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### The Massachusetts Commission on Transfer Abuse

We hope that the studied opinion of the Board of Railroad Commissioners of Massachusetts on the subject of fares and transfers on street railways will be read with great care and thoughtfulness by all State commissions and other public regulating bodies which have jurisdiction over railways. The opinion of this board on all subjects is received with respect. The commission recognizes (see ELECTRIC RAILWAY JOURNAL of Jan. 9, 1909, page 70) that

the continued increased misuse of transfers "must finally present a situation where the companies may rightfully demand some restriction in their number or functions." There has been too general inclination on the part of some companies to accept the increased misuse of transfers as an inevitable condition which no amount of vigilance or effort could overcome. It is a mistake for any management, settling down in this fixed opinion, to cease taking energetic steps to locate the source of the abuse and improper use of the transfer privilege. When a public regulating body of the high standing of the Massachusetts commission expresses its opinion of the necessity of invoking a law against designing and evil-minded persons who deprive the public of its just rights by the abuse and misuse of transfers, it is not becoming for a company to fail to follow the wisest course that is open to it in its community to correct this evil.

### Graphic Methods of Studying Controller Circuits

One of the most difficult problems in the instruction of motormen and shop employees is the explanation in a satisfactory way of the circuits of car controlling devices, both of the hand and contactor type. The ability to read electrical diagrams in terms of the actual apparatus is not readily acquired by men untrained in the more complex phases of motor and control relations; thus there is often a serious gap between the explanation of car wiring by drawings and the following out of the various controller changes in the physical equipment. In one recent instance where the short-circuiting of the No. 2 motor on the transition point was in question before a gathering of car house men, a full-sized controller was mounted on the platform of the room, with a diagram of the motor and rheostat connections at one side, the size of the drawing being just sufficient to match each finger with a line of the diagram. Then as the handle of the controller was turned through different steps the course of the current through the controller could be followed, passing from the fingers to the diagram and thence through the various motor leads as drawn, back to the ground connection in the controller itself. The use of a diagram of practically the full height of the controller set up at the side of the case thus affords a most flexible means of emphasizing particular conditions. By a series of these large diagrams, made up for regular and emergency conditions, the detailed features of the apparatus can be made plain much more rapidly than through the ordinary method of following out small-scaled drawings entirely apart from any practical apparatus, and if colored lines are employed in addition, the explanations of circuit complexities will be reduced to such simple terms as to be readily within the comprehension of even the most untechnical.

### Remuneration for the Service

The communication signed by "Engineer," published elsewhere in this issue, contains one reference which we do not approve in relation to the subject of increased fares on some of the Massachusetts railways. The communication refers to the "financial difficulties of the lines which need a charitable nickel in the contribution box." We feel that the question is distinctly not one of charity. The street railways, or, it might be more proper to say, the holders of the bonds and stocks representing the capital investment in the property, do not accept an increased rate of fare as a matter of charity. The subject of adequate fares is a simple business proposition. If the service is needed in a community every effort should be made by the public to support the railway with revenues large enough to enable it, with efficient management, to earn a proper return on the reasonable investment. If the price of lumber is raised the consumer who pays the increased price may object strenuously, but he recognizes the force of an argument respecting the increased cost of production. The same principle applies to an increase in price in other commodities; the people of this country have come to accept higher prices as inevitable. Precisely the same argument applies when the subject of increased costs for the service of transportation is under consideration. Average costs per unit may be reduced by better operation and increased density of traffic, but economies of this nature may not be of sufficient extent to offset the rapidity with which increased expenses absorb more and come of the gross revenues.

### Street Railways and the Newspapers

A feature of street railway development during the last few years is the extent to which many of the railway companies have been advertising in the daily papers to reach the public. One step in this direction was the advertisements taken by the companies which installed pay-as-you-enter cars to acquaint the public with the proper method of paying their fares on these cars. It is a great advantage to any company which has close relations with the public to be able to tell its story directly to its customers, and this fact is being realized, even by Mr. Rockefeller. Thus the Twin City Rapid Transit Company has just commenced the publication of a series of popular articles on its system, which will occupy full pages for a month in the leading daily papers of the district. The Denver City Tramway Company utilized a full page in one of the Denver papers on the last day in 1908 to give in its operating report for the year, statistics of work done during 1908 and that which is intended during 1909, and to print in large type the story of what the company is doing for the city in different ways. The United Railways & Electric Company, of Baltimore, issued a series of 10 bulletins last year. The Boston Elevated Railway Company employs the newspapers for announcements of changes in routes and other information which it wishes to bring prominently to the attention of its clientele. Nor is this practice confined to the larger companies. Roanoke and Lynchburg, not to mention others, have also followed this plan on a large scale.

Of course, a railway company is in a particularly good position through the advertising cards which it carries on

its cars to make brief announcements. But these reach only those who are riding on the cars and the space available is not sufficient to say very much or to tell a continued story. Many companies reserve, however, the most prominent spaces in their cars for their own cards, and with the daily papers for emergency service and with company publications a very satisfactory scheme of publicity can be worked out.

### Rivalry Lessens Accidents

In Kansas City, Mo., a desirable form of rivalry has been instituted between the platform men reporting at various car houses as to reducing the number of accidents. As described in detail elsewhere in this issue, the management posts a record sheet each month, showing the number of accident reports turned in by the men assigned to each depot. The figures for the corresponding month of the previous year are also given, so that comparisons may be made between different car houses and between different years. The results are that the men bend every energy toward forestalling any possibility of accident. They are not only more watchful in handling their equipment, but freely criticise fellow workmen who may be lax, and thereby jeopardize a good record at the end of the month. There is, of course, the possibility that this plan of comparing the number of accidents reported will tend to bring about a hesitation on the part of the conductors and motormen to report trivial accidents. However, proper observance of this feature by the department of claims and a comparison of the number of unreported accidents for one year or one period against former records will show whether there is laxity among the men in this respect. The chief point to be observed in the execution of this scheme is that it calls the attention of every motorman and every conductor to the grand total of the accidents, and thus the men are impressed with the expense occasioned by any carelessness on their part.

### Motor Locations in Repair Shops

In many electric railway repair shops where the machines are group-driven by one or more motors, comparatively little attention is often paid to the location of the equipment to secure the best mechanical results without sacrificing the convenience of tool operation. The electric drive is so easily applied to the shop that it is natural to consider the tool arrangement the only point of importance and to locate the motors on the floor or overhead as appears most convenient at the time of installation. With direct-driven machine tools the maximum of flexibility is secured without loss of valuable space, the essential requirements being the availability of power circuits at all the important working bays of the shop, protection of the wiring from mechanical injury and tool location with reference to the special requirements obtaining at different periods. The higher initial cost of direct-driven tools, however, tends in many cases to discourage their use, although in large shops turning out an extensive volume of repairs, where operations are repeated many times a day and where the organization of the working force approximates that of a manufacturing plant, the individual drive deserves a much more general application than it has yet received.

The two main points to be decided in group driving are whether the motors shall be located on the floor or overhead and whether provision shall be made for throwing the different lines of shafting together in each group by locating the motor in the middle of the shaft. In many cases the mechanical side of the group drive receives too little attention. With poor shaft alignment in the bearings and neglected lubrication the friction losses in the pulleys and shafts may readily amount to the power consumed in the tools, and as the tools are often run light to save the trouble of starting and stopping them frequently, the total kilowatt-hours required by the installation will be largely those due to friction, normal and excessive. On the other hand, if the shafting is well designed and maintained, and if the tools are operated only when they are needed, the power cost will not be greatly in excess of that for an equivalent direct drive, although the same convenience will not be possible. In this connection a better drive mechanically is generally obtained when the motor for each set of tools is located in the middle of the shaft.

The installation of a motor for group driving on a reserved space on the shop floor can doubtless be accomplished at considerably less first cost than an overhead location and the speed of erection is bound to be much greater. In many cases the shop building does not permit the attachment of a motor weighing 750 lb. or more to the ceiling structure, but in cases where overhead suspension or mounting on a timber platform or set of small channel irons is possible, the location of the motor off the floor enables work to be done with greater facility of movement to and from the tools, avoids the danger of fouling the motor leads and control wiring with chains of traveling hoists and work in process of handling, affords the motor cleaner operating conditions and enables inspection and adjustments to be made without interfering with the rest of the shop. It is not a very difficult problem to erect a motor of the moderate capacity used in the average repair shop on the ceiling, either by using a temporary wooden A-frame and working upward from the floor by means of differential blocks or by cutting a hole in the floor above, attaching a chain hoist to a suitable support on the upper floor and pulling the motor into position. When the motor is being placed it is advantageous to be able to adjust the mechanical support, throwing the machine forward or backward slightly as the case requires, in reference to the line shaft. If the motor suspension is rigid without being incapable of future adjustment occasional friction readings of the current and voltage required to run the shafting light at a given speed will show the general mechanical condition of the drive and enable defects to be promptly corrected.

### Future Terminal Electrification in Boston

The prospect is not bright for the early electrification of the steam railroad terminals in Boston, judging from the somewhat pessimistic letters sent to the Massachusetts Board of Railroad Commissioners by the four railroads entering Boston, abstracted elsewhere in this issue. President Mellen, of the New Haven, expresses confidence in the ultimate success of the single-phase system as installed on the New York division of his road between Woodlawn

and Stamford, but does not become enthusiastic over the plan to install a similar system in and around Boston. He asks for at least a year's time before coming to a definite conclusion. A. H. Smith, of the Boston & Albany, submits estimates regarding the electrification of the suburban lines of that road to show that it would require an annual expenditure of \$715,000 in fixed charges and operating expenses to secure a gross revenue of only \$420,000. President Tuttle, of the Boston & Maine, says that he has not yet been convinced that electric operation can be wisely or economically substituted for steam locomotives on any portion of that system. President Adams, of the Revere Beach, considers the case on his property closed on account of evidence already submitted to the board.

Mr. Smith's estimate of the expense of electrification for the Boston & Albany seems high, but in the absence of the data on which it is based, it cannot be controverted. The gross revenue quoted is that at present, but Mr. Smith points out that there has been no increase in traffic on the suburban lines for the past 16 years, and assumes that there would be no great development following the electrification. Upon this particular point it is interesting to compare Mr. Smith's assumption with the evidence from some of the electrified suburban lines in Great Britain, because in none of the conspicuous examples of electrically equipped steam railroads in this country have there been material changes in schedules from those previously in force with steam locomotives. It is true no other plan may have been possible, but the result has been that one of the principal advantages of the change has been lost up to the present time.

Fortunately, we have the British testimony on this subject through a recent paper read before the Liverpool Engineering Society. H. E. O'Brien, engineer of electric traction of the Lancashire & Yorkshire, says that the electrification for 20 to 30 miles of suburban lines of that company and of the North Eastern Railway has resulted in a steady increase in passengers carried of 1,000,000 per annum. The Mersey Railway shows about the same rate of yearly increase, or a total gain of 78 per cent in six years. The Lancashire & Yorkshire uses motor cars and direct-current third-rail, the same system considered by Mr. Smith. As a result of three years' experience, Mr. O'Brien sums up the advantages of electric operation over steam for a given schedule as follows: (1) More rapid and more frequent train service can be given; (2) increase of 50 per cent in terminal facilities without capital expenditure; (3) cost of rolling stock reduced 20 per cent; (4) repairs to rolling stock decreased by from 10 per cent to 50 per cent; (5) running costs decreased by 30 per cent to 50 per cent. The disadvantages are: (1) Increased equivalent coal consumption by about 30 per cent; (2) slightly increased cost of track maintenance.

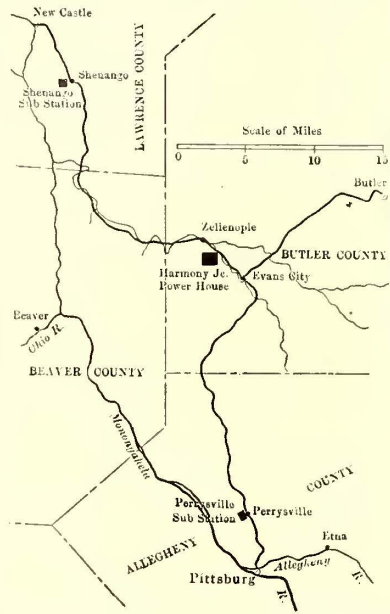
These figures afford some ground for believing that the estimate of 75 per cent operating ratio for the Boston & Albany is high.

The time may not yet be ripe for the electrification of the railroads entering Boston, but the letters to the board indicate an attempt to make out a case against electric operation, rather than in favor of it. Much depends on the point of view.

### PITTSBURG, HARMONY, BUTLER & NEW CASTLE 1200-VOLT, D. C. RAILWAY

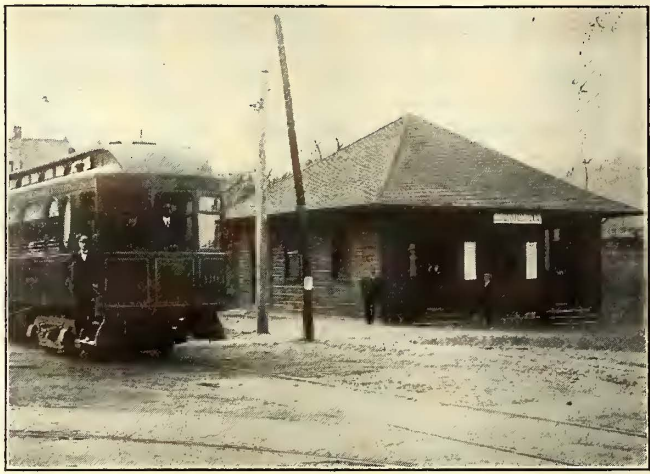
BY JOHN R. HEWETT

Although the Indianapolis & Louisville Railway was the first to be put into operation in this country with a potential of 1200 volts on the trolley, the Pittsburg, Harmony, Butler & New Castle Railway can claim the distinction of really being the pioneer road in this direction, as the plans and specifications for it were prepared at an earlier date. Both of these roads are under the same management and were built by the same engineer. James Bryan, of Pittsburg, is consulting engineer for both roads and was responsible for the choice of 1200-volt apparatus, and his faith in it has been well justified by the results attained. The personnel of this railway is as follows: President, R. H. Boggs; vice-president, W. A. Goehring; superintendent, H. Etheridge; engineer of power house, C. A. Houghton. The map shows the districts served and the location of the power house and substations.



Map of Pittsburg, Harmony, Butler & New Castle Railway

nango, substation, 4.8 miles; Shenango substation to power house, 19 miles; power house to Perrysville substation, 21.75 miles; Perrysville substation to Pittsburg, 4.25 miles. The distance from the power house to Butler is 15 miles. All of the system is operated on 1200 volts, with the ex-



Pittsburg 1200-Volt Line—Ellwood City Depot

ception of approximately 4 miles at the Pittsburg end, where the cars run over the city lines, which are operated at 600 volts.

#### POWER HOUSE

The power house is located at Harmony Junction, and its principal dimensions are as follows:

- Engine room length, 120 ft.; width, 49 ft.; height to roof truss, 31 ft.; to apex, 47 ft.
- Boiler room length, 120 ft.; width, 57 ft. 6 in.; height to roof truss, 31 ft.; to apex, 47 ft.

The more important items of electrical equipment are: Two A. T. B. 8-pole, 1500-kw, 900 r.p.m., 13,200-volt, 60-cycle, vertical Curtis turbo-generator sets.

Two bipolar, 25-kw, 3600 r.p.m., 125-volt, horizontal Curtis turbine exciter sets.

The turbines are standard General Electric four-stage



Pittsburg 1200-Volt Line—Buhl Bridge



Pittsburg 1200-Volt Line—Grimm Bridge Spanning Connoquenessing River

station takes care of the center portion of the system. The Butler section is fed by feeders. Synchronous motor generator sets in the substation transform the high potential alternating current to 1200 volts direct current, which is the working potential of the trolley.

machines, with two rows of buckets per stage, and have mechanically operated valves and oil step bearings. They operate condensing, the usual vacuum attained being 28 1/4 in. or better. The exciter sets operate non-condensing.

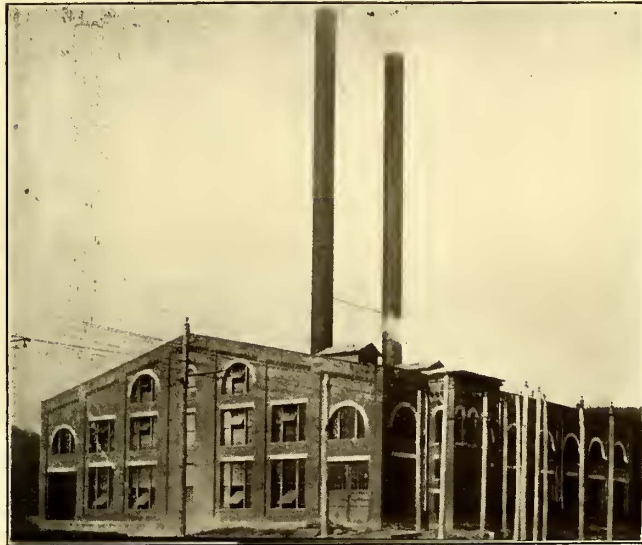
Among the auxiliary apparatus may be mentioned two jet condensers, two horizontal feed pumps, two centrifugal

The more important distances are New Castle to She-

circulating pumps, two horizontal air pumps, two horizontal step bearing pumps.

All of these pumps are steam driven and were built by the Worthington Company.

A substation is located in the power house, but as the apparatus installed is similar to that in the other substations, it will be described later.

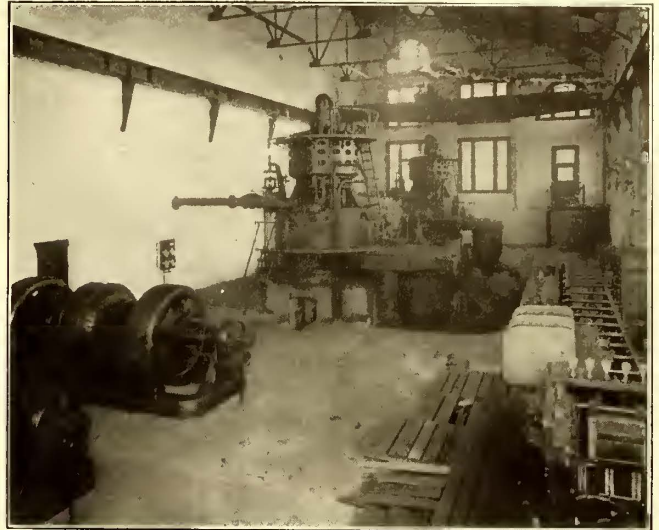


Pittsburg 1200-Volt Line—Exterior of Power House at Harmony Junction

be of interest to note that the company has a coal mine immediately outside the power house, and coal is dumped directly into the coal bin.

SUBSTATIONS

There are three substations—one in the power house, one at Shenango and the third at Perrysville. The electrical equipment is the same in each, and includes three

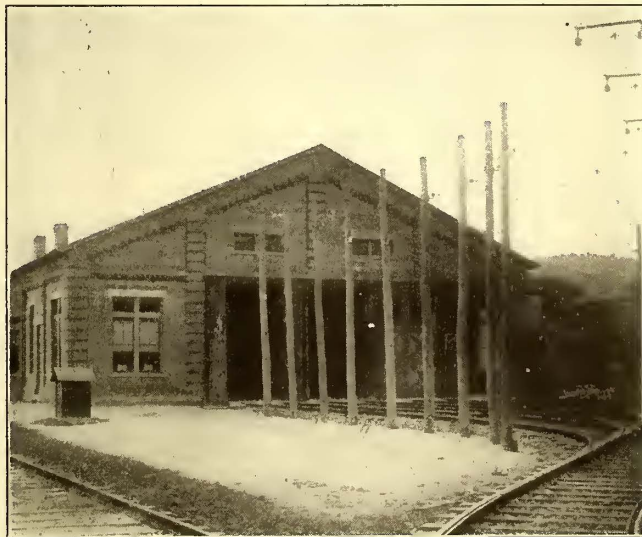


Pittsburg 1200-Volt Line—Interior of Power House at Harmony Junction

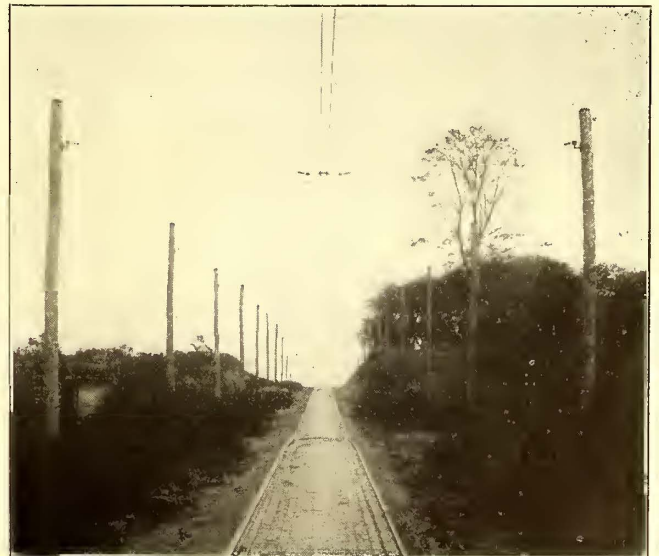
The present capacity of the power house is 3000 kw, but if conditions should warrant the installation of more apparatus, one of the end walls will be removed and additional turbines placed on the other side of the substation apparatus, leaving the present substation in the middle of the power house.

The present boiler equipment consists of four Babcock & Wilcox water-tube boilers, each of 480 hp. with a work-

General Electric motor generator sets, each consisting of two 4-pole, 200-kw, 720-r.p.m., 600-volt, direct-current generators, direct driven by and mounted on the same base with one A.T.B. 10-pole, 425-kw, 13,200-volt synchronous motor. A 6-pole, 6-kw, 125-volt exciter for the synchronous motor field is mounted on the same shaft. Each motor generator has its own starting compensator.



Pittsburg 1200-Volt Line—Exterior of Car House at Harmony Junction



Pittsburg 1200-Volt Line—Span Construction Near New Castle

ing pressure of 200 lb. per sq. in. These are arranged in two batteries and are hand fired.

The coal handling apparatus is simple, consisting of a pit running the length of the power house, with rails laid above, so that the coal can be dumped direct. A series of arches open from the pit to the boiler room floor. It may

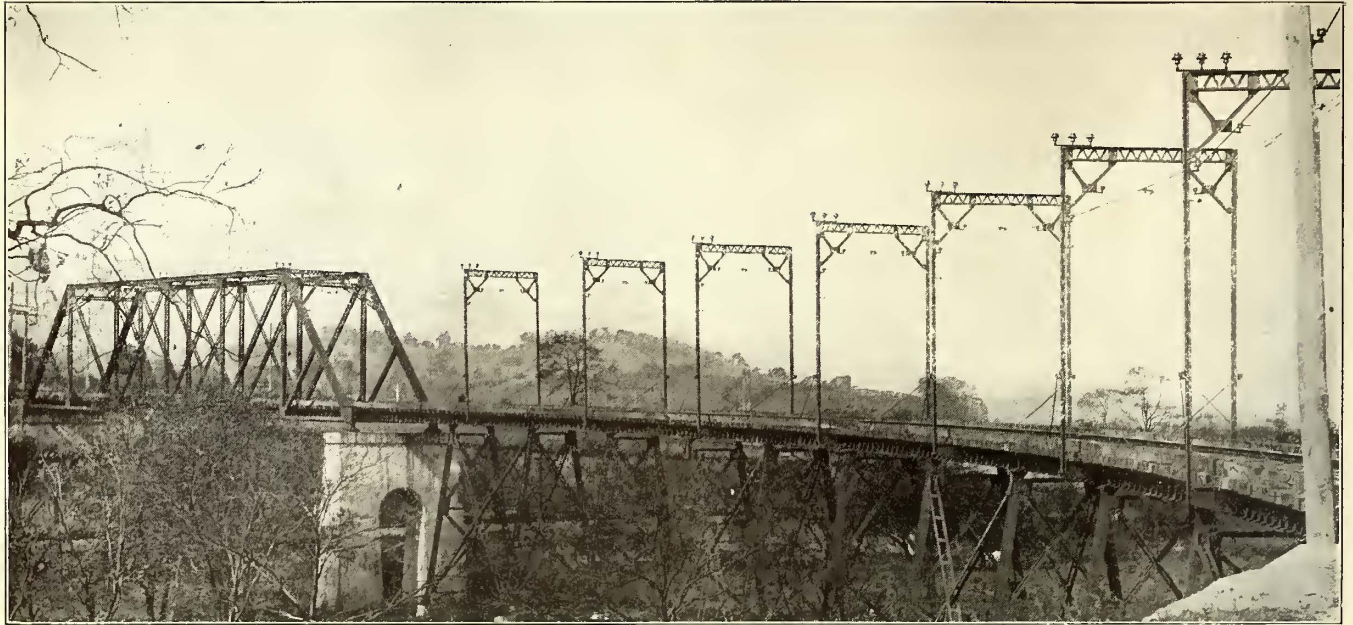
The switchboard in each substation comprises two 400-kw, 13,200-volt synchronous motor and exciter panels; two 400-kw, 1200-volt, d.c. generator panels; two 400-kw, 1200-volt, d.c. feeder panels, and two 1500-volt voltmeters and brackets.

The three-phase lightning arresters are of the multiple-

gap type. All of the oil switches in the substations are of form K-4.

The synchronous motors are started up on the a.c. side

The armatures of the d.c. generators are connected in series, with one terminal grounded, giving 1200 volts on the feeder bus to which the other terminal is connected.



Pittsburg 1200-Volt Line—Luntz's Bridge

with the compensators in circuit. When full speed is attained the compensator is cut out and the motor direct connected to the 13,200-volt buses. The oil switches con-

The generator fields are also connected in series through a single equalizer bus, to insure both machines taking a correct proportion of the load.



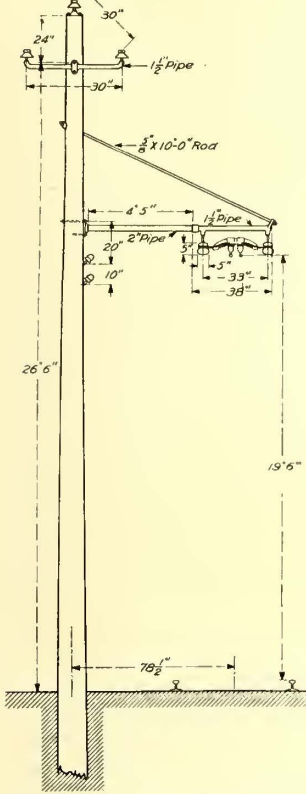
Pittsburg 1200-Volt Line—Ellwood City Y

trolling these connections are interlocked to prevent the motors being thrown direct on the full voltage when starting up from rest.

TRANSMISSION LINE

The working potential of the three-phase transmission is 13,200 volts and the frequency 60 cycles per second.

The three wires are arranged in the form of an equilateral triangle, with sides 30 in. in length. An aluminum wire built up of seven strands and having a current carrying capacity equal to that of a No. 2 B & S copper wire is used.



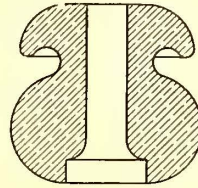
Pittsburg 1200-Volt Line—Standard Bracket Pole Construction

The total length of the transmission line is approximately 41 miles.

OVERHEAD CONSTRUCTION

The overhead construction shows some radical departures

used, and this is strung double the entire length of the road, the distance between the two wires being 5 in. and the height above the track is 19 ft. 6 in. Single bracket construction has been adopted throughout for single-track work, and there is very little special trolley work anywhere on the system. The poles are 35 ft. in length and are buried for a distance of 6 ft. in the ground. On tangent track the pole spacing is approximately 82 ft. On curves the spacing is considerably less, and although this involves the use of a large number of poles per mile, it eliminates all guys and anchors on curves. In all cases,



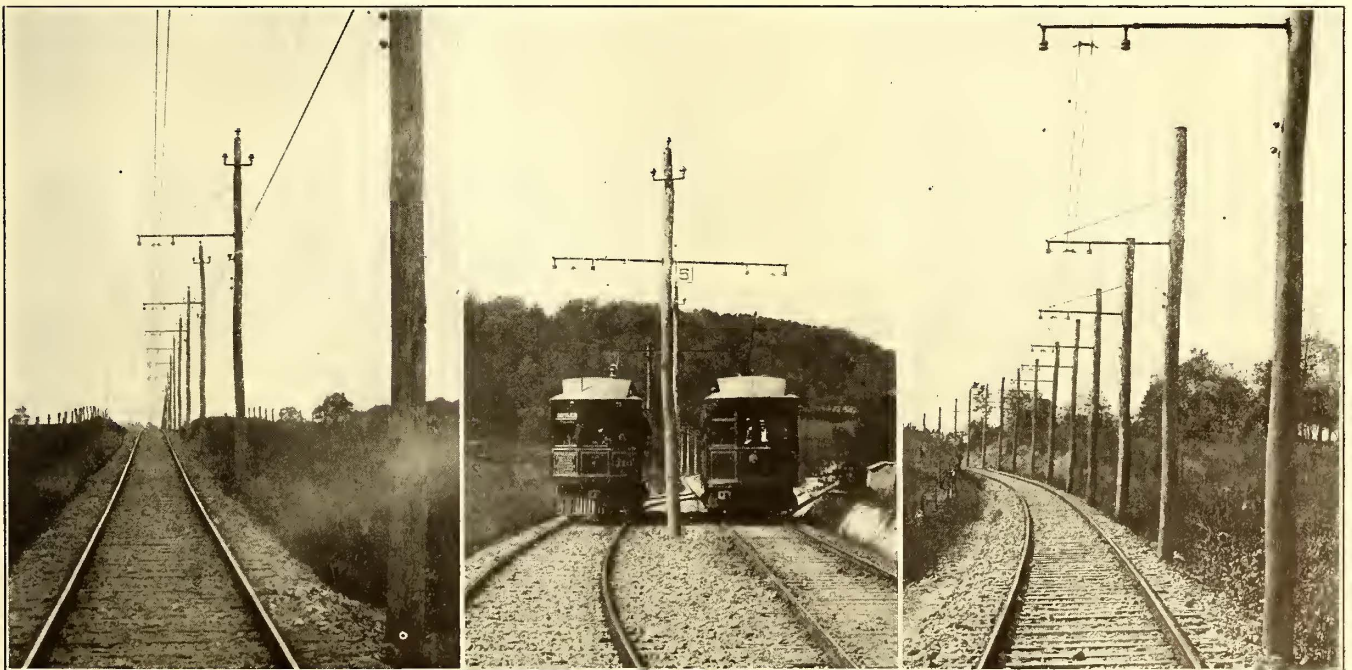
Porcelain Insulator

the pole spacing is arranged to bring the trolley wire immediately over the center of the track. On the double-track portion of the road a double bracket construction is used.

Referring to the details shown in the drawing, the bracket is built up of a malleable iron casting which has a circular cross-section and is screwed into a length of 2-in. iron pipe. This casting is 38 in. in length and is standard for all work, while the length of the pipe varies from 53 in. to 57 in. to suit the lean of the pole. A screwed flange is furnished at one end of the bracket for attachment to the pole. This is effected by a bolt at the top, which passes through the pole, and a lag screw at the bottom. The free end of the bracket is provided with a lug for the reception of a 5/8-in. stay rod.

A section of one of the insulators is also shown; they are of porcelain, and measure 5 in. in diameter and 5 in. in height. The insulator pins are in the form of a metal pipe, one end of which is screwed into the malleable iron casting and the other flared to a bell mouth to conform with the shape of the insulator. The insulators are attached to the pins by cement.

In the towns, where span construction is adopted, the trolley is doubly insulated by insulators like those on the brackets on the poles, and also by goose-egg insulators



Pittsburg 1200-Volt Line—Typical Overhead Trolley Construction with Bracket Poles

from standard practice. The material employed was manufactured according to the designs patented by James Bryan and H. Etheridge. A grooved No. 0000 copper trolley is

inserted in the span wires on both sides of the ears.

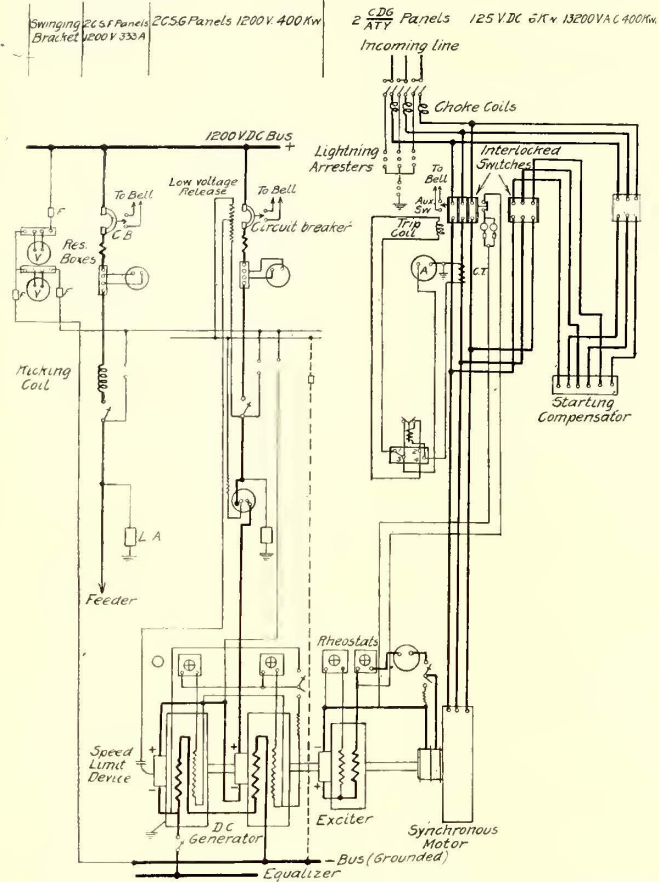
FEEDERS

The feeders for supplying the Butler section are of

stranded aluminum. For the first 7 miles the cable has a capacity of 500,000 circ. mil, and the second cable, which is strung parallel to the first, is 10 miles in length and has a capacity of 750,000 circ. mil. These cables are carried on the poles which support the trolley wire.

ELECTRICAL EQUIPMENT OF CARS

At present there are 14 four-motor passenger equipments in operation, and two additional cars for carrying freight



Pittsburg 1200-Volt Line—Wiring Connections in Sub-stations

will be put into service in the near future. The electrical equipment, so far as motors and control are concerned, are similar on both passenger and freight cars.

The motors are GE-205, commutating pole, 600-1200-volt machines, with the commutating poles connected permanently in series with the armature. They are divided into two groups of two motors in series. These groups are arranged in series and parallel, respectively, for accelerating and free running. This grouping of the motors is the same for both 1200 and 600-volt operation, but the motors only run at half speed on 600 volts.

The control is, practically speaking, a standard automatic relay control for 600 volts, insulated for the higher potential on the motor circuit. Its important elements are the master controller, situated in the vestibule, and the reverser, contactors and dynamotor located under the car. The master controller is of the standard C-35-A form, with a single cylinder and direct-connected handle. Its action is automatic in cutting off the power and applying the air brakes, should the motorman release his grasp on the handle. The reversing is accomplished by a 600-volt electrically operated reverser, which controls the direction of current flow in the field. A commutating switch permits either pair of motors being cut out of circuit; it is provided with contacts in series with the control wiring to prevent

the control system being operated beyond the series position if two motors have been cut out of service. The contactors are similar to those used for standard 600-volt operation, but are provided with additional insulation to suit the higher potential; that is to say, the parts subjected to 1200 volts are specially insulated from the operating coils and interlocks carrying 600-volt current. The contactors are supported in the box by insulated bolts, and the supporting plate is insulated from the box. All of the protective devices are similar to those used on 600-volt equipments, with the exception that an additional blow-out is provided for the motor fuse to make it more effective.

A dynamotor provides 600 volts for operating the control circuits when the car is on a 1200-volt trolley. Its provision enables operation on both 600 and 1200-volt trolleys without any change in the control circuit. It also supplies the current for the auxiliary circuits, such as air compressor and lighting, connections to which are controlled from a car panel located in the baggage compartment. The car wiring scheme is very similar to that of the Indianapolis & Louisville Railway, which was described in the STREET RAILWAY JOURNAL of Jan. 4, 1908.

BRAKES

The air brakes are standard General Electric emergency straight-air brake equipments, with a differential type of governor for multiple-unit operation.

CAR BODIES

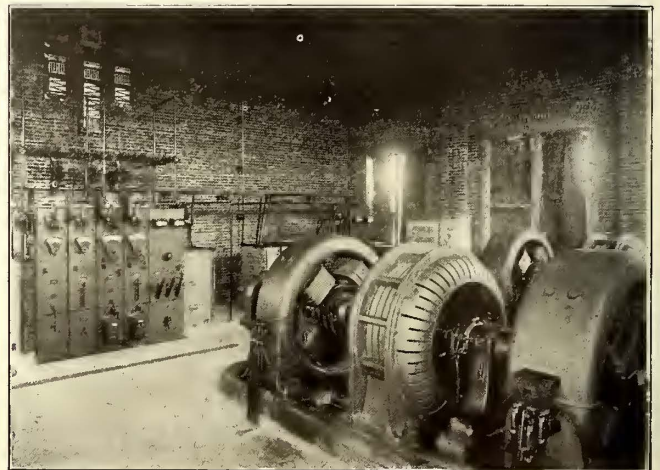
The car bodies were manufactured by the St. Louis Car Company. They are single ended and are arranged with passenger, smoking and baggage compartments. The trucks were manufactured by the Standard Motor Truck Company.

The more important dimensions are as follows:

Length of car over bumpers.....	46 ft. 0 in.
Extreme width .....	8 ft. 3 in.
Extreme height from top of track.....	13 ft. 2 in.
Truck centers .....	24 ft. 6 in.
Wheel base of trucks.....	6 ft. 6 in.
Diameter of wheels.....	36 in.
Weight of car bodies.....	38,000 lb.
Weight of car fully equipped.....	64,000 lb.
Seating capacity .....	50

TRACK

The track is well ballasted throughout with crushed rock, there being on an average 2500 cu. yd. per mile.



Pittsburg 1200-Volt Line—Interior of Shenango Substation

There are 65 miles of single track and at the Pittsburg end of the road there are 11½ miles of double track. The bridges, which are numerous, are all of a very substantial construction.



The 80-lb. T-rails are bonded under the fishplates with twin terminal welded bonds of No. 0000 capacity. The gage of the track is 5 ft. 2 1-2 in., which conforms with that of the Pittsburg city railways over which the cars operate. The maximum grade is 8 per cent. This occurs in the city of Butler, and there are other grades of 5 per cent on the interurban section, the country traversed being very hilly. The outer rails are super-elevated on all curves to permit high speeds. There are six turn-outs which constitute the crossing points between New Castle and Butler.

#### TELEPHONE SYSTEM

There is a complete telephone system installed, instruments are carried on each car, and jack boxes are provided at each crossover and at distances of about one-half a mile along the track. The telephone wires are supported on the same poles that carry the trolley wire.

The car house is situated at Harmony Junction and the same building houses the offices of the superintendent and operating force of the road. It is well provided with machinery for the installation and up-keep of the car equipments. Shelters are situated at nearly all of the scheduled stops; the depot at Ellwood City is illustrated.

### CAR VENTILATION TESTS IN CHICAGO

The Health Department of the City of Chicago has announced the results of the experimental work which has been carried on with a view to ascertaining whether suitable car ventilation systems are available for recommending to the street railways. William H. Evans, health commissioner, has prepared a detailed report of the work carried on by his assistant, Dr. J. F. Biehn. This report, addressed to the Board of Supervising Engineers, argues that ventilation is of major importance in street railway work, and that it should be included in the rehabilitation of the traction lines.

In the *ELECTRIC RAILWAY JOURNAL* for Dec. 5, 1908, page 1520, the experimental heating and ventilating equipment known as the McGerry system, was described in detail. One car of the Chicago City Railway Company had been equipped with this forced ventilation apparatus, and since the publication of this description experiments have been made with it on the City Railway lines. On the Chicago Railways Company's cars tests have been made with three other systems, known as the Cooke, the Taylor and the Perry ventilation systems. Briefly, the construction of the various systems is as follows:

The McGerry system comprises duplicate sets of electric heaters and suction and blower fans operated by 1/2-hp electric motors. Fresh air is drawn in at the side of the car and two blowers under the longitudinal seats force it through electric heaters and distribute it by means of ducts extending along under the seats. Foul air is withdrawn from the level of the deck rail by a suction fan operated by the same motor that drives the intake fan and is discharged underneath the car. Independent and duplicate sets of motors and fans are installed on each side of the car so that heated air may be supplied, even though one equipment is inoperative.

The Cooke system includes one 1/3-hp motor with a 12-in. fan enclosed in a sheet-steel casing on the roof of one vestibule. This exhaust fan sucks air from openings in the deck sash, all connected with a sheet-iron duct extending around the outside of the monitor and supported on the roof. The exhausting of the air through the deck

creates a partial vacuum within the car which serves to draw in fresh air through screens in the floor placed under the four longitudinal seats at the corners of the car body. Above these fresh-air intakes are electric heaters, so that the air thus sucked in is warmed before being discharged into the car body. After it rises and becomes vitiated the foul air is withdrawn through the openings in the deck sash into the ducts extending around the clear story and discharged through the exhaust fan on the vestibule roof.

The Taylor system depends largely on the movement of the car for the intake and discharge of air. Briefly, with this system there are fitted into the deck sash baffles extending over the roof of the car which, as the car moves, serve to force fresh air in and draw foul air out, the air currents being set up as the car moves on account of the difference in pressure on the two sides of the baffles.

The Perry system also is influenced to a certain extent by the direction and velocity of the wind and by the direction and the speed of the car, and is a so-called "automatic" system.

The following is quoted in abstract from the health commissioner's report and presents the results obtained from the tests of the ventilation systems on the cars of the Chicago City Railway and the Chicago Railways companies:

We require for perfect ventilation at least 28,000 cu. ft. of air an hour. Entering at the floor line, it is heated and is taken out at the monitor. We also require that this ventilation should go on at all times, whether the car be in motion or not, providing passengers are present.

The Cooke system—We made a test of a car equipped with this system Dec. 12 and found that the total cubic feet of air exhausted from the body of the car an hour was 47,524. Total cubic feet of air exhausted from the front vestibule 2984 and from the rear vestibule 3969. Total exhaust capacity, 54,577 cu. ft. Total cubic feet of air coming into the car at the various openings is approximately 25,000 an hour. The remaining air enters through the various openings or leaks in the car—around windows, door, etc. The ventilation in this car conforms to our requirements—that is, air is taken in at the floor line, passes over the heaters and the foul air is removed at or near the ceiling.

The Taylor system—The highest result we found on this car was on a test made Dec. 2. Total cubic feet of air entering the car an hour through the ventilators was 32,062. Total cubic feet of air leaving the car through the ventilators was 28,546. When I examined this car on its regular run on Van Buren Street I noticed that approximately half the ventilators were closed. In this system there is also an attempt made to take the air in at the floor line and exhaust it at the ceiling.

McGerry system—We have made a number of tests of this system: Dec. 21, regular trip, total cubic feet of air forced into the car was 22,237; exhausted from the car by the system 11,582 cu. ft. In this system there are only two exhaust points, but a number of intake points, the exhausts being at or near the ceiling, one on one side of the car at one end and the other on the other side at the other end.

Perry system—The test made Dec. 18, total cubic feet of intake per hour was 13,043; of exhaust 28,133 cu. ft.

The report of the health commissioner makes no recommendation regarding the adoption of any one of these systems, but the data are presented to the Board of Supervising Engineers so that it may have the results of the tests to aid it in any selection it may make.

A concession for the construction of an electric railway in Saltillo, Mexico, has been granted to Schondube & Neugebauer and Rodolfo M. Garza. According to the concession the plans must be approved and work begun within nine months.

## THE PROBLEM OF REDUCING ACCIDENT DAMAGES—II.

BY FREDERICK W. JOHNSON, ASSISTANT GENERAL CLAIM AGENT, PHILADELPHIA RAPID TRANSIT COMPANY

It was during the winter months of 1903 that the writer first became interested in the subject of instructing car employees in the various branches of accident work. A chance remark on the part of one of the conductors of the company was really instrumental in directing attention to the matter. At that time the writer was associated with the claim department of the Connecticut Railway & Lighting Company, and had been engaged in the trial of a number of personal injury damage cases in local courts. A case had been reached in which the company was particularly interested, and which it was correspondingly desirous of winning. The claim had appeared to the company as being anything but meritorious. It was realized that a determined effort would be made to mislead concerning the facts and to exaggerate grossly the extent of the injuries, in the hope of recovering substantial damages.

It developed subsequently that the company's fears were, to a certain extent, well grounded. The company was not able to substantiate its contentions as forcefully as might have been desired, owing to the neglect of the crew in charge of the car to obtain a sufficient number of witnesses at the time of the occurrence. For this reason the defense broke down in a most vital respect, and a verdict was returned for the plaintiff.

Immediately upon completion of the trial the conductor concerned in the accident made the remark in conversation: "If I had only known that this thing would turn out so seriously, I could have secured the names and addresses of practically every person on that car."

In going over the details of the case, and especially the outcome of the trial, the conductor's remark struck the writer with peculiar significance. Here was a matter involving a considerable sum of money, the major portion of which need never have been expended on so unworthy a cause if the conductor of the car concerned in the accident had but known his business and attended to it properly. From this point it was but a step to the inquiry, "If he did not understand the importance of prompt, intelligent work in the handling of his accidents, who was responsible for the existence of such a condition of affairs?" Surely no one but the company itself. It did not expect untrained men to grasp instinctively the intricacies of its technical branches, nor of its medical or legal requirements. Why, then, should it expect that the conductors and motormen on its cars would be able to render satisfactory service in a field which was more or less of an unknown quantity to them?

This problem had been under careful consideration for some time when a second one arose to disturb our peace of mind. What if this same query should occur to some one else higher up, and he should begin to ask embarrassing questions? It was decided forthwith that the time for action of some sort had arrived. Just how the situation was to be met and whether anything of a practical value would result from our efforts were questions which, it was felt, only the future could determine. But that something should be done, and that quickly, was very clear.

First of all, some time was spent in examining records at headquarters for the purpose of determining just where the weakest points were; just what types of accidents were occurring with the greatest frequency; what localities on the lines of the company appeared to be the most pro-

ductive of accidents, and particularly the sections from which the majority of the unreported accidents came; the divisions which were giving the least satisfaction in the work of obtaining witnesses to accidents, and so on indefinitely. With this data the company was better prepared for the question, or at least felt that it was.

### CO-OPERATION OF OPERATING DEPARTMENT

The next step was to lay the entire matter before the officials of the company for the necessary authorization to proceed. This being granted, the subject next was broached to the superintendents of the various divisions. Almost without exception, we were gratified to find that they were in hearty sympathy with any movement which promised increased efficiency in the accident work of their men. We were fortunate indeed in this latter respect. The expediency of any campaign of this nature without assurance of the good-will and earnest support of all of the superintendents is seriously to be questioned. The superintendents come into immediate contact with the men on the cars, and their attitude toward a movement of this nature is observed closely by the men. The superintendents are in a position to assist very materially in insuring the success of the venture or of proving a serious, though not insurmountable, obstacle to ultimate success.

Having, then, been assured of the backing of the superintendents, the next step was to arrange the schedules so as to enable representatives of the claim department to meet the men of the various divisions in classes for the purpose of making them acquainted with the character of the work on which the company was embarking, and of giving first instructions. In this respect the company started in with fundamental principles: Nothing was taken for granted; the simplest principles of accident work were taken up first of all, regardless of the length of time which the men might have spent on the cars. The company's idea was to establish a firm, solid foundation for the work in the years to come.

As we look back upon those first classes we have a feeling that they must certainly have been well worth attendance, for it does not require stenographic notes of the proceedings to convince us that much of the material was delivered in an extremely crude condition. But that energy, determination and earnestness were present in fairly satisfactory measure must also have been true, for our recollections are very clear concerning the careful attention with which the conductors and motormen received their first instruction. There was no disorder, play or evidence of inattention. Apparently the trainmen were content to take the will for the deed.

The company was thoroughly in earnest, and as the work progressed it learned many things. Aside from our own people, many who gave the idea serious thought were apparently rather doubtful of its success. One firm of railway attorneys said: "We do not believe in placing written or printed instructions of any kind in the hands of our men. The danger that they will be used against us in court is altogether too great." Another wrote: "There is danger in teaching the men so much regarding accident work. They may make improper use of it after leaving the employ of the company." A letter of inquiry came from London, England. A gentleman who was connected with one of the tramways there wrote for particulars, and subsequently advised the company of his interest in the work and of his hearty approval of the idea.

About this time two bitterly contested strikes occurred, each of several months' duration, accompanied by unrest

and dissatisfaction on the part of company employees. This gave the work a serious setback at a most critical time, with a consequent loss of what little ground had been gained, necessitating a fresh start when conditions eventually became normal again.

From this point, however, the work progressed steadily and uninterruptedly. Methods of procedure became more and more systematized. We came to know our men better and better, and to gain a clearer insight into the obstacles which they encountered daily in their work on the cars. Gradually, and to a certain extent unconsciously, we began to strike responsive chords. We found many of the men of a happy-go-lucky disposition, a trifle careless at times, or thoughtless or neglectful, but withal good-hearted, well-meaning and fair-minded, and, once their interest was aroused, earnest and conscientious in their efforts to protect the interests of their employers. That the men had often been tried and found wanting previously in their accident work was due as much to the short-sightedness of their employers as to any deficiency on the part of the men.

With this powerful factor in the company's favor, coupled with the hearty co-operation of as efficient a corps of superintendents as ever represented a street railway company, it was inevitable that results should begin to appear here and there, first in one direction and then in another. To be sure, the results were not phenomenal, but they were none the less gratifying.

Before conditions intervened over which we had no control the company was able to complete approximately two and one-half years of uninterrupted work with its conductors and motormen on these lines. This consisted at first of oral instruction only; subsequently, printed instructions, including the installation and developing of the weekly accident bulletin, which will be described in detail in a later issue, were added. Both of these agents proved to be of material assistance to the company in its work, and each was responsible in part for the improvement in conditions which the company was able to effect eventually.

#### FREQUENCY OF LECTURES

For the first year or so the company depended solely on oral instruction. Classes were held frequently at first. In this respect, however, we soon realized that there was danger of dampening the interest of the men in the work by holding classes too frequently. Much of the instruction necessarily covered the same ground and was certain in time to become more or less monotonous. Accordingly, the interval between classes was lengthened, until it was found that the best results were obtained by giving but two series of lectures a year. One was given in the late spring, after most of the new men had been employed for the summer and before the heavy open-car travel set in, and the second series was held in the fall, after the closing of the parks and the inauguration of the regular winter schedule, and before the customary fall and winter types of accidents had commenced.

But this arrangement had its drawbacks, because the work sagged somewhat between the two series of classes. Many points arose in the interim which ought to have been brought to the attention of the men on the cars without delay. Under these circumstances, however, consideration of these features necessarily had to be postponed until the next regularly scheduled series of talks, possibly some months distant. For this reason the company felt that not only was it neglecting opportunities of pressing home its advantage still further, but actually was losing ground in

some respects at the same time. Experience had shown that once the tension was reduced, the men slid backward with surprising rapidity.

So the problem arose as to how the company could keep in touch with the men in the long months which intervened between classes. In what way could it immediately direct the attention of practically every man on the system to some particular fact or line of instruction in connection with its accident work? It was in considering this question that the thought occurred that possibly some scheme might be devised whereby the company might be able to get into regular and frequent communication with its conductors and motormen through the medium of a weekly notice or bulletin.

The first venture in this direction met with a rather ignominious ending. It was a typewritten notice, dealing with a somewhat dangerous condition which existed on the lines of one of the divisions, and was designed to prevent the possible occurrence of accidents by calling the attention of the men of that particular line to the dangers of the situation. This notice, unfortunately, appeared to be open to criticism in that it unintentionally trespassed upon the authority of the operating department. The ensuing tangle was straightened out eventually and new plans were begun immediately to determine just how a scheme of this character might be evolved which, while avoiding carefully any future encroachments upon the authority of the operating department, would admit nevertheless of lessons to the men on the cars in the form of accident instruction.

For a time the abandonment of the scheme was threatened indefinitely, so far as our particular company was concerned. Eventually, however, word was given to go ahead, with the distinct understanding that notices from the claim department were to be worded carefully so as to avoid operating questions, or anything which might be construed as leaning in that direction; and, secondly, that each issue should be submitted first to the general manager for approval. These stipulations afterward gave entire satisfaction to all concerned, and in this respect proved to be well founded and of unquestionable assistance to the work, because they defined clearly the field of action available for printed instructions in connection with accident work.

These incidents in connection with the first efforts of the company to make use of weekly accident bulletins are cited for the express purpose of directing attention to the obstacles which will surely be encountered by those who may be sufficiently interested in the project to experiment on similar lines. The best results will be obtained by defining, first of all, the scope and character of work of this kind, thus eliminating the possibility of future misunderstandings between representatives of different departments.

#### TYPES OF EXPECTED ACCIDENTS

There are, of course, certain types of accidents which cost street railway companies vast sums of money annually. These accidents may be said to be of a standard type; that is, they happen over and over again, from the same old causes and in the same old way. It is possible to look into the future to a certain extent and to know as a positive fact that accidents of this class are absolutely certain to occur within the succeeding 12 months; and, furthermore, that coincident with their occurrence will come more or less heavy demands on the treasury of the company for expenditures incurred either in contesting claims arising out of these accidents, or in adjusting them.

During the summer months there are such regular acci-

dents as those resulting from head-on or rear-end collision of cars; those in which the passengers on the running-board of an open car are injured through the carelessness of the motorman in attempting to go past teams or other obstructions in close proximity to his track; that most expensive type of all, the premature starting of cars; injuring passengers who are in the act of boarding or of alighting; collisions with teams, and so on indefinitely. Another extremely serious problem is presented by the failure of employees to submit prompt reports on all their accidents, in consequence of which the company is forced not infrequently to go to trial on accidents of which it really has no knowledge whatsoever, and consequently little if any defense. Unfortunately, a considerable proportion of unreported accidents are mishaps for which the employees, and consequently the company, are responsible.

It was primarily against the more important problems of this character that the Connecticut Railway & Lighting Company directed its efforts from the first. It was felt, and this belief was justified subsequently, that many of the lesser evils would disappear in the natural course of events, as interest was aroused in the subject in connection with the discussion of more important questions.

The summer of 1906 was the second during which the company was able to carry the work through without serious interruption and under practically normal conditions. During May, June, July, August and September of that year the company transported something over 23,000,000 passengers. This is not a very large total when compared with the number handled in a like space of time by larger roads; but nevertheless it proved to be one of the busiest seasons that the company had experienced up to that time. Approximately 800 conductors and motormen were in the service, and 1295 accidents were reported during these five summer months, ranging in character from the accidental breaking of car windows to the overturning of a car, the result of spreading rails.

#### RESULTS OF THE WORK

Among some of the results of that summer's work were the following:

Of head-on collisions of cars (much of the system being of single-track construction) the company had none. The corresponding periods of previous years had failed to achieve similar results in this respect.

Of rear-end collisions of cars, the company had six, in which altogether 10 passengers and two employees were injured, none seriously, and all of which were amicably adjusted for a total expenditure of \$177.

The company had four accidents to passengers injured through the premature starting of cars, all of which it was able to adjust satisfactorily for a total expenditure of \$80.

Of passengers injured while riding on the running boards of open cars, through the carelessness of motormen in attempting to pass teams and obstructions, the company fortunately had none.

Nov. 1 of that year completed a straight-away run of 18 months without a single "unreported accident." Shortly after this the failure of a crew to report a comparatively trivial mishap broke the record temporarily. Prior to the inception of instruction work the average record had been from 10 to 12 unreported accidents per month.

The treacherous rail of the autumn months, due to the presence of falling leaves, had been productive in past years of many serious collisions of cars. For three years the company wrestled with this problem, gaining a little ground each year until the fall of 1906, when it experi-

enced the satisfaction of passing through this period without causing injury to a single one of its passengers and without the payment of a dollar in accident damages. As opposed to this the record of the corresponding period in the second year preceding may be cited, when approximately 225 passengers were injured on a single division of the company.

The expenses incurred in carrying on the summer's work were nominal, amounting to \$126, all of which was expended for printing.

The average number of witnesses obtained per accident for the system fluctuated between seven and eight during that year, as opposed to an average of three under former conditions. At this time there were about 60 lawsuits on the books of the company, among which there were no blind or unreported cases. The average number of interviewed witnesses per suit stood at 12.

The property changed ownership about this time, conditions became somewhat unsettled, and this, coupled with the disapproval of work of this character by the new management, brought about a discontinuance when the outlook for the future was most promising.

The foregoing facts are cited solely with a view to showing that encouraging results can be obtained from work of this character on a road of moderate size.

*(To be continued)*

### BREAKAGES OF WELDED RAILS IN CHICAGO

At a dinner of the Electric Club on Dec. 30, Ralph H. Rice, assistant engineer of the Board of Supervising Engineers, Chicago Traction, described in a concise and interesting way the work of that board in supervising the rehabilitation of the Chicago City Railway, the Chicago Railways and the Calumet & South Chicago Railway properties.

In his discussion Mr. Rice, when questioned about the breakage of electrically welded rails in paved streets, stated that to the best of his knowledge the failure of welded joints was far below 2 per cent. It had happened that between Sixty-eighth and Seventy-third Streets on State Street a section of track had been welded late in the year, and this track was paved only between the rails, the street outside of the outside rails remaining open. On account of this open condition in which the track had been left, a number of breaks had occurred, and it was interesting to note that every break was in one of the outside rails. This instance seemed to verify the statement that rigidly welded track was kept from breaking by the protection of the pavement. Mr. Rice could not recall having heard of or having seen a break that had occurred at a weld. Most of the breaks were about 8 in. or 12 in. away from the end of the rail and at the edge of the heated zone. He stated that there must be enormous stresses in the long stretches of welded rails, but nevertheless the track is held accurately in place by its fastenings and the pavement. At one time, when it was necessary to cut a rail, it happened that this rail when sawed nearly in two broke and pulled apart about 1½ in. The special track work is not welded to the rails, and all of the track is built so that the rails, which weigh 129 lb. per yard, may be renewed without damage to the substructure.

The Hungarian Minister of Commerce is said to have recently stated that during the coming year the entire railway system of Budapest will be electrified.

**SMALL OUTFIT FOR SUPPLYING ALTERNATING CURRENT FOR SHOP TESTING**

In a large railway repair shop it is very desirable to have alternating current for testing purposes, but such current is seldom available on a d.c. road. On the Northwestern Elevated Railroad in Chicago the shops are supplied with direct current fed from the third-rail feeder circuits, and as no source of alternating current was at hand a simple and rugged converting set has been built by the shop employees under the charge of John E. Osmer, master mechanic. An accompanying illustration shows this converter and transforming outfit, which comprises a small motor-generator with a step-up transformer, starting and voltage-regulating boxes and a blowing fan. With this outfit alternating current is supplied for testing and the voltage of that current can be regulated between the limits of 350 volts and 3000 volts. The complete set for furnishing alternating current is mounted on the shop wall of the armature department and does not utilize any valuable floor space.

With the 550-volt current available and with the need for alternating current to be used in testing, the converting set was designed and built as follows:

The power supply is taken directly from the shop circuit, which is fed from the third-rail feeders. A large snap switch is used in connection with a 2-amp enclosed fuse and a small carbon-break circuit breaker which protects the converting apparatus. From the circuit breaker the current supply passes to a starting box which controls the small converter. This converter was made by adding two slip rings to a 1/2-hp, two-pole, 500-volt, shunt-wound motor. Two taps were brought out from the armature winding to the collector rings. The unit so arranged receives direct current at 550 volts and converts it to 375-volt, single-phase alternating current.

For the purpose of giving severe breakdown tests to motor and armature coils it was desired to have available a maximum voltage of 3000; therefore a transformer was built. Its primary coil is connected direct to the slip rings of the small converter and in one side of the primary circuit a control rheostat and box have been placed. The box has nine points to which are connected a series of resistance coils similar to those used in the control circuit of a type M multiple-unit equipment. With these resistance steps in series with the primary of the transformer, which has 750 turns in the primary and 7050 in the secondary, it is possible to obtain 10 different voltages from the secondary terminals of the transformer. When the d.c. line voltage fed to the small converter is 500 volts the a.c. voltage obtained from the machine is 350 volts and for each point on the box controlling the resistance in the primary circuit the following a.c. voltages are obtained at the secondary terminals of the transformer:

Point 1.....	630 volts	Point 6.....	2030 volts
Point 2.....	910 volts	Point 7.....	2310 volts
Point 3.....	1190 volts	Point 8.....	2590 volts
Point 4.....	1470 volts	Point 9.....	2870 volts
Point 5.....	1750 volts		

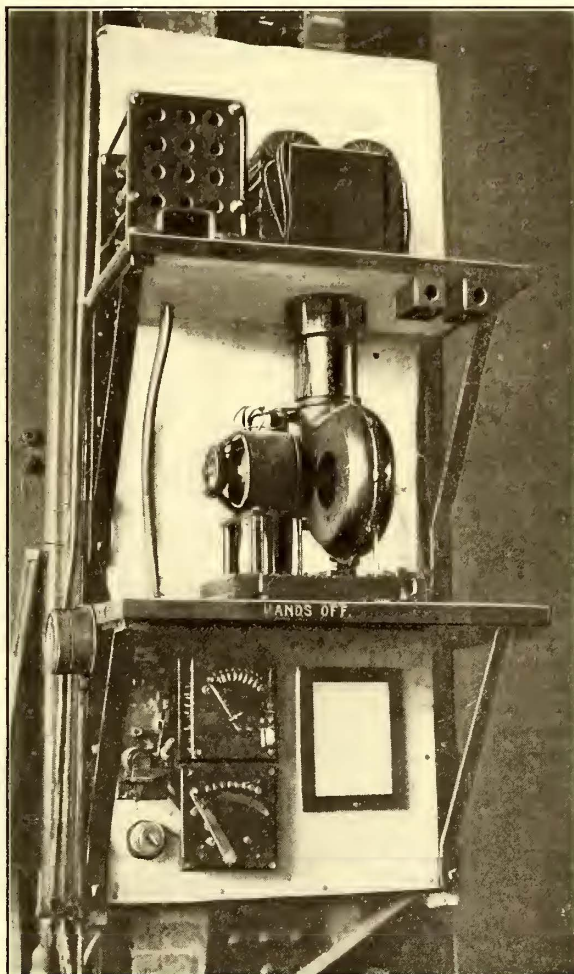
When the line voltage is 550 the a.c. voltage obtained from the transformer on the last point of the resistance cut-out switch is 2905.

As shown in the illustration, this transformer is mounted on a shelf directly over the small converter. On the shaft of the converter is a blower fan which exhausts directly up through the coils of the transformer, a box being provided about the transformer so that the maximum cooling effect may be obtained from the air circulation. While this air

cooling is not necessary for regular testing work as now carried on, it would be found very advisable to cool the transformer if current were to be passed through it for any long period of time.

The transformer core is made of laminations cut from No. 26 gage stove iron clamped together by a through bolt at each of the four corners. There are two windings made up of No. 12 wire in the primary, 750 turns, and No. 21 wire in the secondary, 7050 turns; in all 100 lb. of wire were used. The secondary leads of the transformer, which carry a maximum voltage of 3000 from side to side, terminate in spring brass connection boxes enclosed in wood similar to those used for the heating buses connecting the cars of an elevated train.

This simple home-made converting and transforming set is made use of in the every-day work of the winding shop.



**Alternating-Current Testing Set**

Alternating current at various voltages is used for testing air-compressor motors, small electrical devices and the fields and armatures of railway motors. All armatures that are repaired are given an insulation test with alternating current by connecting one lead to the shaft and the other to the commutator bars. In this testing work each piece under test is first subjected to a low voltage and if this is satisfactorily withstood the voltage is increased to a predetermined maximum by the simple method of regulating through the medium of resistance cut in and out of the primary circuit of the step-up transformer. Air-compressor coils are subjected to a test of 1470 volts as obtained when the control switch is on the fourth point. Contactor magnets that are rewound in the shop and field coils for railway

motors are tested up to the same voltage as that for air-compressor motors. The mica-insulated armatures are ordinarily tested to 3000 volts alternating current.

The value of this simple outfit for obtaining a.c. voltages has been demonstrated to the satisfaction of the railway company. The information from which this article was prepared was supplied by Mr. Osmer, to whom acknowledgment is due.

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## HISTORY OF TWIN CITY RAPID TRANSIT COMPANY

As announced last week, the Twin City Rapid Transit Company, of Minneapolis, Minn., began publishing on Jan. 5 a series of 27 full-page advertisements covering the history of the company from its beginning, 35 years ago, to date. Each installment of the history is signed by C. G. Goodrich, vice-president.

It is interesting to review briefly the history of the Twin City lines at the beginning, as outlined in the advertisements of the past week. The Minneapolis Street Railway Company was organized on July 1, 1873. On July 9, 1875, the City Council of Minneapolis granted the company a franchise and provided regulations for the operation of the road. The franchise ordinance provided for the building of two lines, with a total mileage of 2.1, the city limits then enclosing approximately 11 sq. miles of territory.

The City Council reserved the right to designate other lines to be built as demanded by public necessity. It was provided that no propelling power or machinery of any sort should be used after it had proved to be a public nuisance. The operation of cars began on Sept. 2, 1875. Two cars were operated, and the total receipts on the first day were \$21.50.

The rate of fare was not to exceed 5 cents on any line within the city limits, and the city reserved the right to regulate the rates at the expiration of five years, provided that the city should not reduce the fare below 5 cents on any one continuous line, but the Council could not designate any such continuous line to be more than 3 miles in length.

The early track construction was extremely crude; it consisted of wooden stringers 5 in. x 5 in. x 16 ft. laid on cross ties 5 in. x 5 in. x 5 ft., on top of which stringers were laid bent iron plates, forming the rail, which weighed 23 lb. to the yard. The gage was 3 ft. 6 in., and the cost of the track was \$6,000 per mile.

The horse cars of 1875, of which there were six, received from New York for the Minneapolis line, were 10 ft. long, mounted on four light wheels, weighed about 1000 lb. and were drawn by one horse. A fare box was placed in the front of each car, into which the passenger dropped his nickel. In winter heat was supplied by a small sheet-iron stove, and the floor of the car was covered with hay to a depth of about 1 ft. Under the ordinance, no car was permitted to run faster than 6 m.p.h. The driver not only drove his horse, but kept a lookout for possible passengers, attended to the depositing of fares by boarding passengers, and made change. He was on his car from 12 hours to 16 hours a day, with 20 minutes release for dinner, and during the first six or seven years of operation in Minneapolis the drivers were obliged to wash their own cars. For all these services the drivers were paid the sum of \$35 per month.

In 1877, at which time 18 cars were being operated, the receipts had risen to about \$90 a day. The payroll book shows that the employees at this time were advanced \$5

to \$10 at a time, and were often two or three months back in their pay. At such times the directors would get together and indorse a note, feeling highly satisfied if they raised \$2,500 on their joint indorsement. In these early days the entire office force consisted of one man and the mechanical department consisted of one blacksmith.

The Minneapolis Street Railway experienced a steady growth during the first 10-year period, and new cars, from 12 ft. to 16 ft. in length, replaced the 10-ft. cars. The old track with the strap rail was replaced with heavier rails, weighing from 50 lb. to 60 lb. per yard, and of a height to permit of street paving. The newspaper advertisements published cuts showing the rude track construction and the horse-car turntables of these earlier days. They also included copies of motions passed by the directors instructing the president and two of the directors personally to take charge of track construction details. Emphasis is laid on the great benefit which the road has been in extending the city, and a list is presented of the extensions authorized up to 1899.

The horse car lines thus extended were scarcely completed when the work of electrifying began. This necessitated complete reconstruction and resulted in a practical loss of the original investment. In October, 1887, conductors were put on the line and larger cars were ordered. Prior to this time the wages of drivers had been increased from \$35 to \$54 per month; conductors were paid the same wages as drivers, thus making a labor cost of \$108 per month for each car operated in 1888, compared with \$35 per month in 1875, an increase in wages of over 200 per cent in 13 years.

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## SAMPLE OF T-RAIL TRACK AT ST. LOUIS

The traffic department of the United Railways Company of St. Louis has built as an exhibit a section of T-rail track which may be used to demonstrate to the city authorities the permanence of this type of track. This sample piece of track is complete in every particular, from sub-grade to paving, and stands adjacent to the general offices of the company. The section is one rail-length long and has been built so that both the ends and the sides show clearly the arrangement of the concrete, the ties and the rails below the street surface. The rails used in this sample track are 7-in., 95-lb. T-rail, similar in section to those which have given satisfaction on the lines of The Milwaukee Electric Railway & Light Company. Six inches of rich concrete are used as a foundation below the wooden ties. This concrete is brought up between the ties to form a solid foundation for the pavement.

There are exhibited in this 30-ft. section of track several kinds of pavement, all of which are laid and finished as if for actual service. Beginning at one end is a section of pavement comprising wooden blocks with granite tothing; next is a section of granite blocks. Adjoining is a section of pavement comprising asphalt centers and sides with granite tothing blocks. Brick paving is exhibited with the bricks extending under the rails and granite paving also is shown with the blocks grooved for the rail flange. Outside of the rails the paving is made complete by the use of wood blocks on one side and brick on the other. Thus the United Railways Company has an exhibit of paving combinations differing widely in character and yet all laid as they would be for actual service. The company desired by means of this track exhibit to obtain permission to lay T-rails in the streets of St. Louis.

## THE WISCONSIN PUBLIC UTILITIES LAW\*

BY DR. B. H. MEYER, CHAIRMAN, RAILROAD COMMISSION OF WISCONSIN

The most important provisions of the Wisconsin public utilities law may be grouped about four leading heads, namely, valuation, accounting, rates and service.

### VALUATION

Up to the present time by far the greater number of plants which have been valued were valued in connection with proceedings in which they were involved. Naturally, this order of valuation will soon have to be broken when the number of complaints involving rates will probably decrease, and the commission can then take a survey of the whole field and systematically complete the valuation of all the plants, as contemplated in the law.

The first, and perhaps most important, step in the valuation of these plants is the valuation of the physical property. Where the companies have made a careful inventory of their property, the engineers of the commission take this and check it up and test it in the field and in the office, item by item. It is a matter of satisfaction to be able to state that in several instances of the valuation of important plants the differences between the company's staff and the commission's staff were so slight that little time was devoted in formal proceedings before the commission to the inventory or physical valuation. In other cases, again, many apparently irreconcilable differences developed and much time of the commission had to be devoted to the taking of testimony with respect to the items in dispute.

Thus far only one valuation has been made for the purpose of acquisition of a private plant by the municipality under the indeterminate franchise provisions of the law. In connection with this work the engineering staff of the commission has collected and compiled elaborate data relating to prices and lives of all the constituent parts of the physical plants of all the different classes of utilities. These data constitute one of the most valuable resources within the reach of the commission upon all questions of physical value.

### THE VALUATION OF FRANCHISES

In addition to the physical value, there naturally arise the questions of the value of the franchise, good will and going value. Thus far, practically no utility managements have claimed franchise value to be used by the commission in the establishment of rates. The element of good will has scarcely been mentioned as an element separate and apart from going value. Incidentally, it may be remarked that the statutes of Wisconsin treat all utilities, except telephones, as monopolies, as shown by the provisions of the utilities law relating to indeterminate franchises and the granting of a certificate of convenience and necessity. The telephone business is, however, still subject to the inroads of competition, and so far as the statutes are concerned, it is technically a competitive business. It is, therefore, not impossible that in the valuation of telephone plants, an element of good will, using this term technically, as something different from "going value," may have to be included, which will probably have to be excluded in the case of all other classes of utilities. In fact, several companies have explicitly stated in their testimony that they made no claim for franchise values and good will. Under the head of going value, representations have been made to the effect that all the way from 5 to 100 per cent of the physical value should be added in order to arrive at the true and lawful value to be used in the establishment of just and reasonable rates. The widest range of reasoning is embraced in this class of testimony now before the commission.

If any one tendency in this testimony may be characterized as typical as compared with other tendencies represented in the same testimony, it is the tendency to make a going value stand for expense which has been incurred for outlays and services in connection with the upbuilding of the business of the utilities, and in return for which no adequate remuneration has hitherto been made. In other instances, going value has been represented as something

very real, existing in connection with every plant, entirely independent of expense, past losses or profits and capable of fairly definite quantitative determination. Since the Wisconsin commission has not yet formally declared an official opinion with respect to these intangible items of value, it will not be possible to discuss these topics in greater detail or at greater length at this time. The commission has not yet made up its mind.

### ACCOUNTS

Soon after the enactment of the law, the various utilities submitted financial statements to the commission, which in a measure gave some indication of the extent and character of the accounts kept by them. Since that time a number of conferences have been held and a great deal of detailed work has been done under the direction of the commission, but the final accounts have not yet been officially promulgated. The titles of the leading accounts were sent out to the different companies some months ago in order that the respective managements might begin to shape their books with reference to the same, and it is hoped that in the not distant future the final forms may be submitted. The theory of this system of accounts is that the books shall be kept in such a way that after the physical value of a plant has once been ascertained the valuation will be kept up practically in a systematic way, so that the commission, or any other authority, may see from year to year exactly what the financial condition of any particular plant is. The system of uniform accounts applies both to private plants and to municipal plants. This feature of the law is especially noteworthy in that it at last makes it possible to establish a comparable basis for public and private plants. Investigations made thus far by the commission show that not only does great variety exist among the private plants, but also among the public or municipal plants, and that the accounts of the municipal plants are, in many instances, only partial accounts, not showing all the operations and expenses of such plants. While this is generally true, it can best be shown from the water-works investigations. In eight Wisconsin cities of over 5000 population, the municipal water-works accounts show that there is no credit given for public service, four of these showing a deficit for the year which in three cases would very likely disappear and show a surplus if the plant were credited with revenues which justly belonged to it.

Out of 56 municipal water plants in cities under 5000 population, 33 reported a deficit for the last fiscal year. Of this total number 25 cities did not credit the plant with any earnings for public service, and of these 25 city plants, 22 showed a deficit. Twenty-eight municipal water plants showed no general expense whatever, such service being furnished by other city employees. Under the proper separation of accounts and the adoption of a uniform system, an entirely different situation, just to the city and to the plant management, would be revealed.

### RATES

The managements of the private companies and municipal plants establish rates in the first instance. Such rates are subject to revision by the commission, either on complaint or on the initiative of the commission. The commission has been endeavoring to elaborate the principles upon which just and reasonable rates should be based for all the different utilities, and in a considerable number of instances schedules have been prescribed in which these principles are discussed. Many more schedules are still under consideration, and the commission hopes that in the not distant future all the utilities operating within the State will make their rates in accordance with uniform principles representing the latest and best which scientific methods and scientific thought can contribute.

### SERVICE

With respect to service, the commission has put into effect a series of rules regulating gas and electric service. Other rules and regulations applicable to the other utilities may be adopted in the future.

### APPEAL TO COURTS

All orders of the commission are subject to appeal. Thus far, only three of the decisions under the railroad commission law have been taken into court, and no utilities deci-

\*Abstract of address read before the annual meeting of the National Municipal League, Pittsburg, Pa., on Nov. 19, 1908.

sions. Such appeal is taken first to the circuit court and then to the supreme court. The law provides that the record before the commission shall be the record before the court, and if new testimony should be introduced before the court, through such introduction and determination of the fact that it is new testimony a case is thrown automatically back before the commission for revision of the original determination on the basis of the new testimony.

One of the three railroad cases above referred to was finally determined by the Supreme Court of Wisconsin in an epoch-making decision handed down in June, 1908. This decision discusses the order of the commission under review; it analyzes and interprets the salient provisions of the statute creating the commission; it meets in the broadest and most progressive manner the arguments relating to constitutional limitations and the allegations regarding the exercise of legislative power by the commission; it brings into clear perspective the rights of the companies as well as the rights of the public; and in substance it declares that even though on the given facts the court might decide a case differently from what the commission does, if no errors of law have been committed, and the question is one regarding which reasonable and competent men might differ, the court will not set aside the order of the commission. In other words, the court may feel that the commission should have rendered an opposite decision, yet, within the limits of the law and discretion of the commission, it will sustain that decision.

So far as I know, this decision stands practically alone in this country in the breadth of the views expressed with respect to the regulation of public utilities and the extent of the support it gives to the administrative authority charged with that regulation. There were two concurring and one dissenting opinion.

#### COMMISSION AS A CLEARING HOUSE

Generally speaking, the information collected by the commission and the service performed by it and its staff have tended to make the office of the commission a clearing house between the public and private plants and municipalities. While the law expressly retains to the municipalities power to control the various kinds and character of service rendered and to be rendered, the power to prescribe conditions under which streets are to be used, extensions made, etc., an appeal lies in all such cases to the commission whether a municipal or private plant is involved. It has been the endeavor of the commission to co-operate with the local authorities and the companies along all these lines. The law has been in effect only a little more than a year and a half, but even now there exists a steady increase in the lines of communication between the local managements of private and municipal plants and city and village authorities and the commission. The information which has been collected and compiled by the commission is placed at the disposition of all citizens of the State in the most convenient form. The use of this information by local authorities and citizens has, in a number of instances, obviated the necessity of making complaints. In other instances, it has led to changes in the plant equipment and service.

#### RESULTS OF OPERATION OF THE LAW

In addition to reasonable rates and reasonably adequate service, among the results which the operation of the law has already shown and which the future may be expected to bring into evidence still more, may be mentioned the following:

1. The Wisconsin legislation has taken the utilities, as well as the railroads, out of politics. I do not believe that many citizens can be found in the State of Wisconsin who would seriously claim that in either the primary campaign or in the campaign preceding the present November elections the utilities, as such, had entered into politics. All students of municipal affairs well know that in this elimination of politics from the management of the utilities we have removed one of the greatest and most persistent sources of corruption and bad government.

2. The utilities law tends to eliminate feuds between the citizens and the managements of public and private plants. The law assures to all communities good service at reasonable rates. This is placed within the reach of all impar-

tially, whether the commission advances or lowers the rate. The basis of its findings is published in every instance. These published facts should suffice to convince, and I believe do convince the average citizen of the reasonableness and justice of the decision, if it is reasonable and just, and whether he likes it or not, he must abide by that decision. In this respect, cases affecting utilities are quite different from the most of the cases affecting railroads. In the case of utilities the controversy frequently degenerates into a bitter and partisan feud, affecting the entire population, which blinds both sides to a proper comprehension of the facts and to a sense of justice. Proceedings before the commission tend to clarify and educate public opinion.

3. The public utilities law raises the standard of morality through the eradication of the evil of discrimination and the protection of a reasonable rate. To those who are quite familiar with the past evils of discrimination in railway rates, the extent of the discriminations in the rates and service of utilities may be almost beyond comprehension. The whole State of Wisconsin was literally streaked and plastered with discrimination in the rates of utilities, and in all the rest of the country where the extent of such discriminations have not yet been determined, as they have been in Wisconsin, it is quite probable that discriminations similar in character and extent likewise exist. All rates, rules and regulations in effect in the State are on file with the commission, and these are the only rates and regulations which can be lawfully enforced and collected. Free and reduced rate service has been absolutely prohibited. Thousands of individuals had been receiving free and reduced rate service, and the eradication of all such rates cannot help but serve as a moral tonic and raise the level of public and private morality within the State.

4. The utilities law is working a revolution in business management. While some managements are doubtless models from a business point of view, they are not the general rule. Many of the utilities companies have not been operated on a business basis; in fact, it is probable that a good many of the managements did not have the remotest idea as to the exact standing from a business point of view of the plant they were operating. Uniform accounting rules governing the service and the regulation of rates compel the adoption of business and scientific methods, which is resulting in nothing short of a revolution in management.

5. All of the effects of the law, taken collectively, are bound to place investments in public utility enterprises on a more stable foundation. The law works both ways. On the one hand it protects the consumer against unjust and unreasonable rates and poor service, and on the other it protects the investor in his claim to a reasonable rate on the property which is devoted to public use. This legislation will probably remove public utility investments very greatly, if not entirely, from the field of speculation and place them in the class of conservative, certain and stable investments.

#### SHORT CUTS IN RAILWAY ENGINEERING

In the editorial on this subject published last week, dropped figures caused two typographical errors, which should be corrected. One was in the second paragraph, where, as the sense shows, the kilowatt capacity of substations required by cars taking one-half of their current from the substation was 1 kw per 4 hp, instead of 1 kw per hp as stated. The other was in the fourth paragraph, where the diameter of a No. 10 wire should have been stated as closely approximating 0.1 in. instead of 01 in., the decimal point between the figures being missing.

The electrification of the Italian State Railways has made such rapid strides that it has been decided to establish in Milan an office to deal exclusively with all matters relating to the electrification of the various lines. Resort will be had as much as possible to water power, as the Government is averse to the importation of foreign coal for the operation of steam power houses.



**PUBLISHING ACCIDENT REPORT FIGURES**

Since June, 1908, W. A. Satterlee, assistant general manager of the Metropolitan Street Railway, Kansas City, Mo., has had posted each month at all the car houses of the company a tabulation of the number of accidents reported each month. This tabulation also includes the percentage of increase or decrease in the number of accidents reported for each division. One of the reports, that comparing November, 1908 and 1907, is presented herewith and will serve to show how complete a statement is displayed before the car crews. It is interesting to note that the record shows a decrease of 27.5 per cent in the number of accidents reported in November, 1908, as against 1907, the total numbers for 1908 and 1907 being 880 and 638, respectively, a numerical decrease of 242.

During the past few months since these accident statements have been exhibited to the men there has been a decrease of 16.6 per cent in the average number of accidents reported. The company, of course, carefully observes the results of these accident bulletins and makes sure that the employees do not fail to report all accidents, no matter how trivial. The reports as shown are divided into operating divisions so the men at each car house can see how their results compare with those of other parts of the system. It is stated that some divisions have brought about a reduction for one month of 50 per cent in the number of accidents reported, and as shown on the accompanying report for November, but one of the 11 divisions shows an increase and that is small. When these accident records are distributed to the car houses Mr. Satterlee notes on the bottom of each suitable remarks which will serve to interest the men in maintaining a record as free from accidents as possible.

NOVEMBER, 1908 AND 1907.

Accident Reports.		1908.	1907.	Per cent of decrease.	Per cent of increase.
1.	Northeast Division (P.A.Y.E.).....	15	..	46	67.4
2.	Holmes Street Division.				
	Holmes Street .....	20	..	31	..
	Thirty-first Street .....	6	26	19	48
3.	Southwest Boulevard Division.				
	Southwest Boulevard .....	23	..	40	..
	Twenty-fourth Street .....	12	35	22	62
4.	Fifth Street Division.				
	Fifth Street .....	45	..	79	..
	Tenth Street .....	13	58	16	95
5.	Ninth and Washington Division.				
	Twelfth Street .....	44	..	51	..
	Broadway .....	6	..	16	..
	Roanoke .....	7	57	26	93
6.	Armourdale Division.				
	Armourdale .....	43	..	64	..
	Kansas Avenue .....	0	43	1	65
7.	Westport and Rockhill Division.				
	Westport and Rockhill.....	57	..	79	..
	Troost (P.A.Y.E.).....	40	..	45	..
	Race track.....	1	..	4	..
	Swope .....	0	..	2	..
	Dodson .....	0	98	0	130
8.	L Road Division.				
	L .....	49	..	62	..
	West Side .....	14	63	20	82
9.	Fifteenth Street Division.				
	Fifteenth Street .....	31	..	40	..
	Prospect .....	27	58	31	71
10.	K. C. and I. Division.				
	Independence Avenue .....	21	..	33	..
	East Ninth Street.....	17	..	17	..
	K. C. and I. ....	34	..	29	..
	Jackson and Hardesty.....	5	..	6	..
	Independence City .....	1	78	2	87
11.	Eighteenth Street Division.				
	Eighteenth Street .....	44	..	40	..
	Vine .....	24	..	30	..
	Brooklyn .....	26	..	21	..
	Twenty-seventh Street .....	0	94	1	92
	Shops and power houses.....	13	..	7	..
	Total .....	638	..	880	..

The lines of the Buenos Ayres-Lacroze Tramways Company, which were converted to electric traction in 1905, now consist of 38½ miles, of which 25½ miles are owned by the company, 4 miles owned jointly, and 9 miles are operated over the lines of several other companies.

**PROGRESS IN CONSIDERATION OF ELECTRIFICATION OF BOSTON STEAM TERMINALS**

An abstract of various sections of the fortieth annual report of the Massachusetts Board of Railroad Commissioners was published in the ELECTRIC RAILWAY JOURNAL of Jan. 9, 1909, page 70. The report contains also copies of letters addressed to the commission by steam railroad companies in response to an inquiry as to progress in the study of electrification, which was recommended by the board in its report of the previous year.

NEW YORK, NEW HAVEN & HARTFORD RAILROAD

Charles S. Mellen, president of the New York, New Haven & Hartford Railroad, said in his response:

Our company, as you are doubtless aware, has been operating its passenger trains partially by electricity for some time back, and wholly since July 1, 1908, between Stamford, Conn., and Grand Central Station, New York.

The work has been more or less of an experimental nature, as it is probably the largest venture in the way of electrical traction there is in the country; that is, in the magnitude of the business handled and for the distance.

We believe we are warranted in stating that our electrical installation is a success from the standpoint of handling the business in question efficiently, and with reasonable satisfaction, and we believe we have arrived at the point where we can truthfully say that the interruptions to our service are no greater nor more frequent at the present time than was the case when steam was in use.

But we are not prepared to state there is any economy in the substitution of electrical traction for steam, but, on the contrary, we believe the expense is very much greater.

You will appreciate that three or four months' successful operation of the trains of a standard railroad by electricity does not constitute in itself a sufficient test to warrant its extension or introduction elsewhere. The present service should stand the test not only of four summer months, but of a winter's operation as well. There may yet transpire many things that will need remedies to be applied, as there have thus far, to enable us to reach the present stage, and we should deplore any agitation looking to the further establishment of electrical traction upon other sections of our system until after we have had a full year's operation of our present installation.

We believe no mistake will be made by the public in waiting for a while longer for the installation of electric traction upon the railroads in the vicinity of Boston, for by such waiting the vexatious delays and embarrassments of experimentation will be avoided and the work and knowledge will have advanced to a stage that will result in a better installation in some respects and for a less outlay than has resulted from the pioneering in this system we have been obliged to indulge in on the west end of our lines.

For any technical detailed explanation of our system of electrical installation, the appliances used, the power house equipment and the motors, I shall be glad to refer you to our vice-president in charge, with instruction that he give you such information as you desire if you will advise me your wish for anything further.

BOSTON & ALBANY RAILROAD

An abstract of the letter of A. H. Smith, vice-president and general manager of the Boston & Albany road, follows:

This matter has been given considerable preliminary study during the present year, with a view of determining the cost of such installation and the operating results. The investigation has thus far been devoted principally to the (Newton and Brookline) circuit operation, which constitutes the major portion of the suburban service. In order that you may have full information of the physical and financial difficulties involved, I wish to submit some details which the investigation has thus far disclosed. The extent of the electrification considered \* \* \* embraces two tracks from the Boston terminal over the main line to Riverside, and a return over the Newton circuit.

The existing train schedules for the circuit and the

South Framingham service, together with the power station load for the service, have been calculated. The data indicate that a power station having a capacity of 6000 kw, composed of three units of 2000 kw each, will be required.

In considering a radical change of this character and its consequent large investment, it is deemed wise to anticipate that there will be some expansion in business, requiring an installation somewhat in excess of present traffic, which might possibly to some extent justify the expenditure, or which, on the other hand, might permit such expansion without a radical revision of the plant to meet such a contingency. This assumed increase in traffic consists substantially of trains at intervals of 10 minutes between the hours of 6:30 and 9:30 a. m. and 4:30 and 7:30 p. m., with trains substantially at 30 minutes for the remaining interval, except between 12:30 and 6:30 a. m., when 60 minutes' service is provided for. For this service a power station of 6000 kw would be adequate, with the addition of storage batteries to handle the peak load, which would probably be the more economical construction.

In considering the electrification of the circuit, it was thought desirable to consider that the power stations and substations were located at points which would permit of the ultimate electrification of the main line for a distance of several miles west of Boston, and the proper locations of power houses and substations and battery houses upon this assumption are submitted to the board.

The system considered is direct current and third-rail construction, similar to that adopted in the New York electric zone of the New York Central & Hudson River Railroad.

The equipment considered consists of steel cars about 60 ft. in length and of the usual construction for such purposes.

The estimated cost of the installation above outlined would be substantially as follows:

Power stations, substations, storage batteries, transmission and feeder system, third rails, track bonding, new signal system, rolling stock and contingencies, allowing credit for the value of steam engines and coaches.....	\$4,200,000
Storage basin to prevent tidal interference.....	15,000
Equipping subway in South station, including elimination of grade crossing .....	400,000
Miscellaneous changes in station platforms, etc.....	18,000
<b>Total .....</b>	<b>\$4,633,000</b>

The value of the present equipment is about \$750,000, for which an allowance is made above. In other words, there is a net capital increase of about \$4,600,000, and assuming 9 per cent interest, taxes and depreciation, the annual charges come to about \$400,000.

Some slight economies would accrue in the transportation expenses under this operation, which would be substantially absorbed by the additional expenses to be incurred for the maintenance of the additional apparatus installed, and the net economies would be so small as to be inappreciable in the consideration.

The gross revenue received from the proposed installation is about \$420,000, and the operating expenses, on a 75 per cent ratio, would be about \$315,000, which, added to the carrying charge of about \$400,000, requires an annual expenditure of about \$715,000 to secure a gross revenue of about \$420,000.

The number of passengers handled in the above territory per annum has not increased, on the whole, in the past 16 years, due, probably, somewhat to the fact that the circuit is occupied as a high-class residential district, not susceptible of rapid subdivision of property, and more particularly to the fact that suburban lines are being rapidly extended into all such outlying districts, and afford a more advantageous means of collecting and distributing local travel through the commercial and residential districts than could possibly be afforded by a railroad constructed and operated upon a private right of way and devoted largely to long-haul operations.

It would therefore seem wise, before adopting a policy requiring an expenditure which is not only unremunerative, but which would mean a large annual loss or radical increase in rates, that further investigations should be instituted, to see if some system might be devised to abate the nuisance complained of without jeopardy to the property, or without placing a large burden upon the public. The

rapid evolutions which are being made almost annually in electric traction may soon afford a solution, and the prospect of developing the steam locomotive itself is even more promising for the particular service which steam railroads have to perform.

In a statement in another section of the report, discussing especially the Boston & Albany situation, the commission concludes:

While certain evils which existed a year ago have been remedied, the board reiterates the conclusions in its last annual report that "the Boston & Albany Railroad must eventually make large expenditures of money in the way of improved terminal facilities, abolition of smoke nuisance and electrification of its suburban lines."

BOSTON, REVERE BEACH & LYNN RAILROAD

President Melvin O. Adams calls attention to firing restrictions on portions of his company's suburban lines, and refers to the testimony of G. M. Tompson as an expert before the board in the Boston & Eastern case, to the effect that it would be impracticable to electrify the Boston, Revere Beach & Lynn road at the present time.

BOSTON & MAINE RAILROAD

President Lucius Tuttle states that so far as he is able to ascertain, neither the New York Central road nor the New Haven company has determined that the experiment of electric traction is permanently successful, and "neither of them appears to be ready to advise other railroads to adopt electricity for general use in passenger and freight service, except, it may be, under conditions similar to those with which they have been obliged to deal." President Tuttle says that the Boston & Maine road has endeavored to keep in touch with this development, but has not yet been convinced that electric motive power can be wisely or economically substituted for steam locomotives upon any portions of its lines. The company burns coke in a large portion of its local passenger service, and suffers few complaints because of the smoke nuisance.

HIGHER FARES IN MASSACHUSETTS

The Springfield (Mass.) *Republican*, one of the leading newspapers in New England, said editorially in a recent issue:

Two of the street railway companies up the river are about to raise their units of fares from 5 cents to 6 cents. This is in accord with a tendency which was becoming quite general among interurban street lines around Boston before the panic. The costs of material and labor had then advanced so far as to disturb business calculations greatly. The panic resulted in a reversal of price tendencies and a much easier labor market; and it was to have been expected that little more would be heard of increasing charges by public service corporations. Nevertheless, here are the steam railroads of the country advancing freight rates all along the line, and now we have this resumption of the pre-panic movement toward higher charges on the part of our street railways.

It must be admitted on behalf of these corporations that the costs of operation and maintenance have been little reduced as a result of the panic and following business reaction. Prices for a while tended downward, but the movement was soon arrested, and lately the advance seems to have been resumed. We have never had a great panic, with the possible exception of that of 1857, whose liquidating and reactionary price effects have been so slight as those thus far experienced from the panic of last year. The reasons need not now be considered, but the fact is to be recognized. Complaint of the high cost of living for families is about as acute as before the panic, and what is true of the individual or family must be true of the corporations.

## RECOMMENDATIONS OF GOVERNORS TO THE LEGISLATURES

Many of the messages being presented to the Legislatures of the various States now convening contain recommendations regarding legislation affecting railroad interests, and several contain both references to, and recommendations regarding, the control of public utilities. Abstracts from the messages of the Governors of a number of States follow:

### GOVERNOR HUGHES, OF NEW YORK

The policy which the State has adopted for regulating its railroad and certain other public service corporations has been abundantly vindicated by the test of experience. It is obvious that if the State is to make serious attempt at regulating its public service corporations it must provide adequate machinery under general legislative authority for fair investigation and suitable redress of grievances according to their respective merits. Such amendments of the law as experience shows to be advisable to facilitate administration or to improve its provisions and more fully to carry out the intent of the statute should be supplied. I also renew my recommendation that the Public Service Commissions law should be extended to telegraph and telephone companies and that they should be brought under appropriate regulation as to rates, service and other matters similar to that which has been provided for corporations at present subject to the law.

The cost of new subways, the probable interest charges in case moneys for their construction were raised upon private credit, the liability of privately owned properties and franchises to taxation, the returns naturally expected by those who would engage in such enterprises solely for purposes of profit, together with the tendency to discourage additional lines in the view that this course may be of advantage to lines already existing, make it unlikely that we should be able in any event to obtain a proper measure of relief through the construction of subways by private capital, assuming, of course, that the established rate of fare (5 cents) be maintained. There may be exceptions in the cases of routes which would be regarded as aids to existing transportation lines.

The policy of construction at public expense is justified because of the importance of securing a comprehensive transit development with proper regard to the needs of the city as a whole and under conditions which, though safe and advantageous for the city, might not be regarded as attractive by individuals considering an investment solely for purposes of profit. Suitable transit lines are absolutely necessary means of intercommunication, and are as essential to the city's life as streets and bridges.

There would seem to be no unwisdom or prompting to extravagance in securing the measure of relief available through the adoption of the constitutional amendment with regard to the debt limit, which was approved at the last session of the Legislature. This relates to the exclusion from the computation of the debt limit of such improvements as will yield to the city a net revenue in excess of maintenance, interest and amortization charges. It also provides that any indebtedness heretofore incurred by the city for rapid transit or dock investment may be so excluded proportionately to the extent to which the current net revenue received by the city therefrom shall meet the interest and amortization instalments thereof, the increase in borrowing capacity resulting from the exclusion of such debts to be available only for rapid transit or dock purposes. The situation urgently calls for action, and I recommend that this amendment be agreed to so that it may be submitted to the people for adoption.

### GOVERNOR LILLEY, OF CONNECTICUT

No more important matter will be presented for your consideration than the report of the special commission named by the last General Assembly to prepare a public utilities act. The State, unable conveniently to furnish public utilities direct, has lent of its powers to ever-increasing classes of private agencies, that the people may benefit by the progress of invention and of utilization of natural resources. In regarding the highly beneficial results ob-

tained and the splendid development of the corporate agencies employed, we must not forget that it is the power of the whole community, acting through these agencies, which has produced such results and that with the powers granted there is a corresponding obligation to render adequate service without discrimination and to require therefor a compensation which will be reasonable.

The problem of safeguarding the grant of extraordinary power has become immensely complex. To select an agency and, having selected it, to compel a strict observance of the terms of the trust, these are the essentials of the problem.

The General Assembly meeting biennially cannot supervise public service corporations. The work is administrative rather than legislative. The bill provides for a uniform system of incorporation; for control of capitalization; for definition of territory for operation; for regulation of right of eminent domain and the right to use the public highways; for the safeguarding of construction and operation; for examination of financial condition in so far as may be necessary to maintain the standard; for a similar examination of the physical plant and for the regulation of rates. An appeal to the court is provided.

The bill, if enacted, will substantially abolish all special legislation. It will substantially abolish the lobby, for it places the granting of franchises and of extraordinary powers, subject to reasonable regulations, in a permanent commission whose decisions must be in writing and must specify the reasons therefor, whose members are subject to removal by the courts for cause, and whose grants of power must be in accordance with uniform and general rules. The bill provides for honest capitalization; it requires securities to be issued for cash only or for property found by the commission to be of equivalent value; it requires the proceeds of all securities to be honestly invested in the plant; it requires franchise rights to be used or surrendered; it prohibits condemnation except after a fair hearing; it provides for reasonable rates; it provides an efficient means for making repairs and changes in equipment necessary to the safety of the public and of employees; it recodifies, simplifies and renders uniform existing legislation. The powers of the commission are supervisory, not managerial, and should assure a continuous consistent policy. The General Assembly will retain its legislative functions undiminished.

This bill will furnish the foundation for a measure which I earnestly hope will be passed without delay. My views upon this matter have been frequently expressed in public and are well known.

### GOVERNOR STUART, OF PENNSYLVANIA

In accordance with the authority contained in the aforesaid Act of Assembly, I appointed the Honorable Nathaniel Ewing, Charles N. Mann and John Y. Boyd members of the Pennsylvania State Railroad Commission. So important a commission, new in the administration of the State Government, necessarily had much preliminary work. The history of 4298 companies, chartered by the Commonwealth, has been thoroughly searched, with the result that 1440 have been found to be in existence and exercising powers which bring them within the authority of the commission. These consist of railroad and street railway companies, with their subsidiary lines, and steamboat, telegraph, telephone, pipeline and canal companies. The commission receives from all public carriers daily reports of accidents and special telegraphic reports of all fatalities. A summary of these accidents provides a basis for the recommendation of preventive measures. The commission is co-operating with the Interstate Commerce Commission and the Railroad Commissions of other States for the purpose of framing a harmonious system of car-service rules, to be applicable to all interstate and intrastate business.

### GOVERNOR HANLY, OF INDIANA

I do not urge the enactment of a public utilities law, but if such a law is enacted it should be done by amending the present railroad commission law, extending the jurisdiction of the present commission to include public utilities, its authority in that behalf being carefully defined and the machinery for its execution supplied.

### GOVERNOR FERNALD, OF MAINE

The method in Maine long has been to tax railroads on

gross receipts; I have always believed in this method as scientific, practical and especially easy of application, since it is absolutely under the control of the Legislature. By means of it we show a greatly increased revenue from public service corporations in the past six years, and without the addition of extra machinery, we have it in our power to secure additional revenue. You will have before you a statement of the varying plans for the taxation of railroads and other public service corporations. I commend to you a study of the same.

GOVERNOR QUIMBY, OF NEW HAMPSHIRE

I especially commend to you that portion of the conclusions which suggests the levying of taxation upon public service corporations at the average rate of taxation existing throughout the State, computed exclusive of the taxes upon the capital of insurance companies and the deposits in savings banks; and I trust that a law embodying this principle will soon be presented to me.

The problem of the State's relation to its common carriers as then existing was met by the passage, in 1882, of the statute creating the present Board of Railroad Commissioners. Though but slightly amended in the meantime, this law proved upon examination to contain the essence, at least, of the necessary provisions of the widely-heralded legislation of recent years elsewhere. The spirit of the times, however, calls for the State's supervision over other public service agencies than the common carriers; and if such course is to be followed here I suggest that it be through a board created for that purpose or through adding to the present duties of the railroad commission the further function of exercising the power of regulation which the State possesses over all forms of public utilities.

GOVERNOR FORT, OF NEW JERSEY

The last session of the Legislature, through a disagreement between the two houses as to the terms of the act, failed to pass a public utilities bill such as public sentiment seemed to demand. On this subject I still adhere to the views expressed in detail in my inaugural address and in the special message sent to the Legislature on March 30, 1908. This commission can take the place of the present Railroad Commission appointed under the act approved May 15, 1907, and which act should then be repealed.

The point upon which the legislation failed at the last session seems to have been over the rate-making power. A bill without some control over rates, at least a correctional power as to them, would be of little, if any, more value than our present railroad commission act. The commission should have the power to revise and correct rates shown to be unreasonable, upon complaint and after hearing, subject to a review of any final order as to rates by the courts, with a provision for speedy hearing and determination on the appeal. The power which is now in the Court of Chancery to regulate grade crossings should also be transferred to this commission when appointed. Such a commission can work no harm to legitimate and properly managed public service corporations of any class. The people are entitled to the best service that such companies can give them, and the companies to the protection from unjust public criticism or unreasonable exactions.

An intelligent, conservative Board of Public Utilities Commissioners, with adequate powers, will strengthen public confidence in the securities of all such companies and prevent harm to any interests. There is absolutely no reason, not founded in cupidity, against a Public Utilities Commission.

City authorities in Baku, Russia, are inviting tenders for its electric railway concession with a 42-year term.

The only street car line owned and operated by the United States Government is at League Island Navy Yard, in Philadelphia. It boasts of one car and two motormen, and dispenses with the services of a conductor, as all travelers ride free. This car is run for the accommodation of the naval officers and their friends, and conveniently holds a score of passengers.

## LETTERS INDICATE STRAINED RELATIONS BETWEEN RECEIVERS AND COMMISSION OVER SERVICE ORDER

Correspondence between the receivers of the Metropolitan Street Railway of New York and the New York Public Service Commission, First District, which has just been made public, followed the issue of an order by the commission requiring increased service. The letters relate to an order of the commission prescribing the operation of additional cars on the Eighth Street crosstown line to the East Tenth Street ferry and across the Williamsburg bridge to Brooklyn. The letters of the receivers discuss their inability to comply with the terms of the order. Sharp criticism appears in the two letters of the receivers as well as in the reply of the commission:

FIRST LETTER OF THE RECEIVERS

The first letter sent by the receivers to the commission was dated Jan. 6, and is as follows:

We have received a copy of Final Order No. 1015, relating to the operation of the Eighth Street cross-town line to Brooklyn.

At the recent hearing on the proposed Fifty-ninth Street joint rate matter the testimony established beyond any doubt that the properties in our care, under the present method of operation, are earning substantially no return whatever upon the assessed valuations nor any amount approximating such a return. No testimony was offered to the contrary. It was reasonably expected by us that the facts thus developed would receive fair consideration by you and would effect some change in the attitude you had theretofore maintained toward the Metropolitan Street Railway property; but statements which appeared in the public press on Dec. 30, 1908, purporting to come from your commission, show beyond question that you either fail to appreciate the actual situation or are bent upon making orders which you must know are practically confiscatory in their character.

You certainly must understand that these roads cannot continue to be operated in a satisfactory manner without the expenditure of large sums of money in excess of the revenue which they now yield. We know of no method of obtaining the necessary funds except by resorting to the financial markets of the country and availing of money seeking safe investment. Your policy of oppression, maintained and persisted in, notwithstanding the indisputable evidence submitted to you, constitute such a menace that any attempt on our part to procure the requisite cash to enable us to carry on operations successfully would be utterly futile. If you intend that orders of the character of those you have issued with reference to the Eighth Street line shall be complied with, you must point out to us some practical method of raising the necessary funds.

The fact that you are now making an appraisal of this property would seem to be a concession that the data at your command were insufficient to afford a basis for intelligent orders involving expenditure. Nevertheless, you are continuing to issue such orders requiring large capital expenditures and a great increase in operating expenses; and this you are doing notwithstanding the repeated protests of those acquainted with facts which you apparently refuse to admit, although unable to disprove.

Your orders with reference to the Brooklyn and East Tenth Street ferry branches of the Eighth Street cross-town line make necessary the addition of between 25 and 30 car units, representing an outlay of from \$375,000 to \$450,000, to say nothing of additional operating expenses, estimated to amount to over \$100,000 a year.

In our letter to you of Dec. 14, 1908, we told you that we did not have sufficient cars to operate the schedule you suggested without robbing other lines of equipment. It is true that we expect to receive 127 new cars during the winter, but in ordinary course only a small part of the additional equipment thus at our disposal would be allotted to the Eighth Street cross-town line. Furthermore, the acquisition of this number of new cars does not necessarily mean a corresponding increase in our available equipment. They are needed to a great extent to replace old cars which it is no longer good business judgment to continue in operation and which must necessarily be soon retired from service. The transportation requirements, taken as a whole, will not justify the assignment to the Eighth Street cross-town line of so many additional cars as your orders require; on the contrary, it is our judgment, based

upon a study of the situation as a whole, that when an equitable distribution of equipment is made upon receipt of the new cars, the demands of the service on lines other than Eighth Street will require the assignment to them of all the extra cars available. We do not intend to place any additional orders for cars, and even had such been our plan, your course would have rendered it impossible of accomplishment.

The requirements of your Final Orders Nos. 1015 and 1016 unquestionably seem to make it unprofitable for the receivers to continue to operate the property of the Central Cross-town Railroad, which includes the Eighth Street crosstown line. We are at present operating this property under a temporary agreement, expiring April 30, 1909, which relieves us from the necessity of paying the sum of \$22,500 quarterly as part of the stipulated rental under the terms of the lease.

The result of our former investigation, when orders pertaining to this line were issued by you last spring, and the decrease in travel on the line under consideration, due to the operation of the Hudson Tunnels, has led us to consider the advisability of asking the court which appointed us for instructions in the matter of continuing to operate the property of the Central Cross-town Railroad. The additional burden which compliance with your Final Orders Nos. 1015 and 1016 will involve increases the possibility that we shall be obliged to take this course. In the event of such cessation of operation by us, the abolition of the exchange of transfers between the various lines involved will be thereby entailed; but, of course, you will assume the responsibility for whatever line of action it is necessary for us to adopt as a logical sequence of your orders.

According to our interpretation of the provisions of Final Order No. 1015, it does not apply directly to the service across the Williamsburg bridge, but in the event of our ceasing to operate the Central crosstown lines, in all probability there will be a very great curtailment of the service to Brooklyn, and possibly such service will be discontinued altogether on the lines which we are now operating across the Williamsburg bridge.

We hope that in view of the facts above pointed out you may see fit to make some modification of your Final Orders Nos. 1015 and 1016. If, however, you insist upon putting them into effect without any modification, we shall be glad if you will indicate from what other lines the cars are to be withdrawn in order that we may comply with the orders regarding the Eighth Street cross-town line. It seems only fair that if you are bent upon demonstrating to the public the superiority of your judgment and the breadth of your knowledge of practical railroading, you should assume the responsibility for the results. Upon being advised of your wishes we will at once take steps to make the necessary changes, providing the feeder cables will carry the additional load. If we do not hear from you by Jan. 11 in this regard we will withdraw cars from other lines as may be most expedient in our judgment and put them on the Eighth Street line.

#### REPLY OF THE COMMISSION

The reply of the commission, signed by the chairman, William R. Willcox, and dated Jan. 11, is as follows:

On behalf of the commission, I beg to acknowledge your letter of Jan. 6, criticising the commission for issuing orders requiring you to provide adequate service upon lines under your control, and calling this a "policy of oppression maintained and persisted in." Permit me to call your attention to certain facts which apparently have not received the attention from you they deserve:

The law of this State requires every street railway corporation to provide adequate service. You are receivers acting under the directions of a judge of the United States Circuit Court. Nevertheless, the statutes of the State of New York are binding upon you and must be obeyed.

The statutes also provide that the Public Service Commission shall decide whether the service you give is adequate or inadequate, and that if the service is considered inadequate, the commission shall determine what service shall be rendered. This is a duty placed upon this commission by the Legislature, and this commission intends to continue to perform its duty. Your letter virtually suggests that we suspend the operation of the law, which we have no authority or desire to do.

The orders to which you object, about as strenuously as the public needs them, were issued in compliance of these provisions of law. The orders requiring better service upon the Eighth Street lines, which you specially oppose, were particularly needed. For example, the evidence taken at the hearings shows that the average number of passengers per car passing the point of observation upon the day of

inspection, from 5:30 to 6:30 p. m., was 77, and that many cars carried a much greater number. The seating capacity of the cars was about 27. Consequently, upon an average, every car carried 50 persons standing, or nearly three times as many passengers as there were seats. Is it surprising that the Eighth Street lines are said to be the most congested lines in the city? That the cars are often crowded to the point of indecency, not to mention discomfort, can be conclusively shown to anyone who will inspect the cars. Yet you object to orders which require you to run from 20 to 30 more cars, and intimate that if you are required to do so, you will disrupt the system.

Permit me to call your attention to several other pertinent facts: This matter of service upon the Eighth Street lines was first taken up last April. Inspection showed that the many complaints received at this office were justified. On May 1, 1908, an order was issued for a hearing on May 14, and notice was duly served upon you. A day or two before this hearing was to have been held you wrote to the commission asking for an adjournment, to enable you to investigate the subject. On May 14 the hearing was adjourned until May 22, followed by other adjournments until June 3, at which time evidence was taken, showing great overcrowding, the need for additional service and the possibility of running more cars. In the meantime, you had sent to this commission, under date of May 27, a letter requesting that the proposed orders be not issued, and stating that improvements would be made. As a result the hearings were adjourned and final action postponed.

In November, our inspectors again examined and reported upon the service on the Eighth Street lines. This inspection showed that the overcrowding was practically as great as it had been seven months previous, and that the postponement you had urged had been productive of no appreciable relief to the patrons of the Eighth Street lines. It seemed to the commission time to order an improvement in the service which you had not provided voluntarily even after eight months' notice. Accordingly, orders for hearings were passed and notices sent you. The hearings were held, new evidence was taken, and orders were adopted Dec. 29.

Perhaps you may be interested to know that the records of the cases show that 12 hearings were held altogether, at none of which did you appear, or anyone representing you, to contradict the evidence taken, or intimate in any way that there was no need for improved service. They also show that at no time have you, either personally or by letter, indicated that the standard of adequacy adopted in these orders is improper, unjust or unfair. As a matter of fact, the commission held an informal conference with the operating officials of the various roads at which it invited their suggestions as to the proper standard of adequacy, and the present orders are in harmony with suggestions made by your own general manager as to the standard of adequacy. However, if all of the facts known to you were not placed before the commission at the hearings duly held, you alone are to blame for your failure to appear and take advantage of the opportunity afforded you.

You state in your letter that you have not cars enough to give adequate service. Yet you have known of the needs of the Eighth Street lines for eight months to our positive knowledge, and if your organization is efficient, you must have known of it for many months more. You certainly knew of it last August when you agreed to rent 40 cars to a separate and independent company. Yet the orders to become effective upon Jan. 18 would require only 20 or 30 cars more than have been operated.

You must be aware that the laws of this State require that every street railroad corporation shall have sufficient cars and motive power to meet all the requirements which may reasonably be anticipated, unless relieved therefrom by order of this commission. This is binding upon you, although you are Federal receivers. No application has ever been received from you asking to be relieved from the obligations imposed by statute. It is, therefore, incumbent upon you to provide sufficient equipment and property to render adequate service. This you have not done admittedly, and you say in your letter, "we do not intend to place any additional orders for cars." This statement appears to be a flat refusal to obey the laws of the State of New York.

The commission notes with astonishment the veiled threat in your letter that, if this commission insists upon compliance with the statute and with the orders of this commission, you will continue your policy of breaking up the street railroad system of Manhattan into small sections. Neither this statement nor any similar one will induce this commission to disregard the law or knowingly allow anyone else wilfully to do so. In carrying out the policy of disruption, you may be within your legal rights, provided the United States Court is willing to assume the responsibility for your acts, but you cannot shift the responsibility there-

for upon this commission. If you insist, as a reply to the orders of the commission requiring you to obey the law, that the public shall be still further inconvenienced and injured, this commission will exercise every power that it has to prevent this result. The law can be obeyed without the harmful results which you threaten to bring about, and if you adopt the policy you suggest, when there are other ways open to you, you alone are responsible. Ordinarily, when a company cannot obey the law, the suggestion is made that it withdraw, surrender its franchise, or allow others to manage its affairs.

Another ominous statement in your letter is that if this commission persists in its "policy of oppression," i. e., requiring adequate service, you will take cars from other lines and otherwise decrease the service you are rendering to sections of the city for which no orders of this commission have been issued. This commission wishes it definitely understood that this is not only inadvisable, but plainly in violation of the statute. Inspections will be made from time to time to determine whether you are carrying out this plan, and proceedings will be begun immediately to order the service needed upon all lines. If compliance is not had with these orders, proceedings will be begun in the courts to enforce penalties.

You refer to the appraisal being made by this commission of the property under your control as a reason why orders for adequate service should not be issued. The law recognizes no such excuse, and this commission has never entered into any understanding with you that the commission would suspend the law or stop the issuance of orders for improved service. You object to "interference" in your affairs by this commission and ask to be allowed to do as you please. Compliance with the requirements of the statutes would have made it unnecessary for this commission to issue the many orders it has found necessary to issue; continued non-compliance will force us to continue.

#### SECOND LETTER OF THE RECEIVERS

The receivers of the Metropolitan Street Railway addressed a second letter to the commission, in reply to the foregoing, dated Jan. 12. This letter follows:

The letter of your chairman, written on your behalf, dated on the 9th instant and received by us on the 11th, seems to require but a brief reply.

So far as we know, no one has disputed the proposition stated by you, to the effect that while we are receivers acting under the directions of a judge of the United States Circuit Court, the statutes of the State of New York are binding upon us and must be obeyed. If you will refer to our letter to you of Aug. 24, 1908, you will see that we then told you plainly that suggestions to the effect that because we were appointed by a Federal Court we considered ourselves not amenable to State control were wholly unwarranted.

You seem to overlook the fact, however, that the receivers have no personal or individual interest in the properties under their charge, but that they are only trustees for the owners, endeavoring to perform their duties efficiently and conscientiously and to the best of their ability under the directions of the circuit court of the United States.

Suggestions or insinuations on your part that we have either violated the law in the past or intend to do so in the future, are utterly without foundation. We are rendering the best service in our power, and neither the orders of your commission nor the statutes of the State of New York can require us to do anything more.

Your suggestion that when a company cannot obey a law, it should withdraw, surrender its franchise or allow others to manage its affairs, is singularly futile. The law does not confer upon your commission or upon anyone else the power to deprive the creditors of this company of their security or to compel them to sacrifice their investments because of some arbitrary views on your part with respect to what constitutes adequate service. Fortunately, there are tribunals which consider evidence, have regard for existing facts, and are guided by the settled rules of law. If you undertake to destroy the value of the property in our charge, we will, of course, resist you by every lawful means in our power.

As to the matter of non-appearance before your commission upon the hearings, you may possibly remember that at an early stage of the case we were directed by the court not to appear but to furnish you with any and all information which you might require. This we have done to the fullest extent.

With regard to your criticism respecting the leasing by us to the belt road of a few cars, we beg to say that our sole object in letting them have these cars was to obviate any inconvenience to the public which might arise from even a temporary cessation of the operation of the belt

line. It was of no advantage to us to rent these cars and we were actuated entirely by a regard for the public. It seems to us that our action in this respect should receive your commendation in view of your expressed concern in regard to the public welfare.

Your reference to "threats" is without justification. We make no "threats," but simply tell you what is certain to come to pass if you persist in the policy which you have adopted. You have wholly failed to meet any material assertions or suggestions made by us in our letter to you, and we are therefore justified in assuming that you are unable to answer them.

We shall continue to do the best we can in spite of the difficulties which you insist upon interposing.

#### LETTER TO THE BELT LINE

The receivers of the Metropolitan Street Railway addressed a letter on the same date to the Central Park, North & East River Railroad. This letter is as follows:

In the agreement of Aug. 5, 1908, providing for the renting to you by us of not to exceed 40 electric passenger cars, and also an electric snow sweeper and an electric sand car, it is provided that the arrangement may be terminated upon two weeks' notice by either party.

Recent communications received by us from the Public Service Commission call for an increase of service this winter which may require us to ask for the return of the cars which we are now renting to you. The commission intimates that we should use these cars on our own lines instead of leasing them to an independent road.

As you know, our only object in permitting you to have these cars was to obviate the inconvenience which would have been occasioned to the public by even a temporary cessation of the operation of electric cars on your Fifty-ninth Street line. The Public Service Commission does not seem to appreciate this, and while its implied criticism is wholly without merit, the fact remains that a condition of affairs may arise when we shall need these cars for our own service, and we desire to give you this notice of the possibility that we may have to avail ourselves of the cancellation clause of the contract, so that you may be governed accordingly.

#### NEW TIMETABLE OF THE SOUTH SHORE ROUTE

The Chicago, Lake Shore & South Bend Railway, H. U. Wallace, general manager, Michigan City, Ind., has recently issued a new timetable for the general information of those who wish to travel between South Bend, Ind., and the business district of Chicago, or any intermediate points on the new electric route between these terminals. The Chicago, Lake Shore & South Bend line is now in operation from South Bend, Ind., to Hammond on the Illinois-Indiana State line, a distance of 69 miles. From Hammond to Kensington, a station on the Illinois Central Railroad, the roadbed for the electric line is practically completed. It is the plan to handle the traffic between Kensington and Randolph Street, in Chicago, over the suburban tracks of the Illinois Central Railroad. At present, however, the electric service between South Bend and Hammond makes connection at Hammond with the steam suburban service of the Lake Shore & Michigan Southern Railway. From the La Salle Street terminal of the Lake Shore Railroad 18 trains a day make close connections with the electric trains at Hammond and Gary. The running time over the steam suburban route to the connecting point with the electric line is about an hour, and the running time of the limited trains over the new electric line from Hammond to South Bend, 69 miles, is two hours. Thus the combination of services will carry the passenger between the business district of Chicago and South Bend, 91 miles, in three hours' running time. The new folder of the "South Shore" route contains not only the usual complete timetable, but also the time of connecting trains to and from the present terminus in Chicago. The rates of fare are about 2 cents per mile. The new folder contains a map of the territory served by the road and its connections into Chicago.

## COMMUNICATIONS

### ACCIDENT FAKING IN THE SOUTHWEST

OKLAHOMA RAILWAY COMPANY

OKLAHOMA CITY, OKLA., Jan. 7, 1909.

To the Editors:

Some time ago a party was apparently injured on one of our cars by reason of one of the incandescent lamps breaking and a piece of glass getting in his eye. Our claim agent settled with him, and we heard nothing more from him until recently, when he appeared at Guthrie, at which point I am interested in the street railway.

He was detected in the act of unscrewing one of the lamps, with the evident intention of having it fall and strike him. In fact, he did claim to have been injured on one of our cars, but on examination nothing could be found the matter with his eye. From his actions it is believed that he is making a habit of getting hurt on street cars. It might be well for other companies in this section to look out for this party.

ANTON H. CLASSEN.

### INCREASES OF FARES

MILFORD & UXBRIDGE STREET RAILWAY,

MILFORD, MASS., Dec. 26, 1908.

To the Editors:

In my opinion the larger part of the railways in Massachusetts are carrying passengers for too low a fare and something will have to be done to remedy it. I do not see how receipts can be increased to any extent, and employees are not being paid any more than they should receive. It seems to me that the only thing to do is to raise the fare, making the unit 6 cents instead of 5 cents.

W. L. ADAMS,  
Superintendent.

NORFOLK & BRISTOL STREET RAILWAY,

FOXBORO, MASS., Dec. 22, 1908.

To the Editors:

Our fares have not been increased as yet and therefore we cannot give you any information of interest at this time concerning this matter. We believe, however, that the time has arrived when street railway companies must do something to get their receipts high enough to meet the increased cost of labor and material and leave a fair return for the money invested; and if there is no other way to do this the fares must be increased.

F. M. PERRY,  
Superintendent.

BOSTON, MASS., Jan. 12, 1909.

To the Editors:

It is very gratifying to have an analysis of the conditions which have led, in the Commonwealth of Massachusetts, to increase of fares on some of the street railways. The writer is heartily in sympathy with your belief that such increase is in certain cases necessary and in accord with sound public policy. He therefore takes this opportunity of begging you to explain fully to the public the origin of the financial difficulties of the lines which need a charitable nickel in the contribution box. The public in this commonwealth is pretty apt to give the honest investor a square deal. Before it taxes itself, however, to pay dividends on a losing proposition it naturally wants to make sure that the investors were really unfortunate and not that the companies were overcapitalized.

It seems to be now quite certain that our American one-

fare system inaugurated in the boom days of 20 or 25 years ago has simply reached its natural limitations. It was to a certain extent a huge bluff, based on the theory of general averages which worked well for a while, like the fraternal insurance of about the same period, but carried nevertheless the intrinsic certainty of ultimate failure. It is perfectly safe to say to the passenger: "Why certainly we'll carry you to about any place you want to go for a nickel," provided that on the average the prospective passenger doesn't want to go very far. Then if occasionally he should really want to take a long ride, the loss would be more than compensated by the score of chaps who ride only a few blocks. There are routes in the vicinity of Boston on which the end-to-end fare is less than *one mill* per mile. But as a city grows and the street-car system about it develops it is the almost inevitable result that the average ride will lengthen and the proportional cost per passenger will run up. Yet so great is the bulk of travel that most roads continue prosperous in spite of this fact, provided they get a reasonable amount of the short-distance traffic. The roads on the despair list are almost without exceptions those running in a territory that does not yield the short-distance ride to any material extent. In other words, they are roads which never had any right to assume the condition of averages which alone justifies a straight 5-cent fare.

Just how far the public is likely to go in taxing itself to save unwise promoters and investors from the consequences of their rashness remains to be seen—it will certainly be no great distance if demands for increased fare become common or are made by roads that are not absolutely clear from even the suspicion of overcapitalization. For such cases the best thing for the public is to let them go under the hammer to some one who buys low enough to bring the fixed charges within reason.

But there is certainly a class of roads which is in every way deserving of the helping hand. Such roads are commonly those which are fundamentally cross-country or inter-suburban roads, built in the reasonable hope that traffic would follow the trolley, a maxim that has proved true in a multitude of cases. Such a road, however, perhaps from no general error of judgment, but from a complication of causes, has played in hard luck and finds the receipts too small to pay its legitimate expenses. It borrows and borrows more, in hope of pulling through to more prosperous times, often skimps painfully and unwisely, as, for example, by cutting down a service already too infrequent for reasonable earnings, and finally bankruptcy stares it in the face. Now all this time it has been doing good to the community and trying to build it up, and it is safe to say has increased property values all along the line. It is better for the community to lend a hand and cheerfully concede an increased fare than to have the plant actually abandoned, and such help is very likely to be extended in any deserving case.

ENGINEER.

The municipality of Moscow, Russia, has been authorized to contract a loan of 9,000,000 rubles to be used in building electric railways.

The substitution of electric for steam traction on the Cherbourg railway lines has been approved by the French Government.

The Tramway Company of Constantinople, it is said, will electrify its lines shortly, and has placed its contracts in France.

# News of Electric Railways

## Annual Meetings of the Central Electric Railway and the Central Electric Traffic Associations

The third annual meeting and election of officers of the Central Electric Railway Association will be held at the Claypool Hotel, Indianapolis, Ind., on Jan. 28, 1909. Members and invited guests from Ohio, Kentucky, Indiana and Michigan have signified their intention to be present and, as the meeting is the last one of the year, the prospects are good for an unusually large attendance. All managers have been asked to request the heads of their departments to take part in the various discussions. The Supply Men's committee requests that each member of that department wear his button at the meeting. The office of the secretary, in the Traction Terminal Building, Indianapolis, will be open to members and their friends while in the city. The annual meeting of the Central Electric Traffic Association will be held at the Claypool Hotel on Jan. 27, the day preceding the meeting of the Central Electric Railway Association. The program of the meeting of the Central Electric Railway Association follows:

### MORNING SESSION, JAN. 28, 1909

10:00 a. m.—Business session.

11:00 a. m.—“The Luminous Arc Headlight,” by W. S. Culver, engineer, General Electric Company, Cincinnati, Ohio.

12 m.—Adjournment for lunch.

### AFTERNOON SESSION

1:30 p. m.—“The Proper Inspection of Equipment,” by W. E. Rolston, superintendent of power and shops, Cleveland, Southwestern & Columbus Railway, Elyria, Ohio.

2:30 p. m.—“The Practicability of Light and Power for Electric Railway Transmission Circuits,” by G. H. Kelsay, superintendent of power, Indiana Union Traction Company, Anderson, Ind.

3:30 p. m.—Remarks by the president. Election of officers.

## Judge Tayler Outlines Terms Necessary to Attract Capital in Cleveland

In a letter to the receivers of the Municipal Traction Company, Cleveland, on Jan. 13, Judge Tayler expressed the opinion that any franchise granted for street railway operation in Cleveland should provide for a fare that shall yield 6 per cent on the stock above operating and fixed charges and that the people should have the benefit of any surplus above this amount in reduced fare. He says that a franchise providing for a return of this kind should attract the capital necessary for extensions and improvements.

On Jan. 11 the receivers of the Municipal Traction Company, Cleveland, filed with the United States Circuit Court reports of the Municipal Traction Company for the first 12 days of November, when the properties were still under the management of the Municipal Traction Company, and for the remainder of the month after the court took charge. These reports follow:

NOV. 1 TO 12 INCLUSIVE	
Gross earnings	\$151,338
Operating expenses	117,238
Net earnings	34,100
Miscellaneous income	1,332
Gross income, less operating expenses	35,432
Taxes	8,813
Income, less operating expenses and taxes	26,619
Interest	16,110
Net income	10,509
Cleveland Railway rental	29,351
Deficit	\$18,842
NOV. 13 TO 30 INCLUSIVE	
Gross earnings	\$227,035
Operating expenses	165,552
Net earnings	61,483
Miscellaneous income	1,120
Gross income less operating expenses	62,603
Taxes	13,221
Income, less operating expenses and taxes	49,382
Interest and other deductions	24,424
Net income	24,958
Cleveland Railway rental	44,027
Deficit	\$19,069

The receivers state that Auditor Tanner, who prepared the report for the first 12 days, omitted certain items that should have been distributed in former reports or given as a total in the final report. When Mr. Tanner's attention was called to this, he stated that he had taken the matter up with the officers of the company and that the decision had been reached not to include them in the report. The items named are: Balance charged to loss on “Municipal day,” when no fare was charged, \$3,200; Cleveland Railway organization expenses, \$5,333; uniforms for motormen and conductors, \$18,487. In addition, the receivers believe that the following should be charged in the report: Cleveland, Painesville & Eastern Railway rental, \$4,197; Northern Ohio Traction & Light Company rental, \$157; petty cash to be accounted for by F. C. Alber, \$3,500.

In a letter to Mayor Tom L. Johnson, made public on Jan. 9, in answer to arguments made recently by the Mayor in interviews with Warren Bicknell and F. A. Scott, receivers of the Municipal Traction Company, and Judge Tayler, the receivers state that the figures obtained through the operation of the company make it plain that an increase of fare is necessary at once if satisfactory service is to be maintained in Cleveland. Notwithstanding the contention of the Mayor that the present service is in excess of the traffic requirements, the receivers state that the public is entitled to a system of operation that will enable it to travel in reasonable comfort at all hours, and that such service cannot be operated at a fare of 3 cents. They also express themselves as being opposed to the zone system and say that the suburbs must have the same fare as the city. The receivers evidently feel that the Mayor can enable them to operate with a uniform rate that will result in returns sufficient to avoid further deficits, without compromising himself or his policies; but if he does not see the matter in that light, the only thing left them is to operate at the various rates provided in the original franchises—3 cents on the Forest City Railway without transfers, and 5 cents or 11 tickets for 50 cents on the Cleveland Electric Railway. The rate on the Woodland Avenue and West Side lines would probably have to be fixed by a legal decision, as authorities disagree as to the time the franchises of the Cleveland Electric Railway expire. The letter in part, dated Jan. 4, follows:

“Careful consideration has been given to the questions suggested by you at the conference between you and the undersigned receivers on Dec. 26, 1908, which questions are as follows:

“What is the (1)—Loss by interurban service for the year and for the month of January, 1909?

“(2)—Loss in East Cleveland, Lakewood (Detroit and boulevard), Corlett, South Brooklyn, Euclid Beach, Newburg and Kinsman and Woodland extension by reason of 3-cent fare, as against 5-cent fare or 11 tickets for a half-dollar, by the year and for the month of January, 1909?

“(3)—Loss on the lines whose receipts are less than a sum sufficient to pay operating expenses without rental—each line by the year and for the month of January, 1909?

“(4)—Loss on the lines whose receipts are less than a sum sufficient to pay operating expenses when rental is charged—each line by the year and for the month of January, 1909?

“In reply to the first question, a careful investigation has been made of the cost of interurban service, and the receivers find that while there is some loss, the amount is not so considerable as to affect materially a possible rate of fare. In any event, the interurban cars are being operated under a contract which was made years ago by the Cleveland Electric Railway and its predecessors, and which contract was honored and its terms lived up to by the Municipal Traction Company during its operation of the lines.

“Particular attention has been given to your questions two, three and four, dealing first with the possible loss in carrying passengers at a 3-cent fare to suburbs, such as Kinsman and Woodland extension, Newburg, South Brooklyn, Corlett, Detroit Avenue and Clifton Boulevard, Lakewood, East Cleveland and Euclid Beach, and second, with the loss on certain lines, the receipts of which may be less than a sum sufficient to pay operating expenses without rental; and third, with the loss on lines, the receipts of which may be less than a sum sufficient to pay operating expenses after rent is charged.

“The figures already obtained through the operation by the Municipal Traction Company and the receivers make it clear that a 3-cent rate of fare has not been sufficient to pay the cost of operation and charges.

“Further analyses of these results are now being pre-



pared, and will be made public when completed, but the present daily loss, and the consequent necessity for immediate consideration of the question as to rate of fare, create an emergency requiring immediate action.

"The questions suggested to you, numbered 2, 3 and 4, relate to the results of operation, but they go much farther than this, for they involve two primary questions:

"First—Whether the street railways of Cleveland are to be operated and dealt with as one system, on which a uniform rate of fare shall prevail; or whether the city shall be divided against itself by the operation of separate lines at different rates of fare? Second—Whether the service on the street car lines shall be such as is needed to reasonably accommodate the people, and the rate of fare such as will pay the necessary charges for providing the service; or whether the rate of fare shall be an arbitrary amount fixed in advance, and the service only so much as can be given without loss for such a rate of fare?

"The next and equally important point which your questions involve is, whether there shall be a uniform rate throughout the city, as it now exists, which of course must include such suburbs as Brooklyn, Corlett, Lakewood, Newburg, Kinsman and Woodland extension, South Brooklyn, Collinwood and East Cleveland, or whether the rate of fare shall be graduated by the distance traveled and so produce a zone system.

"On all of these propositions it is the judgment of the receivers that the people of this city desire:

"First—Good service on all the lines now in operation, at such reasonable rate of fare as will pay the reasonable charges for furnishing the service.

"Second—The operation of the street railways as one system, so that citizens who use the cars may receive the same treatment and be required to pay the same rate of fare on one line as on another, and so that those riding on Woodland Avenue S. E., Broadway or St. Clair Avenue N. E., or any other lines shall not be required to pay a higher rate of fare than those riding on Euclid and Cedar or some other line on which the cost of hauling passengers may prove to be a little lower.

"Third—That those citizens who have moved into the suburbs of Cleveland and have built homes there and who have so established themselves in the belief that the character of the car service and the rate of fare would be substantially as they have been during recent years, the vast majority of whom are employed or do business within the limits of the city proper, and all of whom are contributors to the welfare of this community, and within the next few years will become actual citizens by the extension of the limits of the city proper, shall receive the same consideration as those who are at the moment actually residing within the limits of Cleveland.

"Fourth—That nothing should be done tending to create a zone system, thus encouraging a congestion of population.

"It is, therefore, the judgment of the receivers that these various questions resolve themselves into a single one, namely, at what rate of fare can passengers be carried on the lines of the present system of street railways with such service as is necessary to meet the needs of the people?

"The reports of the Municipal Traction Company from April 27 to Nov. 12, and the report of the receivers, giving the results of their operation during the last 18 days of November, make it clear that a 3-cent rate of fare will not pay the cost of adequate service.

"Unless the service be cut down to such a degree that it will fall far short of accommodating the people, an immediate increase in the rate of fare must be made. If an increase be made under existing conditions, and without some action on the part of the City Council, there would appear to be no course open to the receivers other than to apply to the court for permission and authority to establish such rates of fare as are authorized by existing franchises on the several lines.

"The receivers would be forced into this position with the utmost reluctance, as it necessarily involves much confusion and inconvenience to the public."

#### Plans for Chicago Subway

John Ericson, city engineer and head of the subway bureau of Chicago, transmitted the preface to an elaborate report on subways for Chicago to the chairman of the transportation committee of the City Council on Jan. 6. The main report will be a volume of several hundred pages and its publication is announced for March. It is pointed out in the preface that a double-deck subway would be too expensive and would entail too many considerations in the way of disturbing present underground structures and building foundations to be practicable. A suggestion is

made of a trial design of subway structure running through the loop district in Wabash Avenue, with four lines of track, two for the elevated railroads and two for the surface railways. The capacity is figured at 18,000 passengers an hour in each direction on the tracks used by the surface railways and 25,000 an hour in each direction on the tracks given over to the elevated railways. The total is 86,000 passengers an hour in both directions, which approximates the combined elevated traffic or the combined surface traffic in the loop district in its present congested state. In other words, the subway as outlined in this one street would add 50 per cent to the city's local transportation lines.

According to the report the movement of surface cars has practically reached its maximum at the times of congestion. Twenty-five double-track lines is the present limit to the south as the streets exist. Fifteen such double-track lines are in existence, with six elevated tracks leading to the south and southwest. All these outlets have not less than one-third the capacity of a double-track subway outlet. The demands of future transportation make it necessary to conserve all these street outlets for surface lines in addition to the subways. The cost of construction should not be so great as to prevent a reasonably available revenue each year, and for that reason the annual construction expenditures should be between \$3,000,000 and \$5,000,000. The report advises little change in the present Illinois tunnel. Some modifications will be needed, but no sweeping changes. The top of the present tunnel, except at the river crossings, is below the level contemplated for the subways.

#### Wisconsin Electric & Interurban Railway Association.

Clement C. Smith, president of the Wisconsin Electric & Interurban Railway Association, has called a meeting of the association for executive session to be held at Milwaukee on Wednesday morning, Jan. 20. The association will also hold a meeting at Oshkosh on Feb. 1, at which a number of papers on operating topics will be presented.

#### Northwestern Electric Association.

A meeting of the Northwestern Electrical Association will be held at Milwaukee on Jan. 21. In the morning the members of the association will visit the West Allis shops of the Allis-Chalmers Company. The afternoon will be devoted to a consideration of the work of the Railroad Commission of Wisconsin, and a paper on this subject will be presented by Prof. B. H. Meyer, chairman of the commission. In the evening there will be a beefsteak dinner at 6:30, to take the place of a formal banquet. Among the speakers expected will be Prof. Meyer, John I. Beggs and Hon. Neal Brown, Wausau.

#### Storage Battery Cars Proposed for New York.

The newspapers of New York have had a good deal to say lately about the adoption of Edison storage batteries for street railway service in New York, notably on the Third Avenue Railroad. There has, in reality, been some discussion of such projects, but the statements in the daily press are decidedly anticipatory. Inquiry made of Thomas A. Edison at his laboratory in East Orange elicited this statement: "Mr. Edison does not care to have any statement made with regard to the battery. When he is fully satisfied himself that everything is all right, he will let the public know." Frederick Whitridge, receiver of the Third Avenue Railroad, recently expressed himself before the Public Service Commission of the First District of New York as favoring the operation of self-contained cars on the cross-town lines in New York.

#### New Members A. S. & I. R. A.

B. V. Swenson, secretary of the American Street & Interurban Railway Association, announces that the following new member companies and associate members have been enrolled in the association since Jan. 1, 1909. Member Companies: Sacramento (Cal.) Electric, Gas & Railway Company, Edmonton (Can.) Electric Railway, The St. John (N. B.) Railway, Galesburg (Ill.), Kewanee Electric Railway, San José (Cal.) Railway. Associate Members: Gen. Geo. H. Harries, Washington, D. C.; Wm. H. Staub, Baltimore, Md.; J. D. Brown, Nashville, Tenn.; E. W. Sharp, New York; E. J. Lenz, Greenville, Miss.; Le Grand Young, Jr., Salt Lake City, Utah; Albert C. Fairbanks, Watertown, Mass.; W. O. Stieff, Reading, Pa.; Le Roy G. Miller, Franklin, Pa.; Geo. A. Barnes, Franklin, Pa.; Geo. J. Smith, Chicago, Ill.; E. J. Beatty, Franklin, Pa.; R. C. Cunningham, Philadelphia, Pa.; W. H. Lee, Indianapolis, Ind.; James V. Smith, Franklin, Pa.; Chas. H. Thomas, Franklin, Pa.; L. J. Drake, Jr., Indianapolis, Ind.; C. E. Schaffler, Chicago, Ill.; J. E. Southwell, Boston, Mass.; W. A. McWhorter, Birmingham, Ala.; W. A. Trubbe, Bridgeport, Conn.; W. L. Conwell, New York City; J. J. Sinclair, New York City; J. S. McWhirter, New York City; Chas. H. Cross, Chicago, Ill.

# Financial and Corporate

## New York Stock and Money Markets

Jan. 12, 1909.

The effect of the decision adverse to the Consolidated Gas Company was felt in the stock market throughout the past week, and there has been an uncertainty in the trading which has resulted in net losses for most of the prominent stocks. The fact that a large portion of the recent dealings has been for professionals who have only speculative interest in the market accounts for this feeling. Many of these men were compelled to loosen their hold on other stocks to protect their interests in Gas stock, and such sales, of course, caused depression in the prices of the issues in which liquidation took place. As far as the moral effect of the decision goes, it cuts very little figure in the Street.

The traction stocks have shown a good deal of activity during the week, and, as a rule, have lost something in price. Brooklyn Rapid Transit and the Interborough-Metropolitan issues have been especially active. The rumors of a possible dividend on Brooklyn Rapid Transit stock may account for this, but it is not apparent why Interborough-Metropolitan should be a feature in the market at this time. No plans for the reorganization of the Metropolitan Street Railway have been made public yet. The activity which has been a feature of the trading recently, however, may indicate that a definite scheme of reorganization will be submitted soon to the security-holders concerned.

The good market for bonds continues and all new issues that are offered are taken rapidly. That the money market remains easy is shown by the rates prevailing at all centers. Rates on collateral loans are even lower than a week ago. Call money to-day was quoted at 1 3/4 to 2 per cent, and 90-day paper at 3 3/4 to 3 1/2 per cent. It is, of course, only a question of time before the increased requirements for funds by mercantile borrowers will strengthen rates.

### Other Markets

Although the Boston stock market was strong in tone and fairly active, not much has been done in traction issues except for the trading in Boston Elevated rights. These have been active, and prices for the options have advanced. They are quoted now at 4 to 4 1/2 per cent. There has been no trading in traction bonds.

In the Philadelphia stock market both Rapid Transit and Union Traction stocks have been fairly active. Prices have been reasonably strong, although the fluctuations have been within narrow limits. Rapid Transit closed at 25 1/4 and Union Traction at 52. There was little trading in any other traction issues.

Very little interest has been shown during the week in traction issues on the Chicago Stock Exchange. Series 2 and 3 of the Chicago Railways Company were in the market to some extent, but prices were about stationary. A few lots of South Side Elevated railroad stock were sold at 55 to 56.

In Baltimore the bonds of the United Railways continued active. Fair-sized blocks have been traded in every day, but prices remain about the same. The 4s are selling for 85 1/2 and the incomes for 52.

Quotations of various traction securities as compared with last week follow:

	Jan. 5.	Jan. 12.
American Railways Company, Philadelphia.....	*45	45 1/2
Boston Elevated Railways.....	126	128 1/2
Brooklyn Rapid Transit Company.....	69 1/8	69 3/4
Chicago City Railway.....	180	180
Cleveland Railway.....	—	—
Consolidated Traction Company of New Jersey.....	—	87 1/2
Consolidated Traction Company of New Jersey, 5 per cent bonds.....	—	—
Detroit United Railway.....	*53 3/4	a104 1/2
Interborough-Metropolitan Company.....	18 1/4	*55 1/2
Interborough-Metropolitan Company (preferred).....	48 1/4	15
Manhattan Railway.....	151 3/8	43
Massachusetts Electric Companies (common).....	12	11 1/4
Massachusetts Electric Companies (preferred).....	59	59
Metropolitan West Side Elevated Railway, Chicago (common).....	16	16
Metropolitan West Side Elevated Railway, Chicago (preferred).....	50	50
Metropolitan Street Railway.....	42	*42
North American Company.....	74	73
Philadelphia Company, Pittsburg (common).....	43 3/4	43 3/8
Philadelphia Company, Pittsburg (preferred).....	44	43 3/8
Philadelphia Rapid Transit Company.....	24 1/2	25 3/4
Philadelphia Traction Company.....	90 1/2	90 1/2
Public Service Corporation, 5 per cent collateral notes.....	—	—
Public Service Corporation certificates.....	—	—
Twin City Rapid Transit Company, Minneapolis (common).....	97 1/2	100 3/8
Union Traction Company, Philadelphia.....	51 1/4	52

\* Asked.  
a Last sale.

**Cicero & Proviso Street Railway, Chicago, Ill.**—The protective committee of bondholders of the Cicero & Proviso Street Railway has extended until Jan. 20 the time for depositing bonds with the Illinois Trust & Savings Bank, Chicago, depository. Of the outstanding issue of \$1,948,000 more than \$1,500,000 has been deposited.

**Columbus Railway & Light Company, Columbus, Ohio.**—At the annual meetings of the Columbus Railway Company, the Columbus Traction Company and the Columbus Light, Heat & Power Company, on Jan. 7, Butler Sheldon, Frank T. Stewart, George Hardy, Harford T. Stewart and William K. Lanman were elected directors of all three companies. Officers of the Columbus Railway Company and the Columbus Traction Company were chosen as follows: Butler Sheldon, president; Frank T. Stewart, first vice-president; George Hardy, second vice-president; Herbert M. Burrington, secretary and auditor. The officers of the Columbus Light, Heat & Power Company are: Butler Sheldon, president; Frank T. Stewart, vice-president and treasurer; Herbert M. Burrington, secretary and auditor.

**Dayton & Xenia Transit Company, Dayton, Ohio.**—The Old Colony Trust Company, Boston, Mass., representing the holders of the first mortgage 5 per cent bonds of the Dayton & Xenia Transit Company, which has defaulted in its interest payments, has filed an intervening petition asking that the road be sold to satisfy the claims of the bondholders.

**Delaware & Hudson Company, Albany, N. Y.**—An appeal by the Delaware & Hudson Company to the Public Service Commission of the Second District of New York for a rehearing on the application of the company for authority to issue bonds for the financing of its recent purchase of additional coal lands in Pennsylvania and the acquisition of the Hudson Valley Railway has been denied by the commission. The company has announced that it will appeal to the courts from the decision of the commission.

**Kenosha (Wis.) Electric Railway**—The Investment Registry Company, London, Eng., has purchased control of the Kenosha Electric Railway from A. C. Frost, Chicago, and assumed the management of the company on Jan. 4. The Investment Registry Company was a small bondholder of the Kenosha Electric Railway. The road connects Kenosha and South Kenosha, about 4 miles distant, and reaches Anderson Park. Power is rented by the company from the Chicago & Milwaukee Electric Railroad.

**New Jersey & Pennsylvania Traction Company, Trenton, N. J.**—The members of the committee finally agreed upon to take over the management of the New Jersey & Pennsylvania Traction Company and the Trenton, New Hope & Lambertville Traction Company are: James G. Cannon, vice-president of the Fourth National Bank, New York, chairman; F. H. Goff, president of the Cleveland Trust Company, Cleveland, and J. R. Nutt, secretary of the Citizens' Savings & Trust Company, Cleveland. The secretary of the committee is E. W. Davenport, Fourth National Bank, New York City. The creditors' agreement has been accepted by the 10 creditors that represent the \$370,000 indebtedness. It merely provides for the extension of the indebtedness until Jan. 1, 1910, and places the property in the hands of the committee. The agreement does not provide for the actual deposit of the securities. The committee has organized the New Jersey & Pennsylvania Railroad Company as the successor of the New Jersey & Pennsylvania Traction Company and the Trenton, New Hope & Lambertville Traction Company. C. M. Bates will be the president of the new company and H. C. Lang will be vice-president.

**Ogden (Utah) Rapid Transit Company**—The Ogden Rapid Transit Company has decided to issue \$500,000 of bonds of this issue, \$200,000 will be applied to refunding an outstanding issue and the remainder will be used for improvements and extensions.

**Tri-City Railway & Light Company, Davenport, Ia.**—The Tri-City Railway, which is a subsidiary of the Tri-City Railway & Light Company, has voted to increase its capital stock from \$2,500,000 to \$3,000,000.

**United Power & Transportation Company, Philadelphia, Pa.**—Charles Henry Jones and John W. Ellard have been appointed receivers of the Southwestern Street Railway by Judge Howland, in the United States Circuit Court, Philadelphia. The United Power & Transportation Company owns 7995 shares of the 8000 shares of the Southwestern Street Railway.

**West End Street Railway, Boston, Mass.**—The committee of stockholders of the West End Street Railway which was appointed to investigate the proposed merger of the Boston Elevated Railway has received the indorsement of holders of 131,209 shares of stock.

# Traffic and Transportation

## Recommendations Regarding Service in Washington, D. C.

The District Electric Railway Commission of the District of Columbia, as the result of a report made to it on street railway conditions in the District of Columbia by H. C. Eddy, its executive officer and secretary, has made recommendations to the Interstate Commerce Commission relative to the service on the Georgetown & Tenallytown Railway.

A brief abstract of the report by Mr. Eddy to the District Electric Railway Commission, on which the recommendations were based, follows:

"As a result of correspondence with the municipal authorities of some 20 or more of the larger cities in various sections of the United States it has been found that no definite regulation regarding the number of passengers which shall be carried in any one car has been enacted and enforced in any of the cities heard from. The consensus of opinion appears to be that the problem of eliminating the overcrowding of street cars has not only not yet been solved, but that the solution is at best most difficult. Information received through the courtesy of the State Department from consuls abroad indicates that somewhat more progress toward the solution of this problem has been made in foreign countries, and in several cities, notably Paris, the number of passengers which may be carried by various types of cars is fixed by municipal or imperial regulation.

"On Nov. 16, 1908, four inspectors were employed for the purpose of securing data showing the condition of passenger traffic on the various electric railways in the District of Columbia, and these inspectors, assisted occasionally by my regular assistant and myself, devoted 12 days of eight hours each to this work during the latter part of November and the early part of December. Observations were made at least one point on every electric line operated within the District of Columbia, except that of the Washington, Baltimore & Annapolis Railway and a total of about 100 observations were made. At two or more different points where the traffic is heaviest, and on several of the lines on which many of the cars are much overcrowded, several observations were made at the same location and time but on different days.

"The weather was almost invariably fair when observations were made: This was merely a coincidence, but it is believed that the records obtained give a fairly accurate idea of the average conditions for, while in rainy weather many people ride who would walk on a fair day, on the other hand fewer people leave their homes on rainy than on fair days. The traffic is undoubtedly somewhat heavier in rainy weather, however, and some allowance should be made for this fact.

"In order to indicate clearly the results of the observations made, about 50 charts have been prepared showing graphically the conditions of the various congested points on the more important lines and also on some of the minor lines. It is respectfully suggested that a perusal of these charts will prove interesting.

"The observations made show that on many of the lines during the 'rush hours' cars are frequently operated carrying an excess of 40 passengers over the seating capacity. The rear platforms are frequently, I may say usually, crowded during the 'rush hours,' and the front platforms are often used to accommodate passengers, the steps and running boards being also often occupied to their fullest capacity. It is not an uncommon sight to see several passengers standing on the rear bumper and fender of a car, and in one instance last summer I saw two men standing on the front bumper.

"It should be noted in this connection that nearly all the newer types of cars which have been placed in service in the District of Columbia are fitted with bumpers which are so designed that it is practically impossible for passengers to occupy that portion of the car. It has been observed that especially during the hours of heaviest traffic, inspectors keep the cars moving and assist generally in the work of caring for the comfort of the patrons of the road. If this system was more generally adopted it is believed that it would be a great advantage to the traveling public.

"It is quite impossible to count the exact number of passengers on board a crowded car during the usually short interval which the car stops at a given point. However, it is possible to count, with a reasonable degree of accuracy, the number of passengers standing in a crowded car and at the same time note if the seating capacity is taxed, and by adding the number of standing to the seating capacity a very close estimate of the number of passengers on the car can be obtained. This was the method generally fol-

lowed by the inspectors when the cars were crowded, two men being usually stationed at one point. It is believed that on the whole the data secured are if anything less than the actual number of passengers carried on the more crowded cars.

"It would appear from the observations I have made that more cars are needed during the 'rush hours' on many of the lines in the District of Columbia, and I am convinced that such is the case. However, it has been observed that there is a tendency on the part of the public in general to crowd into the first car that comes along, be it ever so full, regardless of the fact that there may be, as there frequently is, another car in sight, often only a few hundred feet away. In consequence of this fact it has frequently been observed that a car very much overcrowded is closely followed by a car which is not half full. This condition of affairs is also due in part to the cars running at very irregular intervals, which was found to be the case on several lines.

"In conclusion I would state that, while in my opinion the conditions regarding the crowding of cars in the District of Columbia are, to say the least, very unsatisfactory and should be remedied, yet, as far as I have been able to learn and observe, they compare favorably with similar conditions in many other cities."

## Hearing on Fares on Athol & Orange Street Railway

A hearing was held by the Massachusetts Railroad Commission on Jan. 8 on the petition of citizens of Athol for workmen's tickets and additional service on the Athol & Orange Street Railway at morning, noon and night. The petitioners were represented by Col. Titus, Athol, who stated that the petition for extra service would be withdrawn. Wilson D. Smith, general manager of the Athol & Orange Street Railway, said that the petitioners really desired a fare of 3 cents, between the upper and lower villages of Athol. The present fare limits and arrangements are as follows: Between the west end of the railway in Orange and the Boston & Maine Railroad bridge in Athol, just east of the town line, 5 cents; between the east end of the railway at the Athol fair grounds and the Boston & Maine Railroad bridge in Orange, near the company's car house, 5 cents; from any point in Athol or Orange to Brookside Park, lying between the two railroad bridges named, 5 cents; from the end of the line in Athol to the opposite end in Orange, 10 cents. The latter tariff is reduced by the sale of 16 workmen's tickets for \$1, good only for workmen between 5 a. m. and 7 a. m. and 5 p. m. and 7 p. m. These tickets have been sold by the company since the Athol & Orange Street Railway was opened to traffic and cover a continuous ride between Athol and Orange in either direction.

Mr. Smith stated that there never has been any ticket covering the ride between the upper and the lower villages of Athol, nor between the center of Orange and the center of Wheelersville, on the westerly portion of the Athol & Orange Street Railway. The fare is 5 cents in each case, and Mr. Smith stated that in his opinion the workmen's tickets did not discriminate against others. Chairman Hall then informed Col. Titus that the statute did not permit the company to sell workmen's tickets good at the noon hour, and asked the petitioners to cite any other case where a workman's ticket had been issued in a 5-cent fare zone. Col. Titus was unable to do this. Mr. Smith pointed out that if a reduced ticket were issued for these local rides within the same town, it would be greatly abused. Chairman Hall said that the commission has never ordered any company to issue a workman's ticket in a 5-cent fare zone, although in some instances it has recommended a workman's ticket in a 10-cent fare territory. Mr. Smith then stated that the company's operating expenses had increased about one-third in the past three or four years, and that last year there was a deficit of \$4,500. In 1907 there was a surplus of \$123, and the receipts were about \$400 less than in 1908. Since the beginning of the present fiscal year the company's earnings have fallen off at the rate of about \$200 a month, compared with last year, making the estimated loss for the year about \$2,500. At the last meeting of the directors of the company the question of passing the dividend was very seriously considered. While the deficit was in part due to litigation, the possibility always exists that there may be a repetition at any time of the extraordinary circumstances which entailed the large charge in this instance. Chairman Hall in closing the hearing said: "This is the first time that the board has been asked to order a railway to carry people for less than 5 cents. The board will consider the application carefully, but will go very slow in deciding that a company shall charge less than a 5-cent fare."

**Suit to Annul Franchise of a New York Company**

The Public Service Commission of the First District of New York has asked the Attorney-General of New York to bring suit to annul the franchise of the Fulton Street Railroad, New York, which some time ago was placed in the hands of a receiver and which has not been operated for about seven months. The original franchise for the property operated as the Fulton Street Railroad was granted in 1887 to the North & East River Railway, which was the successful bidder at a public auction of the franchise held by the Controller. The property of the company was foreclosed under a mortgage in 1895 and sold by the referee to John H. O'Rourke for \$50,000, and by him was transferred to the Fulton Street Railroad. Milo R. Maltbie, of the Public Service Commission, who investigated the subject and on whose opinion the commission took action, said in his report:

"Within two weeks Mr. O'Rourke transferred what property he purchased to the Fulton Street Railroad, just incorporated, and received in return securities of a par value of \$1,000,000. Of this amount \$500,000 was in stock and \$500,000 in 100-year 4 per cent first mortgage bonds. Early in 1896 all of the stock found its way into the hands of the Metropolitan Traction Company, and thence it went to the Metropolitan Street Railway, etc.

"Following this change in stock ownership the Metropolitan Street Railway entered into an agreement with the Fulton Street Railroad for the operation of this property. The Metropolitan Street Railway agreed, in consideration of the lease, which was to run 1000 years, to guarantee the payment of the principal and interest of the bonds due in 1905. At present \$300,000 of the bonds are held by the Equitable Life Assurance Society, and the remaining \$200,000 are in the hands of various persons."

The Fulton Street road carried during the year ending June 30, 1907, 530,668 revenue passengers and 230,256 transfer passengers. According to sworn reports, the Fulton Street Railroad owns 1.05 miles of single track horse car line, and previous reports to the State Railroad Commission at various times showed that it owned from seven to 13 cars and from 42 to 65 horses.

The Metropolitan Street Railway says that the cars and horses received from the Fulton Street Railroad have ceased to exist, and have been replaced by the Metropolitan Street Railway from time to time. The actual ownership of such property, it is claimed, is a question for the courts, although the receiver of the Fulton Street Railroad has taken no steps to have the question settled. The receiver of the Fulton Street Railroad told the Public Service Commission that he has no funds and that the bondholders have refused to raise funds to purchase cars and horses for operation.

**Advertising Improved Service in Boston**

Since the opening of the Washington Street Tunnel the Boston (Mass.) Elevated Railway has been studying the distribution of traffic in the business section of the city with the object of so operating the new system as to secure the maximum public convenience of transportation. During this adjustment period, patrons of the company have been slightly inconvenienced through congestion of traffic at the North Station and through the removal of the elevated service from Pleasant Street to the South Station via Harrison Avenue and Beach Street. In the following advertisement addressed to its patrons and inserted in the daily press of Boston, on Jan. 5, the company tells the public about its plans:

"The Washington Street tunnel has now been in service for more than a month, and has proved very successful. The congestion at Park Street and Scollay Square has been relieved. Through passengers are carried more quickly and comfortably. The route of the elevated trains is more convenient for a large majority of its patrons in respect to their business, their shopping and their places of entertainment. When the connection required by law between the subway and the tunnel at Haymarket Square has been completed by the Boston Transit Commission and used as a transfer station, the conditions at the North Station will be very much improved. When the East Cambridge elevated tracks are built the conditions will be still further improved.

"Knowing, however, that the withdrawal of the trains, as required by law, from the Tremont Street subway, would involve changes which would undoubtedly cause inconveniences, the officials of the company have watched the results carefully, to see how such inconveniences might best be remedied.

"The congestion of the surface cars at the North Station proved very serious. This has been largely relieved by a new switch, turning a considerable number of the cars on to Haverhill Street.

"The through car service in the subway has been increased, and will be still further increased, if necessary.

"The removal of the elevated service to the South Station via Pleasant Street has caused inconvenience. This situation will be met, first, by the extension of the Charles Street line to Dewey Square and second, by transfer at Boylston Street subway station, from and to cars entering and leaving the subway at the Public Garden, to and from surface cars, at the corner of Boylston and Tremont Street, reaching Dewey Square via Boylston, Washington and Summer Streets. Conductors will issue transfers, on payment of fare, on and after Jan. 13, 1909."

**Passenger Traffic in St. Louis**

The following comparative statement of passengers carried by the United Railways Company, St. Louis, Mo., for 1907 and 1908 has recently been issued:

	1907.	1908.
First quarter .....	49,861,361	49,071,394
Second quarter .....	55,958,641	51,657,522
Third quarter .....	56,720,700	51,185,813
Fourth quarter .....	54,238,936	52,674,281
Totals.....	216,779,638	204,589,010

**Sanitary Precautions of the Interborough Rapid Transit Company**

Twenty-five hundred employees of the subway, elevated and surface lines of the Interborough Rapid Transit Company, New York, attended the exhibit of the work of the committee on the prevention of tuberculosis of the Charity Organization Society of the City of New York at the American Museum of Natural History, New York, on the evening of Jan. 3, and, after studying its different features, attended a meeting which was addressed by several speakers, among them Frank H. Hedley, vice-president and general manager of the Interborough Rapid Transit Company, who presided over the meeting in the absence of Theodore P. Shonts, president of the company, who was unable to be present. In Mr. Hedley's opening remarks he told of the great care that is taken to keep the cars of the subway and elevated lines in a sanitary condition. He said that the thick matting on the floor of the cars which was a trap for disease germs of all kinds had been done away with and its place taken by hard maple strips three-quarters of an inch square and the same distance apart. Every night the floor of every one of the 2500 subway and elevated cars is sprinkled with a 5 per cent solution of carbolic acid, which is a disinfectant and a destroyer of germs. The floors are then swept clean, and after the dust has settled it is wiped up carefully with cheesecloth instead of being churned up with feather dusters. Every week, and oftener if necessary, the floors are scrubbed with a soft soap containing a very strong solution of alkali.

Every month the interiors of the subway cars are cleaned with an oil emulsion which gathers up all of the fine particles of dust, and at least once a year every car is painted, varnished and oiled so as to most effectively repel the collection of grime and germs. Every night the straps are cleaned with an acid solution which will kill germs. Cuspidors have been placed at all elevated and subway stations and, owing to the watchfulness of the gatemen and ticket choppers, there is now very little spitting on the floors of the stations.

**Texas Negroes Indorse "Jim Crow" Law.**—The Negro Teachers' Association of Texas, in session at Dallas, recently indorsed the law which provides for the separation of the races on the street railways, the interurban railways and the railroads of Texas.

**Hearing Asked on 6-Cent Fare in Massachusetts.**—At the request of the City Council, the Mayor and City Solicitor of Northampton, Mass., have asked the Massachusetts Railroad Commission to give a hearing on 6-cent fares charged by the Northampton Street Railway.

**Hearing Desired on West Roxbury Service.**—The Massachusetts Railroad Commission has been asked to give a hearing on the service on the Old Colony Street Railway's single-track line, between Washington Street, West Roxbury, and the Dedham town line. The petitioners ask that the service be operated by the Boston Elevated Railway.

**Syracuse, Lake Shore & Northern Railroad Opens New Stations.**—The Syracuse, Lake Shore & Northern Railroad, Syracuse, N. Y., has been extended and new stations have been opened at Baldwinsville, Fulton, Phoenix and Syracuse. Local one-way and round-trip fares and commutation

ticket rates have been established between such stations and intermediate stops.

**Massachusetts-Rhode Island Line Applies for Freight Rights.**—The Milford, Attleboro & Woonsocket Street Railway, Milford, Mass., has applied to the Selectmen of Bellingham for a franchise for the transportation of freight through Bellingham. The company will also apply for similar rights in Franklin. Freight will be transported only between the hours of midnight and 6 a. m.

**School Fares on Staten Island.**—On Jan. 4 the Staten Island Rapid Transit Company, New York, N. Y., put into effect an order increasing the fare of school children from \$2 to \$6.25 a month, but later on the same day restored the old rate of fare. George J. Brown, general passenger agent of the company, in explanation of the action of the company, issued this statement: "Pending further investigation of the legal and other questions involved, the Staten Island Rapid Transit Company has decided to restore the old intrastate school rates for the month of January, 1909; the company, however, regards these rates as unreasonably low."

**More Pay-As-You-Enter Cars in New York.**—In accordance with its announcement to the public, the Third Avenue Railroad, New York, placed 135 pay-as-you-enter cars in service on the Third Avenue line on Jan. 10. Passengers are requested to have their nickels ready, but the conductors furnish change, if necessary. The passengers must, however, deposit their own fares in the fare box. Transfers are issued by the conductor only when the fare is paid, and when tendered by passengers in payment of fare are given to the conductor. Passengers are permitted to leave the car from either end, but are permitted to board only at the rear end.

**Minneapolis Company Asks an Opinion on Commutation Rates.**—The Twin City Rapid Transit Company, Minneapolis, Minn., has asked the Attorney-General of Minnesota for an opinion as to whether the commutation rates on its Minnetonka line are in violation of the anti-pass law. The company has notified the policemen and firemen of Minneapolis and St. Paul that they can no longer be transported free on account of the provisions of the new law. W. J. Hield, general manager of the company, has expressed himself as favoring an amendment that shall exclude all city employees in uniform from the provisions of the law.

**Telegraph Service on the Inland Empire System.**—An attractive 4-page folder announces that messages will be received at any telegraph station on the Inland Empire System, Spokane, for transmission by wireless telegraph to ships at sea in any part of the world. The Spokane & Inland Empire Railroad utilizes both telegraph and telephone in dispatching its trains and the Postal Telegraph & Cable Company leases the telegraph wires along the line and has arranged for receiving and transmitting messages from 25 stations on the Inland Empire System. The folder contains a map of North America, showing plainly the trunk lines of the Postal Telegraph & Cable Company.

**Suppressing Spitting in Augusta.**—James R. League, general manager of the Augusta-Aiken Railway & Electric Company, Augusta, Ga., has issued the following order to conductors with reference to the recent ordinance passed by the Council of Augusta regarding spitting in public places: "Notices are being posted in your cars calling attention to an ordinance forbidding any person to spit on the floor of a car in Augusta. The ordinance provides for a fine of from \$1 to \$5 for a violation of this ordinance, and it further provides that you shall see that this ordinance is enforced. Should one of your passengers spit on the floor, or other part of your car, you will ascertain his name, together with the names of as many witnesses as possible, and report same to your superintendent at once. He will immediately see that the case is brought to the attention of the recorder."

**Increase in New York Subway Service.**—The Public Service Commission of the First District of New York, reports a substantial increase in the service of the Interborough Rapid Transit Company in the subway. At the Grand Central Station the maximum service in the morning rush hour, southbound, has been extended from 9 to 9:30 o'clock. At midday at the same point the company is operating 20 trains an hour instead of 18, and from noon to 2 p. m. eight car trains have been substituted for six car trains. The company is now beginning the increased northbound service at 4 p. m. instead of 5 p. m., thus lessening the overloads at the beginning of the evening rush. The service has also been increased between 7 p. m. and 8:30 p. m. The commission says that the service now given by the company is considerably in excess of the recommendations made to the company by the commission in November, 1908.

**New York Commission Appeals Transfer Decision.**—The Public Service Commission of the First District of New York has appealed from the decision of the Appellate Division of the Supreme Court the case decided against the commission regarding the order to compel the Metropolitan Street Railway and the Central Park, North & East River Railroad to make a joint rate of five cents and will carry the suit to the Court of Appeals. The joint rate of five cents was to apply to the zone between Thirty-fourth Street and 116th Street and the companies were to divide the fares received on the basis of 3¾ cents to the Metropolitan Street Railway and 1¼ cents to the Central Park, North & East River Railroad. Both companies secured a writ of certiorari. This the commission moved to have vacated before the Appellate Division, but its application was denied. It is from this decision that the commission now appeals.

**Spokane & Inland Schedule Modified.**—The Spokane & Inland Empire Railroad has recently revised the time on its Inland division. The most important change is the consolidation of the three separate daily trains to Colfax and Moscow and their operation as one as far as Spring Valley, where they are divided and run separately to the terminals. The through trains leave Spokane at 8 a. m., 12:25 p. m. and 4:25 o'clock p. m. The Moscow section reaches Moscow at 11:20 a. m. and at 3:40 p. m. and 7:40 p. m. The Colfax section arrives at Colfax at 10:50 a. m. and at 3:10 p. m. and 7:10 o'clock p. m. The returning trains leave Colfax at 8:10 a. m., 12:30 p. m. and 4:30 p. m., and leave Moscow daily at 7:40 a. m., 12:01 p. m. and 4:50 p. m. The combined trains arrive in Spokane at 10:58 a. m. and at 3:18 p. m. and 7:20 p. m. Local trains leave Spokane daily at 7:40 a. m., 10:00 a. m., 1:00 p. m., 3:10 p. m. and 5:30 p. m., and arrive in Spokane at 7:20 a. m., 9:40 p. m., 12:01 p. m., 2:50 p. m., 5:12 p. m. and 7:20 p. m. The only exception to the daily schedule is a Saturday night train leaving Freeman at 6:45 p. m. and arriving at Spokane at 7:40 p. m. It leaves Spokane on the return trip at 11:15 p. m. and arrives at Freeman at 12:30 a. m.

**Service Over Lines of United Traction Company, Albany, N. Y.**—The United Traction Company, Albany, N. Y., has filed its answer with the Public Service Commission of the Second District to the complaint of Green Island regarding service between Troy and Green Island. The company states that the first car leaves Albia for Cohoes via Green Island at 4:42 a. m. and that a car leaves every 10 minutes thereafter until 11:42 p. m. The night car leaves Albia for Cohoes at 12 o'clock midnight and every hour thereafter a car leaves until 4 a. m. From 5:54 p. m. to 6:24 p. m. going north to Green Island there is a car every 5 minutes; a car leaves Cohoes for Albia via Green Island at 5:37 a. m. and every 10 minutes thereafter a car leaves until 12:37 a. m. The night car leaves Cohoes for Albia at 1:10 a. m. and every hour thereafter a car leaves until 5:10 a. m. From 6:34 p. m. until 7:04 p. m. there is a five-minute service south from Cohoes, through Green Island to Albia. The company submitted to the Commission a record of passengers, made some time ago, which shows that the service furnished met all requirements at that time. When the complaint was filed with the Commission, another record was made which is also submitted with the company's answer, and as a result of this count the company contends that the service now furnished is adequate and reasonable.

**Philadelphia Rapid Transit Company Replies to Employees.**—The directors of the Philadelphia (Pa.) Rapid Transit Company have voted not to treat with a committee representing its employees regarding an advance in wages and the readjustment of the agreement existing between the company and the men, and has made public the following letter in explanation of its action: "At a meeting of the board of directors of this company, held on Jan. 11, the Mayor of the city, as a member of said board, presented the request of a committee of certain of the employees of the company and others not employed by the company and not connected with its business, that the company would hereafter meet from time to time a committee to be appointed by them for conference on alleged grievances. In former communications we have stated explicitly the reasons for the refusal of the officers of the company to meet with such committee. The company again reiterates that refusal. At the same time the board of directors again authorizes the statement to be made to all of its employees that in the future, as in the past, each or any of them may at any time personally present to the general manager any and all complaints or grievances that they may have to make. Each of such complaints or grievances will receive due and just consideration, and the decision of the general manager thereon will be communicated to each person so complaining. Under no circumstances, however, will committees be received or treated with."

## Personal Mention

**Mr. C. M. Bates** has been elected vice-president and general manager of the New Jersey & Pennsylvania Traction Company, Trenton, N. J., to succeed Mr. J. D. Honecker, resigned.

**Mr. L. H. Conklin** has resigned as general superintendent of the West Penn Railways Company, Pittsburg, Pa., to become general manager of the Scranton (Pa.) Electric Company.

**Mr. Thomas McCaffrey**, master of transportation of the Pacific Electric Railway, Los Angeles, Cal., has been appointed general superintendent of the company, and will hereafter perform the duties of both officers.

**Mr. Joseph W. Bailey**, who has been assistant superintendent of the Ogden (Utah) Rapid Transit Company for several years has been appointed superintendent of the company to succeed N. C. Flygare, deceased.

**Mr. W. G. Miller**, mechanical and electrical engineer of the Illinois Traction System, Champaign, Ill., and Mr. W. H. Tarrant, civil engineer of the Illinois Traction System, have been appointed to the general office of the system in Champaign to assist Mr. H. E. Chubbuck, general manager. Mr. Miller and Mr. Tarrant will be given special assignments covering the entire system and will do special development work.

**Mr. Harry Stephenson**, auditor of the Western Ohio Railway, Lima, Ohio, has been appointed superintendent of the Toledo Urban & Interurban Railway with headquarters at Bowling Green, Ohio. The appointment becomes effective on Feb. 1, when Mr. William L. Smith, now superintendent of the company, assumes the office of general manager of the Dayton (Ohio) Street Railway, as announced elsewhere in this issue.

**Mr. Henry C. Morris**, for several years assistant general manager of the Bay City Traction & Electric Company and the Bay City Gas Company, Bay City, Mich., has resigned. The Bay City Traction & Electric Company and the Bay City Gas Company are controlled by Hodenpyl, Walbridge & Company, New York, and Mr. Morris has announced that he will become identified with them in the management of their gas interests in Texas.

**Mr. William S. Smith** has been appointed general superintendent of the Dayton (Ohio) Street Railway. Mr. Smith was formerly general superintendent of the Toledo Urban & Interurban Railway operating between Toledo and Dayton, in which capacity he served for seven years. Before becoming connected with the Toledo, Urban & Interurban Railway, Mr. Smith was general superintendent of the People's Railway, Dayton, for five years. Mr. Smith has also been connected with the Cincinnati (Ohio) Street Railway.

**Mr. Benjamin E. Tilton**, engineer of maintenance of way of the Rochester (N. Y.) Railway, has been appointed engineer of maintenance of way of the Municipal Traction Company, Cleveland, Ohio, by Mr. Warren Bicknell and Mr. F. A. Scott, receivers of the company, to succeed Mr. R. H. Bunning. Mr. Tilton was engineer of maintenance of way of the Cleveland Electric Railway before that property was taken over by the Municipal Traction Company, and before that was engineer in charge of grade-crossing work in Cleveland.

**Mr. John T. Wheeler**, who was recently appointed superintendent of the Western New York & Pennsylvania Traction Company, Olean, N. Y., to succeed Mr. J. W. Barnes, has been engaged in street railway work since 1893, in which year he entered the employ of the local street railway company at Olean as a conductor. Mr. Wheeler also served as a motorman at Olean, and in 1896 became connected with the Bradford Electric Railway, Bradford, Pa., with which company he acted at different times as chief lineman, construction foreman and master mechanic, finally being appointed assistant superintendent of the Western New York & Pennsylvania Traction Company, which succeeded the Bradford Electric Railway.

**Mr. J. F. Strickland**, president of the Texas Traction Company, Dallas, Tex., contributed a very interesting article to the *Dallas News* recently on interurban railway development. Mr. Strickland said that while electricity has been used as motive power for some time the interurban railway is of recent development and with Illinois as an example showed that the interurban mileage of that State had increased from 300 miles in 1903 to approximately 1500 miles in 1908. During 1908 the interurban mileage of Texas increased about 158 per cent according to Mr. Strickland, who predicts that the electric interurban railway would soon mo-

nopolize the local business of the more densely populated sections of Texas.

**Mr. Matthew C. Brush**, vice-president and general manager of the Newton (Mass.) Street Railway and other lines controlled by the Boston Suburban Electric Companies, was the guest of honor at a dinner given recently by the president and directors of the companies at the Algonquin Club, Boston, in appreciation of his services in the interest of the roads. Mr. James L. Richards, president of the company, was toastmaster, and brief addresses were made by Gen. W. A. Bancroft, Mr. T. E. Byrnes, Mr. Robert Winsor, Mr. Thomas P. Beal, Mr. L. S. Storrs and Mr. F. W. Freeman. A resolution passed by the directors complimenting Mr. Brush for the efficiency which he has shown as vice-president was read by Mr. Richards.

**Mr. R. D. Sefton**, assistant purchasing agent of the Geiser Manufacturing Company, Waynesboro, Pa., has been appointed general manager of the Chambersburg, Greencastle & Waynesboro Street Railway, Waynesboro, Pa., to succeed Mr. Jos. E. Wayne, resigned. Mr. Sefton began his railroad career as a telegrapher and served in that capacity and as station master for several years with a number of railroads in Pennsylvania. He then became connected with the Baltimore & Ohio Railroad and acted as general agent for that company and several others at Martinsburg, W. Va., during 1903, 1904 and 1905. Resigning from the Baltimore & Ohio Railroad in 1906, he became connected with the Geiser Manufacturing Company.

**Mr. L. H. Davis**, who has been general superintendent of railway, light and ferry properties of the Norfolk & Portsmouth Traction Company, Norfolk, Va., has been appointed general superintendent of floating properties of the company including the Portsmouth, Norfolk and Berkley ferry systems, the ferry between Willoughby Spit and Old Point Comfort, the ferry between Newport News and Sewalls Point and the Pinner's Point and West Norfolk ferry. Mr. H. Root Palmer has taken over the lighting department at Portsmouth as general superintendent of lighting, and Mr. J. L. Adams has taken over the railway department as general superintendent of railways. Because of Mr. Davis's residence in Portsmouth he has been appointed general agent, reporting to Mr. E. C. Hathaway, general manager, and through him to the president.

**Mr. J. M. Hood, Jr.**, engineer of way of the United Railways & Electric Company, Baltimore, Md., has been appointed chief engineer of the company to succeed Mr. Charles O. Vandevanter, resigned. Mr. Hood received his



J. M. Hood, Jr.

engineering training at the Massachusetts Institute of Technology and Princeton University and was graduated from Princeton with the degree of civil engineer. After leaving college he was employed on the Philadelphia division of the Pennsylvania Railroad in maintenance of way work. Subsequently he became connected with the engineering corps of the Baltimore & Ohio Railroad west of Pittsburg in connection with the location of a new line for that company. Later he went to Mississippi in connection with the building of the link to connect the Queen & Crescent Railway with the Illinois Central Railway. After this extension was completed, Mr. Hood was appointed division engineer of the new line of the Missouri Pacific Railroad between Memphis and New Orleans. He resigned from the Missouri Pacific Railroad to become resident engineer of the Seaboard Air Line in Georgia. Later Mr. Hood and Mr. Charles Vandevanter, whom he succeeds as chief engineer of the United Railways & Electric Company, Baltimore, opened offices in Baltimore as consulting engineers. They dissolved partnership after the fire in 1904, and Mr. Hood accepted the position of principal assistant engineer of the United Railways & Electric Company. Mr. Hood supervised for the United Railways & Electric Company the construction of the North Point extension to Bayshore Park and the Roland Park-St. Paul's Street boulevard line and the reconstruction of the lines of the company after the fire. Mr. Hood is a son of the late General John M. Hood, who was president of the United Railways & Electric Company and president and general manager of the Western Maryland Railroad. He is an associate member of the American Society of Civil Engineers.

## LEGISLATION AFFECTING ELECTRIC RAILWAYS

**Connecticut.**—The Legislature of Connecticut convened on Jan. 5. The most important action so far is the presentation of the report of the special committee on public service corporations appointed by the General Assembly of 1907. As mentioned in the *ELECTRIC RAILWAY JOURNAL* for Nov. 28, 1908, the committee recommends that a commission be appointed to consist of three members, to be named by the Governor and confirmed by the concurrent action of both branches of the General Assembly, to have supervision of all railroads, street railways, gas, electric, water, express, telephone and telegraph companies subject to State control. A number of street railway companies have already applied for extensions of their powers. The Bristol & Plainville Tramway desires an extension of time in which to complete lines in contemplation. The Waterbury & Milldale Tramway wants its charter amended so as to extend its rights until July 1, 1911. The Hartford & Springfield Street Railway seeks an amendment to its charter to provide for the election of several additional directors.

**Massachusetts.**—The Massachusetts Legislature convened for its session of 1909 on Jan. 6. Mr. Weeks, Everett, is chairman of the committee on street railways. Among the matters which will probably be considered by the Legislature are the so-called electric railway and steam railroad merger question, in connection with the purchase of the Bennington & North Adams Street Railway of Vermont by the Berkshire Street Railway; the consolidation of the Boston Elevated Railway and the West End Street Railway; the projected tunnel of the Boston & Eastern Electric Railroad under Boston Harbor; a proposed tunnel from Chelsea Square to Adams Square; the application of the Boston, Lowell & Lawrence Street Railway to build subways and elevated railways in Boston, Lowell, Lawrence and Somerville; the holding of stock of electric railways by Massachusetts steam railroads; and the granting of the right of eminent domain to municipalities and corporations in connection with the property of railroads and other public service corporations. The Railroad Commission will shortly issue a report which will embody its views on the proposed purchase of the Bennington & North Adams Street Railway by the Berkshire Street Railway, and will also discuss the relations which in the opinion of the commission should exist between steam railroads and electric railways. A measure may also be introduced to provide for the construction of a subway between the present Park Street terminus of the Tremont Street subway and the South Station, Boston. Counsel for the West End Street Railway, Boston, in conformity with the vote of the stockholders at a recent special meeting, has filed a bill to amend terms of the Boston Elevated Railway-West End Street Railway consolidation act, so that after 1922 the dividend on the second preferred stock of the Boston Elevated Railway will be at the rate of 8 per cent. The act as passed last year provided for 7 per cent dividends on this class of stock, which, in event of consolidation of the two roads, is to be exchanged for the common stock of the West End Street Railway.

**New York.**—Senator Wagner has introduced a bill which provides for a 5-cent fare over the street railways operating in Brooklyn to Coney Island. Last year, while in the Assembly, Mr. Wagner secured the passage of a bill which provided for reduced fare to Coney Island, but Governor Hughes vetoed the measure upon the ground that the question was one within the power of the Public Service Commission to decide. Senator Goldberg has introduced a bill to compel every surface railroad in New York to issue transfers at all points where its lines intersect. A bill has been introduced in the Assembly to amend the rapid transit act to permit the construction of subway lines in New York by private capital on a franchise of not longer than 25 years, at the expiration of which term the city is to have the right to buy the property at cost. The bill further provides for the lease by the City of New York for private operation for a period of not more than 35 years of any roads that may be built by it. The Legislature convened at noon on Jan. 13, after a week's recess. The first matter to come before it next week will be the general laws of the statutory consolidation committee.

**Ohio.**—The General Assembly of Ohio convened on Jan. 5. As yet the active work has not begun. A vacancy occurs this year in the Railroad Commission, and ex-Governor Andrew L. Harris, before he retired, appointed James C. Morris as a member of the commission. Mayor Johnson is expected in Columbus soon, but his coming is said not to have anything to do with street railway legislation. He is said to desire a change in the debt limit law so as to permit Cleveland to issue additional bonds for improvements which he has in contemplation.

## Construction News

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

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

## RECENT INCORPORATIONS

**Pasadena (Cal.) Rapid Transit Company.**—This company has been incorporated with the object of connecting Los Angeles and Pasadena by a third-rail electric railway, over the shortest route between the two cities. The round trip will be made in 24 minutes. The title to the right-of-way of the old cycle way, which extends from Pasadena to Avenue Fifty-three, a distance of 6 miles, has been secured, and additional right-of-way in Los Angeles suitable for a terminal is to be purchased. Offices Chamber of Commerce Building, Pasadena. Capital stock, \$3,000,000. Incorporators and directors: Horace M. Dobbins, George H. Hayes, W. H. Smith, Edward J. Sheehan, Don C. Porter, Ernest H. May, president of the Pasadena National Bank, has been elected treasurer of the company. [E. R. J., Nov. 14, '08.]

**\*Chicago, Joliet & Pacific Railway, Chicago, Ill.**—Chartered in Illinois to construct a line from Chicago southwesterly and westerly through the counties of Will, Grundy, La Salle, Bureau, Henry and Mercer to Keithsburg, Mercer County. Capital stock, \$50,000. Headquarters, Chicago. Incorporators: George Fuller, Isaac B. Fuller, William H. Richardson and Charles F. Blue, all of Chicago.

**\*Tri-City & Northeastern Interurban Railway, Moline, Ill.**—Application for a charter has been made by this company which proposes to build and operate a line from Watertown to Albany along the river front. Capital stock, \$10,000. Incorporators: George W. Turner, L. F. Baker, Hampton; William H. Adams, F. M. Mitchell, Rapids City; J. W. Simonson and William Ashdown, Port Byron; Edward Cool, George Bryan, Cordova; C. E. Peck, J. S. Byers, Albany; J. W. Crowley, Daniel E. Keeler, Gust M. Hodges, John E. Mahon and Herman Diehn, Davenport.

**\*Mexico & Jefferson City Electric Railway, Columbia, Mo.**—This company has been chartered for the purpose of building an electric railway from Mexico through Columbia and Ashland to Jefferson City. The line will be 60 miles long. Capital stock, \$600,000. Incorporators: T. F. Whiteside, C. F. Spaerta, Turner S. Gordon, A. J. Estes, J. M. Estes, John Williams, E. F. McCallister and C. A. Marshall, Columbia, and W. C. Carroll, New York.

**\*South Flatbush Railroad, Brooklyn, N. Y.**—This company has been incorporated to construct an electric street railway 3 miles long from the Brighton Beach line of the Brooklyn Union Elevated Railroad, at Avenue Q to Avenue Q and Flatbush Avenue, Brooklyn. Capital stock, \$30,000. Directors: John C. Langan, Brooklyn; J. J. Boughman, New Cumberland, Pa.

**\*Tooele Valley Railway, Tooele, Utah.**—This company has been incorporated to build an electric railway 25 miles long in Tooele County, from Black Rock into Pine canyon, through Tooele to a connection with the San Pedro, Los Angeles & Salt Lake Railway, west of Tooele. The general office will be opened in Salt Lake City. Among those interested are C. F. Kelly, Butte, Mont., and J. B. Risque, Salt Lake City.

## FRANCHISES

**\*Los Angeles, Cal.**—H. F. Vollmer has applied to the City Council for an electric railway franchise on Fifty-fourth Street from Hoover to Dalton. This will be a continuation of the Fifty-fourth Street line and will make a complete crosstown line in the southern part of the city from San Pedro to Dalton.

**Atlanta, Ga.**—The Atlanta, Griffin & Macon Interurban Railway has received an extension of time in which to begin the construction of its line. The extension is for one year, with the provision that if work is not begun by April 1, a tax of 2 per cent on one-fifth of the company's receipts will be imposed. If work is begun by that time, the tax will be 2 per cent of the receipts based on the mileage of the company in Atlanta proportionate to the road's entire mileage, which is about 2 to 80. W. J. Kincaid, president. [E. R. J., Oct. 17, '08.]

**Caseyville, Ill.**—A franchise has been granted by St. Clair County to the East St. Louis & Caseyville Electric Railway for the construction of an electric railway through East Lansdowne Heights to Caseyville. The line is to be built over the right of way of a portion of an old turnpike extending from East St. Louis to Caseyville, giving the latter village a much shorter railway connection with East St. Louis. [E. R. J., Nov. 14, '08.]

**Council Bluffs, Ia.**—It is stated that the Independent Transportation Company expects to petition the City Council within a short time for a franchise for the construction and operation of a street railway system over the streets of Council Bluffs. A. T. Flickinger, vice-president. [E. R. J., Aug. 22, '08.]

**Primghar, Ia.**—As the result of a special election held in Primghar the Sioux City & Spirit Lake Railway was granted a franchise to construct and operate a street railway and interurban electric line across and over the streets and alleys of the town for a period of 25 years. A franchise was also granted the company which provides for the construction and operation of an electric lighting and power system for a period of 25 years. [E. R. J., Dec. 5, '08.]

**Marquette, Mich.**—The Marquette, Negaunee & Ishpeming Interurban Railway, which proposes to establish an electric railway between the three cities named in the title, has applied to the City Council for an extension of its franchise rights in Marquette. The old franchise expired on Jan. 3. The line will be 14 miles in length. J. W. Barber, secretary. [E. R. J., July 11, '08.]

**Missoula, Mont.**—The County Commissioners have granted to H. R. Wharton, Butte, representing the W. A. Clark interests, a 50-year franchise for a street railway over the new Higgins Avenue bridge and also the privilege of stringing light and power wires over the same structure. [E. R. J., Dec. 26, '08.]

**Binghamton, N. Y.**—The Binghamton Railway has been granted an extension of time to build its line between Union and Vestal. The franchise is extended for two years more, until Nov. 1, 1910. The company has received permission to cross the Union-Vestal bridge, provided it will strengthen the structure.

**Mineola, N. Y.**—The New York & North Shore Traction Company has applied to the Public Service Commission of the Second District for a certificate of public necessity and convenience to extend some of its Nassau County lines into Queens County. This is preliminary to asking the Board of Estimate and Apportionment for a franchise for the proposed lines.

**Patchogue, N. Y.**—The South Shore Traction Company has applied to the Public Service Commission of the Second District for a certificate of public necessity and convenience to extend some of its lines through Jamaica, Hoffman Boulevard and Thompson Avenue to the Queensboro Bridge plaza and thence across the bridge. The company has applied to the Board of Estimate and Apportionment for the necessary franchise. A hearing by the commission has been ordered on Jan. 19.

**Rensselaer, N. Y.**—The United Traction Company, Albany, N. Y., has presented a petition to the Common Council asking for an extension of one year in which to complete and operate the extensions to the Broadway and Third Street lines in Upper Rensselaer.

**High Point, N. C.**—The Board of Aldermen has decided to extend the franchise of the Interurban Railroad which is being promoted by W. T. VanBrunt and E. D. Steele. [E. R. J., Dec. 5, '08.]

**Salem, Ore.**—The City Council has granted the Portland Railway, Light & Power Company a new franchise to operate its cars upon numerous principal streets of Salem.

**\*Clarion, Pa.**—The Clarion & East Brady Electric Railway has been granted a franchise by the Clarion Borough Council to construct a line through the borough.

**Spokane, Wash.**—Application has been made to the City Council by the Spokane, Columbia & Western Railway for a franchise to construct a line into the city. The line takes a general northwest to southeast course, crossing Gonzaga College grounds and connecting with the Spokane & Inland Railroad on Olive Avenue at the company's car house. [E. R. J., Jan. 2, '09.]

#### TRACK AND ROADWAY

**Birmingham Railway, Light & Power Company, Birmingham, Ala.**—This company is rebuilding its track between Ensley and Wylam. The work was commenced at the end of the line and one-half mile is already completed. Creosoted ties and new ballast have been put in. The track will be lowered about 3 ft.

**Parkside Transit Company, San Francisco, Cal.**—This company announces the completion of its entire double-track line from Ingleside to the beach, at the junction of Sloat Boulevard and the Great highway, over Thirty-fifth Avenue to T Street, T Street to Twentieth Avenue, over Twentieth Avenue to H Street; also the connecting line from Twentieth Avenue to T Street, over Twentieth Avenue to the Boulevard. A new service over the entire line was inaugurated Jan. 1.

**Connecticut Company, Bridgeport, Conn.**—It is stated that the plans for the year of this company include the extension of the Seaview Avenue line across to Steeplechase Island. Negotiations between George C. Tilyou, lessee of the Island, and the company are now under way and will be completed, it is expected, very shortly.

**Connecticut Company, Hartford, Conn.**—The work of laying the rails on the electric road which this company is constructing between Hartford and Middletown is now completed. A large part of the wiring has been done, but considerable ballasting over the private way through Rocky Hill remains to be finished. The road will be ready for inspection by the Railroad Commissioners in a few weeks.

**Tampa Sulphur Springs Traction Company, Tampa, Fla.**—Work has been begun by this company on the extension of its lines into West Tampa.

**Atlanta, Norcross & Gainesville Electric Railway, Gainesville, Ga.**—H. D. Jaquish writes that this company has completed the surveys, maps and profiles for the first section of this proposed electric railway between Atlanta and Norcross. From the latter city the road is to extend through Buford and Flowery Branch to Gainesville. H. D. Jaquish, Gainesville, general manager, and E. Philbrick, Baldwin, chief engineer. [S. R. J., Jan. 25, '08.]

**Augusta Railway & Electric Company, Augusta, Ga.**—This company is said to have placed contracts for material to be used in the construction of a new city line, extending from McKinne Street to the river wharf. James U. Jackson, president.

**\*Idaho Falls & Salmon City Electric Railway, Boise, Idaho.**—This company is reported to have been organized for the purpose of building an electric road out of Salmon City to Idaho Falls, a distance of 102 miles. It is stated that the residents and business men of Salmon have raised or subscribed \$100,000 for the building of the new road. The business men of Idaho Falls have subscribed \$102,000 for the road. The preliminary survey of the proposed route has been made down the branches of the Lemhi River and Birch Creek. It is the intention of the company to build power plants at both Idaho Falls and Salmon City of sufficient capacity to handle all of the traffic, both freight and passenger. R. W. McBride is the promoter of this road.

**\*Lewiston, Idaho.**—A proposition to construct and operate a street railway system by local capital was submitted to the City Council recently by M. A. Means. The plan provides for the construction of a railway system in conjunction with street paving to be commenced within the next few weeks. The company plans to construct an initial system of 3 miles and will ask for a franchise providing trackage rights at a nominal sum to any motor system that may seek entrance to the city. The organization of a company is to be commenced at once and it is expected that an application for a franchise setting forth details of the plans will be submitted to the council within the next 10 days.

**Chicago, Kenosha & Milwaukee Electric Railway, Chicago, Ill.**—This company, which owns a right-of-way between Kenosha and Waukegan, has applied to the Wisconsin State Railroad Commission for permission to build an electric railway from Kenosha to the State line. The company is stated to have secured the necessary capital and will issue \$1,500,000 of bonds as soon as construction begins. The line will pass through Zion City and other north shore towns, and will be 3 miles shorter than the Chicago & Milwaukee Electric Railway between Kenosha and Waukegan. Officers: George G. Wilcox, president; Volney Foster, Jr., vice-president; Frank R. Grover, 79 Dearborn Street, Chicago, Ill., secretary and treasurer.

**Illinois Traction System, Champaign, Ill.**—It is announced that this company will immediately purchase materials for a 12-mile extension from Seneca to Morris toward Joliet, Ill. This new line will be operated by the company and will be known as the Chicago, Ottawa & Peoria Railway. The company is arranging to change 100 miles of its line from alternating to direct current and will build a 3-mile belt line at Decatur. A contract has been placed with the Strobel Steel Construction Company for the approaches of the new bridge to be built at St. Louis and with the Pennsylvania Steel Company for the main steel spans for the St. Louis bridge. The Missouri Valley Bridge Company has been awarded the erection contract for the bridge and the American Concrete Company will build the foundations for the approaches. The order has not yet been placed for creosoted timber.

**Rock Island-Southern Railroad, Monmouth, Ill.**—It is stated that this company has presented to W. D. Brereton, president of the Commercial Club, an amended proposition, compliance with the conditions of which will result in



the construction of a stub line to Alexis. The company's proposition is to build a line to Alexis if the sum of \$200,000 is raised jointly by Monmouth and Alexis, the \$126,300 already pledged in Monmouth to apply on the \$200,000 fund.

**Waukegan, Rockford & Elgin Traction Company, Waukegan, Ill.**—This company has been formed to build an electric railway from Waukegan to Rockford via Fox Lake, McHenry, Woodstock, Marengo and Belvidere. A line will also be built from Elgin to Antioch, meeting the main line at Fox Lake, and passing through Dundee, Carpentersville, Barrington, Lake Zurich, Wauconda, Fox Lake and other towns. R. D. Wynn, Waukegan, is promoting the line.

**Indiana, Ohio, Illinois Railroad, Indianapolis, Ind.**—The Electric Railway Journal is advised that this company expects to commence work on its projected railway in the near future. It will be an interurban line, about 200 miles in length, connecting Indianapolis and Chicago and intervening points. Electricity will be the motive power. Capital stock, authorized, \$5,000,000; issued, \$50,000. General office, 5526 University Avenue, Indianapolis. Thomas P. Kiser, Indianapolis, president and general manager; John E. Clark, Carmel, superintendent.

**Brownstown Water, Light & Traction Company, Brownstown Ind.**—W. B. Holton advises that this company contemplates the construction of an electric railway connecting Seymour, Brownstown, Vallonia, Salem, Paoli, West Baden and French Lick. The length of the road will be about 70 miles. Surveys have been made and the company expects to have cars operating on the first 15 miles this year. It is planned to begin construction March 1. The company already operates the water and light plant at Brownstown and expects to be supplying Vallonia with light soon. An additional power station and also the repair shops will be erected in Brownstown. Officers: W. B. Holton, Indianapolis, president and general manager; J. B. Thompson, Seymour, vice-president; H. Jackson, Seymour, secretary and general manager. [E. R. J., Dec. 19, '08.]

**Vincennes, West Baden & Louisville Railway, Vincennes, Ind.**—A meeting of citizens of Otwell was held on Jan. 5 with reference to the building of this road by way of Ireland, Otwell, Algiers, Petersburg and Monroe City. It is reported that the Chicago Trust Company offers to finance the road if the people along the right-of-way will subscribe \$150,000 worth of stock. Under the old company a 1 per cent subsidy tax has been voted in several townships, totaling \$80,000, so that it only will be necessary to subscribe \$70,000. [E. R. J., Dec. 19, '08.]

**Boone, Webster City & Interurban Railway, Boone, Ia.**—John S. Crooks, secretary of this company, which contemplates the construction of an electric railway connecting Boone, Stratford and Webster City, writes that the surveys, profiles and maps have been made and the rights of way secured. The overhead trolley system will be adopted by the company. It has not yet been decided when construction will be started. Officers: E. E. Hughes, president; J. L. Goepfinger, vice-president; J. S. Crooks, secretary; J. H. Herman, treasurer, all of Boone. [S. R. J., Dec. 14, '07.]

**Sioux City & Spirit Lake Railway, Sioux City, Ia.**—Announcement is made that this company expects to begin work soon on its interurban line connecting Sioux City and Spirit Lake. The other towns through which the line will pass are Potosia, Ellendale, Le Mars, Germantown, Paulina, Primghar and Hartley. The road will consist of about 110 miles of standard gage single track. The motive power will be electricity and it has been decided to install catenary construction. Two power stations will be built, one at Le Mars and the other at Spirit Lake. In addition to generating current for its own use, the company will furnish power in four cities situated along the route. The line will reach three amusement resorts, Arnold's Park, Spirit Lake and one on Lake Okoboji. Westinghouse, Church, Kerr & Company, New York, have been awarded the contract to build the road. Headquarters, 209 American Block, Sioux City. Officers: Frank Patch, Hartley, president; Fred Davis, Sioux City, secretary; G. E. Knaack, Hartley, treasurer; J. D. Browning, Sioux City, general manager; L. F. Wakefield, Sioux City, chief engineer. [E. R. J., Dec. 5, '08.]

**Kansas City & Kansas Southwestern Railroad, Topeka, Kan.**—This company has been granted an amended charter by the State Charter Board increasing its capital stock from \$10,000,000 to \$12,000,000. The company proposes to construct an electric railway extending from Kansas City to Independence, Kan., and from Kansas City to Topeka. [S. R. J., March 28, '08.]

**Kentucky & Ohio River Interurban Railroad, Paducah, Ky.**—This company will shortly be in the market for about 3000 tons 60-lb. relaying rails.

**Missouri & Kansas Interurban Railway, Kansas City, Mo.**—This company has resumed service on its line between Kansas City and Olathe. The road is about 22 miles in length and is now operated by electricity. Gasoline motor cars were formerly operated on the line.

**Interstate Railway, St. Joseph, Mo.**—Joseph Corby is reported to have announced that this company will build an electric railway between St. Joseph & Kansas City, Mo. He states that the company has completed its surveys, located its line of road, obtained a majority of its right-of-way, by deed and contract, and secured the money necessary to build a double track, rock ballast, standard gage electric railroad between the two cities. This road will be 48.5 miles in length, 14 miles shorter than present lines. Arrangements have been made with the terminal companies and street railway companies of both cities for the handling of both passenger and freight business.

**Billings & Cooke City Railway, Billings, Mont.**—George H. Savage writes that surveys are being made and the rights-of-way being secured for this proposed electric railway. It is the intention of the company to resume work in April. The road will be 110 miles in length and will extend from Billings to Cooke City passing through Laurel, Joliet, Dean, Nye. Catenary construction will be used. Power for the operation of the road will be rented from the Madison River Power Company. An amusement park will be established and operated by the company near Billings. Capital stock, authorized, \$2,000,000; issued, \$5,000. Headquarters, Billings. Officers: Edward Horskey, Helena, Mont., president; Edward Estep, Billings, vice-president; George H. Savage, Billings, secretary and general manager; Bert Shorey, Billings, treasurer; R. E. Leslie, Helena, chief engineer. [E. R. J., Dec. 12, '08.]

**Jamestown (N. D.) Traction Company.**—J. J. Nierling writes that this company has not yet completed arrangements for beginning work on its proposed line which is to connect Jamestown, Fried, Spiritwood Lake and Courtney. Capital stock, authorized, \$150,000. Officers: J. J. Nierling, president; Morris Beck, vice-president; L. B. Niemeyer, secretary; F. A. Lenz, treasurer.

**New York, N. Y.**—The Public Service Commission of the First District has granted the New York, Westchester & Boston Railway a certificate of public convenience and necessity to construct its lines through the Bronx. The commission has also granted to the company a certificate approving the franchise to build, granted to it by the Board of Estimate and Apportionment. The Public Service Commission of the Second District has also granted the company permission to construct its road.

**Dayton & Troy Electric Railway, Dayton, Ohio.**—It is stated that this company is planning to build 2 miles of second track this spring as a step in the program of having a double track line between Dayton and Piqua, Ohio. The company will also lay about one-half mile of track as an emergency crossing at grade with the Big Four Railroad.

**Massillon, Wooster & Mansfield Traction Company, Cleveland, Ohio.**—G. A. Bartholomew writes that considerable grading has been done by this company and it is expected that the work of constructing the line will be started this summer. Among the cities which will be connected by this road are the following: Mansfield, Mifflin, Ashland, Haysville, Jeromeville, Reedsburg, Plain, Wooster, sillon, Canal Fulton, Manchester and Akron. The motive power will be electricity. The line will reach Petersburg Lakes, Turkey Foot Lakes, two Chautauqua grounds and five county fair grounds. The company expects to furnish power for lighting. Capital stock, authorized, \$1,000,000; issued, \$100,000. General offices, Williamson Building, Cleveland. Officers: G. A. Bartholomew, Cleveland, president and chief engineer; J. W. Buchanan, Smithville, vice-president; Roy I. Guthman, Youngstown, secretary; H. G. Bye, Youngstown, treasurer. [E. R. J., Aug. 29, '08.]

**Scioto Valley Traction Company, Columbus, Ohio.**—It is stated that this company will build a spur from its third-rail line to Summerland on Buckeye Lake, a pleasure resort. It is possible that the line will be extended to Newark. Right-of-way for the extension has been secured.

**North Midland Railway, London, Ont.**—A. E. Welch writes that the surveys for this road have been completed and it is expected that construction will begin this spring. The line will connect Lucan, Granton, St. Marys, Stratford and London, and will be about 45 miles in length. The road will be bonded for \$25,000 per mile. Capital stock, authorized, \$1,000,000. Officers: W. Scarlett, 169 Dundas Street, London, Ont.; T. H. Lascombe, London, secretary;

A. E. Welch, London, general manager. [E. R. J., June 20, '08.]

**Dunnville, Wellandport & Beamsville Electric Railway, Wellandport, Ont.**—James A. Ross, president of this company, writes that plans have been made to begin construction this spring. The road will extend from Dunnville through Wellandport to Beamsville, a distance of 23 miles. A by-law has been recently passed by Dunnville granting a bonus of \$15,000. Mr. Ross states it is possible that the board of directors will be reorganized shortly. Capital stock, \$400,000. The road will be bonded at \$20,000 per mile. Officers: James A. Ross, Wellandport, president; W. J. Aikens, Dunnville, secretary; R. T. Gough, Toronto, chief engineer. [E. R. J., Sept. 26, '08.]

**Altoona, Hollidaysburg & Bedford Springs Railway, Altoona, Pa.**—At a meeting of the stockholders of this company on Jan. 5 a complete organization was effected. According to the plans of the newly organized company, the line will start from Broad and Beale Avenues, Altoona, extend through Hollidaysburg, Duncansville, Newry, Roaring Spring, Martinsburg, take in all parts of Logan, Allegheny, Blair, Freedom, Taylor, Juniata, North Woodbury, Frankstown, Greenfield and Woodbury townships, and then go to Loysburg, Batesville, Everett, Mt. Dallas, Bedford and Bedford Springs. Ordinances have been introduced into the borough councils of Martinsburg and Hollidaysburg to grant the company right-of-way through those towns. Frank G. Patterson, president and promoter of the company since its organization, was succeeded by John G. Burns, Pittsburg, who was elected to the presidency and who will begin the active work of building the road. Frederick W. Patterson, Pittsburg, was made chief engineer and George W. Burke was re-elected secretary-treasurer. Thomas Maxwell was chosen vice-president.

**Clarion & East Brady Electric Railway, Clarion, Pa.**—This company is said to have been organized for the purpose of building an electric railway from Clarion to East Brady via Sligo and Rimersburg, a distance of 25 miles, and by connecting with a road projected between Butler and East Brady it will make a complete trolley route of 86 miles from Pittsburg to Clarion. G. E. Arnold, F. M. Arnold and T. S. Arnold of Clarion are the head of the enterprise. A franchise has been obtained for the use of the streets of Clarion, with the provision that work is to be started within two years.

**Terminal Railroad, Philadelphia, Pa.**—This company is reported to have been formed to build a street railway to join Angota with the Union terminal at Sixty-ninth and Market Streets, Philadelphia. The projected line will traverse the new section known as Millborne. The incorporators will be John Wolfenden, Washington T. Shore, Frank B. Rhoades, Jos. H. Dohan and Bernard J. O'Connor. It is planned to begin the line at a point near the Union Station, which is a terminus of the Market Street elevated, the Philadelphia and West Chester lines and the Philadelphia and Western system. It will then go over the West Chester pike and then in a southerly direction, crossing Long Lane Marshall Road and Pembroke Avenue, to the Delaware County turnpike, and on to Baltimore Avenue, at Fernwood. It will return by the same route. A charter will be applied for by the company the latter part of next month.

**Belton & Temple Traction Company, Temple, Tex.**—It is stated that this company has under consideration a number of improvements to its system which will include the extensions of the line to Lake Polk and to Williamson Heights and other needed extensions in the city. The plans also contemplate a material shortening of the line between Temple and Belton in order that more frequent service may be maintained.

**Cleburne, Tex.**—It is stated that H. M. Hyatt, Kansas City, Mo., who secured a franchise from the city of Cleburne several months ago for rights to operate local street railway and interurban lines over the principal streets of the city, has notified several prominent citizens of Cleburne that he has formed a company which is ready to begin construction of the Dallas-Cleburne interurban railway as soon as \$600,000 stock is subscribed by the citizens of the towns interested along the proposed route. He states that a tentative contract for the grading and track work has been let, subject to the action of the parties desiring the construction of the road. [E. R. J., Nov. 28, '08.]

**Marshall (Texas) Traction Company.**—The Electric Railway Journal is advised that this company expects to begin the construction of its local street railway early this year. A contract has already been let for the building of three-quarters of a mile of track. The line will be about 4 miles in length and will be operated by electricity, the overhead trolley being used. It is the in-

tention of the company to apply for a charter this month. M. Turney, Marshall, manager. [E. R. J., Nov. 14, '08.]

**Spokane & Inland Empire Railroad, Spokane, Wash.**—Reports are current to the effect that this company is considering the proposition of extending its line from Colfax, the present terminus, south to Walla Walla, a distance of about 75 miles.

**Walla Walla & Columbia Traction Company, Walla Walla, Wash.**—Dr. N. G. Blalock writes that it is the intention of this company to begin work on its proposed line about Feb. 1. Surveys have been made, rights of way secured for a distance of about 60 miles. Mr. Blalock states that arrangements have been made with the old company which originally had planned to construct the road, and when \$250,000 has been subscribed the franchises, rights of way, surveys, etc., will be transferred to the present company, taking stock in the same for cash actually expended. The road will connect the following cities: Dayton, Huntsville, Waitsburg, Prescott, Walla Walla, Milton, Freewater, Touchet and Wallua. The system will have about 80 miles of standard gage single track. Overhead trolley construction will be installed. A power station will be built on the Tucanon River. Connections for the transportation of freight will be made at Wallua with the Open River Transportation Company, which operate steamers on the Columbia River between several important cities. Capital stock, \$1,000,000. Headquarters, Walla Walla. Officers: Dr. N. G. Blalock, Walla Walla, president and general manager; M. R. Hauger, Dayton, first vice-president; H. H. McLean, Walla Walla, second vice-president; L. C. Davison, Walla Walla, secretary; George Kellogg, Walla Walla, treasurer. [E. R. J., Dec. 26, '08.]

#### SHOPS AND BUILDINGS

**Humboldt Transit Company, Eureka, Cal.**—The ELECTRIC RAILWAY JOURNAL is advised that this company expects to erect a new car house in the near future.

**Public Service Railway, Newark, N. J.**—This company has awarded the general contract for the construction of a passenger terminal at the junction of Hudson Street and the present Lackawanna and McAdoo terminals in Hoboken to the Fagan Iron Works, Jersey City. The building, which is to be of brick, concrete and steel construction, will be three stories high. It will be arranged so as to handle traffic from the Lackawanna Railroad from the ferries and the Hudson & Manhattan Railroad, which operates the tunnel under the river between New York and New Jersey, in addition to that over the surface and elevated lines. The lower floor will be used for the tunnel traffic, the main floor for the surface lines, railroad and ferry passengers, and the upper deck for the elevated traffic. The estimated cost of construction has not been made public, but it is stated on good authority to be in the neighborhood of \$300,000.

**Lake Shore Electric Railway, Cleveland, Ohio.**—It is stated that this company has decided to build its own city and interurban cars, and for that purpose a car house at Sandusky will be converted into shops during this year.

**El Paso (Tex.) Electric Company.**—This company is said to have purchased about 55,000 sq. ft. in the Cotton addition as a site for a new car house.

#### POWER HOUSES AND SUBSTATIONS

**Illinois Traction System, Champaign, Ill.**—This company is arranging to change 100 miles of its line from alternating to direct current and will build eight substations.

**Humboldt Traction Company, Eureka, Cal.**—This company expects to install in its power plant during 1909 a 400-kw unit consisting of an engine, boiler and generator. The company is also constructing a 15,000-bbl. oil tank, increasing the total capacity to 25,000 bbls.

**Gulfport & Mississippi Coast Traction Company, Gulfport, Miss.**—It is stated that this company is making arrangements for the installation of another storage battery at a cost of \$25,000 which will be located near the central station. It is said that when the road is extended to Pass Christian an additional one will be established at some point near the western end of the line.

**Philadelphia (Pa.) Rapid Transit Company.**—It is announced that this company has placed its coal order for 1909. A contract has been made with Madeira, Hill & Company, for 200,000 tons of buckwheat coal and 75,000 tons of bituminous. Another award went to the Lehigh Coal & Navigation Company for 150,000 tons of buckwheat.

**Big Bend Traction Company, Spokane, Wash.**—Announcement is made that this company will erect a power plant and dam about 2 miles from the point where the Spokane flows into the Columbia. Surveys have been made and plans drawn for the dam, which will be 65 ft. in height. The station will have a capacity of 10,000 hp.

# Manufactures & Supplies

## ROLLING STOCK

**Southwestern Interurban Railway, Arkansas City, Ark.,** is making inquiry for three cars.

**Syracuse (N. Y.) Rapid Transit Company,** it is said, will soon be in the market for new interurban cars.

**Kentucky & Ohio River Interurban Railroad, Paducah, Ky.,** now under construction, expects to be in the market for eight cars some time in the Spring.

**Illinois Traction System, Champaign, Ill.,** will soon order a 65-ft. private and office car for H. E. Chubbuck, general manager. The company is building a private trail car.

**Albia Interurban Railway, Albia, Ia.,** has purchased through the Wesco Supply Company, St. Louis, Mo., two 16-ft. closed motor cars, each equipped with two GE-52 motors.

**Chicago, Wheaton & Western Railway, Wheaton, Ill.,** has increased its order with The J. G. Brill Company from three to five cars. The original order for three cars was noted in the *ELECTRIC RAILWAY JOURNAL* of Nov. 28.

**Rochester Railway Company, Rochester, N. Y.,** is ready to place an order for four interurban cars, with privilege of increasing the number to eight. It is reported that the company will also soon purchase 30 new city cars.

**Rochester & Manitou Railroad, Charlotte, N. Y.,** has ordered from the G. C. Kuhlman Car Company the three semi-convertible cars, referred to in the *ELECTRIC RAILWAY JOURNAL* of Dec. 12, 1908. The company is also in the market for trucks.

**Indianapolis Traction & Terminal Company, Indianapolis, Ind.,** is reported to have about completed financial arrangements for the purchase of the 50 city cars referred to in the *ELECTRIC RAILWAY JOURNAL* of Nov. 28, 1908. It is said that the order for the cars will be placed soon.

**Rock Island Southern Railroad, Monmouth, Ill.,** is in the market for a steam locomotive, six flat cars and six box cars. These equipments are to be used for work-train purposes during the construction of the proposed extension of the line from Monmouth, Ill., to Rock Island, Ill.

**Buffalo, Lockport & Rochester Railway, Buffalo, N. Y.,** will place an order this week for eight interurban cars, with the privilege of increasing the number to 15. Specifications for these cars were issued in December, 1908, and referred to in the *ELECTRIC RAILWAY JOURNAL* of Dec. 12.

**Denver City Tramway, Denver, Col.,** advises it has just placed an order with the Woeber Carriage Company, Denver, for 25 43-ft. 10-in., standard combination passenger cars. The orders for the trucks and motors for these cars have not yet been placed, but these equipments will probably be purchased at once.

**Washington Railway & Electric Company, Washington, D. C.,** has just ordered from The J. G. Brill Company 50 28-ft. 3-in. closed cars with pay-as-you-enter platforms. This order constitutes an increase of 15 cars in the order for 35 new cars which was chronicled in the statistical data published in the *ELECTRIC RAILWAY JOURNAL* of Jan. 2, 1909.

**Third Avenue Railroad, New York, N. Y.,** has placed its order for the 200 new cars, referred to in recent issues of the *ELECTRIC RAILWAY JOURNAL*, with The J. G. Brill Company. These cars will be built under license from the Pay-As-You-Enter Car Corporation. They will have steel underframe, will be mounted on Brill trucks and will be operated with Westinghouse two-motor equipments. The Pantasote Company will furnish Agosote headlinings and Pantasote curtains.

**Capital Traction Company, Washington, D. C.,** has closed a contract with the Pay-Within Car Company, through the Electric Service Supplies Company, sales agent, covering "Pay-Within" equipments for 11 double-truck suburban cars, to be operated on the Chevy Chase Division. These cars, which are being built by the Cincinnati Car Company, will be equipped with four sets of sliding doors and disappearing steps, operated with compressed air apparatus of the same type as used on Philadelphia cars. The method of fare pre-payment will be the same as adopted in Philadelphia, the conductor standing immediately inside of the car, midway in the open bulkhead, from which point he controls the doors and steps by means of an air valve.

**Hudson & Manhattan Railroad Company, New York City,** has ordered from the Pressed Steel Car Company 40 new steel passenger cars to be used in the tunnels under the Hudson River. Two of the tunnels are now in operation and two more will be completed some time next summer. The cars will be identical with the 50 ordered last November and described in the *ELECTRIC RAILWAY JOURNAL* of Nov.

21, 1908. They will be 48 ft. long with seating capacity for 44 passengers and equipped with both center and end doors. Contracts for other equipment for the entire order of 90 cars as far as they have been let are: General Electric Company, 90 two-motor equipments, 150 hp with type "M" control; American Locomotive Company, standard M. C. B. trucks; Hale & Kilburn, seats; Gould Storage Battery Company, storage batteries.

## TRADE NOTES

**James Clark, Jr., Electric Company, Louisville, Ky.,** has just placed on the market a new electric-driven notching press for armature disks and an electric-driven winding machine for field coils.

**Lackawanna Steel Company** has moved its Buffalo, N. Y., office from the Ellicott Building to the Fidelity Building. The company's general sales office is located at 2 Rector Street, New York City.

**Richard Wick,** formerly associated with the Western Wire Sales Company, Chicago, Ill., has opened offices at No. 356 Dearborn Street, Chicago, and will hereafter engage in the sale of bare and insulated wires and cables.

**G. S. Ackley,** president of the National Brake Company, sailed on the *Cedric* on Jan. 9 for Naples. It is his intention to visit Italy, Switzerland, Austria-Hungary, Germany, France and the British Isles. A number of friends were on the dock to wish him "bon voyage."

**Westinghouse Machine Company, Pittsburg, Pa.,** reports among its recent contracts the following: Compound engine for Black Hills Traction Company, Deadwood, S. D.; Metropolitan Street Railway, Kansas City, Mo., 1500-kw turbine unit; Capital Traction Company, Washington, D. C., 3000-kw turbine unit; Tampa (Fla.) Electric Company, 1500-kw turbine unit.

**Warren Webster & Company, Camden, N. J.,** announce that beginning with Jan. 1, 1909, they will conduct the business heretofore carried on by the American Specialty Company, of Chicago. The latter company has had branches and agents in various cities throughout the Middle West and the new business arrangement does not contemplate any change in the personnel of these representatives.

**Gulick-Henderson & Company, Pittsburg, Pa.,** inspecting engineers, foundry specialties, and chemists, have opened a Western office and laboratory in the Manhattan Building, Chicago, in charge of W. O. Collins, who is a new member of the firm. Mr. Collins was formerly a member of the firm of Collins & Stevens, making a specialty of inspection and general engineering work.

**Western Wire Sales Company, Chicago, Ill.,** has recently been reorganized, Richard Wick, formerly one of the officers of the company, retiring. The officers now are C. T. Murdock, president; A. N. Allen, secretary, treasurer and manager. The company announces that it will carry the same line of bare and insulated wires and cables as heretofore, and will cater to the same trade as it did previous to the reorganization.

**Mechanical Appliance Company, Milwaukee, Wis.,** will show for the first time at the Chicago electrical show to be held at the Coliseum, Chicago, Ill., Jan. 16 to 30, an electrically operated crossing gate. This gate is designed to be operated by a small d.c. motor driven by 500-volt current. The gate is so constructed that the arms can be raised and lowered by the opening and closing of a switch designed to be located in a signal tower at any point.

**Metropolitan Electrical Supply Company, Chicago, Ill.,** is making a campaign among steam and electric railways for the sale of De Ronde's insulating paints and compounds for which the company is agent. These products are said to be proof against action by water, acid, alkali and heat and have high insulating properties. They are especially recommended for use in coating moldings for dynamos and motor frames, switchboards, cutouts and for all other purposes where liquid insulation is desired.

**Dossert & Company, Inc., New York City,** has received a large order from the Central Electric Company of Chicago for Dossert solderless connectors, including two-way and four-way cable taps for delivery to the Cananea, Yaqui River & Pacific Railway at Sonora, Mexico, and terminal lug connectors for the Gila Valley & Northern Railway Company, Globe, Ariz. They have also received orders for special Y connectors for extra flexible cable for the Metropolitan West Side Elevated Railway, Chicago, and 200 special two-way connectors for the American Car & Foundry Company, Berwick, Pa., for the electric lighting system of steel passenger cars.

**Westinghouse Electric & Manufacturing Company.**—George C. Smith, an executive officer and director in many auxiliary Westinghouse companies, has been appointed by

the new board of directors of the Westinghouse Electric & Manufacturing Company as its special representative in connection with its interests in a number of electric railway and power companies whose securities are held as investments. Among the companies are the Lackawanna & Wyoming Valley Rapid Transit Company and subsidiary companies, Niagara, Lockport & Ontario Power Company, Electric Power Securities Company, of Niagara Falls; Grand Rapids, Grand Haven & Muskegon Railway; Atlanta Water & Electric Power Company. Mr. Smith's headquarters will be in the City Investment Building, New York.

American Locomotive Company has purchased a plot of 130 acres of land at Gary, Ind., from the Gary Land Company, a subsidiary company of the United States Steel Corporation, and plans are being drawn for a new plant which, it is said, will be the most complete and best equipped locomotive works in the world. The land purchased is twice the extent of that occupied by the largest of its present plants, and when fully occupied will give employment to from 12,000 to 15,000 workmen. The land adjoins that of the new plant of the United States Steel Corporation. Both steam and electric locomotives will be built at the new plant and it is probable that eventually electric trucks and all other branches of the company's work will be done. This company now operates plants in Schenectady and Dunkirk, N. Y.; Pittsburg and Scranton, Pa.; Richmond, Va.; Paterson, N. J.; Manchester, N. H., and Montreal, Canada. At present there is no large locomotive plant west of Pittsburg, and the selection of a location in the Chicago district provides additional locomotive building capacity where it is most needed for prompt and direct delivery to a large number of railroads.

#### ADVERTISING LITERATURE

**Western Electric Company, New York.**—A new bulletin, No. 5110, issued by this company is devoted to electrical equipment for central stations.

**Vulcan Steam Shovel Company, Ohio.**—This company has issued a large calendar which is illustrated with engravings of Vulcan steam shovels in operation.

**American Carbon Battery Company, East St. Louis, Ill.**—An art calendar for 1909 which calls attention to its carbon brushes is being sent out by this company.

**G. M. Gest, 277 Broadway, New York City.**—A little booklet is being issued at this time by Mr. Gest, devoted to the distribution of electrical energy. It is illustrated.

**American Wood Working Machinery Company, Rochester, N. Y.**—This company has issued an illustrated calendar picturing with half-tones the company's large line of wood working machinery.

**Crouse-Hinds Company, Syracuse, N. Y.**—Bulletin No. 100, issued by this company on Jan. 1, 1909, entitled "Condulents," is a voluminous catalog of practically all the various products of the company.

**Pettingell-Andrews Company, Boston, Mass.**—This company has just issued a new illustrated catalogue describing "opalux" reflectors for electric illumination. Prices and discounts are given.

**Chain Belt Company, Milwaukee, Wis.**—A recent publication of this company describes a chain-belt concrete mixer of a new and improved type which is being put upon the market.

**Northern Engineering Works, Detroit, Mich.**—This company has just sent out an announcement that it is in the market for the construction of cupola furnaces and all other kinds of foundry machinery. Descriptive catalogs and bulletins will be furnished to interested parties.

**Westinghouse Electric & Manufacturing Company, Pittsburg, Pa.**—"Motor Talks" No. 2 for January discusses display window advertising. Some attention is also paid to the use of small electric motors to relieve household work.

**Jeffrey Manufacturing Company, Columbus, Ohio.**—This company is sending out catalog "67D," which is devoted to Jeffrey rubber belt conveying machinery. The illustrations show the application of the rubber belt to conveyors for various kinds of material.

**Robbins Belt Conveyor Company, New York City.**—This company is sending out a reprint of a paper by C. Kemble Baldwin, chief engineer of the company, read before the American Society of Mechanical Engineers, dealing with the advantages and applications of belt conveyors.

**Green Fuel Economizer Company, Matteawan, N. Y.**—A new type of hot blast heater coil or radiator for indirect heating systems is described in a 16-page pamphlet issued by this company. The several novel features of construction are described and illustrated in the booklet.

**Fidelity & Casualty Company, New York City.**—The Monthly Bulletin for January of this company contains an article on the accidents caused by the traction companies in New York City. It shows that the loss to the companies from accidents amounts to more than their fuel bill, and is over 9 per cent of the operating expenses.

**W. K. Kenly Company, First National Bank Building, Chicago, Ill.**—This company, which deals in rails and track materials, is sending out a small calendar to call attention to the fact that the company represents the Kalamazoo Railway Supply Company, American Metal Hose Company and the Latimer Switch Point Lock Company.

**D'Olier Engineering Company, 119 South Eleventh Street, Philadelphia, Pa.**—Recent bulletins which this company has sent out are devoted to horizontal centrifugal pumps and to steam turbines. Each of the publications is illustrated and contains necessary information for prospective purchasers.

**H. W. Johns-Manville Company, 100 William Street, New York City.**—Catalog No. 100 of this company is devoted to J-M pipe and boiler insulation. The catalog describes the principal types of pipe and boiler coverings which have been perfected during the 50 years in which the company has been manufacturing asbestos and magnesia products.

**General Electric Company, Schenectady, N. Y.**—A new folder from this company describes its transformers for use in connection with moving picture machine arc lamps. This transformer is known as the "G. E. Economy Arc." Bulletin No. A637 illustrates and describes the various styles and sizes of tungsten incandescent lamps for battery service.

**Industrial Progress.**—This is the name of a new monthly publication issued at 330 Clinton Street, Milwaukee, Wis. According to the announcement of the publishers the magazine will be devoted to the republication of various articles taken from the trade and technical press. It is intended to be a digest of matter worth preservation and to give such matter additional distribution. The publication is illustrated.

**American Blower Company, Detroit, Mich.**—This company has recently published the following new bulletins: Electric forge blower circular, No. 242; variable speed engine catalogue, No. 244; shop heating treatise, No. 246, and steam trap catalogue, No. 247. The treatise on shop heating has been prepared by the company's vice-president and chief engineer, F. R. Still, who is an authority on factory heating and ventilation.

**Lombard-Replogle Engineering Company, Akron, Ohio,** announces that John Sturgess, who is well known in the electrical fraternity through his former connection with the Sturgess Governor Engineering Company, has recently become associated with the company as general manager. Mr. Sturgess' wide experience with governor design and operation will be of value to this company, which is specializing in governor work. An improved type which is just to be put on the market is the result of the collaboration of Mr. Lombard, Mr. Replogle and Mr. Sturgess.

**Sprague Electric Company, New York.**—An illustrated leaflet is being sent out to the trade by this company, accompanied by a circular letter explaining the merits of the Sprague electric shovel. It is claimed that it is simpler than any other mechanical shovel. As a two or three-rope bucket, it can be operated and controlled entirely by one handle. This arrangement eliminates all clutches and foot brakes, greatly simplifies the design, and reduces the chance of breakdown by dispensing with a number of moving and wearing parts. The shovel can be used on monorails, bridge cranes or gantrys, on stiff-leg derricks, unloading towers, etc.

**Albert B. Herrick, New York.**—The special class of investigations for electric railway companies carried on by this well-known engineer has been aptly termed by him "Maintenance Engineering." To carry out his investigations of track, line and feeder conditions, Mr. Herrick has invented many ingenious instruments, particularly those of automatic recording types, for use on his test cars. Some of his work has been referred to in these columns from time to time but readers will be interested to learn that Mr. Herrick himself has just issued a pamphlet which summarizes his work and contains many interesting illustrations of his testing apparatus, sample records, etc. A map in this publication shows the location of American and Canadian lines over which the test cars have been operated. These lines embrace 182 properties and a total mileage of 11,071, covering respectively 20.3 per cent of the United States electric railway mileage and 41.6 per cent of the Canadian mileage.