, Chicago.

Hale & Kilburn Company, Philadelphia, Pa., has appointed J. G. Bower Western sales manager. Mr. Bower was formerly connected with the Pressed Steel Car Company.

Q M S Co, Plainfield, N. J., reports receipt of an order recently from the Los Angeles Railway for 100 Stanwood car step treads to replace wooden treads on old cars. The new treads are to be attached to wooden hangers.

Macallen Company, Boston, Mass., announces that its address has been changed from Foundry and Division Streets to Macallen and Foundry Streets, as the city has changed the name of Division Street to Macallen Street.

Howard B. Clark, New York, N. Y., consulting engineer, who resigned as member of the firm of Flaherty & Clark on June 1, 1911, is now Eastern representative for the Mc-

Naull-Boiler Manufacturing Company, Toledo, Ohio, manufacturers of water-tube boilers.

Canadian Car & Foundry Company, Montreal, Que., has decided to double the capacity of its works at Turcot, near Montreal, which will enable it to build 125 passenger cars per year. The shops for the building of all-steel cars at Dominion, on the outskirts of Montreal, are also to be enlarged, increasing their capacity by about 50 per cent.

Wheeler Condenser & Engineering Company, Carteret, N. J., has appointed George Franklin Pond manager for its Philadelphia territory, with office in the Commonwealth Trust Building, Philadelphia. The company has also appointed Walter G. Stephan manager for the Cleveland territory, with offices at 1325 Citizens Building, Cleveland, Ohio.

Jeffrey Manufacturing Company, Columbus, Ohio, manufacturer of mining, elevating, conveying and power transmission machinery, has recently opened another branch office at 1201 American Bank Building, Seattle, Wash. Percy E. Wright, who has been connected with the home office of the company for the past ten years, will have charge of this branch office and will handle all business in the Northwest territory.

Best Manufacturing Company, Pittsburgh, Pa., has appointed Charles E. Hague as Philadelphia representative with headquarters at 1510 Land Title Building. Mr. Hague is to have charge of Eastern Pennsylvania, Baltimore and Washington territory. The company has also appointed C. L. Stickney & Company as its representative in the States of Washington and Oregon, with headquarters at 108 White Building, Seattle, Wash.

Lindsley Brothers Company, Spokane, Wash., specialist in Idaho poles, has just installed a treating plant at its Priest River (Idaho) yard for the treating of poles with avenarius carbolineum by the open tank process. The plant has a capacity of 300 poles a day, and the company has just completed the shipment of a large order of treated poles from this plant to Colorado points. The other plant operated by the company at Spokane has recently completed the treatment of 40,000 ties for the Washington Water Power Company.

U. S. Metal & Manufacturing Company, New York, N. Y., has recently taken the selling agency for the Southern and Middle Western States of gears and pinions manufactured by the Tool Steel Gear & Pinion Company, Cincinnati, Ohio. The company has also taken over the general sales agency for the United States of Texoderm, manufactured by the Sillocks-Miller Company, South Orange, N. J. This material is used for railway coach seat upholstery. It has a hard surface and firm body. The base fabric is a heavy duck, strong and firm, possessing great wearing qualities.

ADVERTISING LITERATURE

Allis-Chalmers Company, Milwaukee, Wis., has issued Bulletin No. 1075, which describes its belted alternating current generators.

Railway Equipment Company, Portland, Ore., has issued a booklet which contains a list of equipment which the company carries in stock.

J. A. Fay & Egan Company, Cincinnati, Ohio, has begun the publication of a monthly bulletin entitled "The Lightning Line" for distribution among operators of wood-working machinery.

Ideal Electric & Manufacturing Company, Mansfield, Ohio, has issued Bulletin No. 1011, which contains a complete discussion of the details of construction and operation of its type H direct-current motors and generators. Test curves and characteristics of this type of motor and generator are included, and some of the details of construction are illustrated by special drawings.

Greenlee Brothers & Company, Rockford, Ill., has issued a catalog which fully describes and illustrates the numerous types and sizes of woodworking machines for electric railway shops or light car repairing manufactured by the company. A complete line of tools used for the operation of these machines is also shown. The catalog consists of circulars previously issued by the company and contains 114 pages.