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Plan of Settlement in Detroit

The tentative plan proposed for the settlement of the Detroit franchise situation, published elsewhere in this issue, may cause considerable surprise to those companies which find it difficult at present to make a profit on a 5-cent fare, and the question will naturally arise "How is it possible for a railway company in a city of the size of Detroit to carry passengers at a profit for such low rates?" The assent to this plan which has been wrung from the Detroit United Railway may be quoted as a precedent in demands for other fare reductions or in opposition to requests for fare increases, and the facts in the case should be thoroughly understood. We shall not attempt to analyze the entire situation here, but we should point out that in some respects the situation in Detroit is more favorable for electric railway operation than it would be in most other cities. The city is not only flat, with broad avenues leading from all sides to the center business district of the city, so that car service is direct and easy, but the area within which the low fare will prevail is small. It approximates a semi-circle having a radius of about 4 miles with the business district near the river front as a center, so that the average ride should be short. Moreover, under the proposed new franchise, the company is relieved entirely from the cost of paving and from all forms of taxation other than an ad valorem tax. This, also, should be borne in mind. The Detroit United Railway includes in one property a city railway system and an interurban railway system which is much greater in mileage than the aggregate of the track operated within the city, and it is not difficult to understand how the company, when its interurban terminal rights had become seriously imperiled, as in this case, and with its entire property in jeopardy, might be willing to accept almost any measure which covered only a part of its system in order to keep the whole intact. The plan has not yet been finally adopted, as it still has to be accepted by the City Council and by the electorate in Detroit, but it is hardly to be conceived that they will reject a franchise in which the city has so much to gain. The financial results to the company from its acceptance are a matter for far greater conjecture.

Experiments in Car Building

The art of electric railway car building has been going through a process of evolution for the past five years. Almost every lot of new cars built has embodied one or more innovations either in the general design or in the details of construction and equipment. The adoption of the prepayment principle of fare collection, the attempts made to reduce the weight of cars, improvements in heating and

ventilation and other details of equipment have brought about many changes. Some of these innovations have proved very successful when applied to the cars of one company, but when they have been tried by another company operating under different conditions they have been expensive failures. Too often the experiments have been conducted on a large scale and new and untried features have been incorporated in an entire lot of cars before their worth has been demonstrated by extended trials on one or two cars operated under the prevailing conditions. Observation of the results of experiments in other cities is seldom sufficiently convincing to warrant the adoption of a radically different type of car without a preliminary trial at home. Usually it is possible to foresee the necessity of purchasing new cars far enough in advance to carry out experiments with new ideas on a sample car or cars, either new or rebuilt. Thus, if there was a question whether the use of inclosed platforms with doors would delay the schedule, an old car could be so equipped and operated for several months on different lines while accurate observations of the loading and unloading time were made. If the design of the car framing was in doubt a sample car operated for a period long enough to determine the probable maintenance cost would settle the question of whether the proposed design was strong enough for the purpose. Many little mistakes in design which cannot be avoided in the drafting room can be discovered and rectified during the construction of a sample car, with resulting economies of construction and maintenance when the remainder of the cars are built.

Company Libraries of Engineering Books

Access to a good library of technical books is as valuable to an engineer actively engaged in his profession as access to complete files of court decisions and codes of state and national laws is to a lawyer. Few engineers in the electric railway industry have ever possessed an adequate collection of reference and text books of their own, either because they could not afford to buy them or because their frequent migrations from place to place discouraged the accumulation of a bulky library. When an electric railway company undertakes a large engineering work it furnishes all the necessary facilities to its engineers in the way of drafting-room equipment, instruments, paper and supplies, but usually leaves to the engineers the expense of buying such books as they may need to supplement their knowledge and experience. The result is that reference books are not bought or consulted in the way they should be and the work sometimes suffers as a consequence. The engineers can hardly be blamed for this condition of affairs. They cannot be expected to spend $10 to $25 for books which they may never need again, yet that amount would be well spent by the company doing the work because it would be benefited directly and permanently. The Detroit United Railway has established a company library of more than 300 engineering books, which are available to all employees when required. This library represents an investment of about $1,000, which is small, considering its usefulness, but is many times larger than any of the individual engineers of the company could afford or would buy. Information on a wide variety of engineering subjects can be obtained from this library without loss of time. New books are added from time to time at the request of department heads, so that the collection is not allowed to become obsolete. The library also has proved of value in stimulating men in subordinate positions to read and study along lines which benefit them in their work. A company library of this kind is not beyond the means of even a very small system, to which it can be of as much value as to larger companies.

INTERURBAN TERMINAL PROBLEMS

The increasing development of interurban electric railway service in many populous centers of the country introduces important terminal problems to the attention of managers. The volume of traffic which can be successfully handled daily in and out of the business center by the use of every evident resource at the place where the car or train routes terminate depends upon local conditions to no small extent, yet the efficiency of a terminal as a piece of transportation machinery depends largely upon the skill with which the flow of travel by foot and wheel is maintained. The avoidance of congestion, on tracks as well as in passageways, is a prime requisite.

To a constantly increasing extent cities which enjoy a fast and frequent interurban service are approaching the point where the great majority of high-speed cars coming into town from remote points must be routed through a special station so as to provide for a centralized control of operation. The larger the system the more important the terminal problem becomes, and only in degree is the provision of facilities for expeditiously handling passengers and cars different in smaller but rapidly growing centers of population. Not a few lessons may be drawn from the terminal practice of the Middle and Far West in this respect. Many smaller companies may not at first see any parallel between their conditions and those prevailing in such cities as Denver, Indianapolis, Milwaukee and Los Angeles, yet it is noteworthy that some of the best features of interurban terminal design as found in large centers may be turned to account in smaller communities with little additional cost.

Where the number of cars handled per day is very large, it appears profitable to provide waiting-room accommodations in considerable measure separated from the tracks. The general practice of requiring passengers to purchase tickets before entering cars at such stations calls in many cases for the location of ticket-selling windows opposite the track gateways or entrances, leaving the intervening space to be traveled as short as is consistent with a liberal aisle and avoiding the congestion which tends to accumulate where tickets are sold immediately beside the doorways leading to the tracks and loading platforms. The Pacific Electric Railway station at Los Angeles typifies this design, and as nearly 750 train movements per day are handled in and out of this station, the separation of traffic into streams mainly independent of one another is a vital consideration. The employment of train announcers is a matter of necessity in such a station, and the use of a supplementary signing system in the inner and main waiting rooms greatly facilitates the flow of travel to particular car lines. It is worthy of note that where

the volume of traffic is large enough to justify the employment of train announcers and the separation of the waiting room from the loading platform the plan of requiring passengers for a given destination to enter the common platform via a specified and signed gateway or door is remarkably effective in reducing congestion and exceedingly inexpensive in operation, since one or two announcers can handle six or eight gateways, even in the rush hours. The plan of keeping passengers off the loading platform until their particular car arrives leaves the platform free for loading cars marked for other destinations and contributes wonderfully to the maintenance of the highest standards of service.

The control of car movements in and out of a space set aside as an interurban terminal is a problem with many variants. Where the routing is in and out of a large tract of land comparatively free from immediate contact with the car movements on local tracks passing the station, the signaling requirements tend to become extremely simple. In large cities, however, the entrance and egress of cars and trains made up of multiple-unit or motor and trailer combinations is a serious matter when all interurban traffic is obliged to pass over local rails for one or more blocks outside the terminal station. Under conditions such as these the establishment of interlocking signal and switching equipment is generally necessary for the prompt and safe handling of the service. The schedules are bound to be upset at times through street obstructions, and immediate advantage must be taken of temporary gaps in the street travel by cars about to enter and leave the terminal property. Late cars must be switched past those on or ahead of time, provision for emergency inspection and adjustment of equipment must be made, and close connection must be maintained between the points of massing of patrons near the loading platform and the approach tracks. In this way no time need be lost in waiting for loading to begin, once a car has reached its berth. Seconds count heavily here, and experience shows that electrically operated signals and switches are both quicker and more reliable than the older types.

The opportunities for publicity work in an interurban terminal are so numerous that only passing mention need be made of the possibilities. They include a liberal system of direction signs, sub-letting of space within the station to organizers of side trips and personally conducted tours, the display of large and attractive photographs of scenery on the walls, and the location of the information bureau with its printed matter close to the main entrance. The larger the terminal the more nearly it may approximate the conveniences of the great trunk line stations, but no terminal should be without the sources of free and conspicuous information concerning travel on the system urgently desired by the public.

When planning a terminal station it is always wise for a company to acquire plenty of ground to allow for the future expansion of the station. From past experience it seems hardly possible to be too sanguine of the growth of the traffic to be handled, and a little extra property is usually a good investment if purchased before the improvement. Later the company may be compelled to pay heavily for the same land.

CAPACITY OF MOTORS FOR TRAILER OPERATION

The critics of trailer operation for city service usually lay great stress upon the danger of the motors becoming overheated and thereby damaged unless the motor cars when operating singly are considerably over-powered. They claim, with some reason, that if a motor car is equipped with motors of just enough capacity to propel itself at the schedule speed and with the usual number of stops, the additional weight and number of stops caused by the addition of a trailer during the rush hours will put an undue strain on the motors unless the schedule speed is considerably lowered. The advocates of trailer operation, on the other hand, urge that if the motors have been at rest for some hours before trailer operation is commenced and are thoroughly cooled off, a motor car with reasonably adequate capacity for single-car operation should be able safely to haul a trailer from one to two hours without dangerous rise in temperature. Thus they virtually admit that if the trailer is hauled when the motors are warm, or if it is hauled longer than two hours, damage is likely to result. To add such limitations for trailer operation to those inherent to the service, such as the inability of the trailer to move itself, seems greatly to circumscribe its usefulness.

As a rule the roads which depend upon trailers for their rush-hour service are apt to use them at other hours and for more than one or two trips. Special events, such as baseball and football games, automobile races, theater traffic, state fairs, etc., are likely at any time to call for every available car, and it is pretty certain that the operating officials will use the trailers as long as they may be necessary for traffic reasons without giving much thought to the heat limitations of the motors.

When the officer in charge of operation has large crowds of people to be moved within a limited time and finds that nearly all of the motor cars are already in regular service, he will probably utilize trailers for as long a period as may be necessary rather than invite public criticism of the service given and permit the nickels to escape. For these reasons there has been a tendency to over-motor the equipment upon those roads that contemplate the occasional use of trailers or that have used them intermittently, as, for example, during the summer excursion season. Those roads that deliberately plan the use of trailers as their standard practice will be very apt to provide motors of sufficient excess capacity to pull continuously the trailers required in the rush hours.

It would seem, therefore, that if a road proposes to adopt trailer operation as its standard practice and expects to realize the full advantage of this service operation, excess motor capacity must be provided for all cars that are expected to pull trailers. The amount of such excess motor capacity should be calculated with the same care and precision as that generally used by electrical engineers in selecting the size of motors for any given service where all the conditions are clearly set forth. In a matter of so much importance no rule-of-thumb calculations should be followed, because the life of the equipment, as well as the cost of maintenance, must depend upon its careful adaptation to the work to be done.

Power-Distributing System of the Oakland, Alameda and Berkeley Suburban Lines of the Southern Pacific Company—II.

This Is the Second and Final Article on This Subject—It Describes the 1200-Volt Catenary Construction for Bridge and Pole Suspension, Including Specifications of All Insulating Material and Detailed Descriptions of Special Features of Construction

SYNOPSIS OF FIRST ARTICLE

The first article on the power-distribution system of this branch of the Southern Pacific Company was published in the issue of the ELECTRIC RAILWAY JOURNAL for Oct. 21. It referred to earlier articles on the power station and rolling stock and described the present extent of the electrification, the character of service, the principal features of the high-tension transmission line, the details of the 1200-volt feeder system and of the negative return system. The first article also contained a map, the principal wiring diagrams and the specifications covering the high-tension insulators and cables of the transmission system.

1200-VOLT FEEDER DISTRIBUTING LINES

The overhead catenary construction presents several unusual features. It is built to provide for the operation of a roller type pantograph at speeds up to 45 m. p. h. with an upward pantograph pressure ranging from 25 lb. to 36 lb. In the design of the supporting structures for the catenary bridges spaced 240 ft. apart are used, while on public streets center pole and side pole span construction has been adopted acording to conditions.

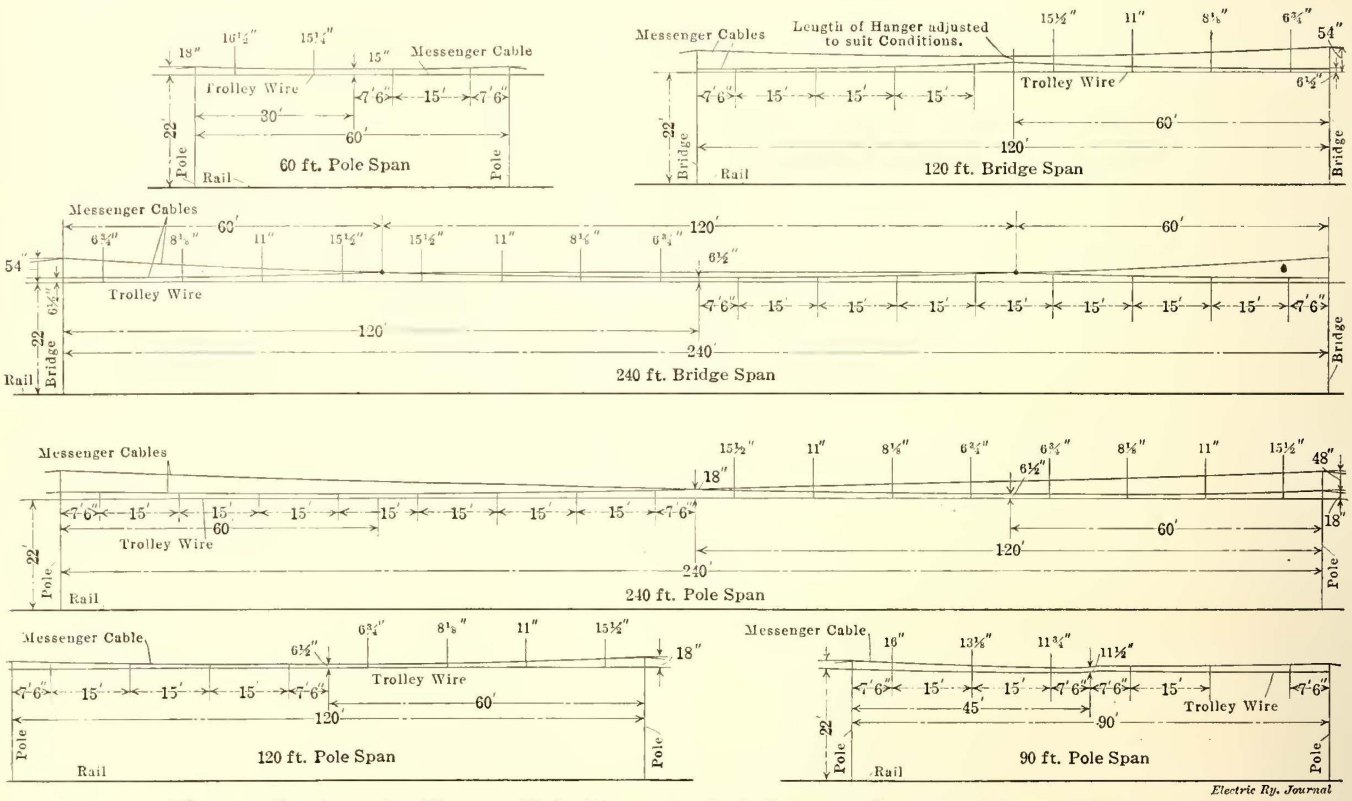


Fig. 17—Southern Pacific 1200-Volt Lines—Typical Catenary Spans and Hanger Spacings

As the standard span on both the center and side pole construction was 120 ft., it was decided to install an auxiliary messenger on the 240-ft. bridge span and to pick up the main messenger 60 ft. from each side of the bridges. This form of construction not only decreased the number of hangers required, but had the additional advantage of lowering the center of gravity of the line with respect to its points of support on the bridges, thus steadying the trolley so that no steady braces were required for tangent track. On curves bridle wires are run the entire length of the curve and from it all necessary pull-off attachments are made. The side sway of the cars and pantographs distributes the wear on the surface of the rolling collectors and does not convey to the trolley wire sufficient side movement to affect the satisfactory operation of the collectors.

The standard spans for center pole and cross span construction are as follows: 120 ft. for tangent track and curves up to 3 deg.; 90 ft. for curves from 3 deg. to 6 deg.; 60 ft. for curves from 6 deg. All catenary bridge spans are 120 ft. apart. Fig. 17 shows typical catenary spans and hanger spacings for all types of suspension both on the highways and on the right-of-way.

Figs. 5 and 7 show respectively the construction details of a two-track intermediate bridge and a two-track anchor and signal bridge. The intermediate bridges are built up of latticed channel columns and 8-in. I-beam carriers. The I-beam is 31 ft. 4 in. long and gives a clear roadway width of 30 ft. The messenger cable insulators are set on wooden blocks mounted on Z-bars which are attached to the I-beam carriers. The height from the head of the rails to the trolley is 22 ft. and from the top of the rails to the messenger 26 ft. 3 in. The anchor and signal catenary bridges are built up of towers and trusses as shown, with the same clearances and overhead arrangements as the intermediate

bridges. The drawings show the positions of the wooden cross-arms for carrying high-tension transmission lines, signal cables and telephone wires, etc., with provision for carrying a duplicate high-tension line on the opposite side. Figs. 14 and 18 respectively are views of a four-track anchor and signal bridge at a curve and of a four-track intermediate bridge over tangent track. The bridges were

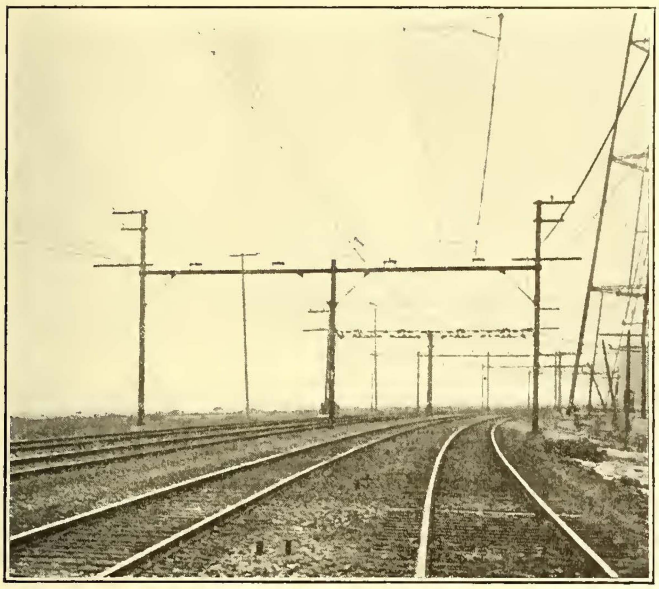


Fig. 18—Southern Pacific 1200-Volt Lines—Four-Track Intermediate Bridge at Curve

fabricated by the American Bridge Company from Southern Pacific designs.

Figs. 19 to 26 show the several types of steel pole span side and center construction which are used in operating over public streets. The clearance between the top of the rail and the trolley is 22 ft. throughout. The poles for side construction are 34 ft. long and for center pole con-

Fig. 19—Southern Pacific 1200-Volt Lines—Center Pole Construction on Tangent Track in City Streets

struction 30 ft. long, but 34-ft. poles are used for double cross-arm and auxiliary mesenger cable sections.

POLE DETAILS

The general construction of the several types of pole work is clearly shown in the drawings, but it may be of interest to give further particulars about different equipment details.

The standard tubular poles are made of three sections of lap welded tubing, the sections being hot-swaged together with not less than 18-in. overlap at the joint. The specifications required that the poles satisfy the following operating conditions: Pole spacing, 120 ft.; pole length, 30 ft., with 6 ft. set in concrete on two pieces of 2-in. x 12-in. x 24-in. redwood; diameter of steel messenger, 7/16 in.; diameter

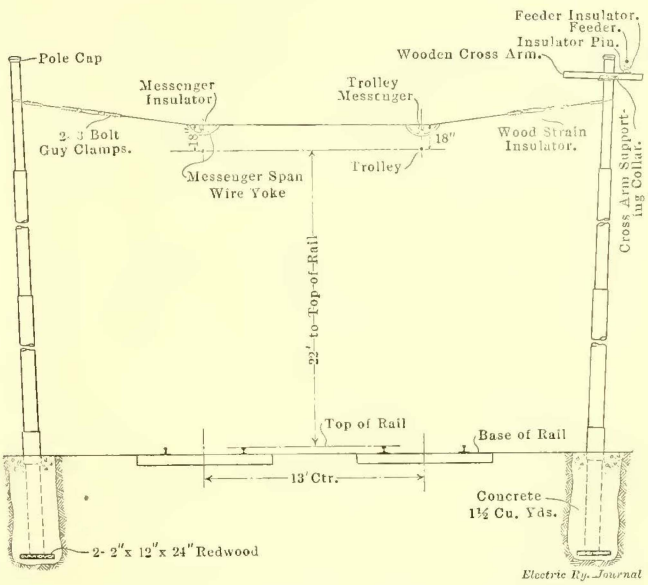
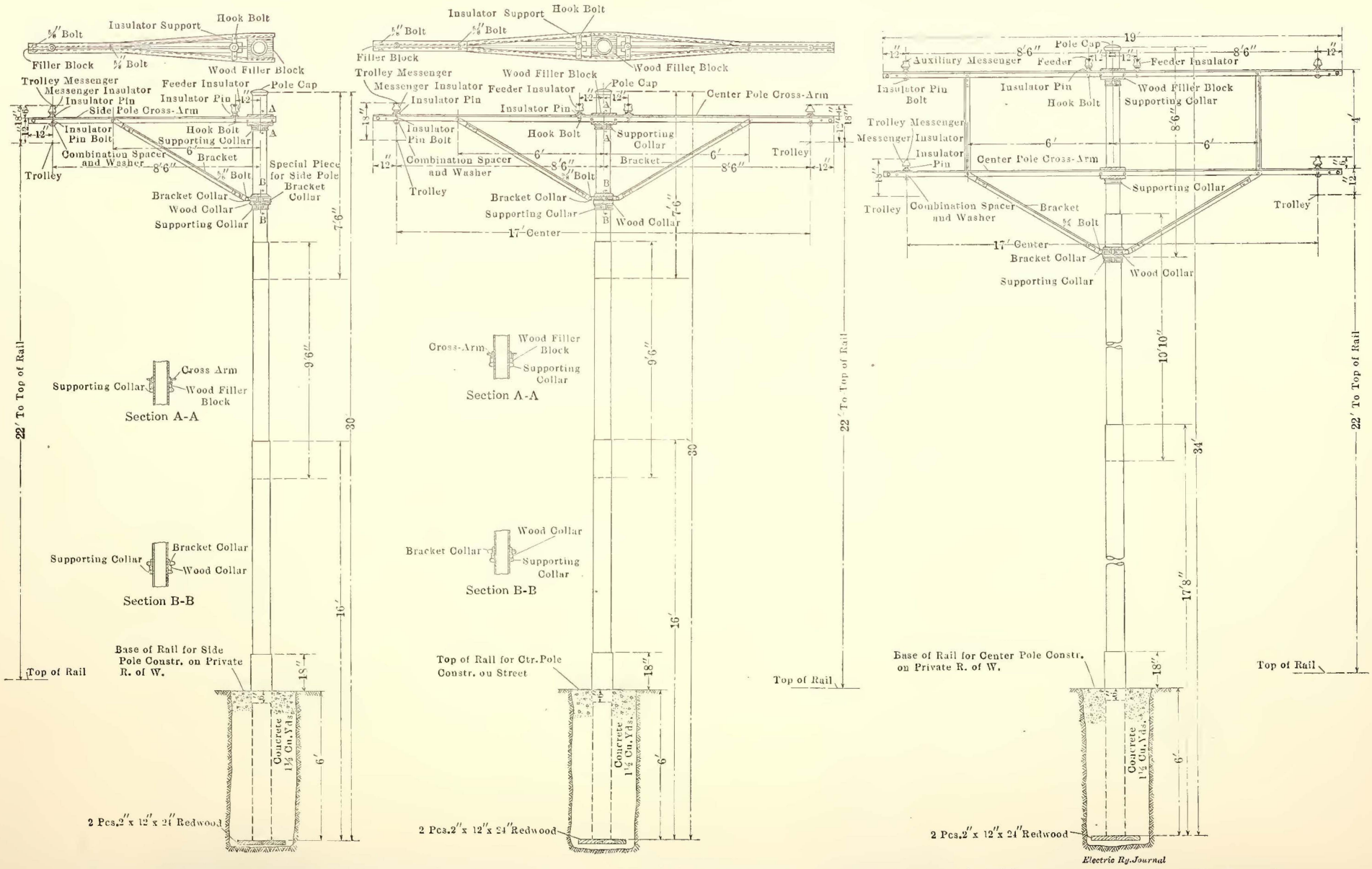


Fig. 20—Southern Pacific 1200-Volt Lines—Standard Double-Track Span Construction

of feeder, 1⅞ in.; size of trolley wire, No 0000; approximate weight of messenger, trolley wire and hangers, 1½ lb. per foot; approximate weight of feeder, 1½ lb. per foot. Each pole has a protecting sleeve at the ground line. This sleeve is 24 in. long and 6 in. of it extends into the concrete foundation. It was specified that in a 60 m.p.h. windstorm at right angles to the track these poles must not have

Fig. 21—Southern Pacific 1200-Volt Lines—Cross-Span Construction on Tangents

more than 1½ in. deflection at the top when carrying an installation of the weights noted. When set 6 ft. in concrete each pole was to withstand a pull, applied at a distance of 18 in. from the top, of the calculated amount due to a windstorm of 60 m.p.h. Under this pull, placed at 600 lb., the pole was to show a deflection of not more than 1½ in. All poles were given one coat of red paint be-



Figs. 22, 23 and 24—Southern Pacific 1200-Volt Lines—Assemblies of Side Pole, Center Pole and Center Pole with Double Cross-Arm Construction

fore shipment. Similar specifications were issued to cover the longer poles. The poles were furnished by the National Tube Company.

The following pole fittings were fabricated in the shops

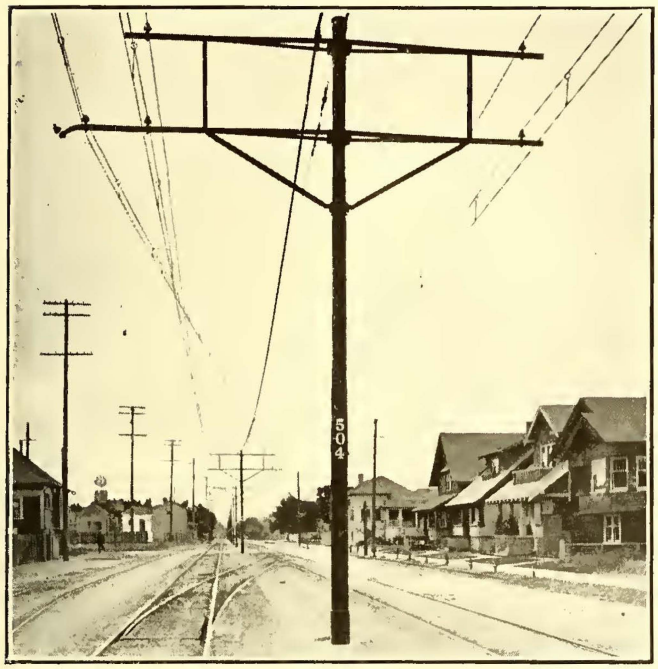


Fig. 25—Southern Pacific 1200-Volt Lines—Overhead Construction at Cross-Overs

of the Southern Pacific Company: 2-in. x 2½-in. x 5/16-in. angle-iron cross-arms and brackets; Oregon pine filler blocks and collars boiled in tar; feeder insulator supports and hook bolts and cast-iron combination spacer and washer. The malleable-iron brackets and supporting collars were furnished by the National Malleable Castings Company from the Southern Pacific Company's designs.

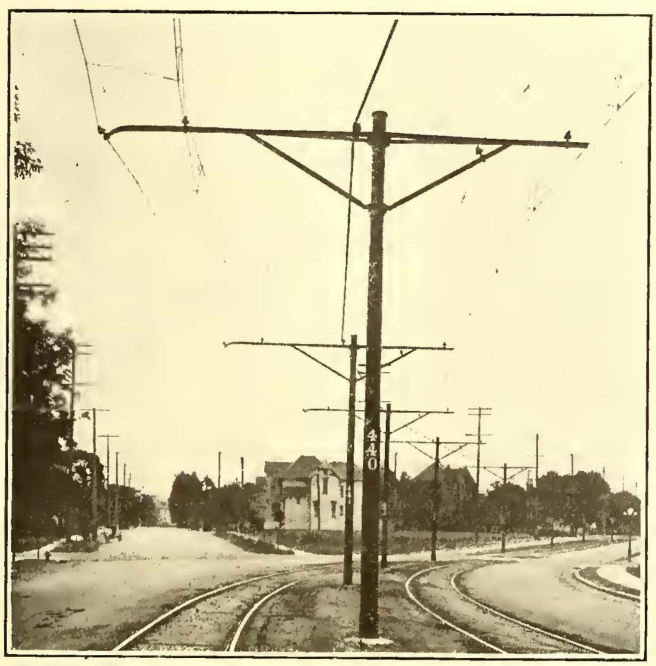


Fig. 26—Southern Pacific 1200-Volt Lines—Center Pole Construction on Curved Track in City Streets

The malleable-iron galvanized messenger insulator yokes shown in Fig. 27 were furnished by the H. W. Johns-Manville Company. Details of the cross-arm and center pole pins are shown in Fig. 28.

WIRE REQUIREMENTS

The span wire in the cross span construction is of 7/16-in. seven-strand galvanized steel cable with a breaking strength of not less than 6500 lb. The wire used for all pull-off attachments is of 5/16-in. seven-strand galvanized steel cable with an ultimate breaking strength of 3800 lb. or more. The messenger wire is a 7/16-in. seven-strand high-strength galvanized steel cable with an ultimate breaking strength of not less than 15,000 lb. All 1200-volt feeders are of stranded aluminum with triple cotton braid and of the following lengths and sizes; 65,000 ft. of 800,000 circ. mil; 60,000 ft. of 1,000,000 circ. mil; 95,000 ft. of 1,192,500 circ. mil; 170,000 ft. of 1,590,000 circ. mil.

All joints in cables were made by means of single piece, cast aluminum sleeves installed in the field with a special

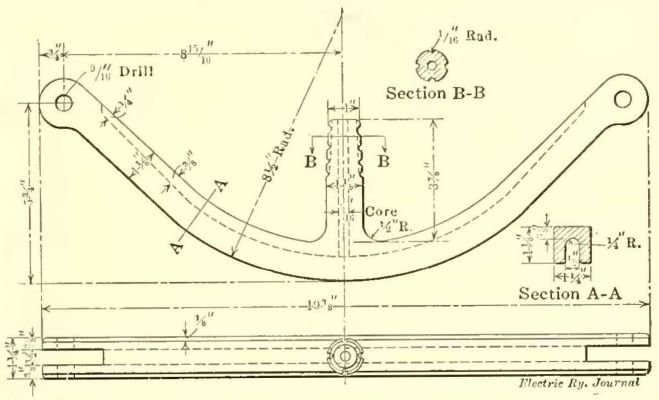


Fig. 27—Southern Pacific 1200-Volt Lines—Messenger Span Wire Yoke for Translator

10-ton hydraulic compressor. All feed-in taps to the trolley wire are No. 0000 thirty-seven-strand bare copper cable jointed to the aluminum feeders through parallel grooves with aluminum clamps molded in place.

DETAILS OF 1200-VOLT INSULATORS

The 1200-volt messenger and feeder insulators, as shown in Figs. 6 and 29, were furnished by the Locke Insulator & Manufacturing Company. The messenger insulators consist of a single piece of dark brown porcelain, that part of the insulator which is above the wire groove being fitted with a Clark clamp for holding the messenger to the insulator. The general specifications required that when cemented this insulator should withstand a mechanical test equivalent to a horizontal pull of not less than 4000 lb. applied at the tie wire groove. This test was applied to one out of every fifty insulators, upon which the porcelain

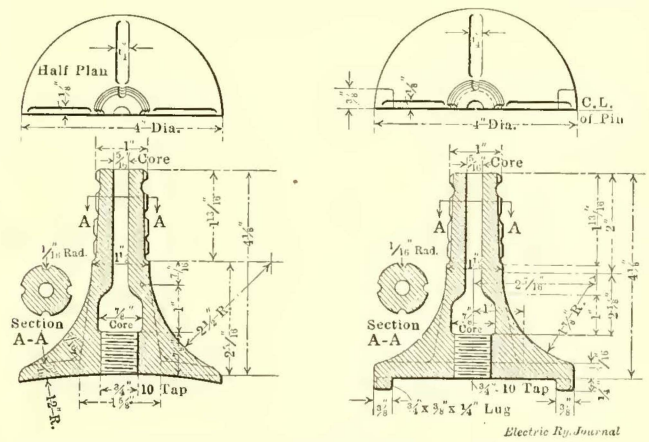


Fig. 28—Southern Pacific 1200-Volt Lines—Cross-Arm and Center Pole Pins

was broken for inspection. The electrical requirements were that the insulators would withstand the usual shallow pan water test of 20,000 volts for one minute continuously.

The feeder insulators are made of a single piece of dark

brown glazed porcelain. They were required to answer the same mechanical requirements as the messenger insulators, but they were to withstand a test of 30,000 volts instead of 20,000 volts.

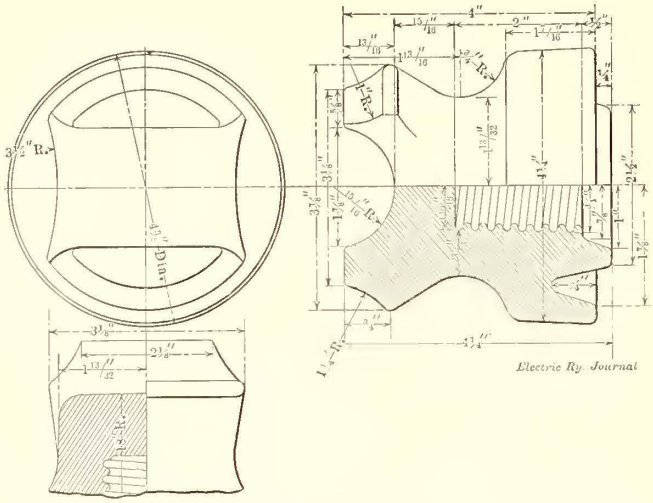


Fig. 29—Southern Pacific 1200-Volt Lines—Insulator for Feeders

CATENARY HANGERS

Before deciding upon the type of catenary hangers to be used preliminary bids accompanied by designs and samples were submitted by several manufacturers of line material. After a careful study of the several patterns the Southern Pacific Company made final drawings upon which bids were requested. The eye top design of hanger shown in Fig. 8 was found most acceptable for avoiding excessive wear and arcing at the trolley cars. This hanger lifts and tilts as the pantograph approaches and passes under the ear. Other features of this hanger are its simplicity, only four parts being required, and its freedom from rust pockets. The special coupling is of malleable iron, the ear jaws are of dropped forgings and the rod is of wrought iron. All the parts of the hangers are thoroughly galvanized.

The hangers were made by the Westinghouse Electric & Manufacturing Company in accordance with the following requirements: After being subjected to the zinc coating process, 1 per cent of every lot of hangers was to be cleaned, dried and immersed for one minute in the test solution hereinafter described, then washed and wiped dry. This immersion and drying were to be repeated four times while the temperature of the test solution was maintained between 62 deg. and 58 deg. Fahr. Immediately after their immersion the samples were to be washed in clean water of the same temperature as the test solution and dried with cotton waste before the next immersion. Samples that showed a bright metallic deposit after the foregoing test had been made were considered defective. The cleaning and drying test as set forth in the original specifications follows:

"(a) Cleaning and Drying: All samples shall be cleaned before the test, first with benzine or turpentine and cotton waste, (not with a brush), and then thoroughly rinsed in clean water and wiped dry with clean cotton waste.

"(b) Test Solution: The standard test solution shall consist of commercial copper sulphate crystals dissolved in cold water, about in the proportion of thirty-six parts, by weight, of crystals, to 100 parts, by weight, of water. The solution shall be neutralized by the addition of an excess of chemically pure cupric oxide, (CuO), as shown by the

Fig. 30—Southern Pacific 1200-Volt Lines—Details of Overhead Crossing with a 600-Volt Line

sediment of this reagent at the bottom of the containing vessel. The neutralized solution shall be filtered before using and shall be brought to a specific gravity of 1.186 at 65 deg. Fahr. at the beginning of every test. When the filtered solution is too heavy its density shall be reduced by adding clean water, and when it is too light its density shall be increased by the addition of filtered solution of higher specific gravity. Whenever the heavier solution is taken from the vessel which contains the unfiltered neutralized stock solution additional crystals and water shall be added to the stock solution, plus any cupric oxide that may be required to maintain the excess of this reagent in the unfiltered stock solution.

"(c) Quality of Solution: All samples shall be tested in a glass or earthenware jar in which shall be at least one-half pint of the standard solution for every sample tested. This portion of the solution shall not be used for more than one series of four immersions.

"In making the test, the samples shall not be in contact with each other but shall be kept well separated in order that the action of the reagent shall be uniform upon all immersed portions of the samples."

WOOD-BREAK STRAIN INSULATOR

In dead-ending trolley and messenger wires there are used in series one Ohio Brass Company's porcelain insulator and one wood-break strain insulator having a minimum stick diameter of 1¾ in. and a minimum distance of not less than 12 in. between the ends. The porcelain strains as tested at the Southern Pacific shops showed a breaking strength of 9500 lb. The wood-break strain insulators were given a factory test of 12,000 lb. before shipment.

CROSSINGS OF 600-VOLT LINES

Rather severe conditions were imposed in the crossings of the 1200-volt trolley by the 600-volt lines of foreign roads, as many of these crossings are located near station stops where the trains collect very heavy starting currents. Two wood-break section insulators are installed in the 1200-volt line on each side of a 600-volt crossing. These insulators have connected between them a short piece of trolley which is grounded to a switch located on an adjacent trolley pole. Normally this switch is closed, but it is opened by the linemen when necessary to work on this portion of the line. As shown in Fig. 30, wire brush contacts are attached to catenary hangers on the 1200-volt side of the section insulators. These brush contacts, through secondary contact on the pantograph frame, energize a time-limit potential relay on each motor car. The operation of this relay opens the motor circuit and prevents the heavy arcing

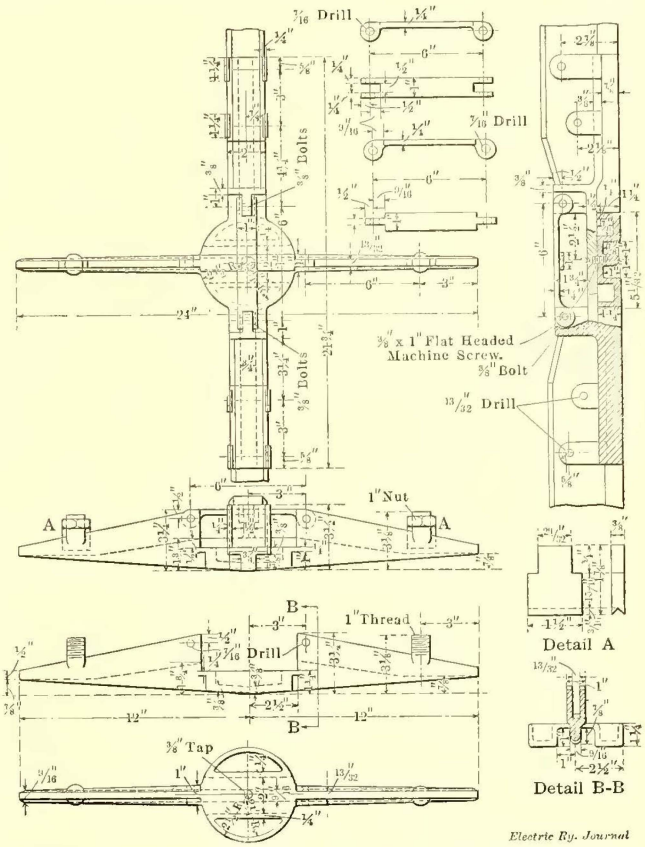


Fig. 32—Southern Pacific 1200-Volt Lines—Adjustable Trolley Crossing

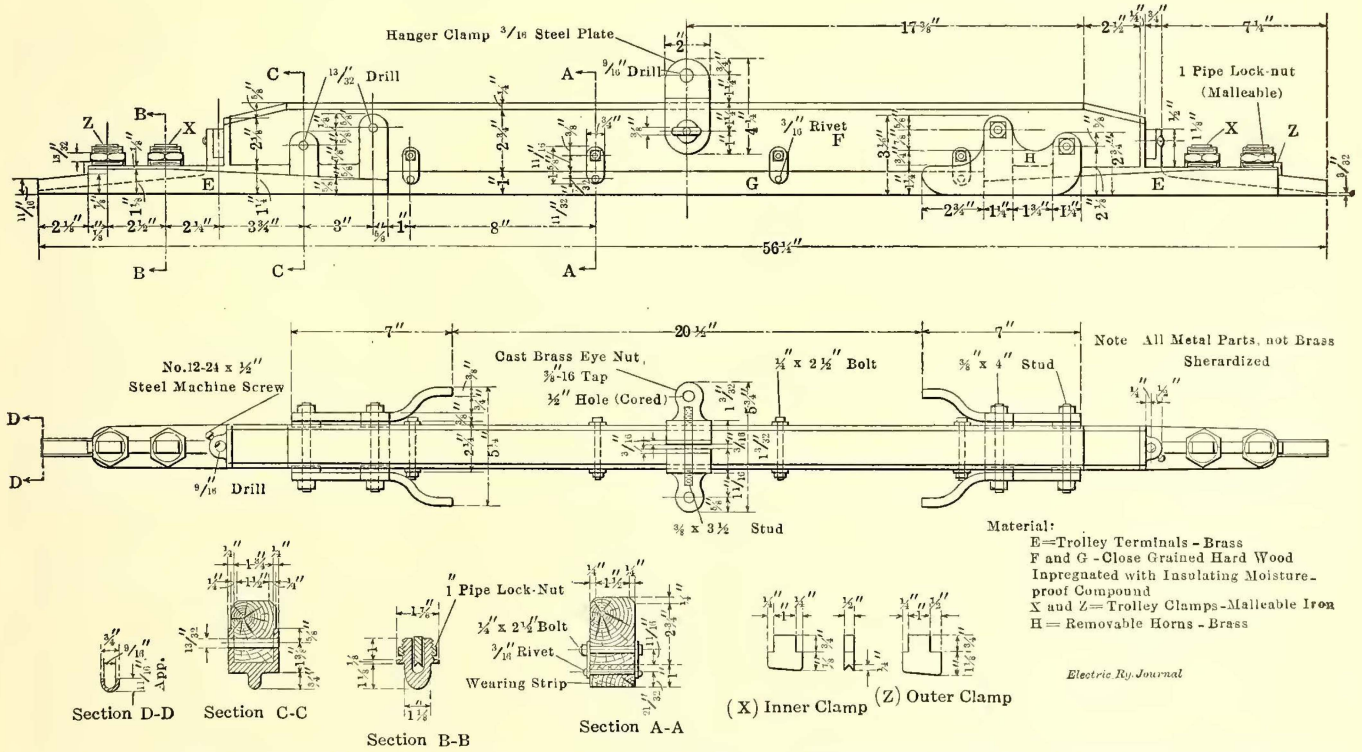


Fig. 31—Southern Pacific 1200-Volt Lines—Trolley Crossing with Section Insulator of Air-Brake Horn Type

that would otherwise occur when the pantograph passes under the section insulators.

Fig. 31 shows the details of an air-break, horn-type section insulator, Fig. 32 an adjustable trolley crossing and Fig. 33 a wedge-type splicing shield for the No. 0000 trolley wire.

GENERAL SUMMARY

The bonding of the tracks was commenced in May, 1909,

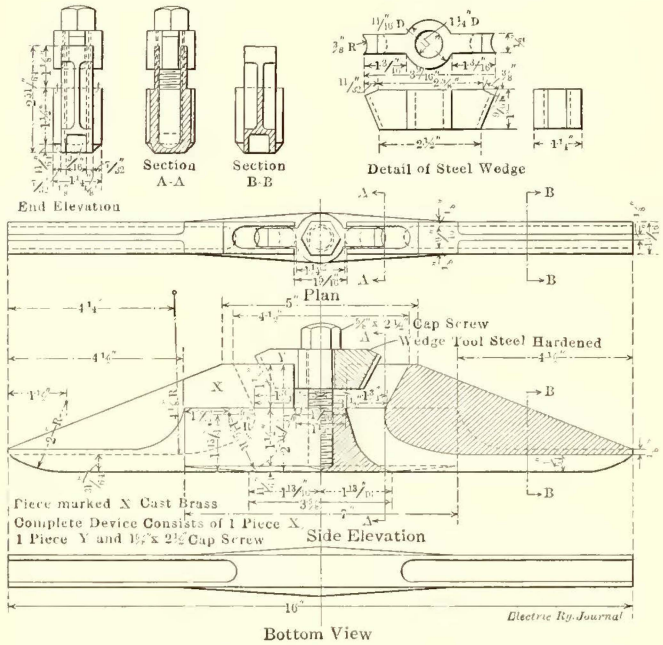


Fig. 33—Southern Pacific 1200-Volt Lines—Mechanical Splicing Shield for No. 0000 Wire

and progressed slowly with the necessary construction of the roadway and tracks. The erection of catenary bridges and poles was started in the fall of 1909 and was likewise carried along with the roadway and street work. No effort was made to hurry the operations because the delivery of the cars was not expected until the spring of 1911.

The mileage of the various types of overhead construction is to be divided approximately as follows: Catenary bridge construction, 15 miles of single track; center pole construction, 55 miles of single track; cross-span construction, 50 miles of single track. The total numbers of the spans of various lengths, exclusive of shop yards, are approximately as follows: 3700 120-ft. spans, 1400 90-ft. spans, 800 60-ft. spans. The large proportion of 90-ft. to 60-ft. spans is largely due to sharp curves and necessary adjustment of pole locations to avoid cross streets.

The total quantities of material used for the present electrification may be of interest. They were approximately as follows:

Forty two-track intermediate bridges.
Ten two-track signal and anchor bridges.
Thirty-five four-track intermediate bridges.
Thirteen four-track signal and anchor bridges.
Three thousand three hundred and eighty-five steel tubular poles.
Three hundred and forty-one steel transmission poles.
Three steel towers.
Eleven circuit breakers and switching houses.
Six hundred and sixty thousand feet No. 0000 trolley wire.
One million one hundred and twenty thousand feet 7/16-in. messenger cable.
Three hundred and sixty-five thousand feet span and guying cable.
Four hundred and ninety thousand No. 0000 seven-strand copper high-tension conductors.
Seventy thousand No. 0000 track-rail bonds.
Four thousand five hundred feeder insulators.
Fourteen thousand messenger insulators.
Three thousand five hundred high-tension insulators.

Fig. 34—Southern Pacific 1200-Volt Lines—Standard Construction Train Installing Overhead Work

The half-tone illustration, Fig. 34, shows the special work train which was assembled for erecting poles and catenary lines. This train consists of a locomotive crane geared to run up to 12 m.p.h., a flat car and a tower car equipped at the company's shops with a tool house and adjustable tower. The use of this outfit saved $45 a day compared with a work locomotive, as it was operated for not more than $10 a day. Aside from the saving and rental of equipment the crane was found particularly useful in handling poles, cable reels, etc.

ENGINEERING

The several features of the power distribution system and line construction described in the foregoing paragraphs were designed and installed under the direction of A. H. Babcock, electrical engineer, by H. W. Clapp, engineer of electric car equipment, assisted by B. C. Edgar.

EXHIBIT OF THE PUBLIC SERVICE COMMISSION, FIRST DISTRICT, NEW YORK

At the annual budget exhibit of the city of New York, which has been conducted during October at 330 Broadway, the Public Service Commission of the First District has had an exhibit. Among other things the commission exhibited a series of photographs and charts showing the progress of the work on the Fourth Avenue subway in Brooklyn, views of the wheel guard tests conducted by the commission and a map of the present rapid transit lines in the city, showing the comparative ticket sales during the year at the different elevated railway and subway stations.

Another chart shows graphically the expenses of the Public service Commission by years since it entered office on July 1, 1907, and the expenses of the preceding board of rapid transit railroad commissioners. The expenses of the Public Service Commission are subdivided into those of public service regulation and those of rapid transit planning and construction, the purpose being to prove that the latter have been less during the past four years than in the years immediately preceding and that the expenses of public service regulation comprised only a small part of the total expenses of the commission. Another diagram shows graphically the relation between the population of the present city for each decade since 1860 and the number of surface railway passengers per annum for each year. Still another illustrates diagrammatically the number of fatal injuries on the surface railroads for each of the four past fiscal years, with the number of passenger car miles and passengers carried. Still another diagram shows the expenses per capita for public utility service within the city. This division of expenses, gross and per capita, in Greater New York, is shown in the following table:

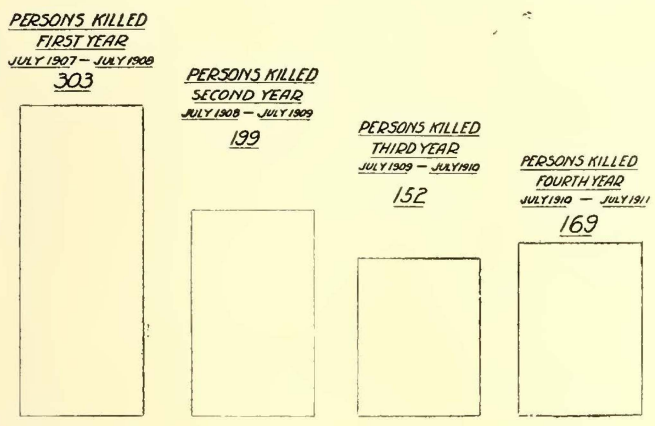


Diagram Showing Statistics of Fatal Accidents

ELECTRIC LIGHT AND POWER.		
Per capita	$5.32	
General consumers	$22,658,006	
Municipal lighting, etc.	2,724,817	
Total		$25,382,823
GAS.		
Per capita	$6.68	
General consumers	$31,040,152	
Municipal lighting, etc.	803,120	
Total		$31,843,272
TRANSPORTATION.		
Per capita	$16.35	
Stage coach line	$616,073	
Surface car lines	37,944,753	
Elevated railways	22,854,043	
Hudson tunnels	2,142,008	
Subway	13,443,805	
Staten Island steam railroad	943,090	
		$77,943,772
Total	$23.55	$135,169,867
SUPERVISION BY PUBLIC SERVICE COMMISSION.		
Per capita	$0.08	
Total	$23.63	$135,546,867

Another chart shows the results of tests of gas meters from July 1, 1907 to July 1, 1911. Of the meters tested

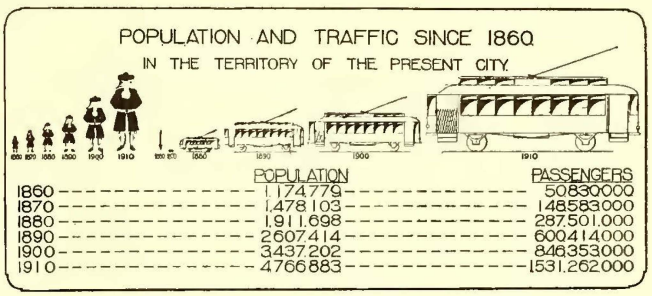


Diagram Showing Growth of Traffic

44 per cent were found fast, 46 per cent were found correct and 10 per cent were found slow.

Another chart was entitled "Where the Nickel Goes—Distribution of the 5-Cent Street-Car Fare." It presented the following statistics:

	All Street Railway Companies.*	Subway Only.
Wages of conductors and motormen	$0.7525	$0.3350
Other wages and salaries	0.9255	0.8020
Other operating expenses	0.9650	0.4500
Taxes	0.3370	0.0840
Rent due city	.....	0.8120
Interest, etc.	1.0000	0.8920†
Surplus for dividends	1.0200	1.6250
Total	$5.0000	$5.0000

*Including subway and elevated lines.
†6 per cent on estimated investment of lessee.

Another tabulation shows the fatal accidents on the surface lines by months.

The Adrian (Mich.) Street Railway operates a "loop" line serving the two most important steam railroad stations in the city. These stations are located at a considerable distance from the business district and the street cars pass the railroad stations at twelve-minute intervals. This street-car service is in competition with public horse and automobile vehicles, but a substantial amount of depot traffic is obtained for the street cars by use of a simple indicator installed close to the car tracks at each station. The indicators resemble large clock dials surmounted by a sign announcing "The next car will arrive at —." The hands of the clocks are moved forward by each car conductor to show the arriving time of the succeeding car. Thus a stranger getting off from a steam train at once receives definite information as to the time of arrival of the next street car.

The Uses of an Appraisal

The Author Describes Twelve Uses to Which the Appraisal of an Electrical Property May Be Applied and Draws Distinctions Between the Values of the Property for Different Purposes

BY HALBERT P. GILLETTE, CONSULTING ENGINEER, NEW YORK

Appraisals are generally regarded by electric companies as being a necessary evil, forced upon them by public service commissions and tax commissions. However, it will soon be apparent that an appraisal may be so used as to pay a handsome return on the cost of gathering the data.

There are at least twelve uses to which an appraisal of the property of a public service corporation may be put, namely:

1. As a basis for taxation.
2. As a basis for rate making.
3. As a basis for the sale of the property.
4. As a basis for issuing bonds and stock.
5. As a basis for insurance.
6. To show the public that the net earnings are moderate.
7. To assist the accounting and engineering departments by correcting past errors, by preventing future errors arising from incorrect charges to plant account and to maintenance, and by providing a correct plant distribution at all times.
8. To determine the amount of existing depreciation.
9. As a guide in estimating maintenance expenses, thus providing a criterion by which to judge the efficiency of management and to show true net earnings.
10. As a basis for a complete analysis of unit costs of production with a view to effecting economies.
11. For comparing similar plants and interpreting their operating costs.
12. As an inventory, to disclose inadequately remunerative pieces of property and to detect property losses arising from theft, carelessness, etc.

TAXABLE VALUE

Eventually it will be seen that all property taxes should be based upon net earning capacity. At present, however, the public inclines strongly toward the appraisal of public service corporation property as a basis for taxing such property. Hence appraisals of the cost of reproduction have been used in several states for taxation purposes. It is demonstrably unfair to tax certain property on its cost of reproduction when other property is taxed on values that are guessed at and public service corporations are justly becoming aroused over their rapidly rising taxes wherever public service appraisals have been made. Land is said to be taxed upon its value, but its value depends entirely upon the net income derivable from it.

To estimate net earnings correctly it is necessary first to ascertain the detailed cost of the plant so as to determine accurately the average annual repairs and depreciation. Hence an appraisal of the physical property should precede every attempt at fixing values for taxation. This will eventually lead to the scientific appraisal of all property, although at present such appraisals are confined to public service corporation property.

At first thought it seems incongruous that there should be one value for taxation and another value for rate making. Brief study suffices to show that any other scheme leads to absurd results. In this State [Washington] there is a railway whose appraised cost of reproduction is $3,000,000 according to my estimate. It is entitled to make net earnings of at least 7 per cent or 8 per cent on its cost of reproduction, but it does not earn any such return. Capitalized at its annual net earnings (by dividing them by 7 per cent) the value of the property is about $2,000,000, which is about the value assigned to it by the Public Service Commission. Any higher valuation for taxation purposes would ruin the company, which is already weak. Yet for rate-making purposes that railway is entitled to a valuation of $3,000,000, so that it may earn a return on its $3,000,000 investment if it can do so without charging rates that will drive away its already meager business.

RATE-MAKING VALUE

Values for rate making should also include not merely the cost of reproducing the physical plant, but the cost of building up the existing business, in so far as each element of cost is reasonable. This cost is best measured by ascertaining the accumulated deficits below a fair return on the investment up to the time that the plant begins to earn a fair return. This is called development expense or going value, and two public service commissions have recently adopted this theory, namely, the Wisconsin Railroad Commission and the Public Service Commission of the First District of New York. The Supreme Court of the State of Oklahoma has upheld the deficit theory of development expense.

SALE VALUE

The sale value of a property is ascertainable by the method used in ascertaining its taxable value—by capitalizing net earnings—with the additional element of present value of probable future increment in net earnings. In other words, future growth in net earnings is discounted and added to the capitalized present net earnings. Future growth is more or less problematical, as a rule, but may be prognosticated with some accuracy by the use of curves showing the growth of the property as compared with the growth of similar properties.

VALUE FOR ISSUANCE OF SECURITIES

The issue of bonds is generally limited to the cost of the physical property in its new condition and often the mortgage limits the bond issue to about three-fourths the appraised cost of the physical property. It is likely to become the practice of all states to limit the issue of stocks and bonds to an amount that shall not exceed the cost of reproducing the property and business of the public service corporations. The first state appraisal of railways, that of Texas, was made for the express purpose of restricting the issue of railway securities.

INSURANCE VALUE

Little need be said at this time on this phase of the subject of appraisal, but it may be noted that the possession of a complete appraisal of a public service property often discloses the desirability of taking out much more insurance than had been previously carried.

PUBLICITY OF VALUES

If the owners and managers of public service properties had realized the effectiveness of publicity of the facts and of all the facts about their business we should not be to-day in a season of hard times. Concealment of data has led to public suspicion; suspicion has led to muckraking; muckraking to unjust ordinances and attacks on public service property, and attacks have finally culminated in great timidity on the part of capital. I am confident that this timidity is itself born of ignorance, and will soon begin to vanish when capitalists see that it can be shown that rarely

*Abstract of an address delivered before the Seattle (Wash.) Electric Club Sept. 26, 1911.

does a public service property show net earnings of more than 6 or 7 per cent on its cost of reproduction. I predict that within two years a wave of popular revulsion against attacks on public service corporations will occur. My appraisal of all the railways in the State of Washington first opened my own eyes as to the meager net returns secured by railway companies, and I hazard little in risking the prediction that it will be found that when all the public service property in America shall have been appraised the net earnings will be less than 7 per cent of the cost of reproducing the properties, including therein the cost of building up the business, and that the average net earnings are very likely to be less than 6 per cent.

As a means of publicity alone, therefore, appraisals of public utilities will be worth incalculable sums, both to the public and to the corporations.

ASSISTANCE IN ACCOUNTING

Accounting should be so conducted that an appraisal of the cost of reproducing new the existing plant will check with plant account as shown on the ledgers of the company, provided the same unit costs are used in the appraisal as were actually incurred in the construction, and provided the appraiser ascertains the quantities according to the history of the construction. By correct accounting methods when an existing structure or machine is replaced with a new one the original cost of the old structure or machine, less its scrap value, should be charged to maintenance, and the difference between the cost of the new structure or machine and the amount thus charged to maintenance should be charged to plant or capital account. The data of an appraisal can be used to great advantage by the accounting department in estimating amounts properly to be charged off for plant renewals.

DEPRECIATION AND MAINTENANCE

An appraisal should show the age of all classes of plant and of as many plant elements as possible. This will throw great light on the proper sums to be set aside for depreciation reserves and the like. It will also disclose where renewals are urgent or likely to be necessary in the near future. Indeed, if a complete card record is kept of every element of the plant that can be readily distinguished from other elements, such as poles, with date of installation, cost of materials and cost of labor, it becomes possible to predict with great accuracy what the maintenance costs should be for the ensuing year. From a calculation of the weighted age of each class of plant units it is possible to interpret the maintenance accounts with far greater accuracy than now obtains, and thus it becomes possible to tell whether the management is truly efficient or only seemingly so.

The units in which maintenance of electrical properties are now recorded are frequently, indeed, usually, very unsatisfactory and often misleading to an astonishing degree. Take, for example, the car mile, which is a common unit for measuring maintenance of electric cars. This unit has its uses, but they are small when contrasted with the percentage method of measuring car maintenance. By the percentage method the cost of maintenance for the year is divided by the cost of the car, and the percentage thus secured is used as a gage of the maintenance cost. A motor car costing $4,000 will cost about one-third as much for maintenance as a motor car costing $12,000 if they are of equal age. If in each case the maintenance cost is 10 per cent for a given year and if each car travels 30,000 miles during that year we have $400, or 1.33 cents per car mile, as the maintenance cost of the $4,000 car and $1,200, or 4 cents per car mile for the $12,000 car. A person who did not know the cost of the cars would make a serious error if he should take the car mile as the sole unit in which to measure the cost of car maintenance.

There are almost innumerable examples of this sort that might be cited to show the use of appraised values as the basis for estimating or interpreting maintenance costs. In passing I wish to emphasize the grave danger of estimating maintenance costs as a percentage either of gross income or of operating expense.

BASIS OF ANALYSIS OF UNIT COSTS

We have just considered the use of appraised values in analyzing maintenance costs. Every unit cost contains the element of interest on the investment in the part of the plant used for producing the unit in question. Hence no complete cost of production can be ascertained without a complete knowledge of the cost of the part or parts of the plant involved in the production. Self-evident as this statement is, it is a fact that many owners and managers of public utilities have often ignored its import. Thus, it is not uncommon to see rates of charge for service that are so low as not to yield an interest return on the increment in plant value necessitated by the service rendered.

The foregoing consideration relates to rate making, but it is perhaps of even greater importance to consider investment values for the purpose of reducing costs of production. Any careful analysis of the appraised value of a large plant will almost invariably disclose the possibility of economies in maintenance expense and interest charges to be effected through a reduction in the amounts invested in certain classes of plant elements. Thus, it may be found that instead of several tracks serving a given section of a city one track can be so located as to perform every reasonable service. This might be seen without an appraisal, but an appraisal thrusts the fact before the managerial eyes so prominently that it must be seen.

COMPARISON OF SIMILAR PLANTS

Without a complete appraisal it is exceedingly difficult always and often impossible to compare the results of the management of different electrical properties. True efficiency is indicated not by large investment in plant, but by the least investment consistent with adequate service. Were appraisals made of all publicly owned and all privately owned waterworks, I doubt not that it would be found that the investment of capital in privately owned works is so much less than in municipally owned works giving equal service as to be amazing. The public usually forgets that efficiency is not measured by operating expenses alone, but that interest charges on large public utility plants often exceed operating expenses and are always a very large part of the total cost of production. Not only for the purposes of comparing private plants with one another, but for comparing public with private plants, is it highly desirable that all be appraised.

Socialism will not find a check to its advance until published appraisals and unit costs of production furnish the irrefutable evidence of the greater economy of private management of public utilities. Nor will political economy cease to be a science of qualitative analysis by guesswork and become a quantitative analysis by science until unit costs are taken as the universal criteria of efficiency in political as well as in business life.

Rapid progress is being made in the construction of the Oakland & Antioch Railway, a new high-speed electric railway which is being built to connect Oakland and Antioch and the intervening territory, extending about 40 miles eastward from San Francisco Bay. The new road is to connect with the San Francisco, Oakland & San Jose Consolidated Railway, the "Key Route," and is to be operated by direct current at 1200 volts with four 150-hp motors to a car. The cars are to be about 60 ft. long and will be run at a maximum speed of 50 m.p.h. Service is already being given in the so-called Valley district of the line, and a tunnel is being built in the hills east of Oakland to shorten the connection with that city. Catenary trolley construction is being installed, and power is purchased from the Great Western Power Company, San Francisco, substations each of 100-kw rating being located at present at the tunnel 4 miles from Oakland and at Concord.

Fare Agreement in Detroit

Details Are Published of the Plan Just Accepted by the City Authorities of Detroit and the Detroit United Railway to Settel the Franchise Situation in That City—It Has Still to Be Approved by the City Council and Will Then Be Referred to the Voters

A tentative arrangement for settlement of the franchise situation in Detroit has been made between the officials of the Detroit United Railway and the city of Detroit. The arrangement has been under discussion between officials of the company and the city for the last six months, but public announcement of the fact that settlement had been reached on the main points of controversy was not made until Oct. 21. At that time the full details of the plan outlined were given to the newspapers and they are now receiving informal consideration pending their submission to the vote of the people.

In general, the plan is to consolidate various terms of city ordinances granting franchises to the railway system through the enactment of a new measure which shall be supplemental to the ordinance granted to the Detroit Railway in 1894. Under the proposed arrangement all the franchises are to expire on the same date as the Detroit Railway franchise, Dec. 4, 1924. Certain provisions which are of unusual interest deal with conditions which have developed since the year in which the Detroit Railway ordinance was passed.

RATE OF FARE

Two of the main provisions of the arrangement, as tentatively concluded between the officials of the company and the city, relate to the proposed rates of fare on the city lines and the treatment of paving. It is proposed that within thirty days after the acceptance of the agreement by the people the rates of fare on all city lines and to and from Palmer Park, a place of amusement located just outside of the city limits, shall be as follows : Eight tickets for 25 cents from 5 a. m. to 8 p. m., six tickets for 25 cents from 8 p. m. to 5 a. m. At the option of the passenger a single fare of 5 cents may be paid. An effort will be made to restrict city traffic to city cars by a charge of 5 cents for passage on the interurban cars within the city limits. This arrangement is similar to that which prevails on the various interurban cars operated in the city of Cleveland.

The provision regarding fares in the Detroit Railway franchise may be restated, as that clause was substantially the determining factor in the treatment of this question in the proposed new franchise. The Detroit Railway ordinance was granted to Henry A. Everett and others. Under this franchise an electric railway system was constructed in Detroit about fifteen years ago as a competitor of the existing properties. Later all the properties were consolidated and they are now part of the extensive system of city and interurban lines operated by the Detroit United Railway Company. While the rates of fare on the lines composing the original Detroit Railway have remained at the figures stipulated in the ordinance, the rate of fare on the other lines of the Detroit United Railway in the city of Detroit is 5 cents.

The 1894 ordinance granted to the Detroit Railway provided that the rate of fare for a single ride for a continuous trip any distance in one direction, over any one of the routes, should be 5 cents, for which the passenger should be entitled to a ride and a transfer. At the same time the company was required by ordinance provision to keep on sale on the cars in service between 5:45 a. m. and 8 p. m. of each day tickets to be sold in strips or packages of eight tickets for 25 cents. Each of these tickets was to be accepted for a single fare for any distance on a car on which it was presented between 5:45 a. m. and 8 p. m. and transfers given thereon. It was further provided in this ordinance that the company should keep on sale on the cars in service between 8 p. m. and 5:45 a. m. tickets to be sold in strips or packages of six for 25 cents, each to be good for a ride and a transfer. It will be noticed that the hours are changed slightly in the new proposed arrangement.

It was expressly stipulated in the 1894 ordinance that the rates of fares should not be reduced without the consent of the grantees, their successors or assigns, and that the rates of fare should not be exceeded during the period of the ordinance, either with or without the consent of the city.

PAVING TO BE MAINTAINED BY CITY

Another provision of the ordinance of 1894, the terms of which are included in the proposed agreement affecting all lines, relates to paving, which is to be maintained by the city. The original provision relating to this subject stated that all paving or repaving or repairing of pavement upon any of the streets upon which the grantees, their associates, successors or assigns should thereafter construct, maintain and operate a street railway should be done wholly at the expense of the city of Detroit, both within and without the rails of said tracks, and after being paved or repaved by the city the same should be maintained and kept in repair by the city, and there should be no charge whatever against the company for repavement and repairs of the streets and pavements. It was also provided that the company should not disturb the pavement or foundation except upon permission of the Board of Public Works, and that when the company should tear up or disturb the pavement of streets or their foundation, or disturb the foundation of any street which the city was repaving, the company should pay to the city all expenses of the Board of Public Works for supervision of the work and for repair and replacement as before it was so disturbed, and of maintenance to the satisfaction of the board thereafter until the street or trackway was repaved, provided that such maintenance should not exceed a term of three years if the street was not repaved by that time.

The proposed arrangement includes an agreement by the city by which it will maintain the pavements and foundations on all lines.

TAXATION

Another important feature of the settlement arrangement as prepared tentatively is a further amplification of the clauses of the 1894 ordinance protecting the company against taxation. The draft of the agreement made public by Mayor Thompson of Detroit states that the tax clause of the Detroit Railway ordinance is to remain intact, with the addition that no tax is to be laid upon any investments in paving and foundations and no tax other than the ad valorem tax specified in the Detroit Railway ordinance shall be laid by the city—that is to say, no fees for licenses, express cars, interurban cars or rented cars, etc., shall be imposed. The clause in the 1894 ordinance relating to taxes provides that the grantees shall pay taxes on real estate and personal property, including rolling stock, tracks, wires, poles and motors, the same as an individual; but it is provided that in consideration of the reduced rates of fare fixed by the ordinance and other valuable considerations the franchise and earnings of the railway shall in no manner be subject to taxation.

MUNICIPAL OWNERSHIP PROVISION

The agreement as framed provides for possible municipal ownership. The city is to have the right to purchase the system within the city limits at any time upon six months' notice. The company on its part is to obligate itself to

give a clear title to all the property within the city limits in case of purchase. This feature of the arrangement has caused discussion regarding the ability of the company to segregate its city property from the interurban lines in the event of purchase by the city in the future. Bond issues of the company are secured in some cases by mortgages which cover property lying both inside and outside of the city limits. In fact, in track mileage the city property of the Detroit United Railway is much smaller than the outlying part. The company owns and operates about 200 miles of track located within the city limits, while its total track mileage in all parts of the system is about 800 miles. The Detroit city system therefore constitutes in track mileage about one-quarter of the total. In view of this situation a question has been raised regarding the possible attitude of the bondholders toward the agreement. No definite statement has been made, however, on this point.

The provision relating to the city's right of purchase which is contained in the 1894 ordinance is now of course to be modified in part by the proposed agreement that the city shall have the right to purchase at any time within six months. The provision framed in 1894 stated that the city should have the right to purchase at the expiration of the franchise period of thirty years all tracks, cars, motors, wires, poles, electrical appliances and apparatus, together with the power plant and other equipment necessary for the operation of the lines, at a price to be fixed by a board of arbitration of nine members. It is proposed in the amended plan to reduce the number of arbitrators to five, two to be selected by the company and two by the city and those four to select the fifth person. Failure by these four to agree on the fifth arbitrator shall be followed within thirty days by the appointment of an arbitrator by the Circuit Court of Wayne County. The 1894 ordinance provided that the city should give written notice of its intention to make the purchase at least one year before the expiration of the thirty years and should proceed with and complete the arbitration.

The provision regarding value in the 1894 ordinance says that in arriving "at a fair price at which said purchase shall be made by said city of Detroit, such board of arbitration shall not take into consideration the value of this franchise or grant, but shall allow for the property to said grantees, their associates, successors or assigns its fair value for street railway purposes, taking into consideration the cost and natural depreciation." The 1894 ordinance provided further that the price, terms of sale and times of payment agreed upon by the board of arbitration or a majority of the members thereof should constitute the basis of the sale, and both the city and the grantees should be bound to abide thereby. It was also provided that the property should remain in possession of the company until the terms of purchase should have been complied with by the city and the company would be responsible for the continuous operation thereof under the terms of the grant until the terms of purchase were complied with.

In the new arrangement there are some changes in the details of this feature of the contract, as for instance in the provision which is proposed in the amended agreement that the decision of the board of arbitration shall be binding upon the company but shall not be binding upon the city until ratified by the voters. It is also provided that while no value is to be allowed for the new grant the value of all existing franchises at the time of purchase shall be computed to the date of expiration, which is to be in no event later than Dec. 24, 1924. Other details in reference to these features of the arrangement are published in the abstract of the plan given herewith.

EXTENSIONS

Definite provisions are made for the construction of extensions to the city system. Certain extensions upon which an agreement was reached early in the present year are to be completed during the year 1912. Other new lines stipulated in the agreement are to be constructed in the same year. Thereafter, the plan is to construct extensions at an average rate annually of not less than 5 per cent of the total city track mileage.

During the negotiations between the representatives of the company and the city the conferees were J. C. Hutchins, president; F. W. Brooks, general manager, and Attorney Donnelly, representing the Detroit United Railway, and Mayor Thompson and Corporation Counsel P. J. M. Hally, representing the city of Detroit. A. B. du Pont was called into the conferences as adviser for the city.

So far as has been announced no definite date for submission of the plan to the voters has been fixed. Corporation Counsel Hally is preparing an ordinance based on the terms of the tentative agreement. The natural course is the presentation of the ordinance to the City Council. If that body approves the measure the plan then goes before the public. To be ratified, a plan of this nature, if submitted to the voters, must receive the vote of 60 per cent of the voters.

GENERAL PROVISIONS OF THE PLAN

This agreement provides that the city shall have the right to purchase the street railway system within the city limits at any time upon six months' notice served upon the company.

This right to purchase is a continuing right, and one or more failures to purchase after notice shall not exhaust it.

The company obligates itself to deliver a free-and-clear title to all its property within the city limits to the city in case of purchase.

The purchase price shall be agreed upon, if possible, between the city and the company. If this it not possible, the city shall appoint two arbitrators, and the company two arbitrators. These shall select a fifth arbitrator. If they fail to do so within thirty days, the fifth arbitrator shall be selected by the Wayne circuit bench as constituted at the time of the negotiations. It shall be the duty of the arbitration board so constituted to fix the purchase price and terms of purchase.

The decision of this arbitration board shall be binding upon the company, but shall not be binding upon the city until submitted to a vote of the people and ratified by them.

In the event of purchase the company agrees as follows:

(a) No value is to be placed upon this grant.

(b) The value of all existing franchises at the time of purchase shall be computed to the date of their expiration, but in no event after Dec. 4, 1924.

(c) In order to prevent assigning values to the company for work done on paving and foundations by the city, all existing pavements and foundations constructed by the company are to be valued in 1912, and paid for at this price without interest, in case of purchase.

(d) All future grade separation work and foundations which are to be laid at the expense of the company are to be sold to the city in the event of purchase at cost, plus 10 per cent for the use of tools and equipment.

RATES OF FARE AND TRANSFERS

Within thirty days after the approval by the people the rates of fare shall be as follows on all city lines and to and from Palmer Park:

Eight tickets for a quarter from 5 a. m. to 8 p. m. Six tickets for a quarter from 8 p. m. to 5 a. m. or, at the option of the passenger, a single fare of 5 cents.

The rates of fare on interurban cars within the city limits shall be 5 cents in order to reserve the interurban cars for interurban passengers.

The company will give universal transfers to and from all lines.

EXTENSIONS, NEW LINES AND BETTERMENTS

(a) The company shall provide adequate street car service to and from the new Michigan Central Railroad station as designated by the Common Council.

(b) In 1912 the company shall finish any uncompleted

portions of the extensions agreed upon in the spring of 1911.

(c) In 1912 the company shall pave between its tracks from Artillery to Home Street on its west Jefferson line, and from Hillger to Gray Streets on its east Jefferson line.

(d) The company shall build new extensions each year at an average of not less than 5 per cent of its total city track mileage for that year.

(e) In 1912 the company shall build a north and south line in the western portion of the city as designated by the Common Council, and shall connect its Myrtle Street line on the west side with its Mack Avenue line on the east side, upon some street in the neighborhood of Bagg Street, as designated by the Common Council.

The provisions of the Detroit Railway ordinance as to service shall remain in force, with the further provision that the company shall provide such service as the Common Council may ordain and the traffic demands, and the cars shall be designated as to route and destination.

The company may, for the convenience of the public, change existing routes, but if the new route proves unsatisfactory the right is reserved to the Common Council to order the restoration of the old route.

CITY TO MAINTAIN PAVING

The city agrees to maintain the pavements and foundations on all lines, in accordance with the terms of the Detroit Railway ordinance.

All franchises shall expire on Dec. 4, 1924.

The tax clause of the Detroit Railway ordinance is to remain intact with the addition that no tax is to be laid upon any investments in paving and foundations, and no license fee or express car fee, interurban car fee or rental car fee, nor any other tax than the ad valorem tax specified in the Detroit Railway ordinance, laid by the city.

The company agrees hereafter to separate its grades on demand of the Common Council in accordance with the plan now existing between the city and the steam railroads for the separation of grades and to pay its proportion of grade-separation expenses in accordance with that general plan.

OTHER FEATURES OF THE AGREEMENT

In the event of purchase interurban and passenger cars are to be operated over the city's lines until 1924 as follows:

(a) The city is to man, collect and retain the fares collected on the passenger cars and to pay the company 2½ cents per car mile for the use of the cars.

(b) The company is to man the express cars, load and unload the cars, conduct the express business and pay to the city for the use of the tracks and equipments and the privilege of operating over the city's lines 15 cents per car mile.

All pending controversies and all claims and demands in dispute between the parties are to be canceled and discharged by each side.

It is expressly understood that this agreement is indivisible, and in the event of any section being judicially declared void, the whole agreement is to fall.

This agreement shall be supplemental and amendatory to the Detroit Railway ordinance.

It shall be submitted to the people at an election, and shall take effect thirty days after its approval by them.

STATEMENTS OF MAYOR THOMPSON

Mayor Thompson of Detroit in a formal statement issued on Oct. 21 said in part in reference to the settlement:

"The primary purpose of this tentative settlement is to enable the city to own and operate its own street railway system. This purpose is accomplished under the right guaranteed to the city to purchase the entire street railway system within the city limits at any time upon six months' notice to the company that it desires to do so.

"While much has been said about the desirability of municipal ownership, little or nothing has been said by way of practical suggestion as to its achievement in this city. In order to get possession of the street railway system we must either litigate, build or buy. Let us consider the comparative feasibility of these three plans.

"Litigation. By this I mean that the city shall attempt to enforce a right of eminent domain over the property of the Detroit United Railway in condemnation proceedings. It is apparent that such a lawsuit would be fought through the United States Supreme Court. It is also apparent that the question of the public necessity for condemning the property of the Detroit United Railway would be a close one. As the right of eminent domain can be exercised only by the state upon a showing of public necessity for the taking of private property, the ultimate outcome of the condemnation proceedings would be doubtful. The state cannot take private property merely because it is profitable or advantageous to do so, and undoubtedly it would be claimed on behalf of the street railway company that, as it was rendering the transportation service required by the public, the state, in condemning its property, would be inspired, not by any public necessity, but by consideration of profit and advantage. At its best, therefore, the litigation route to municipal ownership is long-drawn-out and tedious, and, to say the very least, uncertain.

"Parallel construction. Another way in which the municipality could embark in the street railway business would be to build lines parallel to those already in existence. It goes without saying that we need street car service. When the men went out on a strike last month and street car service was suspended, our industries were temporarily paralyzed because their thousands of employees could not get from their homes to their work. Assuming, therefore, that street car service is a commercial necessity, it is apparent that it would not be prudent to drive the street cars from the streets and tear up the tracks of the company because this would involve a suspension of service, with the consequent paralysis of commerce and industry that would necessarily follow. In order to embark in the municipal ownership of a street railway system by construction, therefore, we would have to build alongside of the Detroit United Railway lines, or else on contiguous parallel streets. It would hardly be practicable to build alongside of the Detroit United Railway tracks on such main arteries of travel as Jefferson Avenue, Woodward Avenue, Michigan Avenue and Gratiot Avenue, as all the space outside of the car tracks is now needed for the congested travel and vehicles incident to the tremendous growth of our city. When it comes to building parallel lines on streets continguous to the Detroit United Railway lines, two objections immediately present themselves: First, that residents upon the contiguous streets would object strenuously to having their streets torn up for a duplicate street car system; second, the number of available duplicate streets with proper advantages is comparatively limited. I am afraid that if we attempted such a program, it would result in a makeshift system not conducive to the best interests and needs of the traveling public.

"The third method is by purchase. This method is the most direct route to municipal ownership, provided the Detroit United Railway is willing to sell its property at a fair price. Up to this time we have been unable to make a bargain with the Detroit United Railway for its property, because it takes two people to make a bargain, and the Detroit United Railway would not deal. But under the tentative plan of settlement the Detroit United Railway agrees to deliver to us, free and clear, its entire property within the city limits at any time when we give to it six months' notice that it is our intention to acquire it.

PRICE OF ACQUISITION

"The only other question involved in the achievement of municipal ownership by purchase is the acquiring of the property at a fair price. What safeguards have we thrown around that proposition?

"1. The city authorities and the company will endeavor to get together upon a price.

"2. If they fail to do so, each will appoint two arbitrators who shall select a fifth to fix upon a fair price. If these several arbitrators fail to agree upon a fifth arbitrator within a reasonable time, the judges of the Wayne circuit bench shall select the fifth arbitrator.

"Now the result of this arbitration as to the price is binding upon the company, but it is not binding upon the city until it is submitted to a vote of the people. If the people think the price is too high they can reject it and the deal is off.

"Necessarily the negotiations looking toward the achievement of municipal ownership will take some time. There will be 'dickering' between the city and the company as to the price. Possibly there will be arbitration; time will be consumed in appraisals and the taking of the testimony. Then, when the arbitrators agree upon a price, the deal will have to be submitted to the vote of the people. All this will consume time and hence it was important to get some concessions from the company pending these various preliminaries looking to the achievement of municipal ownership. So I say that the primary purpose of this agreement is to get municipal ownership in the near future.

"The secondary purpose is to get a cheap rate of fare, universal transfers and much needed extensions now. The negotiations looking to municipal ownership may go on. Meanwhile the public will ride on all the lines at an eight-for-a-quarter rate and will have transfers to and from all lines, besides which we will secure a north and south line on the west side and a line connecting the Myrtle Street line on the west side and the Mack Avenue line on the east; also 10 miles of extensions each year, to be laid on the streets designated by the city.

"This, therefore, is the whole settlement in a nutshell: that the city has an immediate right to buy, either upon an agreed price or an arbitrated price, to be approved at an election by the people, merely upon giving formal notice of its desire to do so six months in advance. This, in my judgment, brings municipal ownership within the reach of our people; but while municipal ownership is being worked out we get universal 3-cent fares and transfers and extensions that are vital to the growth of our city.

"It is distinctly agreed that the company shall not raise a finger to secure the adoption of this agreement by the people. I shall not be a party to any pulling-and-hauling, 'log-rolling,' proselytizing campaign. If such a thing is attempted I shall go to the extent of denouncing it; yes, even to the extent of fighting the adoption of the agreement.

"For myself, I shall make no campaign for the adoption of the agreement. I considered it of sufficient importance to present for public consideration, but the people must judge for themselves as to its merits. Beyond seeing that the people are correctly informed as to the purpose and meaning of the agreement, my labor is done when I submit it to them.

"It is the people's matter, and it is for them to adopt it or reject it as they see fit. It must stand or fall on its own merits.

"This agreement is not be considered final or binding on my part. Until the proper ordinance is framed by Mr. Hally to express the agreement, and accepted by the company, the agreement is tentative only."

SUPPLEMENTAL STATEMENT BY MAYOR ABOUT PAVING

A supplemental statement in reference to the paving feature of the agreement was made by Mayor Thompson on Oct. 23. The Mayor estimates that $200,000 annually is an outside estimate of the expense to which the city will be put for paving under the agreement. The Mayor has recently employed John McVicar to examine the paving between the tracks and the foundations and make a report on the matter.

STATEMENT OF A. B. DU PONT

A. B. du Pont, of Cleveland, in an interview published in the *Detroit News* of Oct. 21, said in part:

"The result of the negotiations in Detroit is that the company has agreed to the drawing of an ordinance allowing the city to buy its property at any time on six months' notice, and pending the purchase by the city the terms of the old 3-cent Pingree-Detroit Railway franchise are to be in force on all the tracks in the city.

"I consider this is the best settlement that has yet been made between a municipality and a street railway corporation in the United States for the following reasons:

"1. It enables the city to purchase the property at any time it desires without lawsuits. This especially appeals to me for the reason that the late Tom L. Johnson had to fight fifty-seven injunction suits, cause a competing railway to be built involving an expenditure of several millions of dollars and carry on a ten-year litigation against the Cleveland Railway before that company would sell to the city.

"2. During the interval between the passage of this ordinance and the time the company is ready to sell the public will have the benefit of a street railway ordinance which, in my opinion, is better for the public than the present Cleveland situation, for the following reasons:

"Under the Thompson plan the maximum rate of fare that can be charged is the rate of the old Pingree 3-cent lines, while under the Cleveland plan they can charge seven tickets for a quarter and 4-cent cash fares and an additional penny for the privilege of transferring. The stockholder of the Cleveland Railway being assured 6 per cent on his investment, and no more, has no interest in the economical management of that railway. In fact, some of the larger stockholders, through their interest in other railways, have a direct financial interest in making the operating expenses of Cleveland as extravagant as possible in order that the rate of fare may be raised to the maximum allowed under the ordinance. While the people of Cleveland are at present riding for 3-cent fares, there is no assurance that this fare will not be increased to seven for a quarter with 1 cent for transfer. In fact, unless the city can better control the waste in the expenses of operation the fare will soon reach the maximum. The proof is that in the year 1907, prior to the passage of the present ordinance, when the stockholders of the Cleveland Railway Company had a direct financial interest in any waste of money, the item of superintendence of transportation was $32,687, while in 1910 it reached $145,000. In the total increase in operating expenses in the year 1910 only one-fifth was due to increase in conductors' and motormen's wages, the other four-fifths being used in increasing the wages of others than motormen and conductors and employing many useless men.

"Again, the Thompson plan allows the city to purchase the property at any time it desires. The Cleveland plan only allows this after a period of eight years have elapsed. The Thompson plan proposes to limit the franchises to 1924. The Cleveland plan is for a twenty-five-year grant, which the city must renew for twenty-five years, at every ten-year period and on the same terms, or the grant goes into full possession and control of the company and supervision by the city is denied, and the company has a perfect right to change the maximum rate of fare and make much more than 6 per cent on its property."

ACCEPTANCE BY THE COMPANY

President J. C. Hutchins, of the Detroit United Railway, accepted the terms of agreement in the following letter addressed to Mayor Thompson on Oct. 21:

"I thank you for a copy received this morning of your official communication to the Common Council, outlining in brief the terms of settlement upon which we have tentatively agreed after some months of discussion; and I beg to state that, should the people adopt an ordinance embodying these terms, we will accept same."

Observations on "Near-Side" Cars in Buffalo

These Include the Rates of Unloading and Loading These Cars and Comments on Their Operation—A Copy of the Rules Issued to Trainmen in the Operation of These Cars Is Appended

The near-side car was introduced on the Grant Street line of the International Railway of Buffalo on Sept. 17, and on the Clinton Street line on Oct. 15. On the former line, which extends through a good residential neighborhood, thirty-six cars of this type have been placed in service. On the Clinton Street line, which reaches a section settled principally by the homes of workingmen, twenty-five cars are used. The one-way mileage on the Grant Street line is 5.3 miles, and the scheduled running time is thirty-four minutes into the business district and thirty-two minutes to the outlying terminal, or sixty-six minutes for the round trip. The one-way mileage on the Clinton Street line is 4.1 miles, and the scheduled running time is twenty-eight minutes each way, or fifty-six minutes for the round trip. The headway on the Grant Street line is one and one-half minutes during the evening rush hour, and five and five and one-half minutes during the day. On the Clinton Street line the evening rush-hour headway is two minutes, and the headway during the day is six minutes. The Grant Street line is the heavier traffic line of the two named. Neither line, however, ranks in density of traffic with the heaviest lines of the system. It is apparent, therefore, that the experiment has been tried first upon lines where comparatively light resistance to the innovation would be offered by the traffic conditions. While the car loads at the down-town terminals are not as heavy as on other lines, the other conditions of traffic are such as to reveal quickly the advantages or disadvantages of the car.

SPEED OF LOADING AT DOWN-TOWN TERMINALS

The down-town terminus of the Grant Street line is at an island sidewalk at Niagara and Main Streets. There is just enough room at this sidewalk for two cars to receive loads at the same time. The Niagara Street line, one of the heaviest in the system, uses the same loop and the schedules are so arranged that usually one car of the Niagara Street line and one car of the Grant Street line load at the same time. As pay-as-you-enter cars are operated on the Niagara Street line, an opportunity is afforded for a comparison of the two types in close operation. Over the conductor's stand on the Grant Street line these notices are published: "Passengers After Paying Fare Will Not Be Permitted to Remain on Platform"; "Conductors Will Not Be Required to Furnish Change for Bills of a Larger Denomination than $2."

The following loading records, showing the time required by passengers to board the cars, were made last week on the Grant Street line at Niagara and Main Streets during the evening rush hour. They were not taken with a stop watch, but are reasonably accurate.

No. of Passengers Boarding Car.	No. of Seconds Required.	No. of Passengers Boarding Car.	No. of Seconds Required.
25	40	18	30
16	25	10	25
22	55	29	55
35	75	25	40
19	40	21	30
49	90	45	100
16	28	46	82
26	40	12	20
19	30	20	40
19	32	21	35
23	45	14	30
16	30	21	45
30	75	42	70

In the instance given where seventy-five seconds were required for thirty persons to board the car there was a delay because a woman found, after reaching the conductor, that she was on the wrong car and forced her way out through the boarding passengers. In several other cases delays arose from the necessity on the conductor's part of making change, but as a rule there was little delay on this account. The foregoing observations were made from 5:05 to 6:17 p. m., and included most of the cars. A uniformed inspector stood at the car steps to assist any who needed help in boarding the cars. He gave the signal to start and frequently assisted in closing the doors. Passengers reaching this terminal left the car by the front exit door, but as soon as they had alighted this door was closed and all passengers boarding the car did so by the entrance door on the front platform. No effort was made to compile similar loading records of passengers boarding the adjoining pay-as-you-enter cars.

On some of the near-side cars it was especially noticed that the first passengers boarding at the terminal walked to the rear seats, leaving the later passengers to take the seats nearest the platform. On other cars the reverse practice was followed, so that without a complete observation of this point it would be impossible to state just how the long-haul and short-haul passengers respectively distributed themselves.

CLINTON STREET LINE

The Clinton Street line has its principal down-town terminus at Washington and North Division Streets, one block from Niagara and Main Streets. After receiving the load at this point the car turns from North Division to Washington Street and one block further into Eagle Street. On account of the congestion on Washington Street, the near-side crossing stop was not made at Eagle Street. The stop for passengers at this corner was made after the car had turned into Eagle Street. This was the only point observed where the near-side stopping rule was not followed. The Clinton Street cars have printed over the conductor's stand the words, "Move quickly, please." At one grade crossing on this line a derailer is operated by a watchman before cars can pass.

CARE OF TROLLEY

No trouble was experienced with the trolley at any point, at railway or other crossing, switch or tangent line, while the representative of the Electric Railway Journal was on the cars.

LOADING AND UNLOADING ON THE TRIP

The use of longitudinal seats at the platform end of the car appeared to facilitate unloading as, without interference from cross-seats, it permitted a number of persons to congregate at the front end of the car for the purpose of alighting. Of course a large standing load at this place would prevent rapid unloading by blocking the passage of those who desired to leave the car. At nearly all the loading points the motormen were able to bring the car to a stop at the center of the cross-walk so that passengers had to take only a few steps to board the cars. Practically no delays, therefore, resulted from the running of the cars past the cross-walk. During the trips on the cars unfamiliarity with the new arrangement led to one case of delay where a man attempted to find his way in at the rear end. At points of junction with other lines on which the cars of the rear-platform type were operated, the old familiar practice of intending passengers standing at the corner until the car stops and then hurrying to the rear end was observed.

The platforms of the near-side cars do not hold as many persons as the pay-as-you-enter car platforms and there is, therefore, a delay at loading points that is to be measured by the extra time required for the excess number of persons to board. On the other hand, at points

where there were not over four or five persons, there seemed to be a saving due to the fact, as stated, that the platform step was practically at the street crossing where the people stood. It also appeared that the use for exit purposes of but one end of the car, which is always before the eyes of seated passengers, encourages rapidity of movement and thus leads to unloading in normal time except in places where there is a heavy exit movement. In such places, of course, two exits would naturally permit more rapid unloading than one.

ACCIDENTS

One important claim made for the near-side car is that it will reduce the number of boarding and alighting accidents for which the company would be liable because of negligence in starting. Obviously this claim is one more easily proved through records than by observations made during a few trips. Nevertheless, observations show that the car almost completely segregates the duties of the motorman and the conductor. Unless the trolley should leave the wire or conditions should require the conductor to signal the car to proceed at a railway crossing, responsibility for the movement of the car rests entirely on the motorman. By means of the mirror he can watch the interior of the car so as to see whether all who desire to alight have done so. It is also, undoubtedly, an advantage that the motorman is not obliged to wait for a starting signal, for which in cases of blockage or heavy movement of passengers he frequently has to signal the conductor.

FARE REGISTERS

The near-side cars in Buffalo are equipped with the fare recorders of the Dayton Fare Recorder Company.

COMPARATIVE SPEED OF LOADING AND UNLOADING

Observations of the speed of loading and unloading these cars made for the International Railway, and based on the actual length of stops, are stated to have shown a decrease in time of stops per passenger of from 15 to 20 per cent compared with the present pay-as-you-enter cars. In the calculations men who jumped on or off the latter cars while the cars were in motion were not counted.

CONDITIONS IN COLD WEATHER

The near-side cars have not yet been run in Buffalo during winter weather. The officials of the company believe, however, that with only one door there will be no objectionable draft. Extra heating capacity is provided on the platforms to care for this contingency.

CONCLUSION

In conclusion it should be said that the officials of the International Railway Company believe the near-side car to be a logical development of the prepayment, closed-platform idea in car designs. They are well pleased with the results so far. Thorough experience will demonstrate the applicability of the car to the varying requirements of different communities. It may, for instance, be adapted better for long-haul than for short-haul business. If such be the fact, it will be revealed by actual operation.

RULES FOR "NEAR-SIDE" CARS

The International Railway Company, of Buffalo, has issued a booklet giving information and instructions to conductors and motormen regarding the near-side car. The booklet bears this motto: "Knowing Why Makes Doing Easier." It says, in part:

"In order that all conductors and motormen may intelligently co-operate with the management in making the near-side car a success it is essential that a thorough understanding of the objects to be attained be made clear at the outset and that the necessary instructions be set forth.

"Following a careful observation of the shortcomings found by experience to exist in present methods, and taking into consideration the suggestions of conductors and motormen, looking to such improvements as would lessen the liability of accident and increase the comfort of the men, the near-side car has been developed to the end of providing an added measure of safety, comfort and convenience.

"The entrance and exit of the near-side car are both by way of the front platform, enabling passengers to enter and leave the car directly at the cross-walk on the near side of the street, instead of walking the entire length of the car to gain entrance by way of the rear platform, which has often been most objectionable, due to the muddy condition of the streets, and has been productive of accidents because of the inability of the conductor to see approaching passengers from his position on the rear platform.

"The use of the front platform for both entrance and exit makes possible a better division of duties between the motorman and the conductor, in that the motorman may be given entire responsibility for the starting and stopping of the car and the safety of passengers boarding and alighting, the conductor's duties then being confined to the collection and registration of fares, issuance of transfers and calling of streets. The duties of conductor and motorman are by this means more equally divided and each is rendered more efficient.

"The conductor is provided with a seat within a guarded space, directly opposite the entrance to the front platform. In this position he is able to control the entrance passage into the body of the car, and is amply protected from the weather, so that he may at all times be clothed in a way best suited to the rapid performance of his duties.

"When the car is at a standstill, taking on passengers, the conductor has only to collect fares and issue transfers. This he is able to do much more rapidly than heretofore, as he is now relieved of the necessity of watching the step and giving the go-ahead signal. The entrance portion of the front platform will accommodate from ten to fifteen on-coming passengers, which under these conditions will be amply sufficient.

"When the car is in motion the conductor, in either seated or standing position, is directly facing the passengers. Thus placed he can most readily observe the signals of those passengers who cannot conveniently reach the passengers' signal push button. Having no other duty to perform while the car is in motion, the conductor is able to call the streets as required, and as he is facing the passengers the names of the streets announced will be much more easily heard and understood.

"The exit at the rear end of the car, to be used in case of emergency or at points where the car is to be entirely emptied, as at baseball games, etc., may be readily operated either from the rear end of the car or by the conductor from his position on the front platform.

"The motorman is provided with a seat, and in the operation of the controlling devices is protected from interference by a dividing rail. His vision is guarded against reflected light by means of an adjustable curtain. He controls the entrance and exit by a convenient lever, operating both the in and out folding doors and steps separately or simultaneously at will.

"While the car is at a standstill the motorman can plainly see the passengers entering and leaving the car, and is thus able to act promptly and safely in operating the folding doors and steps, getting the car under way without the loss of time heretofore encountered through the necessity of waiting for the bell signal.

"When the car is in motion passengers are not permitted to remain upon the platform. The motorman's attention is not, therefore, diverted, as heretofore. This serves to assure more certainly his seeing persons signaling from the street, and results in a greater alertness on his part in the avoidance of accidents by collision.

"Passengers alighting from a car by way of the front platform and passing across in front of it have a direct view of cars or automobiles approaching them from the opposite direction. Should they desire to pass behind the car from which they alight they must necessarily await its forward movement. These conditions serve to prevent the accidents which have heretofore occurred because of pas-

sengers alighting from the rear end of a car and passing directly behind it and into the path of a car or automobile approaching from the opposite direction.

"The ventilating system is automatic, and therefore not dependent upon the action of the conductor or the whim of the passenger. The fresh air is brought in over the electric heaters, which are controlled by a thermostat guaranteed to regulate automatically the degree of heat, thereby insuring an even temperature during the winter months. The impure air is discharged through registers placed in the ceiling directly over the seats. These registers are connected with ventilators placed at intervals on the roof of the car. The vacuum created by the motion of the car draws out the impure air with such rapidity as to insure an entire change of air within the car during each three-and-one-half-minute interval, this being slightly in excess of health department requirements.

SPECIAL INSTRUCTIONS

"1. Near-side stop.

"Cars will be stopped at the near side of street intersections, bringing the entrance on front platform as nearly as possible directly at the crosswalk, but without interfering with persons crossing the street.

"2. Fares collected on front platform.

"Fares will be collected and registered on the front platform before passengers enter the interior of the car.

"3. Front platform kept clear.

"In order that conductor and motorman may give undivided attention to the proper performance of their respective duties, passengers will not be permitted to remain upon the front platform. A careful observance of this rule will serve to prevent the numerous accidents heretofore occurring, due to the attention of the motorman being taken from his work by the conversation of passengers.

"4. Extreme overloading of cars.

"The policy of this company is against the extreme overloading of cars.

"The conductor will therefore display 'car full' sign whenever a maximum load of eighty-three passengers has been reached. The display of this sign will explain to would-be passengers the reason why the car is not brought to a stop for them. Conductor, when asked regarding this action, will courteously explain to passengers the company's purpose, and by this means endeavor to secure the goodwill and co-operation of the public.

"The greatest measure of success in the use of the near-side car depends upon the keeping of a clear passageway in the forward end of the car. Whenever passengers are unnecessarily obstructing the forward part of the car conductor will courteously request them to 'please step to the rear,' and as opportunity offers, the conductor should explain that what the company is here endeavoring to do is to provide a safe and pleasant means of transportation.

"5. Furnishing change.

"The requirement limiting the amount of change required to be furnished to passengers by the conductor to $2 is posted in each car for the information of passengers and the protection of conductor. Change in excess of this amount should, however, be supplied by the conductor whenever the supply will permit it to be spared safely.

"6. Starting, stopping.

"Motorman will keep close lookout for prospective passengers, and will stop car so that the entrance on front platform is as nearly over the near-side crosswalk as possible without interfering with pedestrians. Platform doors will not be opened before car has been brought to a full stop. As soon as both doors have been completely closed motorman will be ready to start car without further signal.

"Motorman will stop the car at first regular stopping place after receiving push-button signal. As the conductor, in either seated or standing position, is directly facing the passengers he will readily observe the signal of those passengers who cannot conveniently reach the signal push-button. Thus placed the conductor will announce the names of streets, as required by the rules, so as to be easily heard and understood by all passengers.

"7. Rear door.

"When the rear door is to be used, which will only be in case of emergency or at points designated by special instructions, the conductor will announce, 'please leave by rear door.'

"8. Reverse operation.

"When car is to be operated in reverse direction conductor will take a position inside of rear door and will then give motorman starting and stopping signals by means of the auxiliary push-button signal circuit, and operate emergency air-brake valve if necessary to prevent accident.

"9. No smoking or spitting.

"Health department requirements make necessary the stopping of smoking and spitting in street cars. The attention of passengers spitting in the car must be called to the requirement of the health department, as posted in each car, and the attention of the police directed to such passengers as continue such offense. The above applies to all parts of the car.

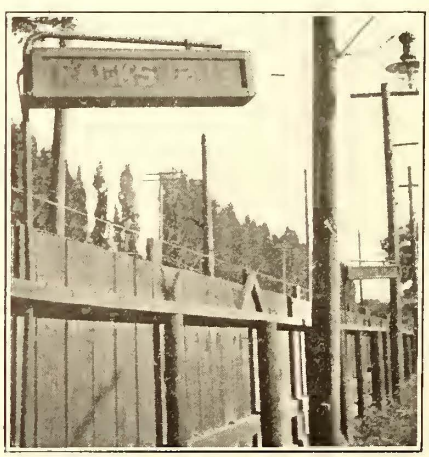
"10. Route and destination signs.

"Each route or line of cars will be numbered as well as named. The large illuminated white number on black background occupying the upper half of the front vestibule window will always be displayed in accordance with the number of the line upon which the car is operated. This number is sufficiently large to be visible by day or night for a distance of several blocks.

"The side destination sign over the entrance and exit doors at the curb side of the front vestibule is so worded as to designate each terminus of the line. Conductor will be particularly careful to change this sign at both ends of the line, so that the name displayed will always show the terminus of the line toward which the car is moving."

ILLUMINATED SIGN FOR YARD TRACKS

A simple but exceedingly effective track sign for yard service has been installed in Salt Lake City recently at the new shops and carhouses of the Utah Light & Railway Company. The sign is designed to facilitate the accurate approach of cars to switches of ladder tracks branching from the main yard track to the various building sections. It consists of an inverted box of wood, about 3 ft. long x 6 in. wide x 8 in. high, with open bottom and transparent front carrying the track number designations. The sign is supported at the side of the track by a bracketed pole which rises about 8 ft. above the ground.

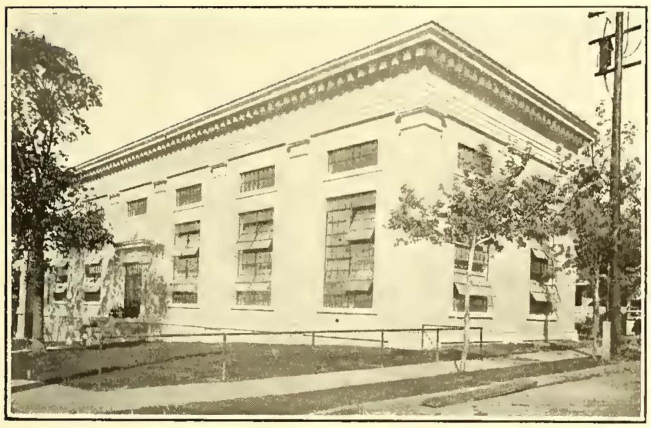


Illuminated Sign for Yard

The interior has a 16-cp, 110-volt incandescent lamp wired in pipe conduit and supplied with alternating current from the regular shop circuit. At night these signs save both time and accelerating current, because the motorman knows just where the switches are located and can run or coast up to them without unnecessary use of current. The circuits are turned on aud cut off by the yard watchman.

NEW SUBSTATION AT KANSAS CITY

The Kansas City Railway & Light Company has just completed a new combination railway and lighting substation installation in the attractive building shown in the accompanying engraving. This substation is located at Fortieth and State Streets on the state line between Kansas and Missouri. It is in a residential district and close



Combination Railway and Lighting Substation at Kansas City

to an important railway and lighting load center. The building is 133 ft. by 40 ft. in plan and has a steel and concrete framework and roof and exterior walls of sand-lime brick with concrete trimmings. The interior is served by a 25-ton electric crane. Shelter at one end of the building is provided for a line car which can be run directly into the building through double doors.

The railway equipment in this substation includes two 1000-kw rotaries of General Electric manufacture and complementary sets of air-blast transformers. The erection of this substation is part of a general plan of power improvements at Kansas City, which includes an installation now being made of a 15,000-kw Curtis steam turbine which will supplement the marine engines and 5000-kw turbine units in the Grand Avenue generating station.

DATA ON SINGLE-PHASE LOCOMOTIVES

The Siemens-Schuckert Works, Berlin, Germany, have recently compiled the data presented in the accompanying table to cover 15-cycle, single-phase locomotives built or under construction for governmental railway lines in Baden, Prussia and Sweden. The Wiesental (Baden) and Prussian locomotives are for 10,000-volt service, while the Swedish locomotive will take 15,000-volt current from the line.

DATA ON SINGLE-PHASE ELECTRIC LOCOMOTIVES.

	Baden State Railways Wiesental Line	Royal Prussian Railways				Royal Swedish Railways	
Number of locomotives	10	1	1	1	1	13	2
Driving axles	3	2	4	3	4	6	2
Leading axles	2	3	..	2	2	..	4
Axle arrangement	1-3-1	2-2-1	0-4-0	1-3-1	1-4-1	0-3-3-0	2-2-2
Wheel diameters in mm	1,200/850	1,600/1,000	1,050	1,600/1000	1.150/850	1.200	1,570/970
Total weight in metric tons	65	72.25	60	71	79.5	99	70
Tons available for traction	42	30.25	60	45	56	99	30
Axle loads in tons	14-11.5	13.75-14.05 14.4-15.85 14.2	15	15-13	14-11.75	16.5	15-10
Over-all length between buffers in mm	13,160	12,500	10,500	13,100	12,800	15,920	12,900
Total wheel base in mm	9,500	9,000	4,800	9,600	10,900	11,750	9,900
Rating of motors in hp	C-650 at 70 H-1,050 km	725 at 110 1.000 km	475 at 40 800 km	1,100 at 90 1,800 km	1,500 at 70 2,500 km	1,100 at 50 1.660 km	740 at 100 1,250 km
Number of motors	2	1	1	1	2	2	1
Tractive effort in kg at wheel periphery	*C-2,400 **H-4,000	1,800 2,500	2,800 4,900	3,000 5,000	5,250 9,000	5,100 8,500	1,950 3,250
Normal speed in km per hour	70	110	40	90	70	50	100
Maximum speed in km per hour	75	135	60	110	83	60	100
No. of transformers	1	1	1	1	1	2	1
Continuous rating kva	450	600	525	800	915	2 x 450 ÷ 500	600

*C=Continuous rating.
**H=Hour rating.

HEARING ON TRANSFERS IN NEW YORK

The hearing on the rates of fare upon connecting or intersecting street railways in the borough of Manhattan was continued before the Public Service Commission of the First District of New York on Oct. 19, 1911. Charles K. Jewett, of the Metropolitan Street Railway, was recalled and testified in regard to cost of construction of the Metropolitan Street Railway. O. C. Semple, counsel for the commission, offered in evidence certain pages from Exhibit 12 in the reorganization case of the Metropolitan Street Railway in connection with Mr. Jewett's testimony. Commissioner Eustis explained that Mr. Cotton of counsel for the company had offered the whole record of the reorganization case, but that he had reserved the question until he could consult with Commissioner Maltbie before whom the Metropolitan Street Railway reorganization case was heard. Commissioner Maltbie thought it better that the record of the Metropolitan Street Railway case be considered so that the case could be referred to during the present hearing.

Edward A. Maher, president of the Union Railway and the New York City Interborough Railway, recited the points at which it was originally agreed to issue transfers between these companies. He said that the original contract was substantially in force now. The policy of the companies was to issue transfers between the Union Railway and the New York City Interborough Railway at all intersecting points to carry passengers in one general direction. The system of transfers now in use had been put into effect since the interests which control the Third Avenue Railroad had become connected with the New York City Interborough Railway.

Asked by Chairman Willcox of the commission what would be the effect on the Third Avenue Railroad if the transfers between the Third Avenue Railroad and the Forty-second Street, Manhattanville & St. Nicholas Avenue Railroad were discontinued, Mr. Maher said that he thought it would decrease the earnings of both companies. He could not express an opinion in regard to the probable effect of the discontinuance of transfers between the Third Avenue Railroad and the Dry Dock, East Broadway & Battery Railroad, as he had not considered that question. Having in mind that the three lines mentioned were competitors of the Metropolitan Street Railway and the elevated and subway, Mr. Maher felt that it would be advisable to continue the transfers, even if the Third Avenue Railroad, the Dry Dock, East Broadway & Battery Railway and the Forty-second Street, Manhattanville & St. Nicholas Avenue Railroad were under separate managements.

Arrangements had been made with the receiver of the Twenty-eighth & Twenty-ninth Street Crosstown Railroad to exchange transfers between the line of that company

and the Third Avenue Railroad because those interested in the Third Avenue Railroad hoped to take over the crosstown line and make it part of the Third Avenue system to be used as a competitor to crosstown lines near by owned by other interests. Mr. Maher thought that a passenger could be carried cheaper for 3 miles on the Third Avenue Railroad in one general direction than he could be carried 1½ miles on the Third Avenue Railroad in one direction and 1½ miles on the Forty-second Street, Manhattanville & St. Nicholas Avenue Railroad in another direction. He considered the main abuse of the transfer to be the traffic in transfers carried on by persons who secured transfers with the idea of disposing of them for profit. He thought that the pay-as-you-enter cars had to a large extent done away with the non-collection of fares and that the cross-seats in the cars attracted passengers.

The hearing was to have been continued on Oct. 24, 1911, but with the consent of counsel the case was adjourned until Oct. 26, 1911.

THE KANSAS WORKMEN'S COMPENSATION ACT

In explaining the provisions of the new Kansas workmen's compensation act before the Kansas Electrical Association at Independence on Sept. 21, 1911, Charles Kerr, one of the authors of the bill, presented figures to show that of $255,000 expended on workmen's damage suits during a recent year in the Kansas courts only 16 per cent reached the injured men, the rest going for insurance, legal expenses, court fees, etc. The new law is designed to relieve both employer and employee of the heavy tolls thus charged.

Where the workman dies as a result of his injuries, leaving others who are wholly dependent on his earnings, the latter are entitled to an amount three times his annual rate of average wages, but not less than $1,200 or more than $3,600. If these dependents reside abroad the award is limited to $750. In case the dependents did not rely wholly for support upon the man killed they are entitled to receive an amount proportional to their sustained loss.

Where the injury results in total incapacity for work the injured man is entitled to payment—during the time of his incapacity after the second week, but for a period not exceeding ten years in all—of an amount equal to 50 per cent of his daily earnings, but not more than $2.50 or less than $1 per day. In case of partial disability the allowance ranges from 50 per cent down to 25 per cent of the former wages. In the case of persons under 21 years of age receiving less than $10 weekly the limiting compensation prescribed is 75 per cent of the former wages.

The above rates of workmen's compensation are rendered void, of course, if it is proved that the employee deliberately intended the injury, wilfully failed to use guards or precautions provided by the employer, or was intoxicated at the time of the accident.

INDIVIDUAL INDUCTION MOTORS FOR SALT LAKE CITY

The Utah Light & Railway Company is installing a complete equipment of thirty-five induction motors for individual machine tool driving at its new shops in Salt Lake City, this being one of the largest direct-connected street railway repair shop applications thus far made with separate motors. The motors vary in size from a 100-hp unit operating an air compressor to a 1-hp outfit driving a small drill in the toolroom. All the motors are wound for 200-volt service, the smaller outfits being connected directly to the line in starting. Iron conduit and metallic hose are employed in the wiring service and current is supplied to the motors by a special feeder circuit connecting with the Jordan substation of the company in the western part of the city. Alternating-current motors were employed on account of their simplicity and independence of operation with reference to the car distribution circuits. A list of the tools and the sizes of motors required for their service is given herewith:

LIST OF MACHINES IN NEW SHOPS OF UTAH LIGHT & RAILWAY COMPANY

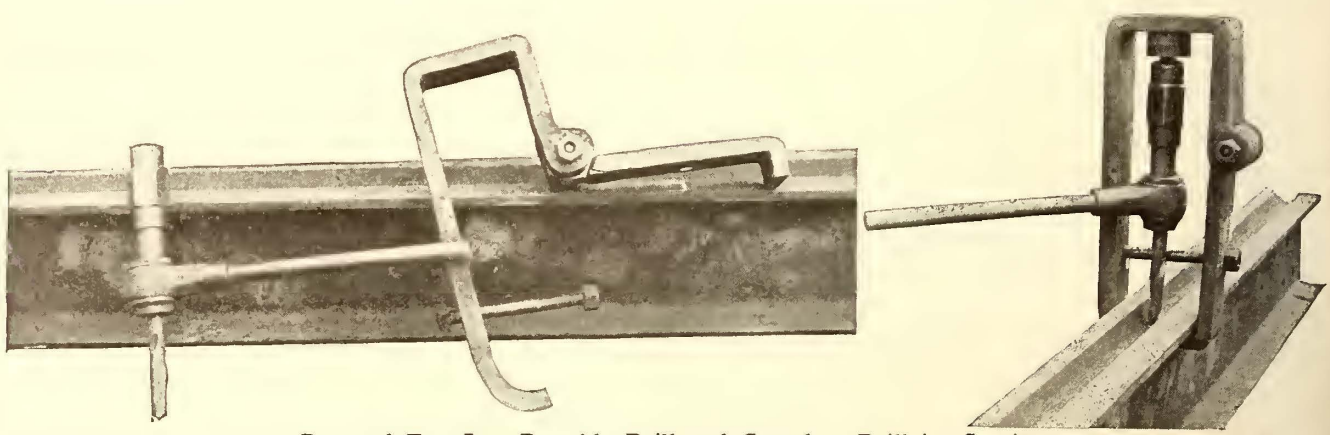
Blacksmith Shop:
- Blower, 15-hp.
- Compressor (old), 53-hp.
- Compressor (new), 100-hp.
- Dust house, 3-hp.
- Punch and shear, 7½-hp.
- Blower, 5-hp.

Machine Shop:
- Boring mill, 7½-hp.
- Wheel press, 5-hp.
- Wheel grinder, 15-hp.
- McCabe lathe, 7½-hp.
- Bradford lathe, 5-hp.
- Niles lathe, 5-hp.
- Doan lathe, 2-hp.
- Radial drill, 5-hp.
- Drill, No. 12, 3-hp.
- Drill (in sand house), 3½-hp.
- Milling machine (new), 7½-hp.
- Landis bolt cutter, 5-hp.
- Milling machine (old), 3-hp.
- Wet tool grinder, 2-hp.
- Small drill, No. 11, 1-hp.
- Walker tool grinder, 2-hp.
- Car hoists, 2 20-hp (40-hp.)
- Overhead crane, 2, 5-hp (10-hp.)
- Turret lathe, 5-hp.
- Bolt cutter, 5-hp (line shaft).
- Grindstone, 5-hp (line shaft).
- Shaper, 5-hp (line shaft).
- Field winder, 5-hp (line shaft).
- Banding machine, 5-hp (line shaft
- Grinder (emery), 5-hp (line shaft)

Carpenter Shop:
- Lathe, 10-hp (line shaft).
- Grindstone, 10-hp (line shaft).
- Planer and joiner, 10-hp (line shaft).
- Rip saw, 10-hp (line shaft).
- Tenoning machine, 5-hp.
- Single surfacer, 10-hp.
- Swing saw, 3-hp.
- Transfer table motor, 25-hp.
- Transfer table hauling motor, 3-hp.
- Heating plant motor, 7½-hp.

PORTABLE DRILL CLAMP

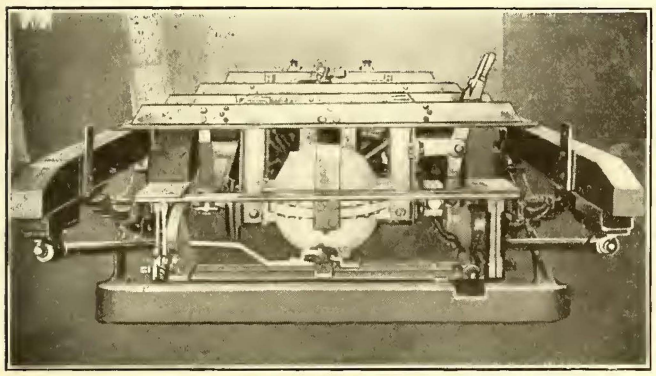
The two accompanying illustrations show a handy drill clamp which is so constructed that the drill pressure is equally divided between two legs. It is superior in this respect to the one-leg type because it is unnecessary to straighten the clamp from time to time. As shown, a hinge on one of the legs permits quick application to the metal to be drilled. When the bolts have been tightened, the clamp is so rigid that it cannot become bent no matter how great the drill pressure may be. The clamp may be attached to the top, sides and bottom of the rail and it can also be employed for drilling shafts or axles by forming a suitable curve at the end of the legs. This clamp was made by the master mechanic of an Eastern electric railway primarily to facilitate the drilling of a large number of drainage holes and rail grooves. It was found to be far superior to devices previously used for such work.

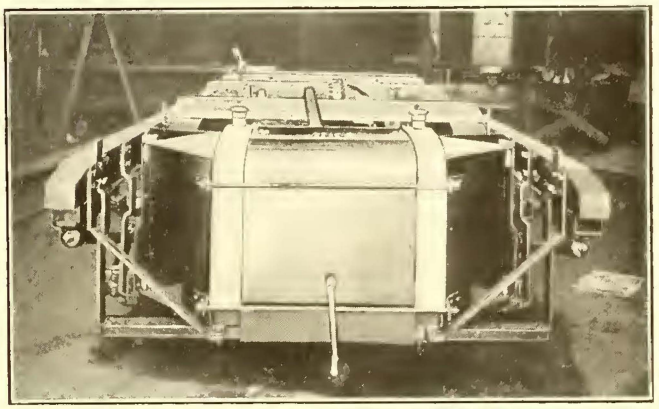


Parts of Two-Leg Portable Drill and Complete Drill in Service

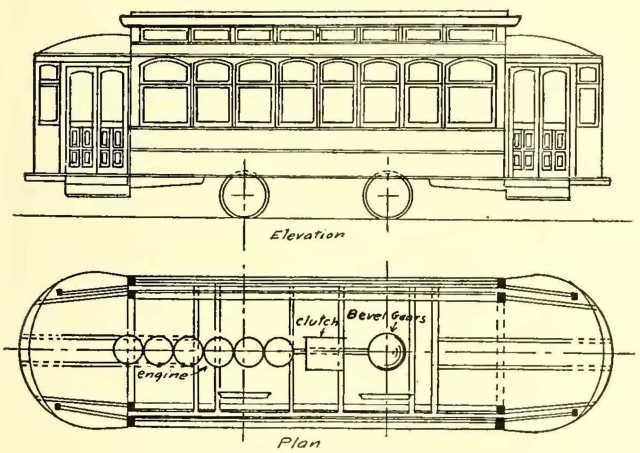
GASOLINE CAR NO. 2 AT POINT SHIRLEY

In the issue of this paper for Oct. 22, 1910, a description was published of gasoline-electric car No. 1 of the Point Shirley Street Railway, near Winthrop Beach, Mass. Since that time, owing to the large increase in traffic, a second car has been put into operation. This car differs essentially from the first car in that instead of an electric clutch it has a mechanical clutch.



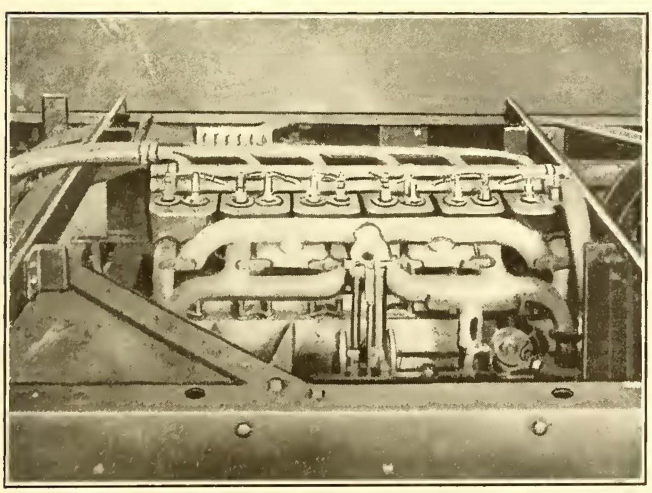


End Views of Truck of Point Shirley Gasoline Car



Plan and Side Elevation of Car

On the truck of this car is installed a six-cylinder gasoline engine, rated at 70 hp at 1500 r.p.m. Energy is transmitted to one axle through a multiple-disk clutch, sliding gear transmission and a bevel gear. This bevel gear is shown in the first engraving. The lever shown in the front right-hand corner is used to reverse the car by engaging one of the two bevel gears contained in the spherical gear box. This illustration also shows the method of supporting the engine and the transmission by the use of angle irons dropped from the top of the truck.



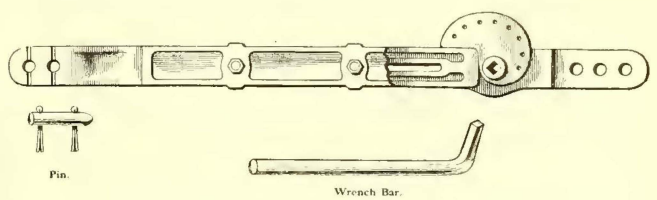
Side View of Motor

The cooling system shown in the second view consists of two radiators, each having a surface of 100 sq. ft. Fans operated by a shaft and bevel gears direct from the crankshaft of the engine maintain the air circulation through the radiators.

The car equipped weighs 8 tons and is capable of a speed of 30 m.p.h. on level track. The car was designed by Herbert N. Ridgeway and was constructed at the Atlantic Works, Boston, Mass. The total cost of the car equipped was $5,500, and the total cost of operation, including fixed and operating costs, is 16.5 cents per car mile when running 95 miles per day.

BRAKE-SHOE ADJUSTER

L. Zink, shop foreman with the Detroit United Railway, is making a cam-type brake-shoe adjuster of the design shown in the accompanying cut. This adjuster can be applied to any truck with inside brakes pulling from the radius bar or live lever. The adjuster is of malleable iron with ribbed edges. The sides and jaw where the pinholes are located are ¾ in. thick, thereby giving ample strength. The round steel pins which fit the holes in the live and dead levers are locked with cotter keys on each side of the jaw to prevent the holes from wearing. The adjustment feature is obtained by the application of a wrench bar to the cam as follows: The cam has a ¾-in. square hole through the bearing hub to receive a 15-in. wrench bar which has a 3-in. turn bent almost at right angles, as illustrated. One turn of this bar extends by 2¾ in. the pin which is connected to the levers. The cam can be locked by placing ¼-in. cotter keys on both sides and screwing two lock-washered machine bolts into place as shown. The adjuster is made in two lengths with 2-in. adjustments—one for extended wheel base trucks ranging from 33 in. to 41 in. and the other from 29 in. to 35 in. If the shoes are not entirely worn out after a complete turn of the cam they may be held to the wheel by placing a wooden block between the brake beams. Further adjustment can then be made by removing the pin, extending the pinhole 2 in. and throwing the cam back to the starting point.

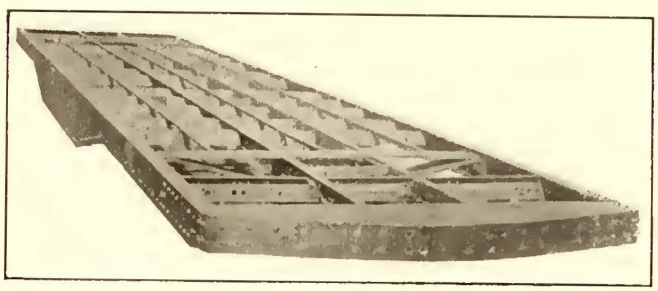


Cam-Type Brake-Shoe Adjuster

NEW STEEL CARS FOR PHILADELPHIA ELEVATED SERVICE.

The accompanying illustrations show in various stages of construction one of the thirty steel cars which The J. G. Brill Company, Philadelphia, Pa., is building for elevated-subway service in that city. The first car was ready on Oct. 7, within ninety days from receipt of order,

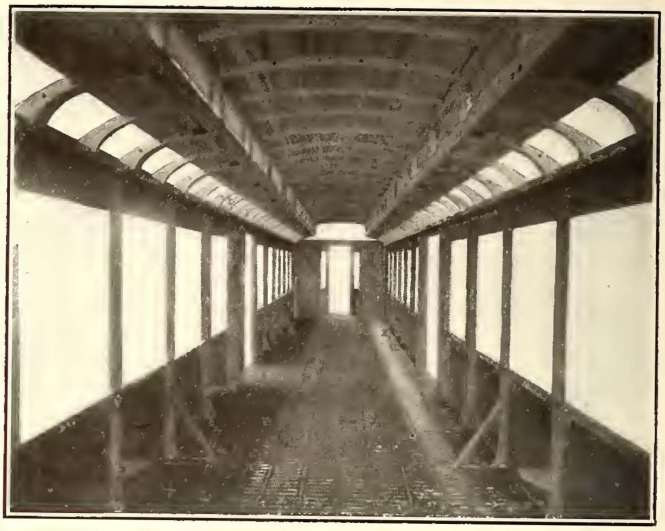
Interior View of Philadelphia Elevated Car, Showing Completed Ceiling, Part of Seat Framing, Etc.



Bottom Framing of Philadelphia Elevated Car

and all the cars will be delivered by Nov. 15 of this year. The general dimensions and constructional features of these cars are similar to those which are now in service on the same line. The principal dimensions are as follows: Length of body over the corner posts, 40 ft. 2¼ in.; length over the platforms, 49 ft. 7 in.; width over the sills, including the sheathing, 8 ft. 7 in.; width over the posts at the belt, 8 ft. 6¾ in.; extreme width, 8 ft. 8⅝ in.; height from the track to the underside of the floor, 4 ft. 1 in.; height from the track to the top of the roof, 12 ft. 11 in.; distance between the centers of the side posts, 2 ft. 8½ in.

The general details of the steel framing are shown in the accompanying views. The roof is of ½-in. poplar



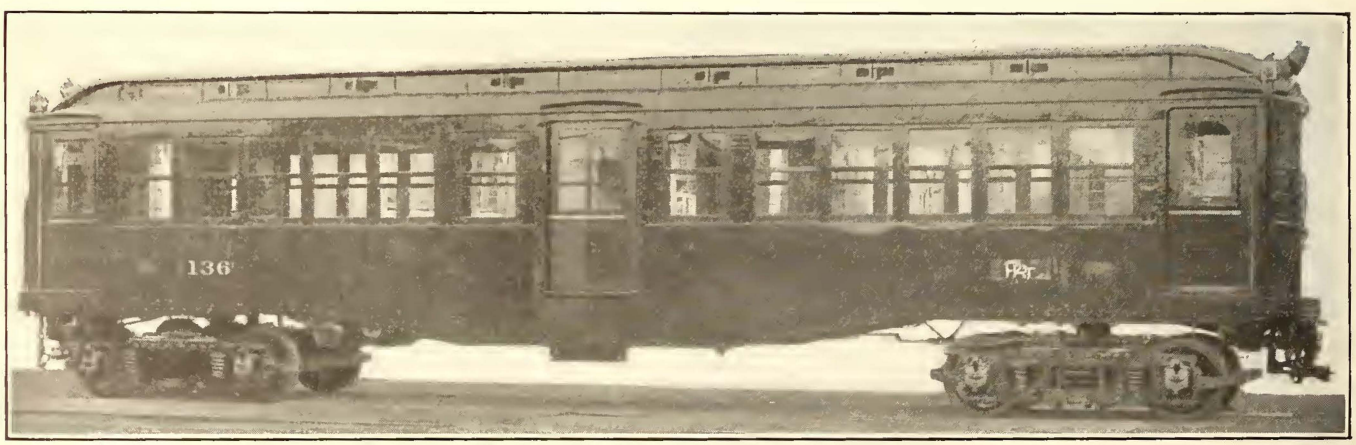
Interior View of Side and Roof Framing of Philadelphia Elevated Car

board covered with canvas. The flooring is of monolithic construction, the monolith being held in place by corrugated sheets. The corrugated flooring is attached to the side panels in such a manner that all leakage and draft under the seats are prevented.

The bodies are mounted on two Brill-27-M.C.B.-3 trucks of 6-ft. 8-in. wheel base, with 34-in. diameter wheels and 5-in. journals. There are two GE-66, 125-hp motors per car. The principal weights are as follows: Car body less electrical equipment, 32,000 lb.; electrical equipment complete, 2500 lb.; air-brake equipment, 1500 lb.; single trail truck, 11,500 lb.; single motor truck, 12,900 lb.; motors, 4375 lb. each; total weight, 69,150 lb.

AIR BRAKES IN NEW YORK

It is estimated that 4000 cars are involved in an order recently issued by the Public Service Commission, First District, New York, requiring all surface electric railway companies in that district to install air brakes on cars over a certain weight. The order requires all companies to equip with air brakes before June 1, 1912, all their double-truck cars weighing more than 27,000 lb., and before June 1, 1913, all double-truck cars weighing more than 25,100 lb. Single-truck cars are not included in the order.



Philadelphia Steel Elevated Car Complete

News of Electric Railways

Chicago Subway Plans

Announcement has been made that on Oct. 31, 1911, the local transportation committee of the Chicago City Council will receive plans for a passenger subway system in the business section of Chicago, which have been prepared by Mayor Harrison's subway commission. It is understood that two plans for a subway system will be submitted to the committee. The first plan contemplates a subway for use only by the trains of the elevated roads; the second plan provides for subways which also would accommodate surface cars. Connection between the two systems is proposed when both have been constructed. The first plan for a subway would cost approximately $12,000,000. The north and south routes would be on State and Dearborn Streets and the east and west routes on Lake and Harrison Streets.

Under the first proposed plan of the city's engineers trains would be run as follows:

From the south side, enter the subway at Thirteenth and State Streets, run north in State Street to Lake Street, west underground to Desplaines Street, then up to the elevated structure to Oak Park.

From the north side, enter the subway at North Water and Dearborn Streets, run south in Dearborn Street to Harrison Street, and then west to Desplaines Street, thence on the elevated structure and to all branches of the Metropolitan system.

It is stated that the subway commission, which consists of John Ericson, E. C. Shankland and J. J. Reynolds, has decided to advocate the construction of a subway occupying the space between curb lines rather than between building lines, as earlier proposed. The systems planned would be double-tracked on a single level. Connection between the State and Dearborn Street bores would be made by arcades on Madison Street and Adams Street. Probably only four other stations will be recommended—two on Lake Street and two on Harrison Street.

Mayor Harrison is quoted as having made the following statement:

"Speaking in a general way, I should say that the plan would be to utilize the elevated lines for through routing, eventually through the subway, while the surface lines would be used for short hauls and as feeders for the elevated lines. But it is too early to express any decided views until we learn just what measures the companies have to propose. Beyond that, naturally, the one fare and the universal transfer must be the first consideration. Without that the one-company plan would mean nothing."

Objection to Ordinance Requiring Extensions in Milwaukee

The City Council of Milwaukee, Wis., has passed the ordinance directing the Milwaukee Electric Railway & Light Company, Milwaukee, Wis., to extend its lines on First Avenue and Eighth Avenue. The company is said to object to the provision which requires the company to extend its tracks on First Avenue from Arthur Avenue to Cleveland Avenue, and on Eighth Avenue from Harrison Avenue to Cleveland Avenue. J. D. Mortimer, president of the company, is quoted as follows in regard to the ordinance:

"I have always been willing to discuss ordinances of this kind with the committees of the Council and to try to meet the administration half way in the effort to reach an amicable and satisfactory arrangement for both sides. The committee did not see fit to give us an opportunity to be heard on these ordinances. I am satisfied that if the committee had discussed the proposition with us the adoption of the ordinance would not have been recommended.

"The extension on First Avenue is not a needed one at the present time and is not a reasonable extension within the meaning of the 1900 ordinance. The block between Arthur Avenue and Cleveland Avenue has only a few houses on one side of the street and there are none at all to the south of Cleveland Avenue. In other words, there are no people on that block who will be better served by the extension than they are under present conditions.

"The extension on Eighth Avenue would be a good thing and the company has been willing to make the extension even further to Oklahoma Avenue if it could be done without crossing the tracks of the Chicago & Northwestern Railway at grade. But the danger of crossing the tracks would more than counterbalance the convenience to the public served by the extension. Then there is a bridge crossing the Kinnickinnic River just south of our present terminus on Eighth Avenue which is not strong enough to bear street car traffic. The extension certainly cannot be made until that bridge is strengthened, or a new one built."

Report of Cleveland Railway for September

The report of the Cleveland (Ohio) Railway for September shows a deficit of $48,735.79 on regular ordinance allowances and an actual deficit of $39,234.58. The company has been operating on a straight 3-cent fare for four months, and in that time the interest fund has been reduced from $700,000 to about $500,000. About four months more would be required to reduce the fund to $300,000, the limit at which the fare would automatically advance. The statement for September follows:

Gross passenger receipts	$534,724.71
*Expenses	439,345.40
Net earnings	95,379.31
Other income	4,935.95
Gross income	100,315.26
Taxes and interest	149,050.00
Deficit	$48,735.00

Actual Disbursements.

Gross passenger receipts	$534,724.71
Expenses	429,844.19
Net earnings	104,880.52
Other income	4,935.95
Gross income	109,816.47
Taxes and interest	149,050.00
Deficit	$39,234.00

*The $439,345 allowed for expenses included $142,490 for maintenance and $296,855 for operation. The actual disbursement for maintenance was $147,167, or $4,676 in excess of the allowance. The actual disbursements for operation were $282,677, or $14,178 less than the allowance. The difference shows a net surplus on the two accounts of $9,501.

Street railway officials state that they will not operate the interurban cars at 3-cent fare or stop at street crossings until they have formal instructions. Judge Vickery a few days ago decided that they would be compelled to do this as the law now stands, although he felt that the law should be so amended that through interurban cars would not come under the same regulation as street cars.

Inquiry Into Cost of Improvements in Kansas City

Judge Hook, of the United States Circuit Court at Kansas City, Mo., has issued an order which directs Hermann Brumback, special master, to report the cost of the work which the Metropolitan Street Railway has been requested to carry out by the city. Judge Hook has ordered Mr. Brumback first to inquire into the cost of bringing the system up to its franchise requirements, including roadbed, tracks and the paving between the tracks, extensions of lines and connections as specified under the city ordinances. The inquiry also is to take cognizance of additional cars necessary for the operation of the present mileage and the number necessary if any extensions are built. The special master is also directed to ascertain the cost of extending the system so as to make it fully commensurate with the present size and importance of the two cities. This is to include additions to tracks, paving and extensions, power houses, carhouses, accommodations

for employees and other features. Consideration also is to be given to the question of intercommunication between Kansas City, Mo., and Kansas City, Kan. The company's probable contribution to the Twelfth Street trafficway also is to be included. Mr. Brumback is also ordered to consider and report in regard to the capital requirements necessary to keep the system abreast of the demands and growth of the two cities.

Strike in Schenectady

A short strike occurred among the employees of the Schenectady Railway during the latter part of the week ended Oct. 22, 1911, but was soon declared off after E. F. Peck, general manager of the company, had made clear the position of the company in regard to union labor at a meeting of representatives of the employees. Mr. Peck announced that while the company did not think it wise or necessary for the employees to join a union, the company would not oppose membership in the union; that the company would reinstate all employees who left its service in connection with the strike, and that the company would meet any committee of its employees and discuss any matters pertaining to their working conditions. The men agreed to return to work under these conditions and the strike was declared at an end.

Mr. Peck also issued a statement to the public outlining his position and the position of the company in regard to union labor, in which he said, in part:

"It was not and is not necessary for the employees of the Schenectady Railway to organize; they have not suffered from harsh treatment; their wages have always been as high as those paid on other street railways, and have been advanced voluntarily from time to time in keeping with the increased cost of living. Again, the amount of money which they will spend needlessly in creating and continuing this organization, if applied to legitimate insurance, would mean very much more to the employee and to his family, and it would create a better citizen for Schenectady and a more desirable employee because of his greater financial responsibility."

Brooklyn Boycott Declared Off.—The boycott which has been maintained against the Coney Island & Brooklyn Railroad, Brooklyn, N. Y., since Aug. 5, 1911, by the former employees of the company has been formally declared off. As previously stated in the Electric Railway Journal, the strike was completely broken by the company soon after its inception.

Chicago A. I. E. E. Section.—At a meeting held on Oct. 18, 1911, J. G. Wray and Ralph H. Rice were elected members of the executive committee of the Chicago Section of the American Institute of Electrical Engineers. The other members of the committee are W. L. Abbott, W. B. Jackson, Prof. John D. Nies and Fay Woodmansee.

New Railroad Map of Pennsylvania.—The new railroad map of Pennsylvania which has been under preparation by the State Railroad Commission for some months will be issued before very long and will give complete outline information about every railroad and electric railway in Pennsylvania. The railroad maps issued heretofore have shown only the railroads and streams.

New Interests Purchase "The American City."—Harold S. Buttenheim and Edgar J. Buttenheim, recently second vice-president and circulation manager, respectively, of the David Williams Company, New York, N. Y., have purchased the magazine *The American City*, which was established in New York about two years ago. The first issue of the publication under the new management has made its appearance and gives promise of a successful career for this periodical in its field of civic work and city government. Mr. Buttenheim's successor as manager of *Iron Age-Hardware* is Roy F. Soule, who has been a frequent contributor to its columns for more than a year past.

Former Cleveland Employees Sentenced for Ticket Frauds.—William E. Farris, John E. Farris and Ira F. Williamson, former conductors of the Cleveland (Ohio) Railway, have pleaded guilty before Federal Judge William L. Day to counterfeiting street car tickets and using the mails to defraud, and each has been sentenced to serve one year in the workhouse at Canton, Ohio, and three years in the federal prison at Ft. Leavenworth, Kan. The federal prison sentence was suspended pending good behavior in the workhouse. The arrest of William E. Farris and John E. Farris, brothers, followed a raid on a house near Akron, which resulted in finding a printing plant. with plates for printing the counterfeit tickets and other material that was used. William E. Farris was arrested in Chicago in June, 1911, and his brother was apprehended a little later.

Voluntary Contribution to Bridge Fund by Tampa Electric Company.—Through J. C. Woodsome, manager, the Tampa (Fla.) Electric Company has written a letter to the Mayor of Tampa confirming the tentative promise of the company to pay to the city's bridge fund the sum of $50,000 to defray part of the expense of building the new bridge across the Hillsborough River at Lafayette Street, over which the company will build a double track for its cars. The gift to the city does not entail any further grants to the Tampa Electric Company than those already enjoyed under its franchise. The estimated cost of the bridge is $205,000. In the letter to the city Mr. Woodsome said: "The Tampa Electric Company makes this offer of donation purely from the standpoint of rendering assistance to the upbuilding of the city and not because of any obligation to contribute anything toward the cost."

Ouster Proceedings in Steinway Tunnel Case.—The Public Service Commission of the First District of New York voted recently to begin ouster proceedings against the Interborough Rapid Transit Company in connection with its ownership of the Steinway tunnel. Chairman Willcox of the commission reported that he had been unable to arrive at any understanding with Theodore P. Shonts, president of the Interborough Rapid Transit Company, in regard to the Steinway property. He had made Mr. Shonts a tentative offer of $3,500,000 for the tunnel, on behalf of the city, and had also pointed out the willingness of the city to contract with the Interborough Rapid Transit Company to operate the tunnel. The concluding paragraph of the commission's letter to the Attorney General of New York State follows: "Since the streets and lands occupied by the so-called Steinway tunnel are needed to secure proper rapid transit railroad extension, and since the efforts of the commission in this regard are frustrated by the possession of such streets and lands by others whose claims the commission believes have lapsed and are now without force and effect, the commission respectfully requests you to begin appropriate action in the name of the people of the State of New York to oust such trustees or any other persons claiming to exercise franchises or rights in the so-called Steinway tunnel or in the streets and lands in which it is located."

PROGRAM OF ASSOCIATION MEETINGS

Meeting of Central Electric Railway Association

The next meeting of the Central Electric Railway Association will be held at Louisville, Ky., on Nov. 23, 1911.

Convention of Railway Electrical Engineers

The annual convention of the Association of Railway Electrical Engineers will be held at the La Salle Hotel, Chicago, from Nov. 7 to 10, 1911. There will be morning and afternoon sessions on each of the four days indicated. Among the papers to be presented are the following: "Insulation," by K. R. Stranberg; "The Light for Safety," by F. R. Fortune, and "Industrial Trucks for Railway Service," by T. V. Buckwalter. There will be reports of committees on "Data and Information," "Car Ventilation," "Standards," "Improvements," "Shop Practice," "Specifications" and "Accounts and Reports." The entertainment features include a dance, a theater party and an automobile tour. Space has been provided for twenty-nine exhibits by manufacturers. The officers of the Association of Railway Electrical Engineers are: President, J. R. Sloan; vice-president, F. R. Frost; secretary-treasurer, J. Andreucetti. The exhibits and entertainment are in charge of the Railway Electrical Supply Manufacturers' Association, of which H. A. Moore is president and J. Scribner secretary.

Financial and Corporate

New York Stock and Money Markets

Oct. 25, 1911.

Financial interests have been concerned this week with the outcome of the hearing on the plan for reorganization of the American Tobacco Company in compliance with the order for its dissolution. Trading on the Exchange has been very quiet and price changes have been unimportant. The government's report on the condition of cotton ginned to Oct. 18 showed that rapid progress has been made in preparing the crop for the market. American bankers continue to lend large sums to foreign interests at advanced rates. Quotations in the local money market to-day were: Call, 2¼@2½ per cent; ninety days, 3½@3¾ per cent.

Other Markets

Chicago tractions were very active yesterday as a result of further moves toward consolidation of the various street railways in the city. Chicago Railways, Series 1 and 2, were heavily traded in and advanced over a point.

Advances were made early in the week in Philadelphia Traction and Lehigh Valley Transit issues. To-day's market was weak and there were few transactions of importance.

Massachusetts Electric common and preferred were fairly active in the Boston market yesterday. To-day's market was concerned chiefly with the copper shares.

Demand for bonds in Baltimore shows sign of early improvement.

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

	Oct. 18.	Oct. 25.
American Light & Traction Company (common)	a295	a295
American Light & Traction Company (preferred)	a106	a106
American Railways Company	a43½	a43½
Aurora, Elgin & Chicago Railroad (common)	a42½	41¼
Aurora, Elgin & Chicago Railroad (preferred)	a87	a85
Boston Elevated Railway	126	a127
Boston Suburban Electric Companies (common)	15	a15
Boston Suburban Electric Companies (preferred)	72	a75
Boston & Worcester Electric Companies (common)	12	a12
Boston & Worcester Electric Companies (preferred)	*51	a50½
Brooklyn Rapid Transit Company	74⅝	75
Brooklyn Rapid Transit Company, 1st ref. conv. 4s	84⅛	84¼
Capital Traction Company, Washington	a130	a130
Chicago City Railway	a180	a180
Chicago & Oak Park Elevated Railroad (common)	3	*3
Chicago & Oak Park Elevated Railroad (preferred)	6	*6
Chicago Railways, ptcptg., ctf. 1	91	a96
Chicago Railways, ptcptg., ctf. 2	a31	a33
Chicago Railways, ptcptg., ctf. 3	a11	a12
Chicago Railways, ptcptg., ctf. 4	a7	a7
Cincinnati Street Railway	a131	a132½
Cleveland Railway	a99½	a99¾
Columbus Railway (common)	83	83
Consolidated Traction of New Jersey	a75	a76
Consolidated Traction of N. J., 5 per cent bonds	a104	a104
Dayton Street Railway (common)	a25	a25
Dayton Street Railway (preferred)	a101	a101
Detroit United Railway	68	a95
General Electric Company	151	150⅜
Georgia Railway & Electric Company (common)	a160	a161½
Georgia Railway & Electric Company (preferred)	93	a93
Interborough Metropolitan Company (common)	14⅜	a14⅞
Interborough Metropolitan Company (preferred)	44	44½
Interborough Metropolitan Company (4½s)	79½	79¼
Kansas City Railway & Light Company (common)	a19	16
Kansas City Railway & Light Company (preferred)	a44	*44
Manhattan Railway	136	a138
Massachusetts Electric Companies (common)	*19⅞	a22
Massachusetts Electric Companies (preferred)	*93	a95½
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	a68	a70
Northern Ohio Light & Traction Company	a57	a57½
Northwestern Elevated Railroad (common)	*30	*30
Northwestern Elevated Railroad (preferred)	*70	*70
Philadelphia Company, Pittsburgh (common)	49¾	51¼
Philadelphia Company, Pittsburgh (preferred)	42	42½
Philadelphia Rapid Transit Company	23½	23
Philadelphia Traction Company	83½	83⅞
Public Service Corporation, 5% col. notes (1913)	*94	*94
Public Service Corporation, ctfs.	103½	a104½
Seattle Electric Company (common)	*110	a108
Seattle Electric Company (preferred)	101	a101
South Side Elevated Railroad (Chicago)	a95⅛	*95⅛
Third Avenue Railroad, New York	9	9⅜
Toledo Railway & Light Company	*6½	a10
Twin City Rapid Transit, Minneapolis (common)	*106½	a106⅞
Union Traction Company, Philadelphia	51	51⅛
United Ry. & Electric Company (Baltimore)	*18	*18
United Rys. Inv. Co. (common)	33	a31½
United Rys. Inv. Co. (preferred)	56	a58½
Washington Ry. & Electric Company (common)	a41	a40½
Washington Ry. & Electric Company (preferred)	a90	a90
West End Street Railway, Boston (common)	86	a88
West End Street Railway, Boston (preferred)	100½	101
Westinghouse Elec. & Mfg. Co.	64¼	a64
Westinghouse Elec. & Mfg. Co. (1st pref.)	a120	a120

a Asked. *Last sale.

Possible Consolidation of Surface and Elevated Railways in Chicago

Henry A. Blair, representing the Chicago Railways Company; Ira M. Cobe, representing the Chicago City Railway, Southern Street Railway and Calumet & South Chicago Railway, and Samuel Insull, representing the Chicago Elevated Railways, as the financial heads of the surface and elevated railways of Chicago, have indicated in a letter to Mayor Harrison that a consolidation of all the local transportation lines in Chicago will be brought about if mutually agreeable relations can be established between the city and the properties. The letter to Mayor Harrison, dated Oct. 21, 1911, follows:

"To the end that a comprehensive plan be formulated, having for its purpose the permanent establishment and maintenance of the best possible transportation facilities for Chicago, the undersigned will be glad to co-operate with your honorable body in an earnest endeavor to work out a satisfactory solution of every phase of the transportation problem."

Henry A. Blair and Samuel Insull, two of the signers of the letter, recently re-established the operation of the elevated lines in Chicago under a unified organization and have begun to improve the service.

Mayor Harrison referred the communication to the local transportation committee of the Council for investigation and report. The Mayor expressed his appreciation of the importance of the step, but declined to predict the attitude of the administration toward any terms on which the surface and elevated lines might be consolidated. The Chicago newspapers predict that the traction ordinances of 1907, which established the board of supervising engineers, Chicago Traction, and provided for a division with the city of the profits from the operation of the surface railways, will place the city in a position to dictate terms for unification of the surface lines with the elevated roads. The consolidation and unification of the large surface railways and the elevated system before the subways are constructed in the Chicago business district would aid greatly in planning the proposed subway.

If the elevated railways and the Chicago Railways, Chicago City Railway, Southern Street Railway and Calumet & South Chicago Street Railway are consolidated, the consolidated property will control all the traction facilities in the city. At present the surface lines compete with the most important trunk lines of the elevated company.

The total capital obligations of the companies affected are more than $300,000,000 and the gross earnings last year were more than $33,000,000. The following table indicates the miles, cars and daily average passengers carried by the three railway systems, the figures for the surface lines not including passes or transfer passengers:

	Mileage.	Cars.	Passengers, Daily Average.
Elevated railways	126.92	1,399	454,196
Chicago Railways	491.48	3,068	751,554
Chicago City and consolidated railways	407.01	1,468	534,919
Totals	1,075.41	5,935	1,736,662

Capital obligations of the companies, totaling $305,313,115, follow:

	Preferred.	Common.	Bonds, Notes.
Chicago Railways		$365,100	$74,879,015
Chicago City Railway		18,000,000	23,000,000
Chicago City and consolidated rys	$25,000,000	15,000,000	22,000,000
Chicago Elevated	16,000,000	25,000,000	86,069,000
Totals	$41,000,000	$58,365,100	$205,948,015

Peter Reinberg, chairman of the committee on local transportation of the Chicago City Council, is thus quoted:

"Personally, I am of the opinion that the city should insist upon through routes and universal transfers and that the ordinances should be similar to the franchises of the street car companies. In fact, as I see the proposition now, it should be an absorption of the elevated railways by the surface companies. The elevated roads must come in on the terms granted to the street car companies."

Other members of the Council have stated that if the city approves a merger of the elevated and surface railways an interchange of transfers should be provided, through routing should be put into effect and the matter of revenue to the city should include the present 55 per cent of the profits of the surface lines, as established by the 1907 rehabilitation ordinances.

It has been hinted that the intimate connection of the Commonwealth Edison Company with traction matters might result in that company being included in the consolidation.

Terms of the Montreal Merger

Samuel T. Mains, secretary of the Montreal (Que.) Tramways, has sent the stockholders of the Montreal Street Railway the following offer for exchange of shares of the Montreal Street Railway for cash, debenture stock and ordinary shares of the Montreal Tramways, which recently entered into an agreement with the Montreal Street Railway for the acquisition of its property:

"We have entered into an agreement with the Montreal Street Railway for the acquisition of its undertaking and properties, and among the considerations on our part we have agreed to pay and deliver to shareholders of the Montreal Street Railway on the completion of the transfer to us $438.75 in cash, $800 in 5 per cent debenture stocks of this company and $100 in ordinary shares of this company, for each five shares of the street railway stock held by any street railway shareholder, the number of shares held to be evidenced by the register of the Montreal Street Railway and by delivery to us of the certificates for such shares indorsed in blank. Fractional certificates will be issued to holders who do not own five shares or an exact multiple of five shares.

"At the meeting of the shareholders of the Montreal Street Railway approving the agreement a number of shareholders requested that the Montreal Tramways should undertake to deliver to those shareholders who preferred not to take any cash $1,250 in 5 per cent debenture stock and $100 in ordinary shares against each five shares of stock of the Montreal Street Railway.

"We are ready to accede to this request, but it is necessary for us to know within a reasonable time what shareholders wish to take cash, debentures and shares, and what shareholders wish to take all debentures and shares on the basis above provided.

"Kindly fill in and return within fifteen days of the date of this letter the statement inclosed. Any shareholders who have not returned statement within fifteen days from this date will be taken as electing to receive cash, debentures and shares as provided in the agreement."

The letter referred to is dated Oct. 14, 1911.

Harris, Forbes & Company, New York, N. Y., explain that the $10,000,000 of bonds of the company reported in the ELECTRIC RAILWAY JOURNAL of Oct. 21, 1911, to have been purchased by them are first and refunding mortgage 5 per cent gold bonds secured by mortgage on the property, franchises, etc., of the Montreal Tramways Company and not an issue of debenture bonds, as stated last week.

Federal Light & Traction Company

According to a statement made on Oct. 2, 1911, by C. C. Chappelle, vice-president and general manager of the Federal Light & Traction Company, New York, N. Y., the recent acquisitions of the company are as follows:

In May, 1911, the company acquired the Springfield Railway & Light Company, owning all of the capital stocks of the Springfield Gas & Electric Company and the Springfield Traction Company, Springfield, Mo. This city has a population of 40,000. The company is adding to its Springfield plant a 2000-kw generator, which should be in operation by Nov. 15, 1911. Six new cars have been added, the capacity of the carhouse and the shop is to be doubled, the power station is to be changed from non-condensing to condensing, and more than $100,000 is being expended for new track.

On Aug. 2, 1911, the company, through the Trinidad Electric Transmission Railway & Gas Company, all of whose capital it owns, acquired the properties of the Colorado Railway, Light & Power Company, which operates electric light, gas and railway service in Trinidad, Col. The population served is about 25,000. Since taking over these properties the management has secured additional power business in the mining field, which will yield approximately $60,000 additional gross revenue per year.

Mr. Chappelle also reports an increase in the business and extensions of other public utility properties owned by the company. Thus, the generating capacity of the power station of the Gray's Harbor Railway & Light Company, operating in Aberdeen and other cities in Washington, has been increased 70 per cent. At Sheridan, Wyo., a modern condensing steam power station of 3000 kw has been built. A fifty-year lighting franchise has been secured, and the company has made a ten-year contract to supply the local electric traction company with power. At Albuquerque, N. M., the company has installed a 1000-kw steam turbine and has made a ten-year contract to supply power to the local railway companies.

For the year ended July 31, 1911, the total gross earnings of the present subsidiary companies of the Federal Light & Traction Company, exclusive of the Trinidad Electric Transmission, Railway & Gas Company, whose records for the previous year are not available, show an increase of 10.8 per cent, and in net earnings an increase of 11.4 per cent, over the previous corresponding year.

Berkshire Street Railway, Pittsfield, Mass.—The Berkshire Street Railway has applied to the Railroad Commission of Massachusetts for authority to issue additional stock to the amount of $4,900,000. The company's attorney, Henry W. Ely, at a recent public hearing, stated that the company has already expended $2,872,000 in making extensions that were provided for in the New York, New Haven & Hartford Railroad merger act, and plans to expend $1,450,000 more for work not stipulated in the act. There was no opposition to the petition. The commission took the matter under advisement.

Boston (Mass.) Elevated Railway.—R. L. Day & Company, Estabrook & Company and N. W. Harris & Company, Boston, Mass., offered for subscription, on Oct. 19, 1911, at par and interest and have entirely sold the new issue of $5,000,000 of 4½ per cent gold bonds, dated Nov. 1, 1911, and due Nov. 1, 1941. The proceeds of this issue are to be applied as follows: "1. The proceeds of bonds amounting at par value to $500,000 shall be applied exclusively toward the payment of the necessary cost incurred and to be incurred in the construction and equipment of the elevated structure, foundations, tracks and electric system. 2. The proceeds of bonds amounting at par value to $2,400,000 shall be applied exclusively toward the payment of the necessary cost incurred and to be incurred in the construction and equipment of power and transformer stations. 3. The proceeds of bonds amounting at par value to $2,100,000 shall be applied exclusively toward the payment of the necessary cost incurred and to be incurred in the construction, connection and equipment for use and operation of the elevated railways which the company is authorized to construct by Chapter 520 of the Acts of 1906, and their appurtenances and terminals, and the cost of acquisition of any land or lands in connection therewith. Any excess in the proceeds of this issue of bonds which may be realized from premiums shall be held for such application to cost of other permanent additions to and improvements in the property of the company as the board shall hereafter approve."

Columbus, Delaware & Marion Railway, Marion, Ohio.—The Columbus, Delaware & Marion Railway, in a report for the year ended June 30, 1911, shows that the receipts were $385,345, as compared with $352,658 for the preceding year. The net earnings were $4,302.53 as against $801.07 in 1910, and a deficit of $2,517.69 in 1909. The holders of first mortgage 5 per cent bonds of the Columbus, Delaware & Marion Railway have received checks for the coupons on these bonds which were due on May 1, 1911, together with interest on the overdue coupon.

Danville Railway & Electric Company, Danville, Va.—The local capitalists at Danville who were reported in the ELECTRIC RAILWAY JOURNAL of June 24, 1911, page 1128, to have secured an option on the property of the Danville Railway & Electric Company are reported to have exercised the option in the name of the Danville Traction & Power Company.

Galveston-Houston Electric Company, Galveston, Tex.—Stone & Webster, Boston, Mass., offer for subscription at 93½ to yield 6.40 per cent $300,000 of 6 per cent cumulative

preferred stock of the Galveston-Houston Electric Company. A statement of earnings of the company for the year ended Aug. 31, 1911, follows: Gross earnings, $1,447,726; operating expenses, $848,135; net earnings, $599,591; interest, charges and taxes, $246,363; balance, $353,227; bond sinking funds, $55,970; balance, $297,257. The dividend on $2,300,000 of preferred stock, which includes that now offered, requires $138,000.

National Light & Power Company, St. Louis, Mo.—The National Light & Power Company has been incorporated in New Jersey with an initial capital stock of $500,000, with Judson M. Boughton as president and W. C. Morehead as secretary and treasurer, as a holding and engineering company for gas, electric, street railway and hydroelectric properties. The National Light & Improvement Company is in process of dissolution. Judson H. Boughton has been identified with the National Light & Improvement Company as secretary and treasurer, president of the Citizens' Railway, Waco, Tex.; vice-president and general manager of gas and electric properties of Waco and Ft. Worth, and also associated with the various other interests of the National Light & Improvement Company.

Winnipeg (Man.) Electric Railway.—Local capitalists, including Messrs. Muir, Reece and Mather of the Manitoba Power Company, are reported to have offered $300 a share for the purchase of a controlling interest in the stock of the Winnipeg Street Railway. This is $50 a share more than what Sir William MacKenzie, president of the company, asked for the property in the recent negotiations for its sale to the city of Winnipeg.

Dividends Declared

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

Connecticut Railway & Lighting Company, Bridgeport, Conn., quarterly, 1 per cent, preferred; quarterly, 1 per cent, common.

East St. Louis & Suburban Railway, East St. Louis, Ill., quarterly, 1¼ per cent, preferred.

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

Lewiston, Augusta & Waterville Street Railway, Lewiston, Maine, quarterly, 1½ per cent. preferred.

Lincoln (Neb.) Traction Company, quarterly, 1½ per cent, preferred.

Toledo, Bowling Green & Southern Traction Company, Findlay, Ohio, quarterly, 1¼ per cent, preferred.

Union Electric Company, Dubuque, Ia., monthly, ½ of 1 per cent, preferred.

Union Street Railway, New Bedford, Mass., quarterly, 2 per cent.

West Penn Railways, Pittsburgh, Pa., quarterly, 1¼ per cent, preferred.

ELECTRIC RAILWAY MONTHLY EARNINGS

AURORA, ELGIN & CHICAGO RAILROAD.

Period.			Gross Revenue.	Operating Expenses.	Net Revenue.	Fixed Charges.	Net Income.
1 m.,	Sept.,	'11....	$167,422	$84,406	$83,016	$36,371	$46,645
1 "	"	'10....	161,599	83,177	78,421	33,054	45,368
3 "	"	'11....	542,975	268,693	274,282	109,290	164,993
3 "	"	'10....	522,715	258,266	264,450	98,662	165,788

BROOKLYN RAPID TRANSIT.

1 m.,	July,	'11...	$2,238,045	*$1,351,926	$886.119	.....	.....

CAPE BRETON ELECTRIC COMPANY, LTD.

1 m.,	Aug.,	'11....	$29,834	$15,027	$14,807	$6,183	$8,625
1 "	"	'10....	30,777	15,703	15,074	6,174	8,900
12 "	"	'11....	331,992	171,060	160,932	73,768	87,165
12 "	"	'10....	314,788	171,075	143,712	74,015	69,697

CENTRAL PARK NORTH & EAST RIVER.

1m.,	July,	'11....	$58,588	*$54,527	†$4,061	.....	.....

CONEY ISLAND & BROOKLYN RAILROAD.

1m.,	July,	'11....	$197,842	*$115,192	$82,650	.....	.....

DALLAS ELECTRIC CORPORATION.

1 m.,	Aug.,	'11....	$129,851	$83,884	$45,967	$25,518	$20,449
1 "	"	'10....	118,257	82,637	35,620	25,659	9,961
12 "	"	'11....	1,571,151	977,109	594,041	558,860	279,873
12 "	"	'10....	1,414,199	934,210	479,989	319,229	160,760

GALVESTON-HOUSTON ELECTRIC COMPANY.

1 m.,	Aug.,	'11....	$142,325	$76,197	$66,129	$25,200	$40.929
1 "	"	'10....	124,764	65,932	58,832	25,965	32,867
12 "	"	'11....	1,447,727	848,135	599,592	332,334	297,258
12 "	"	'10....	1,268,767	769,333	499,434	278,144	221,291

*Includes taxes. †Deficit.

Traffic and Transportation

New Seattle-Tacoma Passenger Tariff

The Puget Sound Electric Railway, Tacoma, Wash., has made public the new rates over its line between Tacoma and Seattle, fixed so as to accord with the recent decision of the Supreme Court of the State upholding the ruling of the Railroad Commission of Washington. In 1909 the company revised its tariff of passenger fares and an appeal from the rates was made to the Railroad Commission, with the result that the through rate between Seattle and Tacoma was upheld, but a reduction was ordered in the zones within twelve miles of Seattle and of Tacoma. The company appealed to the courts for a reversal of the order and, failing in the Superior Court of Thurston County, appealed to the State Supreme Court. Recently R. T. Laffin, vice-president of the Puget Sound Electric Railway, in a public statement, which was reprinted in the ELECTRIC RAILWAY JOURNAL of Oct. 21, 1911, page 929, announced that the company would abide by the decision of the Supreme Court, and that the new rates would become effective when the order was entered. The old rates and the new rates between the cities and suburban points follow:

From Seattle.	New Rate—Single Fare.	New Rate—Round Trip.	Old Rate—Single Fare.	Old Rate—Round Trip.
Englewood	7	14	7	14
Georgetown	8	15	8	16
Colvins	8	15	8	15
McLean	9	15	9	18
Gorgiats	9	15	9	15
Marinos	9	15	9	18
Maples	10	15	10	20
Burts	10	15	10	20
MacKays	10	15	10	20
Van Asselt's	10	15	10	20
Chicago Avenue	11	15	11	22
Davis	12	15	12	24
Meadows	13	15	13	26
South Side	13	15	13	26
Floraville	14	15	14	28
Cardmoores	14	15	14	28
Duwamish	15	15	15	30
Quarry	15	15	16	32
Allentown	15	15	17	34
Riverton	15	15	17	34
Mortimer	15	15	18	36
Foster	15	15	19	38
Tukwila	15	15	20	40
Black River	21	25	21	42
Renton Junction	22	25	22	44
Earlington	24	25	25	50
Renton	27	35	27	54
Nelsons	23	32	23	46
Orilla	25	35	25	50
O'Brien	30	45	30	60
Kent	34	53	34	68

From Tacoma.	New Rate—Single Fare.	New Rate—Round Trip.	Old Rate—Single Fare.	Old Rate—Round Trip.
Brookville	8	15	8	16
Meeker	15	25	22	44
Puyallup	15	25	20	40
Berryton	15	25	18	36
Cedarhurst	15	25	17	34
Firwood	15	25	15	30
Ardena	10	15	13	26
McAleers	10	15	10	20
Willow Junction	9	15	9	18
Cushman	10	15	10	20
Fife	11	15	11	22
Milton	13	15	13	26
Edgewood	18	25	18	36
Jovita	19	35	19	38
Bluffs	22	35	22	44
Pacific City	23	35	23	46
Algona	23	45	25	50
Farrow	26	52	26	52
Auburn	29	55	29	58
Christopher	33	57	33	66
Maridas	34	55	34	68
Thomas	35	69	35	70
Kent	39	75	39	78

Order in Regard to Commutation Rates in New Jersey

The Board of Public Utilities Commissioners of New Jersey has issued an order directing all railroads which operate between Jersey City and Hoboken and other points in New Jersey to sell commutation tickets on demand between these points. The order also requires the railroads to publish their rates for such commutation and file rates with the commission. The order is effective on Dec. 1, 1911. The practice of the railroads heretofore has been to sell this class of tickets from local points to New York, and thus they claimed to be exempt from State regulation as to

rates on the ground that the traffic was interstate. The grounds taken by the commission for issuing the order follow:

"The practice of the carriers to grant in general no commutation or special rates to Jersey City or to Hoboken, but to require the purchase of transportation to New York, at rates which allow stop-offs on the Jersey side of the river, absolutely beclouds the knowledge of what part of the carrier's earnings arises from interstate and what part from intrastate services respectively; and yet such a separation of receipts tends increasingly to become useful and necessary in the solution of various questions affecting carriers' rates and charges, both in intrastate and interstate commerce.

"The commission is empowered, after hearing, upon notice, by order in writing, to require every public utility as defined in Chapter 195, P. L. of 1911, Section 17 (d), 'to keep its books, records and accounts so as to afford an intelligent understanding of the conduct of its business, and to that end to require every such public utility of the same class to adopt a uniform system of accounting.'

"From the foregoing it follows that an order must issue to the carriers concerned requiring them, when request is made upon them for transportation in intrastate journeys between points within the State entitled to commutation and other special rates, to sell such transportation, to quote rates for such transportation between aforesaid interior Jersey points and any river boundary terminal, and to file with this commission schedules of the rates specified, and a future order may require them to keep separate records of receipts from intrastate business."

Free Transportation in Altoona.—After Nov. 1, 1911, free transportation over the Altoona & Logan Valley Electric Railway, Altoona, Pa., will be extended only to employees of the company.

Lower Car Steps in Philadelphia.—The Philadelphia (Pa.) Rapid Transit Company has announced that all future cars will be equipped with a low entrance step, and that some of the cars now in service will be remodeled.

Paterson Car License Declared Illegal.—The Supreme Court of New Jersey has set aside as an invalid exercise of police power an ordinance of the city of Paterson requiring a license fee of $25 for every street car operated in the city limits. The Public Service Railway opposed the ordinance.

Fare Hearing in New Jersey.—The hearing on the application for a reduction in fare over the line of the New Jersey & Hudson River Railway & Ferry Company, Edgewater, N. J., from Edgewater to South Englewood, from 10 cents to 5 cents was held on Oct. 20, 1911, before the Public Utility Commission at Newark. It was agreed that briefs should be filed by Oct. 27, 1911.

Electric Trucks in Freight Service.—The Louisville & Northern Railway & Lighting Company has installed two electric trucks of large capacity to collect and deliver express in Southern Indiana. According to Charles B. Scott, of the company, the expense of maintaining the collection and delivery sections of the express department has been reduced materially by the motor vehicles.

Height of Steps in Hartford.—The Common Council of Hartford, Conn., has adopted a resolution directing the Mayor to petition the Public Utility Commission to require the Connecticut Company so to build the steps of its cars that the distance from the floor of the car to the top step shall be not more than 15 in., and the distance from the ground to the lower step not more than 15 in.

British Columbia Electric Railway Preparing for Train Operation.—As the interurban cars of the British Columbia Electric Railway, Vancouver, B. C., are sent to the shops for repairs Westinghouse multiple-unit control is being installed in anticipation of two-car trains being operated next year between Vancouver and New Westminster when the cutoff just outside the latter city is ready for service.

New Pleasure Resort for Illinois Traction System.—Martin's Grove, 7 miles south of Joliet, Ill., will be transformed into a public park and picnic grounds by the Illinois Traction Company. The park will be furnished with a pavilion, a ball park and other features. It will cost in the neighborhood of $100,000. It is stated that the fare to the grounds from Joliet will be about 20 cents return.

Signs on Fenders in Reading.—The Reading (Pa.) Transit Company has sent a letter to the State Railroad Commission to the effect that it was not committed to the practice of carrying advertisements on fenders and that if the commission deemed it wise to recommend the abolition of the signs the company would not object. The advertisements on the fenders are not a source of revenue to the company.

Limited Service Between Dallas and Sherman.—The Texas Traction Company established limited service over the line between Dallas and Sherman on Oct. 12, 1911. The distance between the cities is 66 miles, and the running time is two hours, with one short stop at McKinney, which is midway of the line. In the limited service there are four cars each way daily, leaving Sherman at 7 a. m. and 11 a. m. and 1 p. m. and 6 p. m., and leaving Dallas at 7:40 a. m. and 9:40 a. m. and 1:40 p. m. and 6:40 p. m.

Pay-as-You-Enter Cars in Louisville.—The delivery of thirty new cars by the Cincinnati Car Company, Cincinnati, Ohio, to the Louisville Railway Company, Louisville, Ky., has been begun. The new cars are equipped with wire gates and a folding step upon the entrance and exit vestibules, and are arranged for pay-as-you-enter operation. The Louisville Railway proposes to equip its East Broadway and West Jefferson, West Walnut and East Walnut and East and West Market lines with cars of the type now being received.

Increase in Wages on Detroit United Suburban Lines.—The Detroit (Mich.) United Railways has increased the wages of its employees on both the Rapid Railway and the city lines in Port Huron. Under the new scale motormen and conductors on the Rapid Railway will receive 23 cents per hour for the first six months, 27½ cents for the following year and 29½ cents thereafter. The former scale was 23, 25 and 28 cents. On the city lines in Port Huron the new scale will be 20, 24 and 27 cents per hour, as against 20, 23 and 26 cents per hour. The company has also increased the pay of the men on the Detroit, Jackson & Chicago line.

Electric Railways Meet Drift from Farms.—To check the drift from the farms in the Empire State, a special study of agricultural traffic development has been begun by members of the Street Railway Association of the State of New York, and traffic experts are receiving reports of past progress in building up agricultural sections tapped by interurban street railways. Lectures by agricultural authorities are being arranged by the electric railways. Experimental farms have already been established by some railways, while others are planning to adopt this means of finding out how the maximum productivity of the soil in their section may be attained. The question of establishing manufacturing plants throughout country regions remote from the railroads but possessed of power facilities is also being considered.

Recommendation Regarding Destination Signs in Albany.—Illuminated designation or route signs to be used at night on the cars of the United Traction Company in Albany, N. Y., are recommended by C. R. Barnes, electric railroad inspector of the Public Service Commission of the Second District of New York. The report states that the classification lamps now in use, which indicate by color the route of the car, are generally understood by residents of the city, but that on account of Albany being the capital of the State, there are a great many transients during all seasons and the necessity for such signs is greater in Albany than in many other cities. It is recommended to the company that it equip all its cars with illuminated route and, where necessary, destination signs within three months.

Booklet on Illinois Traction System.—The department of publicity attached to the office of H. E. Chubbuck, the vice-president executive of the Illinois Traction System, Peoria, Ill., has just prepared a fifty-six-page booklet, 8½ in. x 7 in., in which are described the interurban, city railway, electric, gaslight and other properties which form this system. Sixty half-tone views give a comprehensive idea of the rolling-stock equipment and bridges and buildings of the street railway and interurban railway properties. The text of the booklet is a condensed description of the resources of the territory served and the extent of the properties, which include street car systems in eleven cities, electric light and power plants in twelve cities, gas

plants in five cities and district steam-heating plants in six cities. The historical features surrounding the formation of the system are outlined. This system has grown from a road with only 6 miles of track in 1901 to 629 miles of track in Illinois and several street railways in states farther west.

New Agreement with Employees in Albany.—The United Traction Company, Albany, N. Y., has entered into a new agreement with its employees for three years, ending July 1, 1914, under which the wages of motormen and conductors on all divisions are increased from 26 cents an hour to 27 cents an hour. Under Section 1 of the agreement the company "will recognize and treat with its employees or with any committee of its employees when they desire to be heard in relation to any grievance." The agreement is concluded with the following clause which provides for arbitration of the wage question at the expiration of the agreement: "It is further mutually agreed that if, at or within thirty days prior to the expiration of this agreement, any controversy shall arise between the company and its employees as to the rate of wages to be paid to such employees after the expiration of this agreement the same shall be referred for determination to arbitrators, one to be selected by the company and one by the employees, and if they cannot agree a third man is to be selected by such arbitrators for the determination of the question thus submitted."

Accident Prevention Campaign in New York City Schools.—William H. Maxwell, city superintendent of schools of New York, has sent a circular to all school principals in the city, calling their attention to the number of accidents to school children, and advising them to have the class teachers warn the children. The letter follows: "Many school children have been seriously injured while violating the laws regulating traffic. It may diminish the number of such accidents if, in connection with the lessons in ethics, the teachers call attention to the impropriety of jumping or 'hitching' on cars, which is unlawful as well as dangerous. Pupils should be enlightened as to the safest way of boarding and alighting from a car, and as to care in crossing thoroughfares and refraining from play in the streets where car traffic is heavy. You might call the attention of your pupils to the following statistics for the twenty-one months ended Sept. 30, 1911: There were forty-six children between the ages of one and sixteen years killed by automobiles and 140 injured; there were twenty-nine killed by trolley cars and seventeen injured; there were 104 killed by wagons and twenty-three injured. One child was killed in a collision between two wagons and twelve were injured, making a total killed of 180 and a total injured of 192."

Freight Service Between Indianapolis and Benton Harbor.—The Winona Interurban Railway, Warsaw, Ind., has issued a four-page circular devoted to the all-electric freight route between Indianapolis and Warsaw, Goshen, Elkhart, Mishawaka, South Bend, La Porte, Michigan City, Niles, St. Joseph, Benton Harbor and all intermediate points via the Indiana Union Traction Company's system, the Winona Interurban Railway and the Chicago, South Bend & Northern Indiana Railway. Through cars, without transfers, leave Indianapolis and South Bend at 6 p. m. daily, except Sunday, insuring delivery early next morning to all points. The following eight reasons are given in the circular why freight should be shipped by electric railway: "1. Time schedules are prepared after consulting shipping interests. 2. Trains are run at such times as to insure quick movement and prompt delivery. 3. Local freight is given the same preference as through freight. Not so with steam lines. 4. No transfers—consequently no damaged freight, and, best of all, no claims. 5. A shipment, howsoever small, receives the same prompt delivery as a carload shipment. 6. Our cars containing local shipments are not side-tracked for twenty-four hours at a local station to unload a few hundred pounds of freight, picked up by the next local freight, side-tracked again for twenty-four hours, and handled thus until the car is unloaded, but go through on a continuous trip. 7. On shipments requiring refrigeration you save heavy icing charges from Michigan points to Indianapolis. Think of this. 8. Country merchants can get their orders filled the same day and thus avoid carrying heavy stocks."

Personal Mention

Mr. L. W. Carlisle, chief clerk of the Tampa (Fla.) Electric Company, has been appointed assistant treasurer of the Pensacola (Fla.) Electric Company to succeed Mr. A. G. Jillson.

Mr. J. B. Walker, formerly of the auditing department of the Boston office of Stone & Webster, has been appointed assistant treasurer of the Dallas Electric Corporation to succeed Mr. L. A. Bowers.

Mr. E. D. Trowbridge has resigned as general manager of the Mexican Light & Power Company, Ltd., in order to take up important work in Spain for Dr. F. S. Pearson, president of the company.

Mr. Herbert A. Pasho, superintendent of the elevated division of the Boston (Mass.) Elevated Railway, with headquarters at Charlestown, has had added to his duties that of superintendent of the Cambridge subway.

Mr. Egbert Douglas, commercial engineer of the Milwaukee Electric Railway & Light Company, has been promoted to be sales manager of that company, and as such will have charge of the selling work and commercial organization.

Mr. Harro Harrsen has been appointed general manager of the Mexican Light & Power Company, Ltd., Mexico City, Mex. Mr. Harrsen at the same time will continue as general manager of the Mexico Tramways Company. Mr. Harrsen has also been appointed managing director of the Pachuca Light & Power Company, Ltd., to succeed Mr. E. D. Trowbridge, and managing director of the Mexican Steel & Chemical Company to succeed Mr. Trowbridge.

Mr. Theodore P. Shonts, president of the Interborough Rapid Transit Company and the Interborough-Metropolitan Company, New York, N. Y., has resigned as president of the Iowa Central Railway and the Minneapolis & St. Louis Railroad, but remains a director of both companies. Mr. Shonts is succeeded with the companies as president by Mr. Newman Erb, chairman of the board of directors of the Ann Arbor Railroad and president of the Tennessee, Alabama & Georgia Railroad.

Mr. W. E. Erwin, superintendent of the San Bernardino division of the Pacific Electric Railway, Los Angeles, Cal., in accordance with the scheme of organization of the company, has relinquished his authority over the shops of the company in San Bernardino, Redlands, Riverside and Pomona to Mr. E. J. Martin, who has been given the title of general foreman. In token of their esteem the men employed in the shops presented Mr. Erwin with a pair of cuff buttons inscribed with the emblem of the Order of the Elks.

Mr. Edward Hardin has resigned as superintendent of the Hot Springs (Ark.) Street Railway, to take effect on Nov. 1, 1911. Mr. Hardin plans to enter business for himself in Hot Springs. For thirteen years Mr. Hardin was superintendent of construction for the United States government in Hot Springs, working under the direction of reservation superintendents. He resigned that position to take up construction work for the Little Rock Street Railway, and has for the last seven years been superintendent of the company. The system at Little Rock was rebuilt and extended under his direction.

Mr. Warren C. Billings has been appointed electrical engineer of the Lewiston, Augusta & Waterville Street Railway, Lewiston, Maine, to succeed Mr. Walter G. Parker, who has become connected with the Dover & Foxcroft Light & Heat Company, Dover, Maine, as noted in the Electric Railway Journal of Oct. 21, 1911. Mr. Billings was graduated from Dartmouth College in 1907, having given special attention to electrical studies. Since his graduation Mr. Billings has been in the employ of the Bangor Railway & Electric Company, Bangor, Maine, assisting in the construction and development of the water-power at Ellsworth with the title assistant to the electrical engineer.

Prof. Garret Droppers, of Williams College, has been appointed by Governor Foss to the Massachusetts Board of Railroad Commissioners to succeed Mr. Clinton White. Professor Droppers was born in Milwaukee in 1860 and

was educated at Harvard University, where he took his A. B. degree in 1887. He studied at the University of Berlin in 1888 and 1889. He was professor of political economy and finance at the University of Tokio, Japan, from 1889 to 1898, when he became president of the University of South Dakota, which position he held until 1907. He was lecturer on political economy at the University of Chicago in 1907 and 1908. Professor Droppers was formerly secretary of the Asiatic Society of Japan and is a member of the American Economic Association.

Mr. John L. Sullivan, whose appointment as general freight and passenger agent of the Ft. Dodge, Des Moines & Southern Railroad, Boone, Ia., was noted in the Electric Railway Journal of Oct. 21, 1911, entered the service of the Chicago & Northwestern Railway on June 1, 1886, and remained with that company eight years as agent and operator. He next served as agent and operator with the Chicago Great Western Railway, with which he remained until Aug. 1, 1900. Mr. Sullivan promoted and built the Manchester & Oneida Railway and was general manager of that company for three years. He re-entered the service of the Chicago Great Western Railway as agent at Ft. Dodge and later was traveling freight agent, which position he held for five years. He was appointed assistant general freight agent of the Ft. Dodge, Des Moines & Southern Railway on Feb. 14, 1911.

Mr. D. C. Barnes, whose appointment as manager of the Everett Railway, Light & Water Company and the Seattle-Everett Traction Company, Everett, Wash., was noted in the Electric Railway Journal of Sept. 2, 1911, was tendered an informal luncheon recently at the Butler Hotel, Seattle, Wash., by Mr. R. T. Laffin, district manager for Stone & Webster, Boston, Mass., in the Northwest. Among those who attended besides Mr. and Mr. Barnes were Mr. Jacob Furth, president of the Seattle Electric Company, and the following officers of that company: Mr. H. T. Edgar, manager; Mr. F. Dabney, assistant treasurer; Mr. A. W. Q. Birtwell, auditor; Mr. A. L. Kempster, superintendent of railways; Mr. G. P. James, chief engineer; Mr. George Carson, general claim agent, and Judge J. A. Shackleford, president of the Tacoma Railway & Power Company; Mr. Louis Bran, manager of that company, and Mr. W. E. Wilmot, treasurer of that company.

OBITUARY

H. A. Fairchild, chairman of the Railroad Commission of the State of Washington, is dead.

Monroe H. Kulp, president and general manager of the Shamokin & Edgewood Electric Railway, Shamokin, Pa., is dead.

Robert Mather, chairman of the board of directors of the Westinghouse Electric & Manufacturing Company, died at his home in New York on Oct. 24, 1911. Mr. Mather was born at Salt Lake City, Utah, in 1859, and obtained his first railroad experience with the Chicago, Burlington & Quincy Railroad. In 1882 he was graduated from Knox College, and three years later he obtained his master's degree. From 1882 to 1885 Mr. Mather worked in the office of the treasurer of the Chicago, Burlington & Quincy Railroad, and in 1886 he was admitted to the Illinois bar. In 1889 he was elected vice-president of the Chicago, Rock Island & Pacific Railroad, and in 1902 he was made general counsel for the road. Subsequently he was elected chairman of the executive committee and in 1904 was made president of the Chicago, Rock Island & Pacific Railroad. In 1903 he was elected third vice-president of the St. Louis & San Francisco Railroad, and in 1904 became first vice-president of that road. He was also first vice-president of the Chicago & Eastern Illinois Railroad and the Evansville & Terre Haute Railroad and chairman of the board of directors of the St. Louis, Kansas City & Colorado Railroad. In January, 1909, at the time of the reorganization of the Westinghouse Electric & Manufacturing Company, Mr. Mather was elected chairman of the board of directors, and thereupon severed his railroad connections. At the time of his death Mr. Mather was a director of the Havana Electric Railway, the Westinghouse Lamp Company, the Canadian Westinghouse Company, the R. D. Nuttall Company, the Niagara, Lockport & Ontario Power Company and a number of other companies.

Construction News

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

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

RECENT INCORPORATIONS

***Modesto & Empire Traction Company, Modesto, Cal.**—Application for a charter has been made in California by this company to operate a 5-mile electric railway between Empire and Modesto. Headquarters, Modesto. Capital stock, $20,000. Directors: T. K. Beard, W. H. Brazine, Walter Beard, J. M. Waithall and L. L. Dennett.

Palm Beach, Okeechobee & Western Railway, Palm Beach, Fla.—Application for a charter has been made in Florida by this company to build a 140-mile electric railway from Palm Beach west to the southern shore of Lake Okeechobee, thence westward following the course of the Caloosahatchee River to Fort Myers. One power station will be built at Palm Beach and the other at the south of Lake Okeechobee. Capital stock, $500,000. Incorporators: R. J. Martin, J. H. Cordero, W. W. Marquis and John Mathews.

***Terre Haute & Ohio River Railway, Chicago, Ill.**—Incorporated in Illinois to build an electric railway from a point in the eastern boundary line of the State of Illinois near its intersection with the Wabash River on the eastern line of Clark County to Harrisburg in Saline County and thence to a point on the Ohio River in Hardin County. The principal office is in Chicago. Incorporators and first board of directors are: Philip L. Casford, 438 Belden Avenue, Chicago; George von Reinolts, 4853 North Winchester Avenue, Chicago; Edward W. Powell, Herbert S. Miller, William Barrett Fitzgerald, Chicago.

***Central Illinois Interurban Railroad, Springfield, Ill.**—Incorporated in Illinois to build an electric railway from a point in or near Kewanee through the counties of Henry Stark, Bureau and Marshall to a point in or near Henry, in Marshall County. The principal office is at Bradford. Capital stock, $100,000. The incorporators and first board of directors are C. N. Gerard, Bradford; E. A. Beadle, Kewanee; H. R. Hess, Whitefield; Howard G. Stener, Henry; and Harry H. Haines, Peoria.

***Egyptian Southern Railway, Springfield, Ill.**—Incorporated in Illinois to build an electric railway from McLeansboro to Herrin. Capital stock, $10,000. The principal office is Benton and the incorporators and first board of directors are Walter W. Williams, W. H. Hart, Geo. A. Powers, L. W. Brand and E. B. Nolen, all of Benton, Ill.

***Toledo, Ann Arbor & Jackson Railroad, Monroe, Mich.**—Application for a charter will be made by this company in Michigan to take over the Toledo, Ann Arbor & Jackson Electric Railway, which was organized in 1905 and built about 20 miles of electric railway out of Toledo the following year and then ceased operations. Of the capital stock $300,000 will be used in purchasing the assets and property of the old line and the remaining amount will be used in further construction of the railway. Capital stock, $500,000.

FRANCHISES

Montgomery, Ala.—The Alabama Traction Company has asked the Board of City Commissioners for franchises on additional streets in Montgomery.

Montgomery, Ala.—The Montgomery Traction Company has received a franchise from the City Commissioners to extend its tracks on South Union Street.

Bakersfield, Cal.—The San Joaquin Light & Power Company, Stockton, has asked the Board of Supervisors for a fifty-year franchise in Bakersfield.

Oakland, Cal.—The Oakland Traction Company has asked the Board of Supervisors for a fifty-year franchise to extend its Euclid Avenue line.

Redlands, Cal.—The Redlands University Railway has asked the City Council for a franchise in Redlands. This is part of a plan to build a 2-mile electric railway from Redlands to Redlands University. G. S. Turrill, Redlands, president. [E. R. J., Oct. 21, '11.]

Sacramento, Cal.—The Vallejo & Northern Railway has asked the City Board of Trustees for a franchise on Second Street from M Street to X Street, in Sacramento.

Twin Falls, Idaho.—The Iowa, Nebraska & Dakota Railway, Pierre, S. D., has received a franchise from the City Council in Twin Falls, Idaho. This line will connect Valentine, Neb., and Sioux City, Ia. C. H. Cornell, Valentine, is interested. [E. R. J., Oct. 14, '11.]

***Covington, La.**—W. J. Tracy, Cleveland, Ohio, has asked for a franchise to build an electric railway between Slidell, Mandeville and Houltonville, a distance of 50 miles.

Baltimore, Md.—The United Railways & Electric Company has received a franchise from the City Council to extend its tracks to connect northwest Baltimore and the suburbs with southwest Baltimore.

Medford, Mass.—The West End Street Railway, Boston, has asked for a franchise to extend its tracks in Medford on Medford Boulevard through Myrtle Street to the Malden line.

Saugus, Mass.—The Boston & Eastern Electric Railroad, Boston, has received a franchise from the Board of Selectmen to build its tracks across the salt marshes in Saugus on condition that the company build a station at Ballast Street in East Saugus.

***Traverse City, Mich.**—C. E. Hazlett, E. C. Billings and associates have asked for an electric railway franchise in Traverse City.

***Fergus Falls, Minn.**—S. O. Bridston, Ulrich Huss and Nels Haagenson have asked the Council for a franchise to build an electric railway in Fergus Falls.

Corning, N. Y.—The Corning & Painted Post Street Railway has asked the Common Council for a fifteen-year extension of its franchise in Corning. In return the company offers to build a 1-mile extension to North Corning.

Schenectady, N. Y.—The Schenectady Railway has received permission from the Public Service Commission of the Second District to exercise franchises and begin the construction of additional tracks in Schenectady.

Tonawanda, N. Y.—The Frontier Electric Railway, Niagara Falls, has received a franchise from the Board of Aldermen in Tonawanda. This railway will connect Niagara Falls, Buffalo, Tonawanda and North Tonawanda. James S. Simmons, Niagara Falls, general manager. [E. R. J., Sept. 23, '11.]

Allentown, Pa.—The Lehigh Valley Transit Company has asked the City Council for a franchise to double track its lines in Allentown on Eighth Street from Hamilton south to and across Union Street over a bridge to be constructed by the Allentown Bridge Company and southwardly on Ninth Street to the city limits.

Altoona, Pa.—The Altoona & Logan Valley Electric Railway, Altoona, has asked the City Council for a franchise for the construction of a new Seventh Avenue Bridge in Altoona. The company agrees to pay $25,000 of the cost of the bridge in return for the privilege of laying tracks thereon. The bridge will cost $75,000.

Northumberland, Pa.—The Sunbury & Northumberland Electric Railway, Sunbury, has received a franchise from the Borough Council to extend its lines from the present terminus on Queen Street at Sixth Street to Eighth Street in Northumberland.

Pittsburgh, Pa.—Councilman W. C. Wilkins, chairman of the committee on public service and surveys of the Council of Pittsburgh, is authority for the statement that the Pittsburgh Railways will seek the franchise from the city to build the contemplated Pittsburgh subway system. Two other interests are expected to bid for the privilege of building the subway when the special committee of the Council meets.

Victoria, Tex.—The St. Louis, Brownsville & Mexico Railway has received a fifty-year franchise from the City Council to operate a gasoline motor line in Victoria.

Vancouver, Wash.—Lawrence Harmon, Philadelphia, and associates have received a fifty-year franchise from the City Council to double track present lines and to use some of the existing tracks in Vancouver. This is part of a plan to build a 100-mile electric railway from Vancouver north to the South Fork of the Lewis River, thence northeast to Klickitat Pass. [E. R. J., Oct. 14, '11.]

TRACK AND ROADWAY

Mobile (Ala.) West Shore Traction Company.—This company has awarded a contract to George H. Clarke, Birmingham, for the location of a permanent line from a point a few miles south of the city limits of Mobile to Pascagoula, via Grand Bay and Bayou la Batre. H. Austell, Mobile, president. [E. R. J., Oct. 21, '11.]

Arkansas Valley Interurban Railway, Little Rock, Ark.—This company has placed in operation its line between Wichita and Newton.

British Columbia Electric Railway, Vancouver, B. C.—This company has awarded two contracts in connection with the double tracking of its extension from Vancouver to Eburne. This line forms a part of the Lulu Island Railway and is operated by this company under a lease from the Canadian Pacific Railway. George H. Webster, Vancouver, has the contract for grading 4 miles of track between Twenty-fourth Avenue, Point Grey and Eburne. Armstrong, Morrison & Company, Vancouver, have a contract for reconstruction of the bridge over False Creek. The bridge is 1500 ft. in length and of trestle construction. The company will complete double tracking its line from the south end of False Creek bridge to Kitsilano.

San Diego (Cal.) Electric Railway.—Plans are being made by this company for the immediate construction of an extension and double tracking of certain lines in San Diego.

Central California Traction Company, San Francisco, Cal.—The survey of this company's extension from the main line at Compton to Lockeford has been completed and construction will soon be begun.

Quebec Railway, Light & Power Company, Quebec, Can.—This company has placed in operation its 3½-mile line from Beauport Junction to Kent House.

West Chester & Wilmington Electric Railway, Wilmington, Del.—It is reported that this company will begin at once the construction of a portion of its proposed line from Wilmington along the Concord Pike to Lombardy Cemetery, a distance of about 3 miles. This line will eventually connect West Chester and Wilmington. Lewis Dalmas, Morris Building, Philadelphia, president. [E. R. J., Nov. 17, '10.]

Elberton & Eastern Railway, Augusta, Ga.—The stock has been subscribed, authority has been obtained from the Railroad Commission to issue bonds to the amount of $300,000, and contracts will be awarded within the next thirty days for the construction of this railway between Elberton, Tignall and Washington. W. O. Jones is interested. [E. R. J., July 1, '11.]

St. Simons Railway, St. Simons, Ga.—This company has asked the Georgia Railroad Commission for authority to issue $50,000 of bonds. The application states that $13,000 of the amount is to be used to cover the present cost of the railway, $12,000 to provide for an extensive and additional equipment, and $20,000 to be held in reserve for future development. The company proposes to extend its present line from the New Hotel St. Simon a distance of a mile along the beach front to Postell's Creek. [E. R. J., July 1, '11.]

Northern Illinois Electric Railway, Chicago, Ill.—This company has awarded a contract to Burns & Company, Chicago, Ill., for the construction of an extension between Amboy and Rochelle.

Ft. Wayne & Northern Indiana Traction Company, Ft. Wayne, Ind.—Work has been begun by this company relaying 2 miles of track on its Lewis Street line in Ft. Wayne.

Crestom, Winterset & Des Moines Railroad, Creston, Ia.—This company advises that it will begin construction in the spring on its 60-mile interurban railway between Spaulding and Macksburg. It will build first from Creston to Macksburg, and then from Winterset to Des Moines. The company will operate gasoline-electric cars for passengers and express and steam for freight. Capital stock authorized, $500,000. The repair shops will be located at Creston. Officers: R. Brown, Creston, president; M. E. Harris, Winterset, vice-president; A. S. Lynn, Orient, secretary; W. W. Walker, Macksburg, treasurer, and C. B. Judd, 818 East Street, Ottumwa, chief engineer. [E. R. J., Oct. 21, '11.]

Perry, Ia.—B. C. Dilenbeck, Perry, who received a franchise in July to build an electric railway in Perry, is now in the market for construction material and supplies. [E. R. J., July 29, '11.]

***Kentucky-Tennessee Traction Company, Guthrie, Ky.**—Preliminary arrangements are being made by this company to build a 25-mile electric railway between Hopkinsville and Guthrie, Ky., and Clarksville, Tenn. Headquarters will be at Guthrie and at Hopkinsville. The first bond issue has just been placed. Among those interested are Charles Russell, W. O. Myers and Edward E. Walker, all residents of Chicago, Ill.

Kentucky Southwestern Railway, Light & Power Company, Hickman, Ky.—The proposed interurban railway of this company has been divided into seven divisions. The divisions are: Marion division, from Uniontown to Marion; Paducah division, from Marion through Salem and Smithland to Paducah; Wickliffe division, from Paducah through Ragland, Rossington, Grahamville, Barlow, LaCenter and Bandana to Wickliffe; Clinton division, from Wickliffe through Blandville, Bardwell, Milburn, Arlington, Columbus to Clinton; Hickman division, from Clinton through Moscow and Cayce to Hickman; Mayfield division, from Paducah through Krebs to Mayfield; Murray division, from Mayfield to Murray. [E. R. J., Oct. 14, '11.]

Louisville (Ky.) Railway.—The engineers of the Louisville Railway are surveying a route for a crosstown line which will extend from Parkland, the extreme southwestern residence section of the city, through the central suburban section to the Highlands, the southeastern suburb. The Council has assured the company that a franchise for the crosstown service will be offered for sale. Mayor Head and five directors of the company inspected the proposed route recently.

Louisville & Interurban Railway, Louisville, Ky.—It is proposed to extend this line from Fern Creek to Mount Washington, Ky., a distance of 8 miles. The system commences in Louisville and extends through the eastern section of Jefferson County to Fern Creek. B. C. Milner has surveyed the proposed route for the Fern Creek-Mount Washington line and recently reported to the company and the Beuchel Commercial Club, of Beuchel, Ky., that the cost of construction would approximate $36,000 per mile, or a total of $288,000 for the complete work.

Northampton (Mass.) Street Railway.—This company will reconstruct about 7 miles of overhead work at once. About 200 poles will be reset and 7 miles of wire strung. The work of double tracking Elm Street in Northampton will not be taken up until the spring.

Berkshire Street Railway, Pittsfield, Mass.—The Railroad Commission has approved the construction of a 3½-mile extension of this company's line from the Massachusetts State line to the depot in North Canaan.

***Imlay City, Mich.**—L. A. Clark and B. C. Loughlin, Detroit, and associates have completed preliminary arrangements for the construction of an interurban railway between Romeo, Almont and Imlay City. Gasoline motor cars will be used.

Saginaw & Flint Railway, Saginaw, Mich.—Martin Brothers, Saginaw, have begun work on this company's extension between Bay City and Saginaw.

Omaha, Sioux City & Northern Railway, Omaha, Neb.—This company has been voted $10,000 by Tekamah to aid in the construction of the electric railway to connect Omaha, Blair, Tekamah, Decatur and Sioux City. B. M. McCue, Garden City, is interested. [E. R. J., Aug. 12, '11.]

Public Service Railway, Newark, N. J.—The changes proposed by the Public Service Railway to accommodate travel at the new Sip Avenue station of the Hudson & Manhattan Railroad in Jersey City have been approved by the Board of Public Utility Commissioners. Among the changes are the rearrangement of tracks and the construction of curves connecting the property of the company opposite Enos Place with the lines on Sip Avenue. Other changes include the reconstruction and rearrangement of tracks on Montgomery Street and the Old Bergen Road. Authority for carrying out all of this work has been given by the Board of Street & Water Commissioners of Jersey City.

Jamestown (N. Y.) Street Railway.—Work has been begun by this company on a line from Cherry Street to Main Street, and it will double track its Main Street line from Brooklyn Square to Third Street, in Jamestown.

Long Island Railroad, Long Island City, N. Y.—This company has awarded a contract to P. H. Clements & Company for the electrification of its entire line to Port Washington. With the exception of two or three short spaces the entire line has already been double tracked. The company will also build a new bridge over Flushing Creek and one over Mill Creek at Little Neck. The tracks will be elevated over the Corona meadows.

Union Railway, New York, N. Y.—This company placed in operation on Oct. 21 its line on 149th Street, Bronx. Eventually the line will be extended to cross the Bronx River over a drawbridge and northward to Clason's Point.

Salisbury-Spencer Electric Company, Salisbury, N. C.—Work will be begun by this company within the next few weeks on an extension from Locke Mill to the Gibson Mill and on to Kannapolis. Other extensions are also being considered.

Cleveland (Ohio) Underground Rapid Transit Company.—W. R. Hopkins has returned from Europe and is preparing to take charge of the development of subway plans by the Cleveland Underground Rapid Transit Company, of which he is president. Under the franchise granted this company at least one high-level double-track line must be completed between the Public Square and the city limits within four years from the date of the referendum vote and the work must be commenced June 17, 1912. The low-level ordinance also provides that one double-track line must be completed between the Public Square and the Cuyahoga valley within the same time.

Oregon Electric Railway, Portland, Ore.—Work has been begun by this company on its extension south of Albany and it is expected to have 20 miles of grading done between Albany and Eugene before the first of the year. The Guthrie & McDougal Company, which is building the Salem-Albany line, has been awarded the contract for the first 20 miles south of Albany and has begun the grading.

Irwin-Herminie Traction Company, Herminie, Pa.—Several extensions will be built by this company in the near future. One new line will connect Madison, Arona, Adamsburg, Manor, Shafton and Sheridan Terrace. Another branch will reach Yukon.

Ephrata & Lebanon Street Railway, Lebanon, Pa.—This company is erecting a bridge across the Middle Creek between Clay and Durlach and another iron bridge which spans the Cocalico Creek at Ephrata is about completed. There is about 1 mile of grading and 4 miles of track laying to be done between Ephrata and Hopeland. It is expected to have this line between Ephrata and Lincoln in operation by Nov. 1.

***Petersburg, Pa.**—Negotiations are now pending for the construction of a 15-mile electric railway from Petersburg to McAlevy's Fort via Shavers Creek Valley. Two plans have been outlined. One is to have McAlevy's Fort as the terminus, while another plan proposes to extend down Stone Valley to Huntingdon. Samuel Longnecker, Petersburg, is the promoter.

Charleston Consolidated Railway, Gas & Electric Company, Charleston, S. C.—This company has placed in operation its extension from Magnolia Cemetery to the Country Club, near Charleston.

Eastern Texas Traction Company, Greenville, Tex.—The Mansfield Engineering Company, Indianapolis, Ind., has been engaged to report on the interurban railway from Clarksville and Paris, through Greenville to Dallas, and from Sherman via Wolfe City to Greenville, being promoted by Joseph F. Nichols, Greenville, and others under the name of the Eastern Texas Traction Company. [E. R. J., April 23, '10.]

Houston (Tex.) Electric Company.—An extension will be built by this company through the Montrose addition within the next four months.

Southwestern Traction Company, Temple, Tex.—Plans are being considered by this company to construct an extension from Temple to Marlin.

SHOPS AND BUILDINGS

Pacific Electric Railway, Los Angeles, Cal.—Within a short time this company will construct a new three-story building on Ocean Avenue and Fremont Avenue to be used as a temporary central station in Santa Monica.

Vallejo & Northern Railway, Vallejo, Cal.—It is reported that plans are being made by this company to construct new terminal buildings in Vallejo.

Cairo Railway & Light System, Cairo, Ill.—This company has installed a machine shop at its power plant in Cairo. The equipment includes among other tools a 26-in. x 12-in. lathe and an 18-in. shaper.

Boston & Eastern Electric Railway, Boston, Mass.—Plans have been made by this company to build two stations in Danvers. One will be located near the square in Danvers and the other at Davenport.

Northampton (Mass.) Street Railway.—An addition will be built by this company to its carhouse in Northampton. The structure will be 20 ft. x 80 ft. The company will also build a storage house 20 ft. x 100 ft.

Berkshire Street Railway, Pittsfield, Mass.—This company has awarded a contract for the construction of its new freight house on Pearl Street in North Adams to the H. C. Wood & Company. Work will soon be begun.

Billings (Mont.) Traction Company.—Carhouses will be built by this company on Lewis Avenue near Billings Avenue in Billings. The buildings will be of brick and concrete construction and will be so constructed that they may be enlarged as the growth of the company demands.

Jersey Central Traction Company, Keyport, N. J.—C. D. Thorne & Company, of Atlantic Highlands, have the contract to build a two-story building at Lenison for this company. The building will be used as a waiting room and train dispatcher's headquarters.

Pittsburgh, McKeesport & Greensburg Railway, Pittsburgh, Pa.—Plans are being made and bids will soon be asked by this company for the construction of a new carhouse in Irwin. The structure will be located just west of the Irwin bridge on the Trafford City line and will be 125 ft. x 25 ft.

Puget Sound Electric Railway, Tacoma, Wash.—This company has completed its new depot at Church Street and Rainier Street in Puyallup. It contains a waiting room 15 ft. x 32 ft.

POWER HOUSES AND SUBSTATIONS

Northampton (Mass.) Street Railway.—An additional engine is being installed by this company at its power house in Northampton and the cement bunkers for coal have been constructed.

Marquette County Gas & Electric Company, Ishpeming, Mich.—This company has ordered one 200-kw rotary converter from the General Electric Company.

Winona Railway & Light Company, Winona, Minn.—Among the improvements to be made by this company at its power plant will be the installation of a concrete intake water system on the levee front in Winona.

Philadelphia (Pa.) Rapid Transit Company.—This company will build a new substation at 1823 to 1829 East Letterley Street in Philadelphia. The structure will be 65 ft. x 93 ft., one story high, with a lumber storage shed in the rear 65 ft. x 56 ft.

Virginia Railway & Power Company, Richmond, Va.—This company's new power house to be erected in Richmond will be 120 ft. x 150 ft.

Roanoke Railway & Electric Company, Roanoke, Va.—This company has ordered one ATB-8-2500-kw condensing turbine from the General Electric Company for its steam power plant on Walnut Avenue in Roanoke. The new turbine will double the plant's capacity. The company also contemplates the construction of a new substation at Mason's Creek.

Bellingham-Skagit Railway, Bellingham, Wash.—It is reported that this company has completed arrangements with the Western Canadian Power Company to supply the motive power for its line now under construction between Bellingham and Mount Vernon.

Manufactures & Supplies

ROLLING STOCK

Lima-Honeoye Light & Railroad Company, Lima, N. Y., is in the market for a snow plow.

Trinidad Electric Transmission, Railway & Gas Company, Trinidad, Col., expects to purchase three cars.

Norfolk & Portsmouth Traction Company, Norfolk, Va., is said to be considering the purchase of several new cars.

Saginaw-Bay City Railway, Saginaw, Mich., has ordered one double GE-219 motor equipment with type K-36 control from the General Electric Company.

Long Island Railroad, New York, N. Y., has ordered twenty motor passenger coaches for its electric division from the American Car & Foundry Company.

Hillsboro (Ill.) Street Railway has ordered one 32-ft. closed city car with Columbian solid steel truck from the McGuire-Cummings Manufacturing Company, Chicago.

County Traction Company, Chicago, Ill., has ordered three steel underframe, single-truck, long-broom snow sweepers from the McGuire-Cummings Manufacturing Company.

Fries Manufacturing & Power Company, Winston-Salem, N. C., has ordered two 20-ft. 8-in. semi-convertible prepayment motor-car bodies mounted on Brill 21-E trucks from The J. G. Brill Company.

Twin City Railway, South Bend, Wash., has ordered three double-motor equipments of GE 219-B motors and type K-10 control from the General Electric Company, through Sanderson & Porter, New York.

Portsmouth Street Railroad & Light Company, Portsmouth, Ohio, has ordered three 28-ft. pay-as-you-enter motor-car bodies mounted on Brill 27-GE-1 trucks from the G. C. Kuhlman Car Company.

TRADE NOTES

Dearborn Drug & Chemical Works, Chicago, Ill., have removed their Boston office from 8 Oliver Street to 49 Federal Street.

Lewis Roth, Philadelphia, Pa., has removed his office from the Real Estate Trust Building to 312 Denkla Building, Philadelphia.

Brown Hoisting Machinery Company, Cleveland, Ohio, has opened a branch office in the Monadnock Building, San Francisco, Cal., with J. P. Case as manager.

Perry Ventilator Corporation, New Bedford, Mass., has received an order for ventilators for the twenty-five surface cars being built by the St. Louis Car Company for the Boston Elevated Railway.

Albert H. Wiggin, president of the Chase National Bank, New York, N. Y., has been elected a director of the American Locomotive Company, New York, N. Y., to succeed the late Julius E. French.

Safety Steel Ties Corporation, Augusta, Maine, has been incorporated in Maine to manufacture railroad ties and supplies. The authorized capital stock is $5,000,000 common and $1,000,000 preferred. E. M. Leavitt is president and treasurer.

Q M S Company, Plainfield, N. J., calls attention to the fact that it was the manufacturer of the wheel grinder in the shops of the Utah Railway & Light Company in Salt Lake City described in the ELECTRIC RAILWAY JOURNAL for Oct. 14, 1911, page 873.

Johnson Fare Box Company, New York, N. Y., has received an order from the United Railways of St. Louis for 240 Johnson registering fare boxes to equip three more lines of that company, making a total of 426 Johnson registering fare boxes ordered by it.

Duff Manufacturing Company, Pittsburgh, Pa., has appointed E. A. Johnson general sales manager with headquarters at its general office at Pittsburgh. Mr. Johnson was formerly Eastern sales manager for the company at New York. C. A. Methfessel has been appointed Eastern sales manager to succeed Mr. Johnson, with headquarters at 50 Church Street, New York, N. Y.

International Automatic Signal Company, Kansas City, Mo., has been incorporated with a capital of $1,000,000 to manufacture a complete line of signal apparatus for steam and electric railways. The company's product will be an electric cab signal with an automatic stop, which can be used in connection with the present interlocking and block signals. A branch office will be opened in Chicago early next month. The incorporators are Louis B. Leach and York Burgess.

C. D. Chasteney has resigned as sales manager of the De Laval Steam Turbine Company, Trenton, N. J., having acquired an interest in the Turbine Equipment Company, 30 Church Street, New York, which company represents the De Laval Steam Turbine Company in New York State, parts of New Jersey and Connecticut. Mr. Chasteney graduated from Stevens Institute of Technology in 1901 and has been with the De Laval Steam Turbine Company since the organization of that company.

F. X. Cleary has resigned as advertising manager of the Western Electric Company, New York, N. Y., to engage in special advertising and sales promotion service. Mr. Cleary's long service as salesman, sales manager and advertising manager has given him a wide experience and acquaintanceship in the electrical field, which will continue to be his line of future effort. P. L. Thomson, formerly manager of the Western Electric Company's Pittsburgh office, has been appointed advertising manager to succeed Mr. Cleary.

United States Electric Company, New York, N. Y., announces that the New York Central & Hudson River Railroad has recently received 249 of its selector-box outfits for use in the extension of its telephone dispatching system over twelve circuits. These selectors, like the others in use on that road, are the Gill bridging telephone selector and are arranged for ringing the signal bell with the main line battery. The Baltimore & Ohio Railroad, also an extensive user of Gill selective telephone dispatching apparatus, has placed orders for ninety-six box outfits, equally divided between train wire and message circuit equipment.

Allis-Chalmers Company, Milwaukee, Wis., through Vice-president Nichols has issued the following statement: "For some time past the volume of new business—the same as with other concerns—has been unsatisfactory. Our product consists of heavy machinery, power plants, etc., for which, as new plants are now being held in abeyance, markets must be found among going concerns which themselves are operating far below capacity. There seems to be no immediate prospect of revival. Our company has current assets greatly in excess of its current liabilities. Our semi-annual audit is now in progress. It has been decided to change the ending of our fiscal year from June 30 to Dec. 31."

Ackley Brake & Supply Company, New York, N. Y., has been incorporated under the laws of the State of New York. Griffin S. Ackley is president and manager, and John C. Raymond is secretary and treasurer of the new company, with offices at 50 Church Street, New York City. This company has taken over from the Ackley Brake Company all the rights of the Ackley adjustable and the Ackley no-staff brakes for Japan, China, Philippine Islands, Australia, New Zealand, all the countries of South America and of Central America south of Mexico, Cuba, Porto Rico and the other islands of the West Indies. The company will also handle the Peacock brake in the territory named. In addition the new company will engage in a general railway and tramway supply business in the United States, Canada and Mexico, and import and export tramway and railway specialties and supplies to all countries of the world. In the latter capacity it will act as the American correspondent of the British Ackley Brake Company, of London; Cie. Française des Freins Ackley of Paris and the Deutsche Ackley Bremsen Company of Berlin. Mr. Ackley, president and manager of the new company, is a pioneer in the geared hand-brake business. He organized the National Brake Company of Buffalo, N. Y., about eight years ago. In January, 1910, he sold out his interest and organized the Ackley Brake Company, with headquarters in New York City, to engage in the export business. Besides being the inventor and patentee of the adjustable geared hand brake that bears his name, he has also invented and patented the Ackley "No-Staff" brake described in the Electric Railway Journal of July 1, 1911. Mr. Raymond, secretary and treasurer of the new company, occupied a similar position with the Ackley Brake Company since its organization, previous to which he was connected with the National Brake Company of Buffalo, as a salesman. All European countries will continue to be supplied with brakes by the three European Ackley companies.

ADVERTISING LITERATURE

National Tube Company, Pittsburgh, Pa., has issued Bulletin No. 6, which describes its pipe-threading dies.

Nelson Valve Company, Philadelphia, Pa., has issued a bulletin which describes and illustrates the various sizes of Nelson blow-off valves manufactured by the company.

Cutter Company, Philadelphia, Pa., has issued a 12-page calendar covering the months October, 1911, to September, 1912, inclusive. On each page is a cut with a description of one of the company's types of circuit breakers.

Gould Storage Battery Company, New York, N. Y., has issued Bulletin No. 13, entitled "Storage-Battery Cars." The bulletin explains the economies of the storage-battery car, describes and illustrates the standard type made by the company and cites the conditions under which storage battery cars can be operated most profitably.

Archbold-Brady Company, Syracuse, N. Y., has issued a booklet in which are presented illustrations with brief descriptions of typical installations of steel transmission line supports and anchor structures, special river and railroad crossing structures, catenary bridges and cross catenary supporting poles which the company designs and fabricates.

Joseph Dixon Crucible Company, Jersey City, N. J., is mailing a 16-page booklet which contains a description of Dixon's graphite wood grease and other graphite productions of special value to electric railways. The company has also issued two folders on Dixon's silica-graphite paint. One folder contains paint specifications for steel and iron construction and maintenance work and the other points out the general advantages of this paint.

Ingersoll-Rand Company, New York, N. Y., has issued Form 3210, which is a bulletin describing Class NE-1 power-driven, single-stage, straight-line air compressors. These compressors consist of an air cylinder supported by a main frame with piston operated by means of a center crank with a belt wheel on one side and a flywheel on the other. The bulletin shows several views of the machines in section and gives tables of sizes and capacities.

Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., has issued Leaflet 2378, covering rotary converters for railway service, which contains several illustrations and brief descriptions of the various parts of rotary converters. The company has also issued Folder No. 4186, which describes auxiliary line switches for use on electric cars euipped with drum-type controllers. These switches are electro-pneumatically operated and are mounted underneath the car.

Titanium Alloy Manufacturing Company, Pittsburgh, Pa., has reprinted on a card the following statistics of the tonnage of steel treated with various alloys as published by the American Iron & Steel Association under date of July 25, 1911: Titanium steel, 326,316 gross tons; nickel steel, 106,707 gross tons; nickel-chrome steel, 52,021 gross tons; chrome steel, 23,550 gross tons; manganese steel, 19,360 gross tons; vanadium steel, 9049 gross tons; other alloys, 30,816 gross tons; total, 567,819 gross tons. The company then points out that the output of titanium steel for 1910 was 300 per cent greater than the next largest, nickel, and greater by 84,813 gross tons than the output of all the other alloy steels combined. The card is headed, "What is the greatest of all cleansers or deoxidizers for steel?"

NEW PUBLICATIONS

Practical Instructor and Reference Book for Locomotive Firemen and Engineers. Compiled by Charles F. Lockhart, New York, 1911. The Norman W. Henley Publishing Company. Cloth, 368 pages. Price, $1.50.

This book contains up-to-date information on the construction and operation of steam locomotives, air brakes, valve gears, rules and signals. The book also contains 850 question and their answers compiled from the examination papers of the different railroads.