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NEW YORK, SATURDAY, MAY 21, 1910.

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A Convention Hall for Exhibits

Saratoga Springs has made a proposal to the American Street & Interurban Railway Association for the construction of a hall which would be specially adapted for exhibit and convention purposes. Briefly the proposal is this: That in consideration of a contract whereby the American Street & Interurban Railway Association would agree to hold its annual conventions for three out of the next five years in Saratoga that town will erect a commodious structure whose plans and specifications will be submitted for approval to the association before construction was commenced. At the expiration of five years the building will become the property of the association under certain conditions stipulated in the proposal. It has long been a matter of surprise to us that the hotel men in such resorts as Saratoga Springs, Atlantic City, Manhattan Beach, etc., have not risen to their opportunities in respect to large industrial conventions. There are numerous associations in the steam railway, electric light, mechanical engineering and other departments of industry which require much the same sort of accommodations as the street railway associations. Even if these associations did not meet every year in the same city, there is a sufficiently large number of them, we believe, to warrant the construction, in some city with good hotel facilities and located on or near the Atlantic sea-board, of such a hall, suitably equipped with power plant and shipping, storage and railway facilities. We hold no brief for Saratoga Springs and are not prepared to say that it is the best place for a hall such as is proposed, or even that it is wise for the association to undertake the responsibility of owning a hall. But the fact that the citizens of that city have made the offer which they have entitles the plan to careful and serious consideration.

Five Levels of Electric Tracks

Within a few years the area in front of the Grand Central Station at Forty-second Street, New York, will be one of the most busy traffic points in the world, if the plans now under consideration by the New York Public Service Commission, First District, are carried out. Forty-second Street is one of the many narrow cross-town streets in New York, so that its improvement for rapid transit purposes has to be made vertically instead of longitudinally. As now planned the street at its junction with Park Avenue will contain railway tracks on five levels. At the upper level is the Third Avenue Elevated Railroad. Then below in consecutive order come the tracks for the surface cars, those of the Interborough Rapid Transit Company, those of the Hudson & Manhattan Railroad Company and those of the New York & Long Island Railroad operating the Steinway tunnel to Long Island City. This list is exclusive of the two levels of tracks in the station itself and the proposed double-decked four-track Broadway-Lexington Avenue subway

which crosses Forty-second Street one block east of Park Avenue. The possibilities of electric traction for underground service will certainly be well exemplified at this point.

Abandonment of an Unprofitable Branch

That the drastic course of abandonment of an unprofitable part of an urban railway system may be in the public interest is held by the New York Public Service Commission, Second District, in a decision affecting the Port Jervis Traction Company. The convincing reasons for the decision of the commission in this case are that the railway has not been operated successfully during its entire history and that the Kingston Avenue branch, whose abandonment was under discussion, has not yielded returns above operating expenses. In the hope that the financial condition of the company may become better the commission has approved the construction of an extension to the nearby community of Sparrowbush. This is not the first decision in which the commission has taken steps to conserve, if possible, some part of the property involved. Only in the present year, in conformity with the action of the same State authorities, the railway and the lighting properties, which had been combined in one company, were segregated. Securities were issued by the segregated properties that were based upon actual value and effected so sharp a reduction in capitalization as is indicated by a decrease from $735,000 to $357,000 in par values. Thus the steps which have been taken to revivify an unfortunate railway inflict loss upon security holders as well as inconvenience upon residents on the line of the abandoned branch. The community as a whole, however, will have a service that for the majority of people will be unimpaired or improved.

Good Results with Electric Sleeping Cars

The use of electric railway sleeping cars is not new, but the assurance of their successful operation has come only after considerable trial. The first electric railway sleeping cars were built for operation in Indiana and Ohio, but were never put into regular service there. Later these same cars were put into service between Springfield, Ill., and St. Louis, Mo., on a run of 97 miles. Recently two new cars have been put into service between St. Louis and Peoria, as previously mentioned in this paper, and have more than met the expectations of the road which is operating them. Although handicapped by lack of terminal facilities at the southern end of the road, because the McKinley Bridge into St. Louis has not yet been finished, the new cars average about 10 passengers nightly in each direction. The southbound business exceeds that northbound because of the difficulty of reaching the cars at midnight from St. Louis. Compared with the competitive steam railroad service between the points mentioned, a person making the trip on an electric car can have two hours longer at either terminal and save 25 cents berth fare. The sleepers are operated in connection with a day coach and the traffic department of the Illinois Traction Company has been surprised at the substantial earnings of the day coach, which makes the through 171-mile run after midnight. Some popular innovations on the new sleepers are a free breakfast of hot coffee and rolls, and "tipless" porters who are paid $50 a month and "lay-off" every other trip. Another idea thought to be new in transportation service is that of supplying passengers with stamped postal cards stating that the railway company desires to keep its service up to the highest efficiency and asks for criticisms and suggestions. The traveling public has been taught for so long the doctrine that little further improvement could be expected in sleeping-car accommodations it is refreshing to see these evidences of progress. We believe that the time is not far distant when other electric railway companies in the Central States will follow the practice of the Illinois Traction Company in the operation of sleeping cars.

COMPARATIVE RUNNING TIMES

Frequency of service is one of the strong points of electric railway competition with other transportation agencies. The determination of average running times between competitive points is a larger question than sometimes appears from a casual examination of the schedules, since the relation of the train or car headway to the time of transit between local and through destinations affords an opportunity for some very interesting and suggestive analysis. For every case of competitive service there are certain time relations which, if properly determined and brought to the attention of the public, will help to draw business away from rival agencies of service.

Given two competing schedules, as of an electric interurban and a parallel steam line, the important point is to determine how far a shortened electric train interval can aid in capturing traffic in the face of a somewhat faster running time over the tracks of the rival road. An experienced traveler is constantly making rapid mental estimates along this line, but the great majority of persons do not readily investigate the zone where a few minutes saved or lost warrant the choice of the electric service against the steam.

The average time of transit between any two points on each of two competitive systems should, when tabulated, take into account the advantage to the public of running trains with a short headway and a somewhat uniform schedule throughout the day. In a recent comparison of this kind the tables showed the average time to make the journey between terminals on each of three competitive systems, assuming that a passenger was ready to start from each end of the road each minute of the day. This average time was calculated by adding to the running time of each train and car one-half of the minutes which had elapsed since the departure of each preceding train and car, and then averaging these values, thus giving proper weight to not only the speed of the train units, but to the headway between them. The results showed that the average time of transit between terminals on the electric line was 51.6 minutes, compared with 89.6 minutes and 125 minutes on the two competing systems. The public can be given the basis of determining comparative speeds of this kind when the schedule times of the electric railway system are posted at strategic points along the line, but there is room for some pretty sharp analysis and subsequent publicity in this connection. Any manager with a bent for figures can deduce some valuable conclusions as to the ability of his service to beat that of his competitor if he investigates the conditions at various points on his line. From the calculations of average running time obtained graphically or otherwise the exact conditions determining when it will pay to patronize one service or the other can be ascertained, and emphasis can be laid upon the time values of each point on the line by suitable posters or other advertising matter. Obviously, the farther one goes from the competing steam railroad station

at either end, or from any local steam station, the more favorable are the chances of successfully handling the business by trolley. The public may realize this, in an indefinite way, but what is needed is an exact statement of the speed characteristics of the electric line, so that the stranger in the territory will choose the latter service so far as possible, and not waste his time either in walking to the nearest steam-railroad station or in waiting for trains which will save him little if any time on the journey.

SUBSTATION ECONOMY

On account of the difficulties in the way of controlling operating conditions the cost of handling electrical energy in substations of the rotary converter type is seldom analyzed with the degree of care that obtains in well-managed generating plants. Nevertheless, it is interesting to study the possibilities in substation economy, for by so doing one gets an idea of relative values which is suggestive. It is of the utmost consequence to secure as high an efficiency as is feasible in the transformation and application of electrical energy to rolling stock operation, for any saving at the end of the line most remote from the generating station becomes multiplied at the busbar by the reciprocal of the efficiency of the transmission and distributing system.

Analyzing the probable cost of operating a substation of, say, 500-kw capacity in railway service, it appears that a good load factor is quite as important in relation to a low unit expense as in an ordinary generating plant. A recently completed substation of this capacity cost $22,000, including land, or $44 per kilowatt. Under reasonably favorable operating conditions the ratio of the average output to the normal capacity of the installation might be 30 per cent, giving a total yearly delivery of 1,315,000 kw-hours at the d.c. bus. Taking interest at 6 per cent, insurance and taxes, 1 per cent each, and depreciation, 5 per cent, the fixed charges would reach $2,860 per year, or about 0.22 cent per kw-hour. In this installation three men are required, with wages totaling $8 per day, roughly. The labor cost then may be taken at about $2,820 per year, and allowing $780 for repairs and $400 for supplies, the total operating expenses reach $4,000, or about 0.30 per kw-hour. The total cost of handling the yearly service of the substation thus may be estimated at 0.52 cent per unit of energy delivered to the d.c. feeders.

Figures of this kind do not show the desirability of operating the machinery as close to its range of maximum efficiency as possible, for we must go back to the power station itself in order to determine the cost of wasted energy outside. They do indicate, however, the importance of cutting down the running cost of the substation by endeavoring to keep the controlling items low. The fixed charges cannot be altered, and upon the designer of the installation lies their burden. The opportunities for saving money here are not many, but something may be done by locating the building on relatively cheap land, by making it of sufficient size to permit the convenient handling of apparatus in setting up the equipment, including some sort of hoisting facilities, generally hand-operated; and by avoiding in small substations any tendency toward elaborate automatic features in the switching mechanism. By leaving the extra high-tension wiring out of the machinery room and basement, if any, something may be saved. It pays to look up the tax rate when a substation location happens to be near a town boundary.

The most feasible place in which to institute substation economy of operation is in the labor account. Without passing upon the ability of two men instead of three to handle a substation of the above size, it is apparent that in cases where other work can be performed decided saving can be effected, and generally without any impairment of the service. There is nothing new in combining the duties of the substation with a certain amount of repair-shop work, car-house inspection and light maintenance, service as ticket agent or freight clerk, but it might be possible to save from $1,000 to $1,500 per year in this way, and this would cut the cost of operation per kw-hour handled to from 0.23 cents to about 0.18 cents. Little can be done to reduce the cost of repairs and supplies, with careful handling of the equipment. Plainly, the substation does not furnish a very elastic field for the practice of economy, but if the matter is appreciated before and after construction, something can be done that is worth while in not a few instances.

SHIFTING STREET TRAFFIC AND REROUTING CARS

Important changes just made in the routing of cars in Minneapolis afford a good instance of the value of careful observation and a study of the trend of travel. The centers of business activity and traffic movement of all growing communities are continually shifting and a street railway company should be the first to recognize any changes in the trend of traffic so as to anticipate the need for increased or rearranged service. By giving this subject prompt attention, a railway company can often reduce street congestion and, at the same time, improve its service and cut down the car-miles and car-hours run. A knowledge of the actual situation in regard to the flow of traffic is also very useful to the transportation department when unreasonable routes are demanded by the city authorities as well as when the company is making its own plans for extensions of its service.

In eleven of the important changes in routing in Minneapolis the plan was followed of operating the cars of each line in both directions over the same route. Formerly many of the cars running into the business district were looped around several business blocks and thus did not use the same street on their inbound and outbound trips. This caused some confusion among passengers, especially strangers. Under the new plan it will be considerably easier for patrons to find the car they desire.

Through-routing of cars from one edge of the city to the other through the business district has been found satisfactory on those lines in Minneapolis so operated and the company now proposes to through-route as many lines as possible instead of looping the cars in the business district. Through-routing of cars frequently makes possible a reduction of several blocks in the length of a run without involving the passengers in any hardship. Such a reduction in car mileage means fewer cars to operate and higher speed of the others through a congested district. These questions of loop terminals, through-routing and plans of extensions of the service are of vital importance to all companies and should not be decided off-hand. Trustworthy traffic data are essential in reaching their proper solution and such data can be obtained only by continued and conscientious investigation.

ELECTRICAL DEPARTMENT OF THE METROPOLITAN STREET RAILWAY, NEW YORK—I.

The work of the electrical department of the Metropolitan Street Railway Company, of New York, begins with the handling of coal at the power station and ends with the delivery of current to the cars. It also includes the charge of the electrical appurtenances of all buildings and the investigations from an engineering point of view of apparatus not used under its jurisdiction. The following paragraphs will be devoted to a statement of some of the most important work accomplished by this department since the appointment of the receivers Sept. 24, 1907, in regular maintenance, extraordinary maintenance and new construction. The charts on pages 896 and 897 show the division of work and authority in this branch of the Metropolitan system.

STEAM CHANGES AT THE NINETY-SIXTH STREET POWER STATION

The steam department operates and maintains the steam apparatus and machinery in the power station and supervises all construction and reconstruction work connected with the power station. Its jurisdiction begins with the unloading of the coal boats and ends at the generators. An account of the improvements made in the Metropolitan Street Railway since the appointment of the receivers can then properly begin with the coal conveyor.

There is little usually in the way of improvement thought possible with the coal-conveying mechanism, but it was found that by using renewable bearings the lives of the conveyor axles could be materially prolonged. Hence the holes in the old wheels have been bored out and have been fitted with cast babbitt-metal bushings. New wheels are bought with holes properly drilled for these bushings. Longer life for bearing and shaft has also been secured by filling the cast hollow wheels with grease to obtain good lubrication.

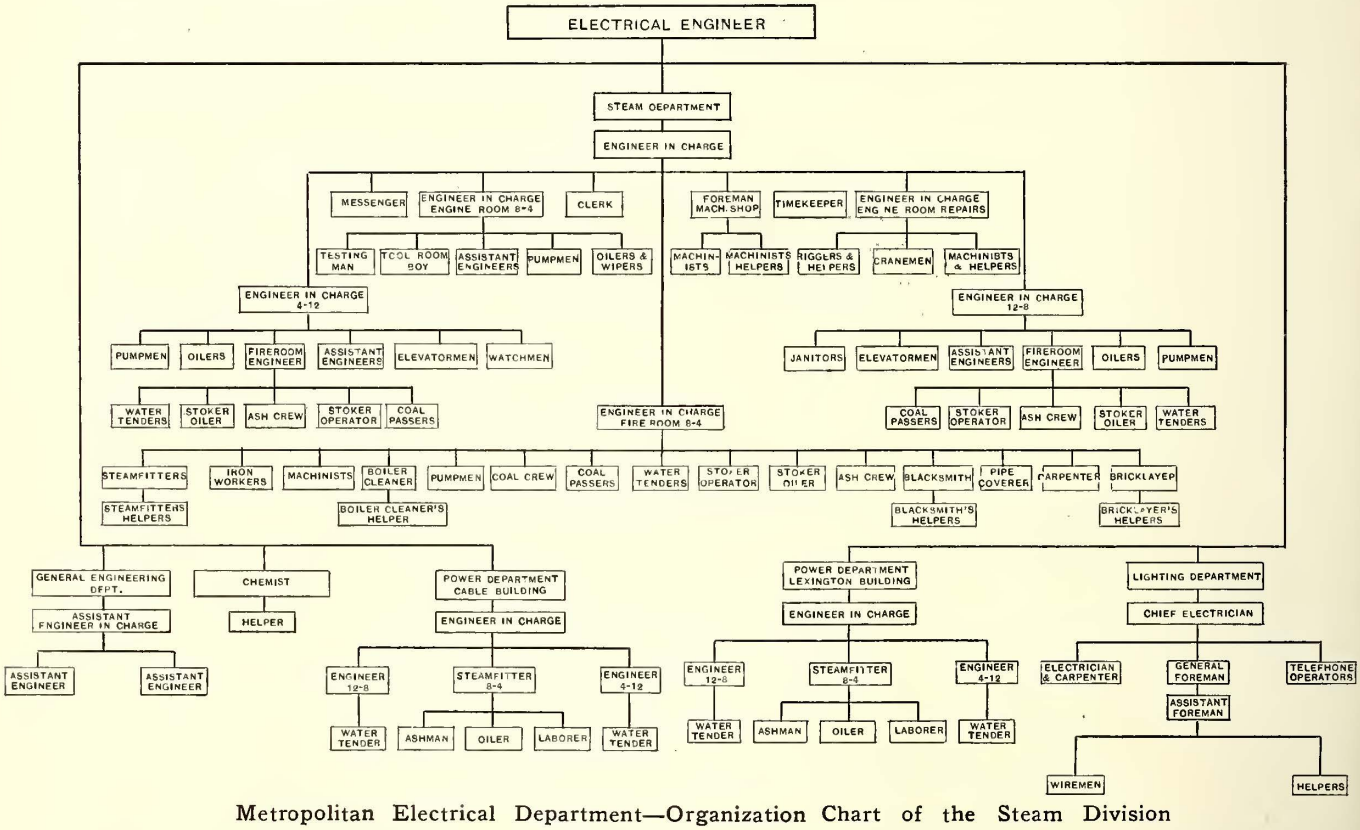
The surface condensers have been replaced by the Allis-Chalmers jet or barometric type as both the surface condensers and their pumps had reached the state where it was very expentive to keep them operative. One reason for this was that the condensing water taken from the East River contains a great deal of sewage, salts, etc. It is believed that much of this difficulty will be overcome in the new installation. The pumps which operate the new condensers are of the centrifugal type. The condenser repair cost since the change has been reduced approximately $10,000 a year. This figure includes the expense of the two extra pump men required for the new condensers. The steam consumption per horse-power output of the engines has been decreased approximately 6 per cent by the new condensers and the capacity of the station has been increased about 9 per cent.

The change in condensers was accompanied by the installation of a new Hoppes open feed-water heater. This auxiliary delivers water to the boilers at from 190 deg. to 200 deg. Fahr., which is 40 deg. higher than that previously obtained. In addition to the fuel saving thus induced, there is a decrease in water consumption equivalent to $7,200 a year.

The several savings noted have been accomplished in the face of a reduction in the load factor of the station—that is, between rush hours the load of the station is less and during rush hours heavier than it has been during the recent years. Other improvements made at the Ninety-sixth Street station include dredging the slip to give deeper water for coal boats and removal of all wooden flooring and partitions to reduce the fire risk.

COAL SPECIFICATIONS

All coal is now purchased in accordance with specifications and on the basis of heat values and analyses. When the coal runs above the standard, the contractor receives a bonus and when the coal runs below the standard penalties are imposed in proportion to the reduction in heating value below the standard. This method of buying coal has proved very satisfactory as it gives the company some control over the grade of coal received, which was not the case with the flat-rate system. When the coal is sold on the heat basis, also, the contractors are likely to exercise more care in selecting the fuel to be furnished. The saving in the amount paid for hard coal during the last nine months purchased on the specification basis, over that which the company would have had to pay on a flat basis, was approximately $11,000, or about $15,000 a year.



Metropolitan Electrical Department—Organization Chart of the Steam Division

DUTIES OF THE ELECTRICAL DEPARTMENT OF THE POWER AND SUBSTATIONS

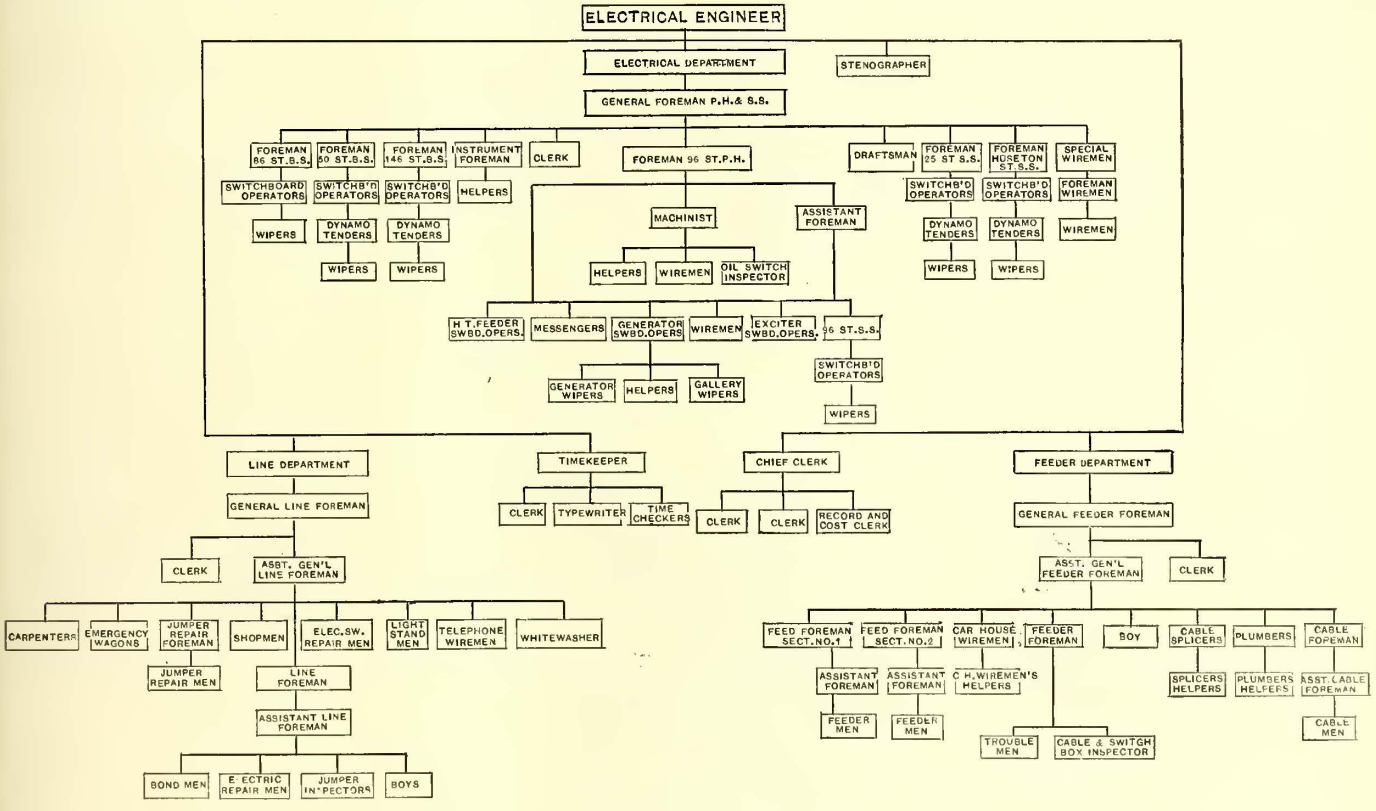
The electrical department of the power and substations has charge of the operation and maintenance of the electrical ma-

chinery, apparatus and wiring in the various stations; it also supervises and inspects all construction and reconstruction work installed in the stations under contract, and carries out all such work of this kind which the company does directly. The general electrical foreman supervises the operation and maintenance of the electrical apparatus in the power stations and substations. All foremen and their men use the same methods in the respective stations.

In general, all orders in regard to operation are issued through the high-tension operator at the main control board in the Ninety-sixth Street power house. This is referred to throughout the system as "High Tension." When the high-tension board instruments indicate that the changes in the load require the cutting in or cutting out of a generator, the steam department is notified by signal and the high-tension operator connects or disconnects machines from the system. Likewise when the load in the substations changes and it is necessary to cut feeder units in or out, the substation man notifies the high-tension operator. On the other hand, the high-tension operator can tell the substation loads from the indicating meters on the feeders running to the respective substations. "High Tension" also controls the cutting in or cutting out of high-tension feeders to the substations. In general, any variation in the substation units or feeders operated is telephoned to "High Tension." All reports received or sent out are numbered, timed and entered consecutively on a log kept by the high-tension operator, who in turn informs the division which should make any necessary repairs. A similar log is carried in the substations.

On the whole, "High Tension" is a clearing-house for all trouble in the station feeders, on the lines or anything else that in any way causes an interruption to the service. Furthermore, when normal operation is re-established, the report is immediately transmitted to "High Tension." In this way, the heads of the respective sub-departments of the electrical department are kept in touch with any irregular operation which comes under their jurisdiction. A report of all such trouble is promptly communicated to the electrical engineer to inform him and his subordinates of what is going on at all hours of the day and night. In emergencies reports are promptly made to the general manager. "High Tension" is also notified when the following men report for and go off duty: All station foremen, assistant station foremen, switchboard men, feeder foremen, line foremen, time checkers, machinists, special wiremen and draftsmen. These men report over the private telephone system and state the point from which they are calling up. When they change from the location at which they are working, they are required again to notify "High Tension" and state the point of their destination and also to report upon arrival. Thus a complete record is kept of the location of all men at work and of the time it takes to go from one place to another. The line gangs also notify "High Tension" of the location where they will be working, so that they can be located and called to the scene of emergency repairs by messenger. When the report clerk has sent the emergency wagon to any point, as requested by "High Tension," he so notifies "High Tension." Should the emergency wagons require assistance they can call directly on "High Tension" for help. On returning from a call the emergency wagon men give both the report clerk and "High Tension" all details of the trouble and its cause.

The substation apparatus is systematically overhauled. As far as possible this labor is done by the station operators, but for such work as the maintenance of oil switches and the repairing of machines, the company has machinists, oil-switch repairmen and wiremen who work at all stations. Each time a machine is shut down, it is inspected and cleaned by the operators. Oil very often accumulates on the windings. If this oil is allowed to remain it tends to deteriorate and reduce the life of the insulation. The machines, therefore, must be cleaned before they have cooled and the oil has had a chance to harden or to be absorbed by the insulation.

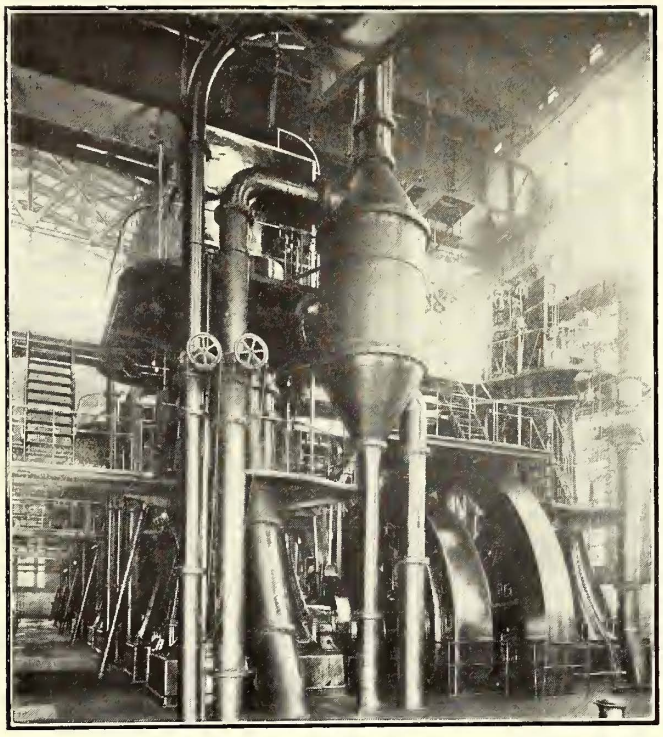


Metropolitan Electrical Department—Organization Chart of the Electrical Division

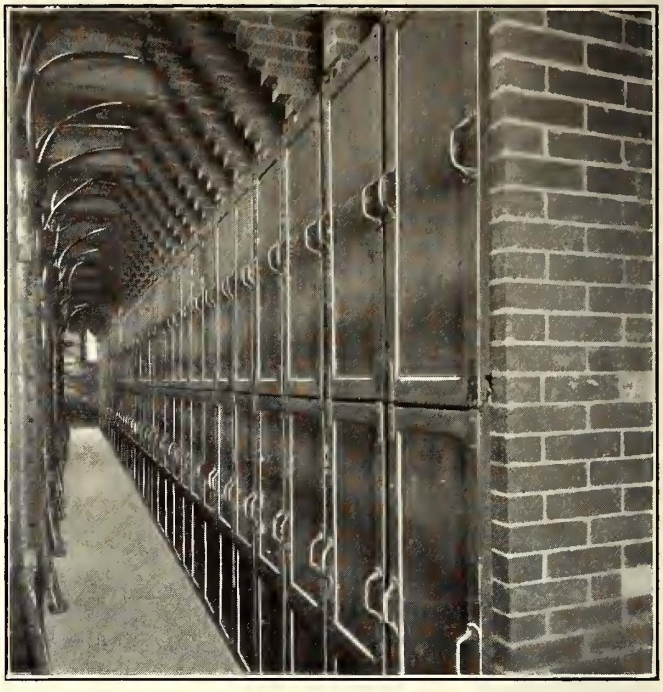
INSTRUMENT CALIBRATION AND POWER RECORDS

On a system as extensive as the Metropolitan the number of units operated and of feeders in service is very large, consequently, many indicating and recording instruments are necessary. The calibration of these instruments requires a corps of specialists. The instrument foreman has also been trained to act as a substitute for the operating foremen when the latter are absent. The instrument men have charge of the instruments installed on feeders supplying power from the Metro-

politan station to the Third Avenue lines as well as to the lines of other companies and also check the instruments installed on feeders supplying power to the Metropolitan from the Third Avenue station. The checking of these instruments is of special importance as a slight error in their calibration might result in a considerable difference in the charges made for power bought and sold.

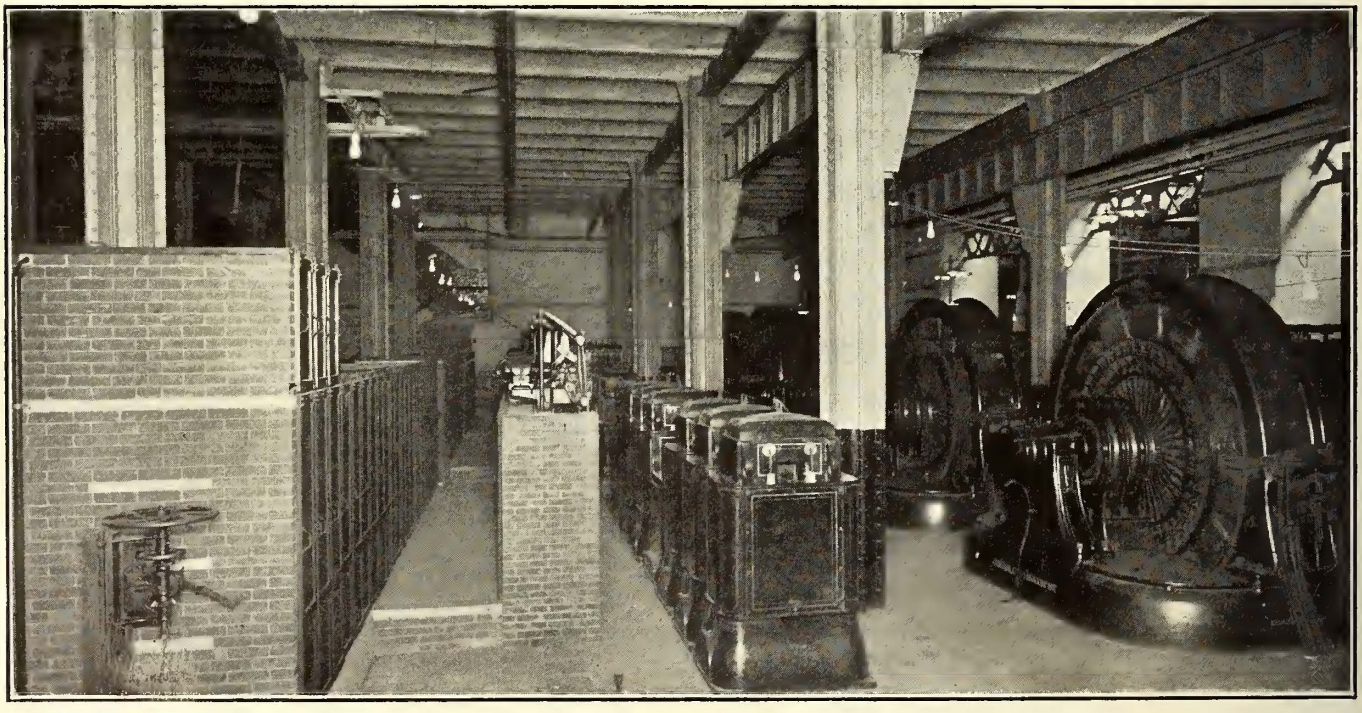


Metropolitan Electrical Department—New Condenser at Ninety-sixth Street Station



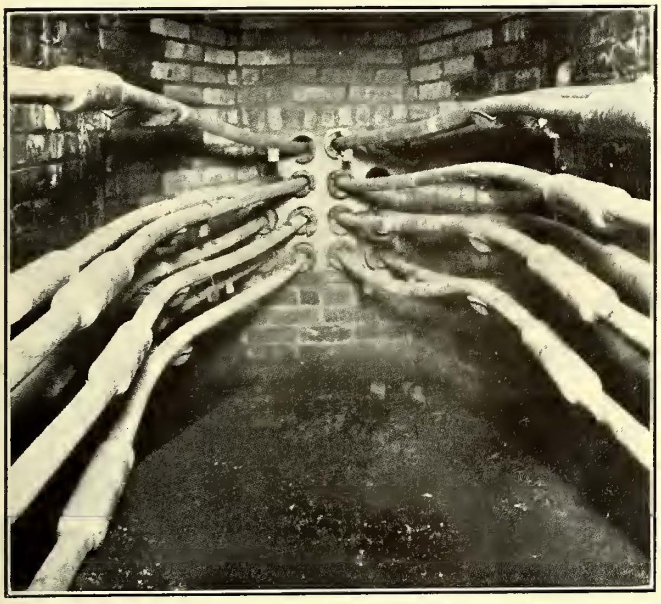
Metropolitan Electrical Department—South Side of Bus Compartment, 146th Street Substation

The exciter-board operator at Ninety-sixth Street, in addition to having charge of his own board, gets the records of all a.c. power received at the substations and also of the distribution of d.c. power to lines from the substations. These readings are telephoned to the exciter-board men every eight hours. In this way a complete record of the power distribution is always maintained at the power house. The exciter-board operator receives reports of the power delivered to the substations and distributed therefrom, while the high-tension operator records all power generated and distributed from the power house to the substations. At the end of every 24 hours the substation distribution log sheets, together with the records of power-house operators, are sent to the general electrical foreman, and the distribution of power for each 24 hours is tabulated by him. The losses in each of the feeders and in each of the transformering substations are noted, so in this way an additional check is obtained on the instruments and any irregular operation is noticed should the losses in any part of the equipment vary materially from the regular amounts. Copies of all log sheets are forwarded to the electrical engineer's office with com-



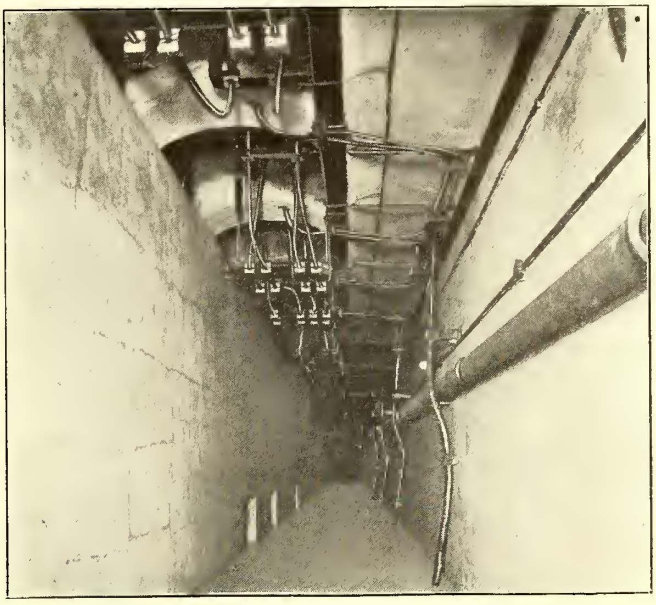
Metropolitan Electrical Department—Interior of Houston Street Substation

plete hourly tabulations and statements of the losses. The general electrical foreman also sends to the electrical engineer a statement of the total distribution of power during each month, showing the amount of power generated, the amount distributed to the substations and from the substations to lines and car houses, also the amount of power sold to and purchased from other electric railway companies.



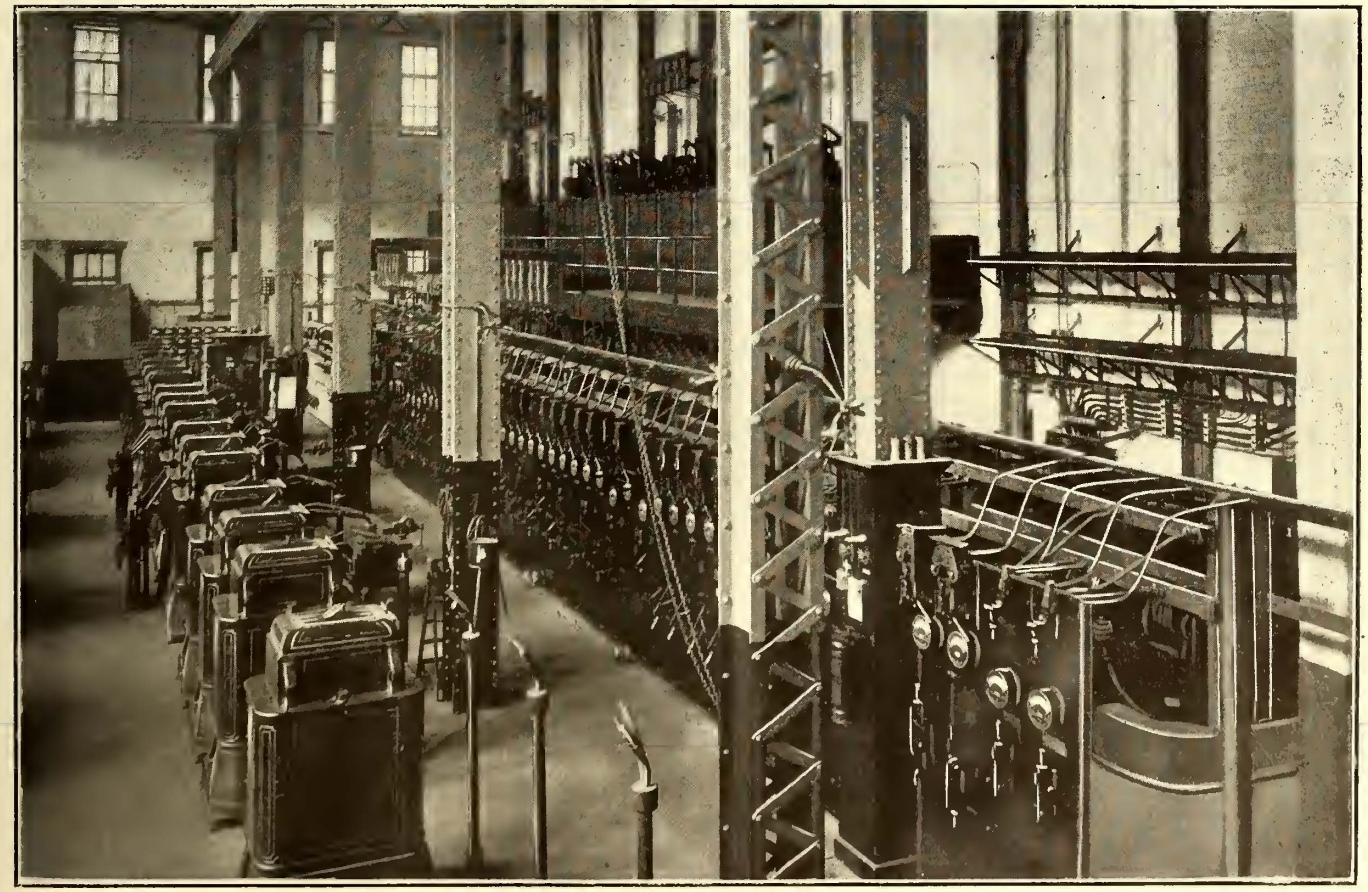
Metropolitan Electrical Department—D.C. Manhole at 146th Street and Lenox Avenue

insulation were considered safe, but it has since developed that no type of insulation can be considered absolutely reliable. Porcelain insulators reduce the liability of breakdowns and afford more protection to the employees.



Metropolitan Electrical Department—Air Chamber, Twenty-fifth Street Substation

The reconstruction of the 146th Street and Twenty-fifth Street substations and the construction of the Houston Street substation are practically completed, and the reconstruction of



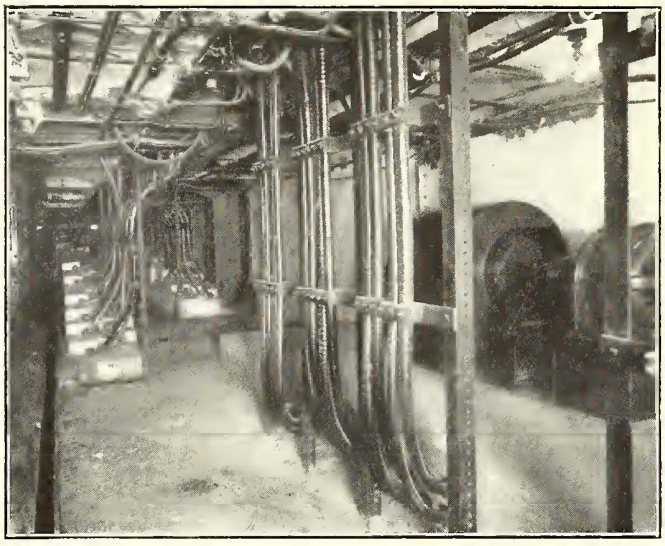
Metropolitan Electrical Department—Top of Bus Compartment and Oil Switch Gallery in the 146th Street Substation

HIGH-TENSION IMPROVEMENTS

One of the advances in high-voltage station construction made since the pioneer Metropolitan installation is the use of porcelain insulators. Formerly station cables protected with extra heavy

the Ninety-sixth Street switchboard and wiring is under way. All of the high-tension wiring is being installed on high-tension insulators and the individual wires, wherever possible, separated by brick or asbestos barriers. Knife switches are placed in

series with the oil switches. These knife switches will assist materially in maintaining the oil switches, and will also protect the repair man. Formerly oil-switch repairs could be made only at light load, but with the knife switches in series it will be possible to cut out a switch from service any time. In the reconstructed substations the high-tension cable bus has been

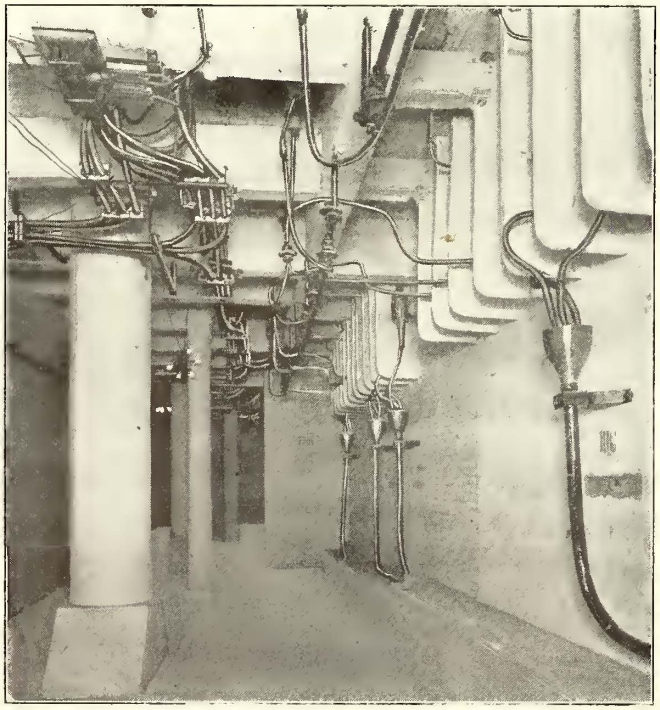


Metropolitan Electrical Department—Cables, Blowers and Air-Chamber Wall at 146th Street Substation

replaced by a copper bus on insulators in brick compartments, isolating each bus by continuous soapstone slabs.

CONTROL BATTERIES AND BLOWERS

Control batteries of 15-amp capacity, to operate the large oil switches and general control, have been placed in all substations except at Ninety-sixth Street. The emergency lamps fed by these batteries cut in automatically when a station stops, but only enough lamps are installed to give the operator sufficient



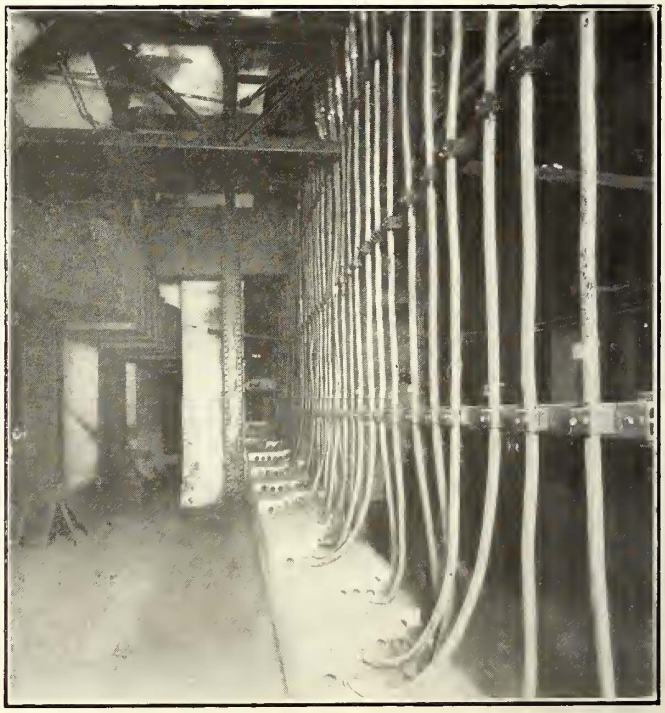
Metropolitan Electrical Department—Air Chamber of Houston Street Substation

light to start after a shutdown at night. The time lost incident to using oil lamps is thus eliminated. Primarily a control battery was installed to have separate means of operating apparatus, such as oil switches, etc., in the station during shutdowns, also to reduce the number of shutdowns due to disturbances transmitted to the control circuits. Formerly a motor-generator set was employed for control. This motor-generator was operated from the power bus so that when the station or the motor-generator shut down there was no way to control the larger switches. At such times the control circuits were switched to a certain number of cells of power batteries, but these were subject to the same disturbances as the station and very often caused interruptions in the control system.

New blowers of the Sturtevant turbine type have been installed in the reconstructed substations because the transformers were running at a temperature dangerous to their insulation. This arose from the condition that as additional rotaries had been installed the blower capacity had not been increased in proportion. The new blowers are driven by G. E. induction motors instead of d.c. motors, thereby eliminating all commutator troubles. Under the new conditions the maintenance cost of both the transformers and the blower motors should be reduced materially.

146TH STREET SUBSTATION RECONSTRUCTION

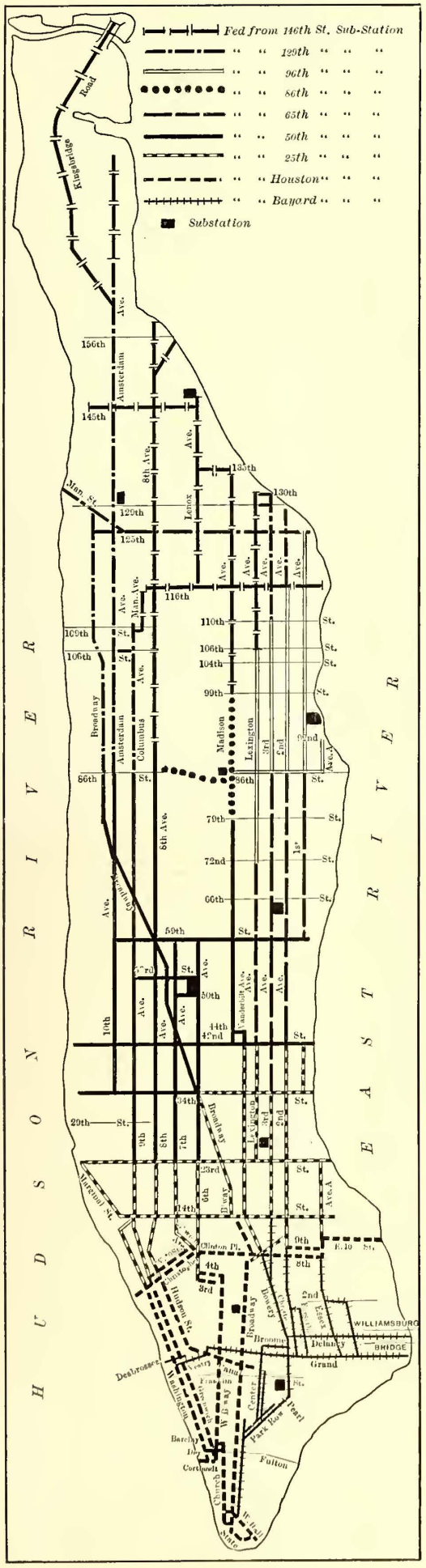
The substation at 146th Street was reconstructed in conjunction with the adjacent car house. When the 146th Street car-house fire occurred, the basement of the substation was flooded with water. Much damage to the basement equipment, which included switchboard apparatus, was obviated only by keeping a large steam pump and an electric pump running for some days. The flooding of the substation basement was due to the low elevation of the floor which necessitated at all times an electric pump to handle the water. When the wall between the car house and substation was reconstructed it was necessary to move considerable apparatus and high-tension wiring to permit reinforcing the wall foundation and installing more steel work to carry the upper floors of the car house. Advantage was taken of this movement to transfer the apparatus to a new gallery which had been erected in the substation. As the reconstruction involved moving the brickwork of the oil switches, the new brickwork was laid out for new mechanism instead of re-using the old switches. When the high-tension bus was re-



Metropolitan Electrical Department—Rearranged D.C. Feeders at Twenty-fifth Street Substation

moved from the basement it was installed in an a.c. brick compartment of the type previously described.

In this station the control system for the large switches had been supplied by motor-generator sets and by tapping some cells



Metropolitan Electrical Department—Substation and Feeder Layout

in the power battery. The 15-amp control battery which is now used is charged by the original motor-generators. This separate power supply for the control system materially facilitates the ease of running the station and reduces the liability to interruptions of the service. The emergency lights which replace the oil lamps are in circuit with the control battery. The power battery in this substation was installed some 10 years ago and to have it reconstructed would have required an entirely new set of positive plates. The battery, however, represented but a small percentage of the substation capacity, so that when the shutdown occurred it carried only a few sections of line for a short time. The cost of reconstructing and maintaining this battery, therefore, was not considered justifiable when compared with its very small insurance against interruptions. The valuable area of 50 ft. x 140 ft. once occupied by this battery is now a part of the reconstructed car house. The battery also has been used for starting rotaries, but a.c. switches were installed on two of the rotaries to meet this requirement. It was felt that it would be sufficient to equip only two rotaries because of the remote probability of both being out of commission at the same time. All of the rotaries have a d.c. starting device, so that after a complete shutdown and the first rotary is started from the a.c. side the others can be started from the d.c. station bus. The d.c. starting devices have been reconstructed and equipped with an auxiliary contact for operating the d.c. starting breaker.

The air chamber in this substation was completely overhauled and reconstructed. The cables entering the chamber either have been installed in clay ducts or on porcelain insulators arranged to reduce the liability of short-circuits between the cables. The new blowers in this station also are driven by induction motors. The wooden ceiling or floor over the substation has been replaced by concrete to reduce the fire hazard and make the record room upstairs practically fireproof.

In reconstructing the southern wall of the car house along 146th Street, a new duct was constructed outside of the car-house wall in 146th Street, and running from Lenox Avenue to the substation. The individual ducts in the bank were so arranged that the cables entering the station were completely isolated. Both the old steelwork and the new steel framing in this substation were scraped and painted.

RECONSTRUCTION OF SUBSTATIONS AT TWENTY-FIFTH STREET AND HOUSTON STREET

Work very similar to that done at the 146th Street substation was carried out at the Twenty-fifth Street substation. A considerable amount of the original cable machinery was removed, new duct subways were installed and a new 1500-kw rotary converter was purchased. A lighting system, supplied from the Ninety-sixth Street station, is also being installed.

The Houston Street substation has also been overhauled. The rotaries formerly at Front Street have been moved to Houston Street and the Front Street station has been shut down. Two new 1500-kw rotaries have been purchased for Houston Street. If the value of the Front Street land thus made available for sale is deducted from the cost of making the change it will be found that for a net cost of approximately $8,700 the management has obtained additional equipment amounting in value to over $100,000.

LOCATION OF SUBSTATIONS

The company has at present six substations located as marked on the accompanying map, which also shows the sections fed by each substation. The 146th Street substation receives a.c. current from the Kingsbridge power plant of the Third Avenue Railroad. The other substations are fed from the Ninety-sixth Street power station, which also supplies current to two of the substations of the Third Avenue Railroad, that at Sixty-fifth Street and Second Avenue and that at Bayard Street and the Bowery.

NEXT ARTICLE

The second portion of this article will describe the electrical improvements at the Ninety-sixth Street station, rotary converter changes, feeder developments, line department and general engineering.

MEETING OF THE COMMITTEE ON INSURANCE

A meeting of the committee on insurance of the American Street & Interurban Railway Association was held at the headquarters of the association in New York on May 10, 1910. Those present were: Henry J. Davies, of Cleveland, chairman; F. A. Healy, of Cincinnati; A. H. Ford, of Birmingham, Ala., and S. L. Tone, of Pittsburgh. James F. Shaw, president of the association, and H. N. Staats, of Cleveland, were also present for part of the time. The meeting was the first regular meeting of the committee since its appointment in February last.

Mr. Davies presented to the members of the committee a tabulated statement of the data received from the member companies on the subject of insurance. This information had been compiled from inquiry sheets sent out by the association and also from investigations made independently by Mr. Davies, and included every year since 1901. Altogether 98 companies reported for 1909, and of these 73 sent complete reports. The figures showed a lower average premium rate, but a larger amount of insurance carried than for any previous year since 1901. The committee decided that for the advantageous prosecution of its work, statistics from a larger number of member companies were very desirable and a data sheet will be sent to those companies not reporting, with the earnest request to reply to inquiries of the committee.

The first subject discussed was that of schedules. Mr. Healy showed a sample policy of the Ohio Electric Railway Company, described in the Electric Railway Journal for Feb. 19, 1910, and stated that each piece of property of the company, except cars, was mentioned in the policy with its appraised value. These values were determined annually by the company and were then checked by the manager of the Ohio Inspection Bureau, representing the insurance companies. The value of rolling stock was put in as a lump sum, but the individual values of the different cars were kept on a card list in the company's office. A record is kept of all repairs made to cars so that this list is always up to date. Mr. Healy did not think that the rules on depreciation of freight cars used by the Master Car Builders' Association of 6 per cent per annum, with a certain definite minimum value, should be applied to electric passenger cars which are frequently overhauled.

Mr. Ford, of Birmingham, thought each company should have an appraisal of its property for fire insurance purposes made at intervals so as to form a basis for adjustment in case of loss.

The committee decided it would be advisable to incorporate in the forthcoming report some information in regard to the methods of making adjustments in case of loss.

The relative advantages of a central rating bureau and of separate rating agencies were then discussed. Mr. Healy stated that the steam railroad companies usually place their insurance with some one company through a broker of record, and that the insurance company then reinsures in other insurance companies. In this way a fixed rate to cover the entire property is secured. The steam-railroad companies have never taken concerted action to reduce rates and their rates are now probably the highest for a number of years. Several steam-railroad companies carry their own insurance either in whole or in part. The Philadelphia Rapid Transit Company was mentioned as one electric railway company which followed this practice and the Public Service Corporation, of Newark, N. J., as a company which was planning to do the same thing.

Mr. Shaw remarked that all the electric railway companies want is a fair rate of insurance, and one based on equitable conditions. He said that in New England it had been impossible for him to learn the basis on which the rates on his properties were determined.

Mr. Davies said that the Cleveland Railway Company in 1904 and 1905 was paying a very high rate. The subject was taken up seriously by the company at that time. It tabulated the premiums and losses of many traction companies. After some negotiation, the insurance companies made a comparatively small reduction in their rates. The Cleveland company then decided to install automatic sprinklers in its car houses, and invited the representatives of the factory mutual insurance companies, as well as of the old line insurance companies, to inspect the tests of these sprinklers. At the suggestion of Mr. Staats, the car houses were protected by aisle line sprinklers as well as by ceiling sprinklers. The tests were very successful and after their completion the old line insurance companies made a reduction of 90 per cent in rates on car houses and their contents. The present average rate paid by the Cleveland Railway Company on $5,000,000 of insurance was a little more than 40 cents per $100 of value, all policies covering both protected and unprotected properties.

The committee then discussed the plan of engaging a fire insurance expert to investigate the properties of members of the association or of those which wished to take advantage of his services, and the following letter was drawn up for submission to the executive committee of the association, outlining the plan recommended by the insurance committee.

Recommendation to Executive Committee

"At a meeting of the committee on insurance, held at the office of the association on May 10, the following resolution was adopted: Resolved, That this committee recommend to the executive committee of the American Association the employment of an insurance expert with authority to employ such assistants as may be necessary to advise the members of the association, or such of them as may desire to avail themselves of his services, on all matters relating to fire insurance, including forms of policies, appraisals of property, schedules of rates, the elimination of the payment of unnecessary commissions, the construction and improvement of properties with a view to the lessening of hazard by fire, and the adjustment of losses consequent upon fires, and to represent member companies, upon request, before inspection and rating bureaus, or other bodies having to do with fire insurance.

"If the recommendation embodied in this resolution meets with your approval, the committee on insurance will immediately undertake to ascertain the probable expenses of such an expert and his assistants, and submit to the executive committee, before the next meeting of the association, an estimate of such expenses and a plan for their distribution."

At a meeting of the executive committee, held on May 11, this recommendation was approved.

Mr. Davies then brought up the subject of insurance on loss of business due to fire, similar to the insurance policies issued to cover use and occupancy of buildings by certain fire insurance companies. He then read a draft of a proposed policy of this kind. Several members of the committee thought that insurance of this kind is more necessary in the case of small companies than in the case of a large company because the former would be more apt to lose a considerable portion of its rolling stock by a single fire. Mr. Tone said that one of the constituent companies of the Pittsburgh Railways Company had had such a policy before it was taken over by the present company, and that the former owners considered it desirable.

Mr. Healy described the fire drills and other methods of protection against fire on the Ohio properties, and said that he considered it very desirable for interurban cars to carry chemical extinguishers. Since this plan had been followed on the Ohio Electric Railway, 10 interurban cars had been saved by the use of chemical extinguishers and the loss in no case had exceeded $100. These extinguishers are carried in the front vestibule and the acid and other contents are renewed every six months. Mr. Healy did not consider this plan necessary on city cars because the city fire departments could be summoned in case of fire. By carrying these extinguishers the Ohio Electric Railway had obtained a rate of 50 cents on its cars. Mr. Ford said that in Birmingham there had been no trouble with cars catching fire in the streets. Mr. Tone said that there had been several instances of this kind in Pittsburgh.

To avoid frequent small claims, Mr. Healy said that his

companies did not make any claim on the fire insurance companies for small fires until the amount of the losses aggregated $500, although the fire insurance adjustor is notified promptly of the loss. He also said his company had employed on its Ohio and Indiana properties an inspector who was entirely independent of the local operating officials. His only duty was to visit every insurance risk at least once each month and make a report of the exact conditions then existing. These reports cover general condition and cleanliness, as well as the wiring of buildings and cars and inspection of the fire drills, and also embrace recommendations to reduce the fire hazard. On receipt of these monthly reports in his office, copies are made and forwarded to the operating officials having jurisdiction. In his opinion, this is the most valuable part of their plan to prevent fires. A man occupying the position of inspector must be of a high order of intelligence and have had sufficient experience to properly criticise and condemn, if necessary, existing conditions. He must not be under the jurisdiction of any of the operating officials so that he would be subject to discharge by them, as he may have to make adverse reports on their methods as well as against employees under their jurisdiction.

The committee then adjourned, but will hold another meeting during the summer.

MEETING OF THE EXECUTIVE COMMITTEE OF THE A. S. & I. R. A.

A meeting of the executive committee of the American Street & Interurban Railway Association was held at New York on May 11 to consider the place of holding the next convention of the association. Those present were: President, James F. Shaw of Boston; Arthur W. Brady of Anderson, Ind.; Thomas N. McCarter of Newark, N. J.; George H. Harries of Washington, D. C.; W. J. Harvie of Utica, N. Y.

President Shaw reported that four members of the committee on location, representing the association and the Manufacturers' Association, had visited Saratoga on April 26. Saratoga possesses many advantages as a convention city. Its chief objection is that there is no large hall where the exhibits can be shown. In consequence, at the 1903 convention, which was held in Saratoga, the exhibits were contained in temporary buildings in the courtyard of the Grand Union Hotel. A committee representing the commercial interests in Saratoga, however, has offered, if the association will agree to meet in Saratoga for three years during the next five years, to erect a concrete building suitable for exhibits and provided with different assembly rooms in which the different associations can hold their conventions. This building would be approximately 300-ft. by 400-ft. so that it would contain about 120,000 sq. ft. It would be in a desirable location on the main street of the city within 7 minutes' walk from the principal hotels, and would be provided with railroad connections inside and outside the building. The representatives of Saratoga further agreed that the charge for space in this building would be no more than that which the Manufacturers' Association paid for space at the last convention at Atlantic City and that if at the end of the 5 years' interval mentioned the receipts for rent for the building from the Manufacturers' Association and from any other purposes for which it might be rented are equal to the original gross cost of the building, the building and the land on which it is located will become the sole property of the American Street & Interurban Railway Association. It is expected that the gross cost of the building will be about $150,000 and from the receipts from space at the last three conventions it is expected that the receipts from space during three future conventions, added to those received as rent for other purposes, would more than pay for the hall. The Saratoga representatives further agreed that if the plan was adopted the plans and specifications for the building would be submitted for approval to the officers of the association before the building was erected. Representatives from the principal hotels also submitted schedules of the standard rates for their rooms and agreed that there would be no increase in these rates during conventions of the association.

The executive committee did not think it wise to accept this proposition without further knowledge of the wishes of the membership at large on the plan, but requested the president to investigate the subject further and also to see whether propositions of a similar character could be obtained from other cities.

It was the sentiment of the committee that for many reasons it was desirable for the association to possess a good hall of this kind, if it could be done without cost or financial risk to the association. Such a plan would greatly reduce the cost of holding conventions. At the same time it would in no way prevent the association from meeting in other cities during any years, except during three of the next five years. The committee feels, for instance, that during the next six years one meeting should certainly be held in Canada, one in the middle west and one on the Pacific coast. The places of meeting of the association have always been determined in the past by the geographical distribution of the membership and there is no intention of departing from this plan in the future, except so far as the meetings in the East are concerned. Even if the association possessed a building it probably would continue to go West every other year, and could even select some other city in the East in the alternate years if there should be good reasons for doing so. But the fact that the association possessed such accommodations would make it more independent than if it did not have property of this kind.

The report which President Shaw will prepare on the subject of a permanent convention hall to be owned by the association either in Saratoga or in some other city will be presented at the next annual meeting of the association, when there will be ample opportunity for obtaining a consensus of opinion of the membership on the subject.

No definite plans were made for the meeting place in 1910, but President Shaw announced that an invitation had been received by the association from Richmond, Va., to meet in that city next October. This invitation is in addition to those already mentioned in the paper. It is expected that a selection will be made soon of a city for the 1910 convention.

DEPRECIATION AND RESERVE FUNDS OF ELECTRICAL PROPERTIES*

BY WILLIAM B. JACKSON, OF D. C. & WILLIAM B. JACKSON

Every company operating an electric light and power property, a street railway property, or a telephone property, or contemplating entering into any such field of activity, must take into account certain expenses that cannot be appropriately included in the day-by-day operating and office costs or in the current maintenance expenses of the property, if its accounts are to show in full the actual cost of performing the services required.

I refer to the sums of money that must be set aside to cover depreciation, replacements and to provide a reserve fund to care for extraordinary costs as hereafter explained.

The term depreciation as here used may be divided into two parts:

1. Decrepitude—Which covers the gradual wearing out of the apparatus from the effects of use and of age, which cannot be overcome by current repairs, and which results eventually in ending the operative life of the apparatus.

2. Obsolescence—Which takes into account the reduction in the useful life of apparatus, on account of advances in the art whereby otherwise operative apparatus is made uneconomical for further use.

The term reserve fund, as here used, may also be divided into two parts:

*Abstract of a paper read before the Western Society of Engineers, Chicago, Ill., April 27, 1910.

1. Required reconstruction—Which takes into account reconstruction costs made necessary by municipal or other legislative requirements.

2. Special insurance—To cover expenses that cannot be forecast with any degree of certainty, caused by extraordinary occurrences, such as unusual storms, explosions, great conflagrations, acts of strikers, etc.

In considering depreciation it is well to separate clearly in one's mind the annual depreciation of the plant as an average whole and that of the component parts making up the plant. If we consider electric railway track, there are the ties with short life and no salvage; there are the rails with medium life and good salvage; there are the frogs and switches with short life and low salvage; and there is the electrical bonding which may be considered as having the same life as the rails and to have medium salvage. It would be impossible to determine a fair annual depreciation for track considering all of these parts together, but it is possible to obtain the fair average depreciation by taking the aggregate of the amounts found by considering the several parts individually.

The total amount of depreciation to be annually charged against any part of the installation should be equal to the first cost of the part installed ready for service plus the cost of removal, less any salvage obtainable for the part when discarded, divided by the years of probable life of the part.

The estimation of what is the fair useful life for any part of a plant presupposes a thorough knowledge of the nature of the service demanded of the part, a broad acquaintance with the general experience respecting like kinds of plant, a studied survey of the probable effect of local conditions upon the useful life, and a keen knowledge of the past and present progress of the art for the purpose of making an intelligent forecast of the rate of depreciation caused by approaching obsolescence.

The factor of obsolescence entering into the question of useful life of plant, whether of buildings, machinery or other plant, is a disturbing one. This has the effect of reducing the estimated useful life of many parts of most plants below that which would be indicated by the ravages of decrepitude, and it likewise affects the probable salvage. Where the factor of obsolescence is estimated as likely to terminate the useful life of a part before decrepitude would be likely to cause its rejection, the former factor must determine the useful life. Consequently, the factor of obsolescence may be the determining factor in fixing the length of the useful life of some parts of a plant, and decrepitude may be the determining factor in fixing the length of useful life of other parts. In other cases these two factors may jointly influence the length of life. The factor of obsolescence has been an exceedingly important one in the several kinds of properties under consideration, and especially so in connection with all kinds of switchboards and other controlling apparatus. But its effect is very apparent, even when considering what we think of as the most stable parts of an electric generating plant, though revolutionary effects are not so apparent to-day as they have been in the past.

Most public service companies are forced to make large expenditures by ordinances of municipalities or by other legislative action. These are required changes, such as changes from overhead construction to underground construction, relocation of distribution lines on account of new street surveys, changes from wooden poles to iron or steel poles, changes in track construction owing to paving of streets, etc. The costs of such changes up to the value of the original construction should not be made an addition on capital investment and they cannot appropriately be considered as a part of current maintenance, but they should be provided for by a required reconstruction fund.

The question of what annual charge should be made on account of special insurance is also difficult to solve with exactness, but it is one of which sight should not be lost. The ordinary maintenance expenses should not be expected to include such costs as those occasioned by the destruction of a power house roof by a wind storm, the annihilation of a boiler-room by a boiler explosion, the razing of a pole line by sleet and storm, etc. It is, therefore, appropriate that an annual amount be laid aside for each part of the plant, except, of course, land, to create a fund to remedy such damages which come once in a while to every plant. The element of chance must enter very largely here, but chance is not such a fickle factor in operations when its effects are distributed among many parts of a plant.

These factors of required reconstruction and of special insurance, which I have considered under the heading reserve fund, are quite different in their characteristics from depreciation, but a plant will just as surely get into the breakers if its reserve fund, or some equivalent to meet these expenses, is not kept in good shape as when no provision is made to take care of depreciation.

If replacements are taken care of by capital account, a property becomes burdened by an imaginary capital investment in physical property which is almost sure to be a serious handicap when the company desires to reduce rates or make improvements. Where replacements are permitted to be taken care of by capital account, the capital account becomes something like the wallpaper in a room (to use a homely comparison) which has been put on layer upon layer, the old not having been removed when the room was newly papered. The papering is not worth more than the last effective layer, and in fact the lower layers sometimes prove the destruction of the whole, and so it may be with an inflated capital account.

By capitalizing replacement costs, the burden of carrying these costs is thrown upon the future without limit of time in cases of unlimited franchises, when this burden should have been borne by the past, except during the period in which a company is still in process of building up its business to a remunerative one.

Most plant managers have not yet come to a full appreciation of the dire straits a plant must come to sooner or later if the depreciation appropriations or their equivalent are not systematically and intelligently attended to.

A third division is sometimes made in depreciation called inadequacy. This factor covers costs which are occasioned by the necessity of discarding otherwise serviceable plants on account of growth of business. This factor should be of small importance in a plant planned and operated with excellent engineering judgment, and it is so closely allied to obsolescence that it does not seem necessary to add a third division to depreciation. It may be properly considered as a part of obsolescence whenever it enters as an appreciable factor in any consideration of depreciation.

The expenses that are considered in this paper are as real as the payroll and other daily operating expenses of a plant, but the ravages of depreciation frequently do not show to a noticeable degree until several years after the beginning of the operation of a plant, and there are also likely to be long periods during which it is unnecessary to make much, if any, outlay on account of required reconstruction and special insurance. For these reasons there is serious danger of overlooking the importance of these expenses in promoting a new enterprise, or in the early days of the operation of a public service company. But if the earnings of a company, after it has become well settled in its business, are not sufficient to cover a fair appropriation annually to the depreciation and reserve funds, as well as to cover the regular operating expenses and a reasonable return to the investment, that company is one that conservative investors should shun. If the conservative estimated earnings of a new project do not show that they will provide such returns, it should not be considered an attractive project.

The coming of public service commissions, having power to regulate the rates of public service companies, has raised the question whether the depreciation of a plant should have an influence upon the earning power of the company. It seems patent that a company should be permitted to earn a fair return on a full, reasonable, unimpaired capitalization regardless of depreciation, so long as it supplies equally good service. This

question would not seem to me to be open to doubt were it not sometimes a subject of serious discussion, and were it not that some respected publicists seem to hold that the net earning power of a public service company should be less after its plant has been subject to depreciation than when brand new, even if it gives equally good service and the stockholders have received back no part of their invested principal, but only fair returns in interest.

With a properly conducted property the fact that the property has suffered depreciation, which is unavoidable in any electric plant, should not have the effect of injuring the quality of its service or of impairing its capital, which would be the case if its recognized earning capacity were expected to decline proportionally with the increase of its depreciation fund. If the security holders are permitted to receive interest and dividends based upon a fair return on the investment in their property during the first years of its operation, I am unable to see how this basis may be fairly changed during later years, so far as investment is concerned, after the plant has depreciated, as the investment has remained unchanged.

The tendency of today is to make sweeping changes in plant and methods, to permit of less expensive or of improved service. On this account many excellent plants in good operating condition are shut down and the requisite power received from other sources. A company cannot well charge off of its capital account the value of such plants which may be comparatively new when they are put out of commission. Unless it is necessary to retain the plants in reserve, I believe they should be dismantled and the capital of the company reduced by the amount received from the sale of discarded machinery and other property. Then the difference between the amount received from their sale and their actual capital value to the company may still be continued as a true asset of the company, and that value be gradually charged off at the normal depreciation rate of the plants discarded, the capital of the company being reduced each year by actual liquidation of that amount. The economies derivable from abandoning the discarded machinery should be sufficient to extinguish in this way the capital value of the abandoned plants, or else the transaction is not an advisable one.

In conclusion I will say that, where electrical properties have been failures in the past, a goodly proportion of the failures may be traced to lack of provision for depreciation expenses and for extraordinary expenses. The reserve fund, besides covering such extraordinary expenses as are mentioned in the foregoing discussion, must be sufficient to care for losses occasioned by any recession of income which may come in the train of the physical results of the extraordinary occurrences discussed. The proper organization of a depreciation fund in conjunction with the reserve fund will also fortify a company against difficulties on account of reduced net earnings during lean years, which every company must expect, and which lean years will be offset by good years.

THERMIT WELDING IN RICHMOND

The Virginia Railway & Power Company, Richmond, Va., has had very successful results in repairing motor housings by thermit welding. For the repair of the broken half of a motor case, the company uses a mixture of 25 lb. to 35 lb. of thermit and 10 lb. of steel shavings. The pre-heating is done with a compressed air-gasoline torch. The cost for repairing a GE-67 half is about $15; whereas a new half costs $90. This repair cost includes the expense for gasoline and labor, but not the depreciation on appliances nor the compressed air which is available throughout the shop anyway. About three to four gallons of gasoline are used per weld. The labor charge is $3, and is made up of the day's work of two $1.50 men who carry out the complete process from the making of the molds to the chipping of the case. The low cost for labor shows conclusively how little skill is required in this method of welding after the men have had a little experience.

INVESTIGATING ACCIDENT REPORTS AND CLAIMS*

In considering this subject let us determine upon the questions that ordinarily confront the claim agent in endeavoring to decide upon the proper action to be taken in investigating an accident report. Briefly they are:

1. Is the case apparently of sufficient importance to warrant an immediate investigation, or would any advantage be lost by deferring action until a claim develops?

2. Is the case apparently of sufficient importance to warrant a personal investigation, or will a written statement from the witness by mail suffice?

3. If a personal investigation is determined upon, what is the method to be pursued to gather all vital facts so that the claim agent will be guided in reaching a just conclusion as to the merits of the case and in safeguarding the interests of the company in the event of litigation?

As to the most advantageous time to investigate a report, it is advisable to investigate all accidents immediately after a report is received. Unfortunately, lack of facilities for doing so or press of important cases needing immediate attention will not permit a prompt investigation of all reports.

Accidents which should be investigated promptly might be classified into those in which personal injuries are sustained, because personal injuries, as a rule, develop into the most stubborn and costly cases. Deception is practiced more successfully in such cases than in any others. In accidents where property only is damaged it would seem good policy to have an immediate appraisement made so that if a claim should afterward arise, the claim agent, in making an offer, will be guided by the appraiser's estimate. A personal investigation could follow then. However, letters addressed to the witnesses often bring the information needed by the claim agent to determine the question of liability.

If it has been decided to make a personal investigation of an accident report the person detailed should promptly call upon the witnesses, and after interviewing them as to the facts of the accident, he should make inquiry in the immediate vicinity of the accident to locate additional witnesses or gathering other data of sufficient importance to report. Supplemental statements could be obtained from the car crew, for there is every likelihood that they will not be as fully descriptive as the claim agent desires. A photograph of the scene of the accident is often a material factor should litigation ensue.

The following facts should be collected by the investigator in interviewing witnesses in cases where vehicles have been struck:

(a) Point of view of witness.
(b) Speed of car.
(c) Ringing of bell.
(d) First view of vehicle.
(e) Location of vehicle.
(f) Direction of vehicle.
(g) Speed of vehicle.
(h) Whether passenger on vehicle was looking toward car.
(i) Part of car hit vehicle and part of vehicle car hit.
(j) Distance from car when vehicle was first driven on track.
(k) Distance car went after vehicle was hit.
(l) If vehicle had covered top.
(m) Location of vehicle after being struck.
(n) If at night, was street lighted and did car carry headlight.

Where pedestrians have been hit, the following facts should be ascertained:

(a) Point of view of witness.
(b) Speed of car.
(c) Ringing of bell.
(d) First view of pedestrian.
(e) Location of pedestrian, with particular reference to cross-walk.
(f) Direction of pedestrian.

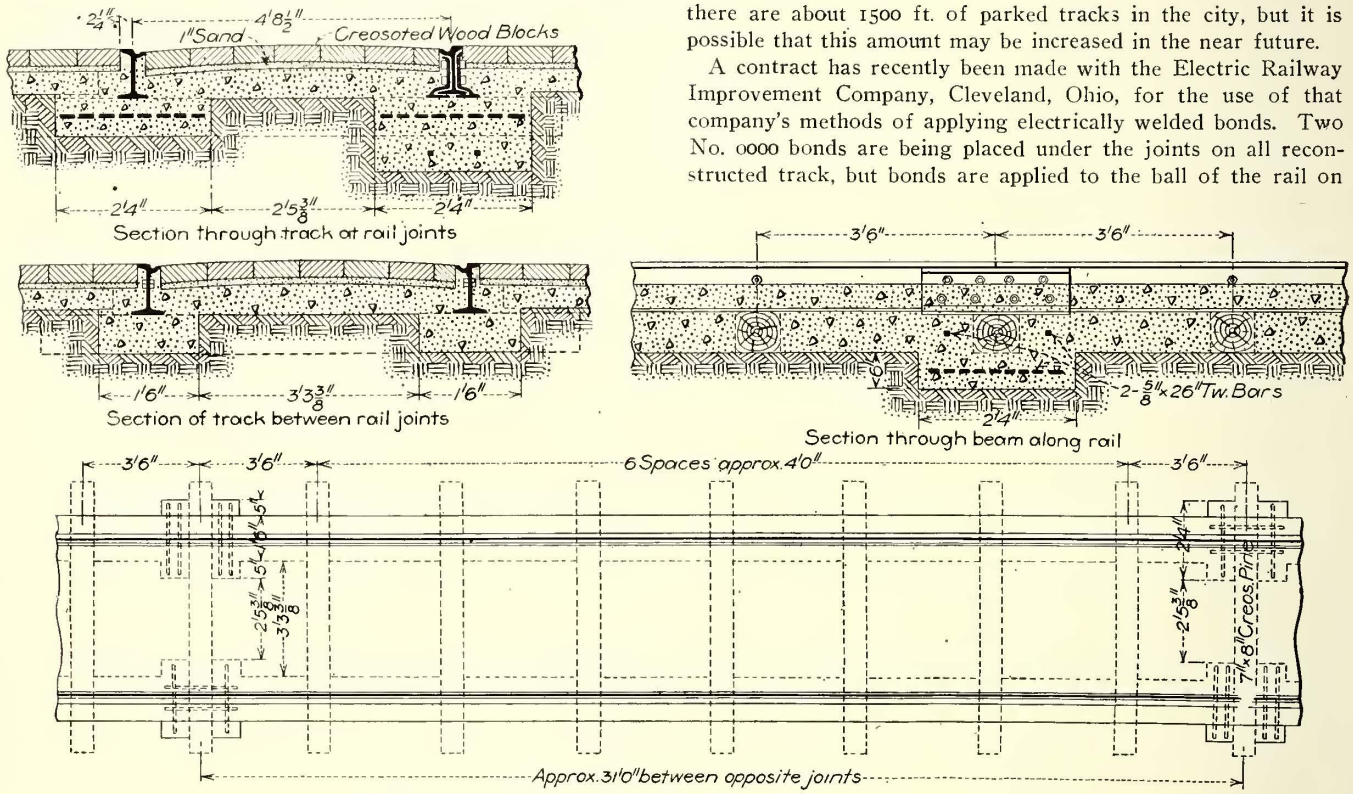
*Abstract of a paper presented by J. H. Handlon, claim agent of the United Railroads of San Francisco, before the May 20-21 meeting of the Pacific Coast Claim Agents' Association, held in San Francisco, Cal.

(g) Speed of pedestrian; that is, whether walking or running.
(h) Whether pedestrian was looking toward car.
(i) Distance from car when pedestrian stepped on track.
(j) Part of car hit pedestrian.
(k) Distance car went after hitting pedestrian.
(l) Location of injured party after being struck.

Where persons have been injured in boarding or leaving cars the following facts are of importance:

(a) View of witness.
(b) Location of conductor.
(c) Whether steps were clear.
(d) Unusual movement of car.
(e) Position of injured party when accident occurred.
(f) Location of car at time of accident.
(g) Distance car went after accident.
(h) Position and location of injured party after accident.
(i) Cause of car stopping after accident.

Where collisions occur between cars the investigator should ascertain whether the passenger was alone or accompanied and the names and addresses of acquaintances who were on the car.



Concrete Beam Construction in Mobile, Ala.

If an investigation has been made immediately after the accident, or as soon thereafter as circumstances will permit, the claim agent is usually well informed as to the merits of the case when a claim is filed. However, there are additional facts to be gathered after a claim has been made. As an illustration, the writer has found it profitable to ask the claimant or his attorney for the names and addresses of witnesses, although this is often refused, if the claimants or their attorneys are fully confident of the justness of their claim, or there is a disposition to avoid litigation, they are likely to co-operate with the company in that respect.

In personal injury cases an examination by the company's surgeon should be insisted upon and an itemized list of expenses arising from the accident should also be obtained. If no report has been made by the car crew of the accident in which the claimant contends that he was involved, it would seem advisable to make a secret investigation of the character of the claimant, of the length of his residence in the locality, etc. If he has recently removed from some other city, it is advisable to write to the street railway company operating there to ascertain whether the claimant has ever made a similar claim.

TRACK WORK IN MOBILE

Since November, 1909, the Mobile (Ala.) Light & Railroad Company has reconstructed 2 miles of single-track on account of the paving of certain streets. It is expected that 2 miles more will be reconstructed within a short time if the city carries out the project it now has for the repaving of other streets. The railway company, however, is not planning to build any extensions. The usual track construction in the city on unpaved streets is made up of 70-lb. and 80-lb. A. S. C. E. sections. In the country 60-lb. A. S. C. E. rail is used. In the paved district the principal rail used was the Lorain Sect. 89, No. 319 semi-grooved section, although the company retained in service some 80-lb., 7-in. T-rail. Continuous joints are used on all rail. The Mobile municipal authorities do not compel the use of a grooved rail in wood-block paving, but the railway company itself prefers to use the Sect. 89, No. 319. Most of the lines in Mobile are double-track, but some of the lines have two single-track loops—that is, the cars go up one street and return down another street. There are 12 crossings with steam railroads, all of which are protected by derails. At present there are about 1500 ft. of parked tracks in the city, but it is possible that this amount may be increased in the near future.

A contract has recently been made with the Electric Railway Improvement Company, Cleveland, Ohio, for the use of that company's methods of applying electrically welded bonds. Two No. 0000 bonds are being placed under the joints on all reconstructed track, but bonds are applied to the ball of the rail on other track.. The special work is being thoroughly rebonded.

In the reconstruction of track for paved streets, the company is using the concrete beam and wood tie construction shown in the accompanying drawing. The beams are 18 in. wide x 7 in. deep under the base of the rail except under the joints, where the beam is 26 in. wide and 11 in. deep, thereby extending 4 in. beneath the tie. Creosoted ties are placed at joints. The following concrete mixture is used for the beams: One part Portland cement, 2½ parts sand and 5 parts gravel. The concrete beam is reinforced at every joint with 4⅝-in. diameter twisted bars, 26 in. long. The joints are staggered. The city paving contract calls for 4 in. of concrete, 1 in. of sand for cushion and 4-in. creosoted blocks. The company takes a subcontract from the paving contractor for the city concrete between rails, so that the beam and paving concrete is all put in at once, forming a monolith. The company increases the strength of the mixture required by the city at its own expense. The ties are installed at intervals of 4 ft., and tie rods every 7 ft. In laying the new rails those ties which were found in good condition were allowed to remain, but the decayed ones were replaced by ⅞-in. x 8-in. x 8-ft. creosoted pine ties to maintain alignment.

PAINTING PRACTICE ON LONDON UNDERGROUND RAILWAYS

The London Underground Electric Railways Company, of London, operates two distinct classes of rolling stock—that for the electrified Metropolitan District line differing considerably from the cars installed for the three tubes built for electric traction from the start. The Metropolitan District cars are built of fireproofed wood, with aluminum panels, whereas the tube cars are all-steel. The former cars have been found more costly to maintain from the painting standpoint, because they operate in semi-open tunnels, and besides the leaching out of the fireproofing salts used in the wood is very destructive, both to the paint and metal covering of the cars. Both types of cars measure about 50 ft. over all, but the superficial areas of the Metropolitan District cars are somewhat greater than the tube coaches, in addition to their having side doors and partitions. The following paragraphs will describe in detail the painting practice followed for these two classes of cars and services:

METROPOLITAN DISTRICT CARS.

Every five years the cars of the Metropolitan District line are repainted according to the following schedule, for a total cost of £26, of which amount two-thirds are required for the cost of the labor.

First day—The old paint is burnt off from the woodwork with a lamp or gas, care being taken not to scorch the wood. A paint remover is found more advantageous for large sections of aluminum or other metal work, as the lamp heats the metal, thereby causing the latter to buckle and the paint to stick. As most paint removers are very inflammable, great caution must be exercised in their use. It is found safer to complete all necessary burning off before bringing the paint remover near the car. While paint removers may be used on woodwork, the lamp or gas flame is better, because it leaves a surface which is sure to be dry, and it is also cheaper. When using paint removers, the surface is well cleaned with turpentine or benzoline, so that no wax or grease will be left upon the panels. After removing the paint, the panels are sandpapered down and the work primed with white lead.

Second day—All screw holes and crevices are filled with a hard stopping.

Third day—Apply the second coat of white lead priming.

Fourth day—One coat of filling or rough stuff.

Fifth day—Second coat of rough stuff.

Sixth day—Third coat of rough stuff.

Seventh day—Rub smooth with stone and water.

Eighth day—Apply coat of white lead priming and paint the belt rails and facias a dark lead color.

Ninth day—Stop up with sandpaper stopping, sandpaper down, apply a second coat of white lead priming and paint the belt rods and facias with chocolate ground in japan.

Tenth day—Apply two coats of body color (chocolate or red) ground in japan.

Eleventh day—Pick out with japan color and varnish on the same day with hard-drying body varnish.

Twelfth day—Stand.

Thirteenth day—Second coat of hard-drying body varnish.

Fourteenth day—Stand.

Fifteenth day—One coat of finishing body varnish.

The roof and platform are painted before the last coat of body color is put on the car. To improve the durability of the varnish, the car is allowed to stand four to seven days after being repainted and varnished before going back to service. Despite the hard condition of operation in smoke-filled tunnels, the painting program outlined has proved so satisfactory that two years is permitted to elapse before a car comes into the shops again for a general clean down, touching up and varnishing. The dates of the complete painting, overhaul and of the touching-ups are painted in small white letters on the front of the cars. Between these processes the cars are brought into the paint shop for thorough inside cleanings, to wash down the ceiling, paint the floor, scrub the seats, etc.

THE TUBE CARS.

The painting of the cars operated in the clean Piccadilly, Charing Cross and Bakerloo tubes is far less expensive than those of the Metropolitan District, as may be judged from the fact that in 1908 the repainting of 108 Piccadilly cars cost only an average of £8 6s. 4d. ($40.48) per car for a job which is to be repeated every three years. It may be mentioned that all inside laid-on work has been abolished. The figure given in this paragraph for the Piccadilly work embraced the following process: Peeling off rusty panels, which were refilled and glazed; washing and rubbing down the entire exterior and applying two coats of varnish; painting the roof; washing down the interior; giving the ceiling three coats of flat white; oiling down the panels, and giving the floor two coats of paint. All the gates and protection railings at the ends of the coaches received one coat of black paint.

The Bakerloo cars cost about £1 3s. ($5.58) more for a similar program, because their bodies are cream and bright red. These are more delicate colors than the engine lake chocolate brown used on the other tube cars, and cannot be matched up so easily. In the case of the darker color it may be sufficient to repaint only a portion of the panels, whereas it is necessary to repaint and glaze the entire Bakerloo coach, even if a large part is still in good condition.

In connection with the accompanying detailed labor and material statement on a typical Bakerloo car it may be interesting to give the painting schedules of tube cars in general, as follows: First two days, washing, scraping down and priming; third and fourth day, filling and stopping; fifth and sixth day, rubbing down. The Bakerloo cars then receive three coats of the cream exterior, which is ground in oil and applied one coat a day; the exterior covering of the other cars is ground in japan, and consists of one coat of lead color, one coat of brown and two coats of engine lake, which are applied at the rate of

CAR NO. 4. DATE IN SHOP, APRIL 27, 1909. DATE OUT OF SHOP, MAY 22, 1909. LONDON ROAD DEPOT B. S. & W. RY.

Date	Nature of Work Done (Exterior)	Hours Spent	No. of Men Engaged	Rate per Hour Sh.	Rate per Hour Pence	Total Cost of Labor £	Total Cost of Labor Sh.	Total Cost of Labor Pence
.....	Washing down	22	2	4			14	8
.....	Painting Trucks and Roofs	12	1	4			4	0
.....	Scraping	30	1	5	1/2		13	9
.....	Priming	7	1	5	1/2		3	2 1/2
.....	Filling and Stopping	12	1	5	1/2		5	6
.....	Rubbing down	17	1	5	1/2			
.....	" "	21	2	4		1	1	9 1/2
.....	Painting	21 1/4	2	8		1	8	4
.....	Varnishing	17	2	8		1	2	8
						5	13	11
	(Interior)							
.....	Washing	22 1/2	2	4			15	0
.....	Painting Ceiling	12 1/2	2	8			16	8
.....	Varnishing	12 1/2	2	8			16	8
.....	Painting Floors	4 1/2	1	5	1/2		2	1
.....	" Gates and Lattice	8	1	5	1/2		3	8
.....	Motor Cab	37 1/2	1	5	1/2		17	2
				Rate		£ 3	11	3
	Materials Used (Exterior)							
.....	Varnish, 1 1/4 gall.	...	...	12	0		15	0
.....	White Lead in Oil, 12 lb.	...	...		3		3	0
.....	Body Red, 5 lb.	...	...	1	9		8	8
.....	Purple Brown Roof Paint, 1 1/2 gall.	...	...		4		6	0
.....	Black Japan, 3 pts.	...	...	8	0		3	0
.....	Filling Powder, 3 1/2 lb.	...	...		1 1/2			5 1/2
.....	Dry White Lead, 1 1/2 lb.	...	...		2			3
.....	American Turpentine, 2 1/2 gall.	...	...	2	4		5	10
.....	Mineral Turpentine, 1/2 gall.	...	...	1	2			7
.....	Soft Soap, Sapon and Pumice Powder	...	...	....			5	0
						£2	7	9 1/2
	(Interior)							
.....	Varnish, 3 qts.	...	...	12	0		9	0
.....	White Lead in Oil, 15 lbs.	...	...		3		3	8
.....	American Turpentine, 1/2 gall.	...	...	2	4		1	2
.....	.....	...	...	....			13	10
	Total	...	...	....		£12	6	9 1/2

Names of Painters, PREECE AND BANKS.
Date, May 24, 1909.
Signed, W. H. JONES, Foreman Painter

Form Showing Tabulation of Painting Costs

two coats a day. It will be seen from this schedule that the exterior work on the Bakerloo cars requires nine days, against eight for the other cars. While the exteriors are being painted, the interiors are cleaned by laborers and then painted as follows: Three coats of flat white, consisting of one coat of lead and two coats of Satinette. One day is allowed for each coat, but both coats of Satinette could be applied the same day if necessary.

PROGRESS OF THE UTICA TROLLEY TOUR

The 2050-mile electric railway trip of Utica business men through central New York to Cleveland, Detroit, Toledo, Indianapolis, Louisville and return was successfully started on Tuesday morning, May 10. The party numbered from 21 to 30 persons and was accompanied as far as Cleveland by C. Loomis Allen, vice-president and general manager of the Syracuse Rapid Transit Company, the Utica & Mohawk Valley Railway Company and the Oneida Railway Company. The complete itinerary for this trip, which is planned to end in Utica on Monday, May 23, at 10 p. m., was given in the Electric Railway Journal of March 12, 1910, page 461. The entire run is being made in one of the Oneida Railway Company's cars. The car will have to be used as a trailer on the 1200-volt d.c. line between Indianapolis, Ind., and Louisville, Ky.

Each tourist was furnished with a dairy containing a schedule of the trip and a series of statements about the business and social advantages of Utica. Every member of the party also had a Utica lapel button and silver-mounted cane. The first stop was made at Syracuse for luncheon and short automobile tours given by an entertainment committee which included W. K. Archbold, of the Archbold-Brady Company. At Syracuse the party was joined by H. C. Beatty, assistant to the general manager of the Syracuse, Lake Shore & Northern Railroad and assistant secretary of the Auburn & Syracuse Electric Railroad, to pilot the visitors over the lines of the Beebe syndicate into Rochester. The party reached Rochester in the evening, where the visitors inspected the park system in care of the Chamber of Commerce. Rochester was left on May 11 at 9 a. m. and Buffalo was reached at noon. At 1:25 p. m. the car left for Erie, Pa., in charge of vice-president J. C. Calisch and general manager M. C. Brush, of the Buffalo & Lake Erie Traction Company. After a pleasant run through the vineyard districts served by this company the party entered Erie, where it was welcomed by a delegation from the local chamber of commerce. Cleveland was entered May 12 after stops were made at Conneaut and Ashtabula. At Ashtabula, the tourists were met by officials from the Cleveland, Painesville & Ashtabula Railroad Company and near Willoughby, the car was boarded by John J. Stanley, Charles H. Clark and George L. Radcliffe, president and general manager, chief engineer and transportation superintendent, respectively, of the Cleveland Electric Railway. At Cleveland, Mr. Allen was obliged to leave on account of urgent business matters, but he arranged to meet the delegates on their return. Columbus was entered on May 13 after passing through Elyria, Mansfield, Galion, Bucyrus, Marion and Delaware. At most of these places the visitors were met by entertainment committees from the next town on the route. Dayton was reached on May 14. In recognition of the efforts made by the members of this party to advance the interests of their home city, arrangements are being made in Utica to give the delegates a public welcome and banquet on their return.

The American Street & Interurban Railway Transportation and Traffic Association's committee on interurban rules has issued a circular in which the member companies are asked to state their operating conditions; whether they are using the standard code modified or unmodified, and if not, why they are using some other code; what action has been taken on the standard rules by State railway associations and commissions; whether the electric interurban code should conform with the standard code of the American Railway Association (steam railroads), etc.

CADET AND APPRENTICESHIP COURSES OF THE PUBLIC SERVICE RAILWAY

For the past two years, the Public Service Railway Company of New Jersey has been employing college men as cadet engineers, very largely along the lines contained in the report of the committee on education presented at the 1907 meeting of the American Street & Interurban Railway Association. This plan of taking men just graduated from a technical school and giving them an opportunity to learn the rudiments of the various departments before settling them permanently in any one department met with the strong approval of R. E. Danforth, general manager of the Public Service Railway and as a result, 11 men from several universities were accepted by his company on July 1, 1908, to work in different departments for a period of 25 months in all. It was planned to divide the course as follows: Mechanical department, six months; transportation department, seven months; track department, four months; line department, two months; power station, three months, claim department, three months. All of these divisions have been retained except the claim department which has been dropped from the list. It will be understood, of course, that the students were not all started in any one department but were scattered among them all in the most practicable manner.

The assignments to the mechanical and transportation departments were tentatively sub-divided to avoid tying a man down too long on one class of work. Thus the six months in the mechanical department were divided as follows: Pits, one month; armature room, one month; machine shop, one month; general repairs, one month; controllers, one-half month; car wiring, one-half month; test car, one-half month; storeroom, one-quarter month; car inspection, one-quarter month. The seven months in the transportation department were divided in the following manner: Car-house clerk, two and one-half months; inspector, two months, division superintendent's office, one month; conductor and motorman, one-half month; with general superintendent, one-half month; time-table department, one-half month. The only change made in the transportation assignments has been the lengthening of the time-table course from two weeks to one month.

It has not been possible to follow exactly the schedule outlined because the cadets often fill regular positions for which their successors have to be broken in. In general, however, the overlaps have not been of any great importance in affecting the plan of the course. Owing to the elimination of the claim department assignment, the total length of the cadet period would have been cut down from 25 months to 22 months but by extending the time for some of the other subjects, the course has been fixed at 24 months. Consequently, the first group of men taken on in July, 1908, will be eligible for permanent positions next July.

The purpose of assigning the men to so many different kinds of work is not with the expectation that they will become experts in the short time in which they are engaged in the department, but to make them familiar with the lines of thought and points of view taken by the different classes of employees. Furthermore, the close personal contact with the various types of workmen which they thus acquire tends to develop the character of the cadets and gives them a splendid opportunity to show how much diplomacy and executive ability they possess.

The course began with 11 men of whom three resigned to accept more lucrative positions elsewhere. During 1909, six more were taken, making a total of 14 students. To every applicant a straightforward explanation was given to the effect that he would have to begin at the bottom of the ladder in each department just as any unskilled laborer and that he would have to render the same obedience to the rules of the company. Practically every position successively held by the students is of subordinate character aside from such exceptions as sub-foremen in the track department. The initial monthly salary is $40 with periodical increases of $5 per month.

The company naturally expects that during the training period, a man will disclose his special aptitude for certain kinds of work but no promise is made by the company that every man or any one of them will be given a regular position after the two years are over. Whether the student is retained or not, he has gained an all-around education which is sure to be of great assistance to him in seeking electric railway work elsewhere.

Each department chief reports monthly on the work done by the cadets in his department. These reports are filed and tabulated both for the information of the company and the students. The management requests that these reports be made out under 10 heads aside from the reporter's general impression. These heads are loyalty, habits, determination, executive ability, diplomacy, originality, training, adaptability, skill and thoroughness or determination. As a rule, the men who make the best showing are those who come from high class engineering colleges and have supplemented their laboratory experience by shop work during the summer vacations between school terms. The company has been gratified to find that each of the men who are completing the second year has shown marked ability in one or more of the departments. The plan is to get excellent transportation men as well as good mechanics and engineers. Some of the men have turned out to be splended "mixers" and are very popular with their fellow workers. The department heads have also been well satisfied with the work of the cadets but each one seems to think that the students are not allowed to stay long enough in his department. A longer course, however, would discourage the apprentice. In any event, the department head has the opportunity of securing the permanent return of an apt pupil after the latter has completed the regular curriculum given by the company.

Besides the two-year cadet course for college graduates, the company has established an apprenticeship grade for boys having a common high school education. These apprentices are not shifted about from one department to another except at their own request. They are employed at regular wages but closer watch is kept of their progress. The older apprentices associate with the cadet engineers at the monthly meetings of the latter where papers are read and discussions held on matters relating to the company's business.

CAST IRON AND STEEL WHEELS ON SIX SOUTHERN ELECTRIC RAILWAYS

The following brief notes on cast-iron and steel wheels were gathered on a recent trip to Southern properties and may be of interest as showing the practice of the companies mentioned.

ATLANTA

The Georgia Railway & Electric Company uses for its city service almost exclusively the Atlanta chilled-iron car wheel made by the Atlanta Car Wheel & Manufacturing Company. These wheels are guaranteed for 40,000 miles, but the company reports that for the last two years practically all of the wheels considerably exceeded the guaranteed mileage. For 1909, the total distances covered by the Georgia Railway & Electric Company's wheels was 500,000 miles in excess of 1908. This mileage was obtained at a reduced wheel and axle cost of about $800 over 1908. This was due to the fact that while 1120 new wheels were used in 1908, not more than 1000 were required in 1909. The wheels are 33 in. in diameter and are used with 4-in. hammered steel axles on single-truck cars and with 4⅜-in. hammered steel axles on the double-truck cars. The allied Atlanta Northern Railway Company, which is an interurban line, also uses Atlanta chilled wheels, but these are 34 in. diameter. The Atlanta company has some Schoen solid-steel wheels which have been running seven months, and thus far have given over 40,000 miles without returning.

MOBILE

The Mobile Light & Railroad Company use 33-in. chilled cast-iron wheels of Decatur, Atlanta and St. Louis make. For the past 19 months it has had in service under some double-truck cars solid-steel wheels of Standard and Schoen manufacture.

RICHMOND

The Virginia Railway & Power Company, Richmond, Va., operates chilled cast-iron wheels on all city lines and rolled-steel wheels on all high-speed suburban and interurban lines. This company has standardized its cast-iron wheels so that one wheel fits all the different type trucks. The Richmond track conditions are such that on account of the narrow-groove rail the excessive flange wear makes it impossible to get the maximum life out of the wheels. However, a guarantee of 35,000 miles per wheel is obtained on the cast-iron wheels.

LYNCHBURG

The Lynchburg Traction & Light Company's standard wheel is a chilled cast-iron wheel made by the Atlanta Car Wheel & Manufacturing Company. Although Lynchburg is a very hilly city, this wheel has been found very satisfactory and has given little trouble from broken or chipped flanges. The company has also been trying solid steel wheels during the past year. So far as its experience to date is concerned, it has found the cast-iron wheel to be cheaper for city operation, but the steel wheel is considered better for the interurban service. The steel wheels have made 50,000 to 60,000 miles without being returned, but the mileage made between the first and second turning has not exceeded 40,000 miles.

CHARLESTON

The Charleston Consolidated Railway, Gas & Electric Company uses for city service the Atlanta and St. Louis cast-iron chilled wheels of 33-in. diameter, 2¼-in. tread, with a ¾-in. flange, ⅞ in. thick on account of the full-grooved rail. This company operates over 2 miles of trestle, for which service there is used a cast-iron wheel with a 3-in. tread and a flange ⅞ in. deep by 1¼ in. thick. The extra wide wheels weigh 445 lb. each. This company has not yet tried any solid steel wheels

SAVANNAH

The principal chilled-iron wheel used in Savannah is of the Atlanta type. The Savannah Electric Company has had in use one set of steel wheels for over two years and four other equipments have been added since, thus providing two double-truck cars with Schoen wheels and three single-truck cars with Standard wheels. It is estimated that the steel wheels are good for a life of over 200,000 miles, which would make them cheaper to the company in the long run than the cast-iron wheels. On this basis a steel wheel would cost about 10 cents per 1000 miles, including the charges for three turnings, whereas the cast-iron car wheel would cost 13 cents per 1000 car-miles, based on a life of 48,000 miles. It is interesting to add that 85,000 miles were secured from the first set of Standard wheels before it was found desirable to make the first turning.

FINANCIAL REPORT OF AMERICAN STREET AND INTERURBAN RAILWAY MANUFACTURERS' ASSOCIATION

The 1909 financial report of the American Street & Interurban Railway Manufacturers' Association submitted by George Keegan, secretary-treasurer, shows the following items: Total receipts up to Dec. 8, 1909, $30,859.05, made up of a balance of $6,851.88 from the preceding year, $11,390 for membership and badges, $12,340.80 for exhibit space, and $276.37 for miscellaneous; total disbursements up to Dec. 8, 1909, $25,989.76, including $5,420.96 for exhibit expenses; balance on hand, $4,869.29.

The report by T. R. Johnson, chief commissioner of the New South Wales Government Tramways for the quarter ended Dec. 31, 1909, gives the following results: Miles open, 158¾; revenue, £297,291; expenditures, £260,717; miles run, 5,032,539; earnings per mile, 1 shilling 2¼d. (28½ cents); expenditure per mile, 1 shilling ¼d. (25 cents); percentage of expenditure to earnings, 87.70; number of passengers carried, 50,417,125. Two extensions were opened for traffic during the quarter, the total length being 3½ miles.

COMMUNICATION

REVISING BLANK FORMS

New York, May 16, 1910.

To the Editors:

Referring to the discussion relative to the "Necessity for Revising Blank Forms," the interesting communication from Mr. Theodore Stebbins, on page 873 of your issue of May 14, contains two statements to which exception may be taken.

Mr. Stebbins speaks of the general practice of printing the date and quantity ordered in the margin of each form. Having recently analyzed several hundred blank report forms, the writer wishes to protest against this method of indicating the date and "number printed." He has found it more misleading than helpful because if anyone desires to use the information, say, as a guide to ordering fresh stock, he cannot tell if the particular form is from the last edition. The writer in tabulating certain forms with respect to the quantity ordered came near making an expensive error and had to re-do considerable work on discovering that some of the samples were from the second and third previous "runs" instead of the last. There was no way of telling from the samples themselves whether or not subsequent editions had been run. As commonly printed a form may bear a symbol like 9-15-09-5 M, indicating that on Sept. 15, 1909, 5000 were printed. Who can say from this that no later editions have been printed except by looking up some other record? It would be better to obtain all desired information direct from the primary record.

It may be argued that care should be exercised to obtain only the latest samples, but this is not always easy. It is hardly economical, providing no essential change in the form has been made, to destroy stock left over from a previous edition. So long as old samples are in stock in the back cabinets or desk drawers they will turn up sooner or later. The marginal information would be helpful only if it were feasible to insure that only the last run of any form would be in circulation, but this is not possible, even on small roads.

The better way is to print nothing on the margin except the "Form Number" and then to keep a record of each form, dates of respective runs and number printed, average monthly requirements and any other data desired. Notes can also be entered in the record relative to change to be incorporated in the next revision of the form. The record is very easily maintained and it will save an endless amount of bother in keeping track of blank forms.

Your correspondent makes another suggestion that ought to work out well, but does not. In his second paragraph he states "On the margin of each report form and in fine type I customarily place 'Directions for Use.' Each time the form is used the employee has before him these directions and will follow them more carefully than if furnished separately * * * These directions also state how many copies of the report shall be made and to whom each copy should be mailed, and when." The writer's experience is that it is not only a waste of paper and of effort to attempt to put "Directions for Use" on each report form, but that these instructions, as they usually appear on forms, are more misleading and confusing than otherwise, mainly because on many forms it is not practicable to give all of the needed directions in the space available. Usually the instructions are so voluminous that the average clerk or employee becomes confused trying to read them, or else they are so brief that they do not convey the desired thought. A better plan is so to draft the form that its use and handling will be self-evident. For instance, the information as to where the form is to be sent should be indicated near the top by a line reading "To" etc., giving title or department as "Chief Engineer" or "General Manager" or "Auditing Department." This practice is decidedly better than using the names of individuals as the forms will then remain unaffected by changes in the organization of the company.

The column headings and the introductory matter should be self-explanatory. Each form should also carry as a conspicuous headline a clear, concise definition of what it is and the period of time, as daily, weekly or monthly, which it covers, for example, "Daily Statement of Defective Cars" or "Monthly Report of Passenger Earnings." Below should be left a blank line for filling in the exact date, as "For month ending ——, 19—."

The following is a standard arrangement applicable to practically every form needed:

1. Name of company (which should appear on every form).
2. Form number (preferably in upper left-hand corner).
3. Designation or name of form, with time period indicated as previously described.
4. Date line.
5. The word "To" followed by title of official or name of department to which report is to be forwarded.
6. Body of form, including introductory or explanatory matter, with column headings and cross-rulings, if required.
7. Line for signature, with title, of person making the report, and line or lines for approving or confirmatory signature, if required.

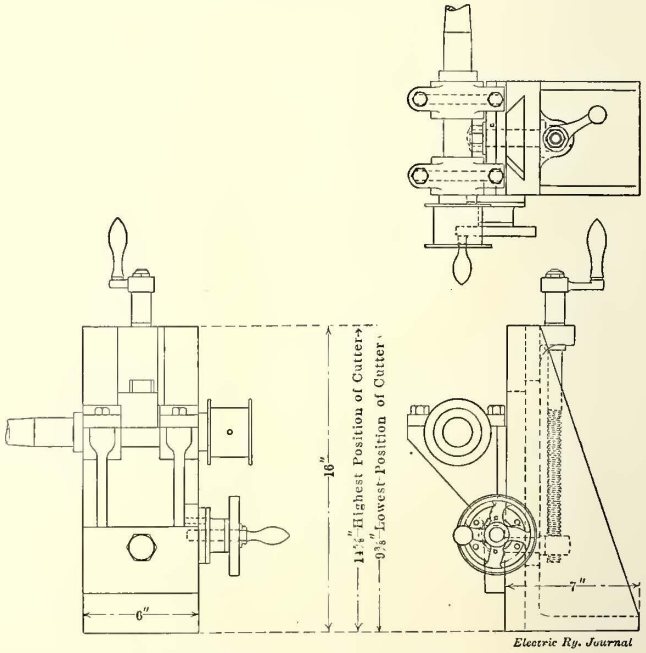
In the case of duplicate, triplicate or additional copies, if there is any doubt as to where they are to be sent, designating words as "Original for Auditor," "Duplicate for General Manager," "Triplicate for Superintendent of Transportation" may be printed near the top of the respective copies.

Contributor.

DRAWING OF COMMUTATOR UNDERCUTTING DEVICE

In the Electric Railway Journal of April 9, page 654, a half-tone was shown of a commutator undercutting device used by the Boston Elevated Railway Company, and a short review was given of the practice of the department of rolling stock and shops in connection with this branch of motor maintenance. Below is printed a working drawing of the tool holder, which fits an ordinary lathe.

The slotting tool is mounted on a shaft driven by a spindle

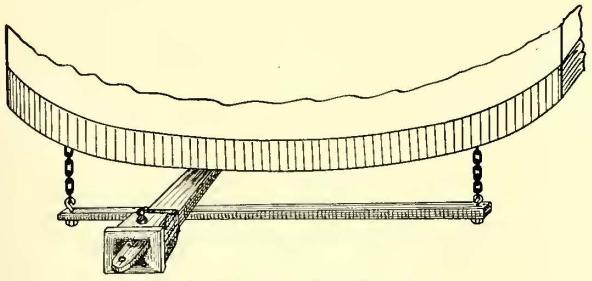


Details of Commutator Slotter

carried in the bearing shown in the side elevation, and maximum facility of adjustment is afforded by the horizontal and vertical spindles illustrated. The cutting tool can be raised to a maximum height of 14⅝ in. above the ways of the lathe, and lowered to a height of 9⅜ in. above the bed. The maximum width of the frame supporting the tool and driving pulley is 7 in. The device may be locked on the carriage of the lathe with ease. Accuracy rather than speed has been the company's aim in handling this class of work, as it has found that hasty undercutting either leads to electrical troubles in service or else the work has to be done over again in the shop to a greater or less extent.

CHAIN CARRY-IRON FOR DRAW-BARS

The Little Rock Railway & Electric Company, of Little Rock, Ark., uses an improved form of draw-bar carry-iron on its trailers. This consists simply of a pair of chains so that in rounding curves the draw-bar carry-iron is allowed to swing. Thus the amplitude of the coupler arc is increased and the derailing or damage of trailers on sharp curves is prevented.

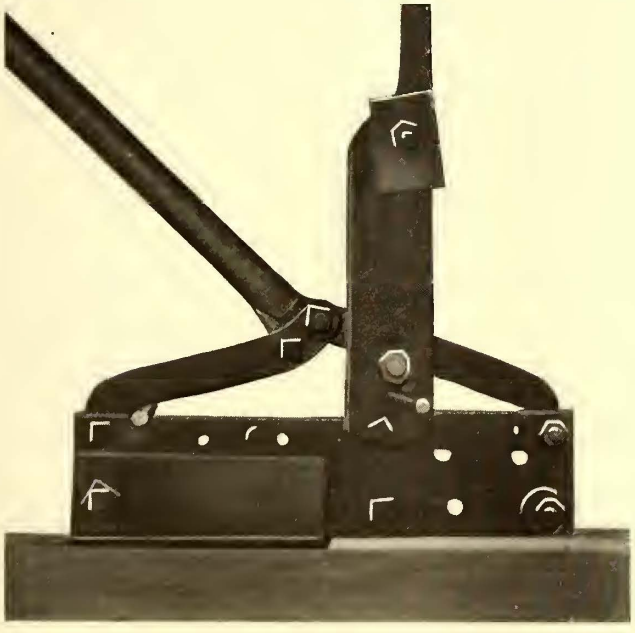


Chain Hanger for Couplers

HOME-MADE METAL CUTTER

The accompanying illustration shows a combination plate and bar cutter devised in the shops of the Charleston (S. C.) Gas, Railway & Electric Company. The plate-cutting portion comprises a toggle lever, one arm which is a cast-steel cutter for handling any piece of cold iron up to and including ¼ in. thickness and 3½ in. breadth; the other arm is a soft steel cutter for hot iron up to and including plates ¾ in. by 4½ in. The cast steel cutter has a notch at one end to permit the cutting of round iron of ¼ in., ⅝-in. and ½-in. diameter. The rounds cut in this manner need no chamfering to make them fit standard dies.

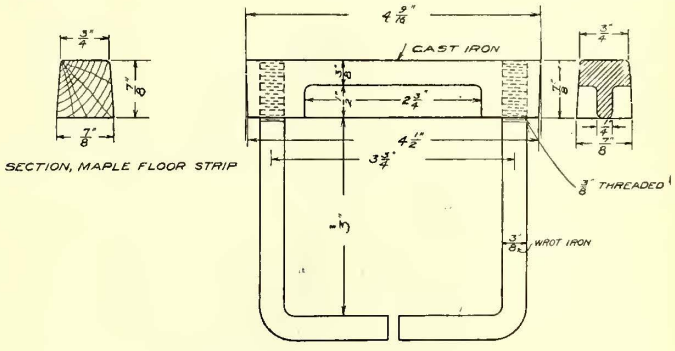
Bar-iron of ⅞ in. and 1 in. diameter is cut by means of a ratchet lever, parallel plates and dies in the following manner. The bar first is slipped through the corresponding hole bored in the plates, one of which is movable and the other stationary. The movable piece carries cast-steel cutting dies and is notched at the top to mesh with the ratchet lever. Hence when the latter is pulled over in either direction, the dies are made to bear against the bar and cut it. The base of this combination cutter consists of an old compromise rail-joint. The plates for the bar-cutter portion were made from abandoned brake-beams, while a discarded piece of trolley pole tubing answers as a sleeving to increase the leverage.



Device for Cutting Bar Iron

AN UNUSUAL TRAP DOOR LIFT INSTALLED IN RICHMOND CARS

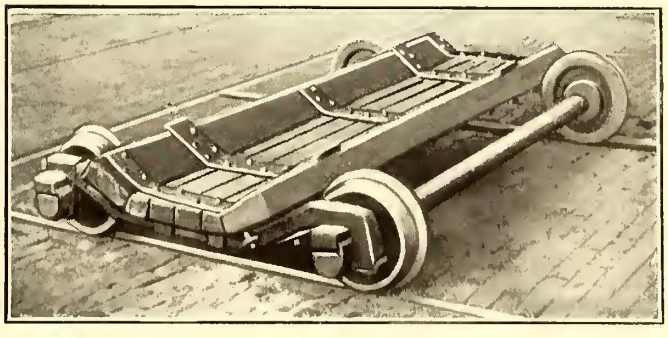
Many motor trap doors are raised either by means of a ring fastened to the floor in a depression made by cutting away a portion of the floor strips or by placing the top of a lift yoke between the adjacent strips, which have been beveled for the hand. Both of these methods are open to the objection that people with high-heeled shoes, particularly women, may trip in these holes, and thus find an excuse for injury claims. This possibility is avoided by the design of trap-door lift devised by the mechanical department of the Virginia Railway & Power Company. This method is shown in the accompanying drawing. Enough of one strip is cut away over each trap door for the insertion of a piece of cast iron 49/16 in. long. This casting is exactly as wide as the strip and flush with the rest of the floor. It is made as an inverted "U." The rest of the lift consisits of ⅜-in. wrought-iron rods threaded into the top piece as shown. The usual space between the strips is ample for the insertion of the fingers without requiring any depressions in the floor.



Richmond Trap Door Lift

WRECKING TRUCK USED IN PITTSBURGH

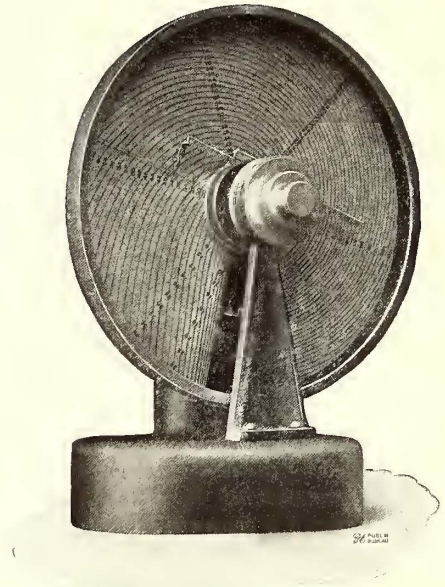
For pulling in cars with broken wheels or axles the Pittsburgh Railways Company uses the low truck shown in the accompanying engraving. One of these trucks is hauled behind the wrecking car to the scene of the breakdown, and after the disabled truck is jacked up the cradle is run under it and the truck lowered so the wheels or motor rest on the heavy planks forming the platform of the cradle. The disabled car can then be run into the shop under its own power. The side frames of the cradle consist of 2-in. x 2-in. steel bars bent down in the center and turned over at the ends to form the outside pedestal jaws. Straps ¾ in. x 2 in. are bolted to the underside of the frames and are bent down to form the inside pedestal jaws. They are continued across under the journal boxes and bolted to the ends of the outside pedestal jaws. The three planks forming the floor of the cradle are 3 in. thick, and are secured to the side frames with strap bolts. This truck is light enough to be lifted on or off the track by two men, and has been found to be very useful in handling serious breakdowns.



Wrecking Truck Used in Pittsburgh

STEAM AND AIR FLOW METERS

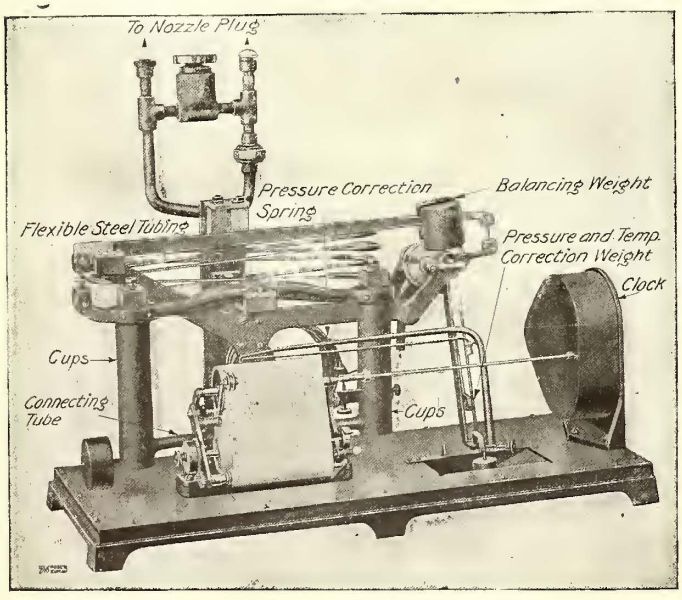
Over four years ago the General Electric Company began experiments to perfect a practical steam meter, and as a result of these tests it has developed a recording steam-flow meter, two types of indicating steam-flow meters and an indicating air-flow meter. Each of these instruments will accurately measure the rate of flow of steam, air or other gases in any



Indicating Flow Meter

size pipe, under any commercial conditions of pressure and temperature.

The acting principle of the flow meter is a modification of that of the Pitot tube. A brass nozzle plug, screwed into the pipe at the point where the flow is to be measured, carries two sets of openings: a leading set, facing the direction of flow and extending diametrically across the pipe, and a trailing set, consisting of two openings at 90 deg. and one at 180 deg. to the direction of flow. The impingement of the steam against the



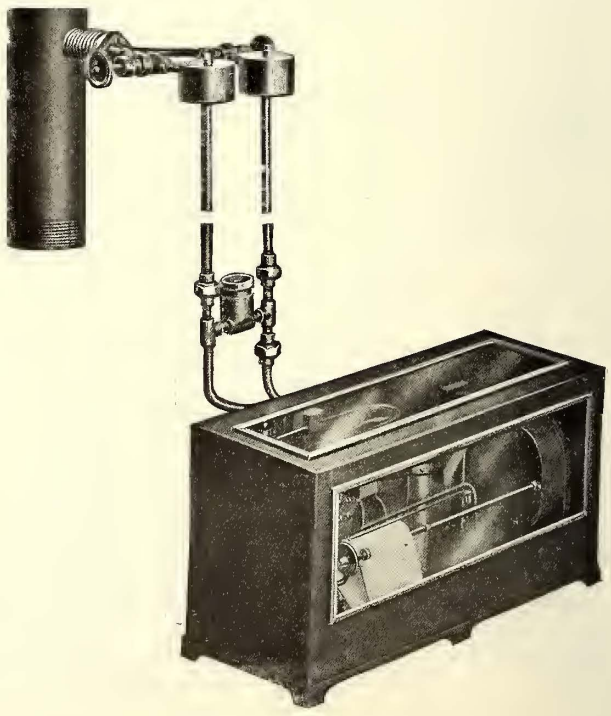
Automatic Pressure Correction Device

leading openings sets up in them a pressure equal to the static pressure plus the pressure due to the velocity head, while the trailing set is acted on by the static pressure less that due to the velocity. The difference in these values is a measure of the velocity, and for constant temperature and pressure gives the rate of flow. The pressures existing in the two sets of openings are communicated through separate tubes to the outer end of the plug and from there by ¼-in. iron pipes to the meter.

The recording steam-flow meter, Type R, Form D, is a curve-drawing instrument, calibrated to record the total rate of steam flow in pounds per hour. In this meter there are two cylindrical cups filled with mercury to about half their height and joined at the bottom by a hollow "U" tube, which is supported on, and free to move as a balance about, a set of knife edges. The two pressures obtained by the nozzle plug are communicated to the cups by flexible steel tubing, whereupon the difference in pressure is equalized by a rising of mercury in the left-hand cup and a falling in the right-hand cup. Due to the mercury displacement, the beam carrying the cups tilts on the knife edges until the moment of the counterweights on the extreme right of the meter exactly balances the moment caused by the displacement of the mercury in the left-hand cup.

The motion of the beam is multiplied by levers and is registered by a pen. The time element of the meter consists of an eight-day clock driving a drum and feeding paper at the rate of 1 in. an hour. Charts are supplied in sizes to measure a flow of from 2000 lb. to 240,000 lb. per hour, and of sufficient length to last one month. The rate of flow can be read at any instant or the average rate of flow calculated for a given time. The meter is adjustable for different conditions through a correction weight on a graduated arm. A chart supplied with the meter shows the correct position for any existing condition.

If the pressure in the steam main varies more than 10 lb. from normal, compensation is necessary for the error thus introduced. An automatic pressure correction device, consisting of a hollow spring, similar to the pressure spring in a steam gage, is connected so as to be influenced by the static pressure of the steam at the point where the flow is being measured. Any variation of the static pressure causes the spring to expand or contract, and this movement actuates the small correction counterweight and affects the movement of the pen to correct the recorded rate of flow. The meter weighs 55 lb.



Steam Flow Meter

complete. As the glass front of the cover is removable, the working parts of the meter are readily accessible at any time.

The Type I, Form F, steam-flow meter is to meet the requirements for an indicating rather than a recording instrument. It is especially useful for testing work, locating leaks, etc. The meter consists of an iron casting, core cut to form

a "U" tube, and partially filled with mercury. The difference in pressures, as transmitted from the nozzle plug, causes a difference in the mercury levels, and the displacement of the mercury actuates a pulley by means of a small float suspended by a silk cord. The pulley moves a small "U" magnet on the end of the shaft next to the dial in proportion to the change in level of the mercury in the "U" tube. The indicating needle is mounted in a separate cylindrical casing. The pivoted end consists of a bar magnet, free to turn in the same plane as the magnet on the inside of the meter. The mutual attraction of the two magnets keeps them parallel; a packed joint to transmit the motion of the pulley to the indicating needle is thus eliminated.

Proper adjustments for the existing conditions of pipe diameter, pressure and temperature are readily made by setting the graduated cylinder which actuates the rack carrying the pointer. When these settings are made, the rack is rotated by hand until the pointer coincides with the indicating needle. The point on the calibrated dial at the intersection of the needle and pointer gives the true instantaneous rate of flow in pounds per hour per square inch pipe area. This meter finished weighs only 25 lb.

The Type I, Form F, indicating air-flow meter is identical in principle and method of operation with the Type I, Form F, indicating steam-flow meter, except that water is used in the "U" tube as a working fluid and the chart dial is calibrated to read in cubic feet free air per minute at 70 deg. Fahr. per square inch pipe area. The air-flow meter is made in two ranges: low pressure 12 lb. to 35 lb. absolute, and high pressure 10 lb. to 120 lb. gage.

All meters are calibrated for operation under steady flow conditions, but will not accurately measure a periodically intermittent flow, such as is required by intermittent flow turbines, reciprocating engines, pumps, etc. In such a case, unless the meter can be placed so close to the boilers that steady flow conditions exist, recalibration for the existing conditions is necessary after installation.

Station piping arrangements are not interfered with in making installations, since it is necessary only to drill a ½-in. hole in the pipe and insert the nozzle plug. The plug must be placed in a straight run of pipe at least 10 pipe diameters from a preceding elbow or tee, and at least two pipe diameters before a following tee or elbow. The same nozzle plug is used for all types of meters, steam or air, the only difference being in the method of piping to the meter. The steam meter can be placed at any desired position below the level of the nozzle plug, provided the ¼-in. iron pipes to the meter have a slight downward slope throughout. As the piping for an air meter is not filled with water, the air meter can be placed at any desired position whatsoever, above or below the nozzle plug.

Some of the uses for which the meters are adapted can be summarized as follows: Recording the total amount of steam generated by a battery of boilers; equalizing the load on individual boilers of a battery; discovering internal leaks in boilers, as shown by the difference in the water input and the steam output; determining the deterioriation of efficiency of a boiler due to formation of scale, etc.; determining the efficiency of stoking; measuring the amount of steam sold; discovering losses originating from leaks between boilers and points of consumption, as in defective traps, gaskets, valves, and other steam apparatus.

A PAINT SHOP KINK

An improvement over the usual method of constructing drying racks for varnished sash frames is to use triangular strips on the sides instead of rectangular strips or trays. Only the lower corners of the side pieces of the sash frames come in contact with the supporting strips so that the varnished surfaces are not marred in any way. A considerable saving in the space required between the sashes is also effected and more frames can be placed in a rack of the same height. Canvas curtains should be used in front of the drying frames to keep out dust.

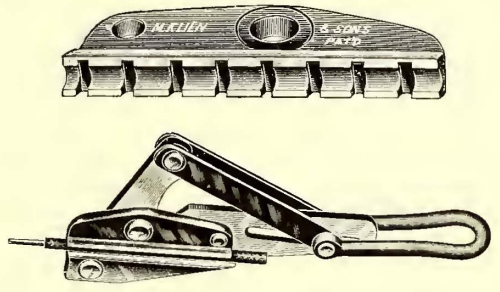
AUTOMOTONEERS IN THE SOUTH

The Norfolk (Va.) & Portsmouth Traction Company is now using 150 automotoneers on 75 of its cars, which include all of the interurban rolling stock. These controller regulators were furnished by the Electric Service Supplies Company, of Philadelphia, and are giving such satisfactory service as equipment savers that the company is considering the equipment of all of its cars in the same manner.

The Charleston (S. C.) Consolidated Railway, Gas & Electric Company was having a great deal of trouble on one of its lines from commutator flash-overs, burnt-out fuses and armatures owing to improper operation of the controller. In December of last year, however, the company equipped 12 cars with automotoneers, which have stopped practically all of the electrical troubles formerly given by the cars in question. The company is so pleased with the results that it intends gradually to equip the entire system with this device. Automotoneers are also being used by the Mobile (Ala.) Light & Railway Company.

GRIP FOR INSULATED WIRE

Mathias Klein & Sons, Chicago, Ill., manufacturers of the "Chicago" wire grip, have recently brought out a design for handling No. 10 insulated wire in addition to the grips for larger sizes ranging from No. 4 to No. 0000. The peculiar feature of this grip is the construction of the upper or sliding jaw, which is divided into alternate flat spaces and transverse grooves. The effect on the wire is such that the pressure due to the pull causes a slight depression in the insulation where contact is made with the flat spaces and the wire is forced



Grip and Upper Jaw

slightly into the transverse grooves to grip just tightly enough without injuring the insulation. The lower jaw has a longitudinal groove with an extension lip along its side for a firm support around a large part of the body of the wire. The draw link of this grip does not hang at right angles and, therefore, is not in the way of the line wire when the grip is applied. The loop never drops below the horizontal position shown, but is free to move upward. This feature is a valuable one when it is necessary to reach out on the wire to apply the grip when pulling in slack.

A NEW INSULATING MATERIAL

A new insulating material, known as "Hemit," has recently been put on the market by the Hemming Manufacturing Company, of New York. It is a composition molded under pressure into various forms and shapes required for all kinds of electrical insulation. While it is not brittle, it is very hard and will take a high polish. It also has great tensile strength, and not being subject to contraction and expansion, metal parts may be fixed in place during the molding process. It is also claimed to be both fire and waterproof.

Among some of the forms in which this material has been made up, the following may be mentioned: Switch handles, switch bases, insulating bushings, controller parts, commutator rings, brush holders and overhead insulators.

ELECTRIC RAILWAY LEGAL DECISIONS

CHARTERS, ORDINANCES AND FRANCHISES

Alabama.—Misconduct Toward Street Car Passenger—Excessive Damages.

One thousand seven hundred and fifty dollars was an excessive recovery by a street car passenger for the company's failure to permit him to alight at his destination, and for indignities inflicted by the motorman and conductor, though he had to walk half a mile, and had been sick, and was made nervous, and was insulted by the motorman and conductor, where he suffered no ill effects of a serious or permanent character and had habitually taunted the motorman on former trips. (North Alabama Traction Co. vs. Daniel, 48 S. Rep., 50.)

Michigan.—Statutes—Construction—Railroads—Removal of Grade Crossings—Damages—Public Improvements—Measure of Damages—"Damaged"—Evidence—Construction of Agreement with Railroad.

Neither the rule that remedial statutes should be construed liberally, nor the rule that statutes should not be construed so as to enlarge the meaning which the words employed will bear, will justify a disregard of the language of a statute.

Comp. Laws 1897, sec. 4231, provides that, upon an agreement being made by a city with a railroad company for a separation of grades, the city may compromise with any person having an interest in any lands abutting on that portion of the street within the city of which the grade is to be changed according to said agreement, and which may be damaged by the proposed change of grade. Section 4241 provides for a jury which, under section 4244, shall ascertain the amount of damages to such property as may be damaged thereby. Held, that compensation can be given only for damages to property abutting on that portion of the street the grade of which is to be changed, and for such damages only as result from such change of grade, and damages for inconvenience caused to the general public and to claimant on account of rendering the street less convenient for use, and for injury or inconvenience resulting from closing the street to public travel during the progress of the work, are recoverable.

The measure of damages to abutting property being the difference in value thereof just before and just after the change, abutting property, none of which is taken, is not "damaged" within the meaning of the statute, where it is worth no less after the improvement than it was before, whether the interest be that of tenant or owner.

As the statute contemplates that compensation shall be awarded in gross before the improvement is begun and apportioned among those interested, damages for injury to a business as such, carried on upon abutting property by the owner or tenant, is not recoverable, as the determination of the amount thereof would be mere speculation.

In proceedings by a city to separate the grades of a street and intersecting railroads, under Comp. Laws 1897, sec. 4229 et seq., testimony on the question of damages to abutting property as to the effect of other separations of grades upon property in the immediate vicinity, and testimony that on other streets in the city the slope of the street exceeded that upon the street in question after the improvement, was properly excluded.

In proceedings by a city, under Comp. Laws 1897, sec. 4229, et seq., to separate the grades of a street and intersecting railroads, testimony heard on the question of damages, which is too uncertain to establish a right to compensation under the statute cannot be made certain by throwing the burden of the uncertainty upon the city because it is the active party.

A city, proceeding under Comp. Laws 1897, sec. 4229 et seq., to separate the grades of a street and intersecting railroads, agreed with the railroad companies and a street car company operating a line on the street to assume the payment of all abuttal damages to property of persons other than the street car and railroad companies, and the street car and railroad companies waived any and all claim for damages by reason of the change of grade of any of the streets from loss of traffic, and to any abutting property owned or controlled by any of them. Held, that the street car company's waiver thereunder was not limited to damages as respected streets on which it operated its road at the point of intersection with the railroads, but covered damages suffered by it on other streets affected by the agreement, in some of which it was interested as owner of abutting property, or of a railway in operation, or both. (City of Detroit vs. Detroit United Ry. et al., 120 N. W. Rep., 600.)

New Jersey.—Street Railroads—Determination as to Construction—Necessity of Hearing and Notice—Consent of Abutting Owners—Proceedings of Council—Resolution—Approval by Mayor.

Act April 21, 1896 (P. L. p. 329), prohibiting the building of street railroads, except by permission of the municipality, with the written consent of the owners of at least one-half of the lineal feet of property fronting on the street, and after public notice and hearing, and Act April 3, 1902 (P. L. p. 284), sec. 14, pl. 40, empowering cities to regulate the use of their streets by street railways, apply to the original installation of street railroads, and do not prohibit a city council from passing a resolution, without notice and hearing and the consent of abutting owners, authorizing a street railroad company operating a single track to construct two turnouts, 206 ft. and 261 ft. long, respectively, which were necessary for use as switches.

Under Act April 3, 1902 (P. L. p. 289), sec. 14, empowering a city to regulate the use of its streets by street railroads, but requiring such power to be exercised by ordinance, and section 11 (page 287), requiring all ordinances passed to be submitted for the mayor's approval, a resolution, which is not submitted for the mayor's approval, authorizing a street railway to construct turnouts, was a nullity. (Specht et al. vs. Central Pass. Ry. Co., 72 Atl. Rep., 356.)

New Jersey.—Railroads, Franchises and Powers—Corporations—Power to Hold Stocks and Bonds of Other Corporations—Express and Implied—Power to Become Stockholder—Railroads—Power to Control Street Railway.

Under the general railroad act (P. L. 1903, p. 647, sec. 3), a railroad company may exercise the general powers conferred by the corporation act of 1896 only so far as the same are appropriate to and not inconsistent with the railroad act or with the provisions of the act under which such company may have been created and organized. Under this section a railroad company may not claim any general power that is not appropriate to and consistent with the construction, maintenance and operation of its railroad between the termini declared by it pursuant to the railroad act.

The power to purchase, hold, etc., stock and bonds of other corporations, conferred by section 51 of the general corporation act (P. L. 1896, p. 294), is to be exercised subject to the limitations imposed by Sec. 2 of the same act (P. L. 1896, p. 278); that is to say, the power exists as a primary power only when the purpose to exercise it as such is expressed in the certificate of incorporation, and otherwise it exists as an incidental power only so far as necessary or convenient to the attainment of the objects that are set forth in the charter or certificate of incorporation.

3. Express and Implied—Power to Become Stockholder.

Corporations possess only such powers as are specifically granted by the State, and such incidental powers as are necessary for carrying these into effect. Hence arises the rule, generally obtaining in this country, that one corporation cannot become a stockholder in another unless authority is clearly granted by statute.

A railroad company incorporated under P. L. 1903, p. 645, for the purpose of constructing, maintaining and operating a line of railway, with definite terminals, held, to be without power to hold the stock and bonds of a street railway company operating beyond those terminals, and thereby to control the operations of the street railway.

A railroad company organized under P. L. 1903, p. 645, having by an usurpation of franchises acquired ownership of all the bonds and of substantially all the stock of a street railway company organized under P. L. 1886, p. 185 (Gen. St. 1895, p. 3216), and having thus practically absorbed the street railway company into itself, held, that the exercise by the railroad company of the control resulting from such ownership, including the operation of its

cars over the street railway lines, and the making of an agreement ostensibly between the two companies for the continuance of such operation, likewise constitutes a usurpation of franchises by the railroad company.—State v. Atlantic City & S. R. Co., 72 Atl. Rep., 111.)

New York.—Street Railroads—Receivers—Attendance Before Public Service Commission.

Since the receivers of a street railway company might conclude to bring the matter of the operation of one line and the equipment of another line of cars with fenders and wheel guards under an order of the New York Public Service Commission before the State courts, and, in order to do this effectually, it might be necessary that the receivers be represented at the hearings before the commission, it was proper that they should attend such hearings, though it appeared that they would probably accomplish nothing by such attendance because of the extreme power of the commission and the ex parte nature of its proceedings.—(In re Metropolitan St. Ry., 166 Fed. Rep., 1006.)

New York.—Carriers—Carriage of Passengers—Issuance of Transfers.

A rule of a street railroad company that transfers shall be isued only at the time of payment of fare, and that a passenger should be required to give the destination line when asking for transfers, is a reasonable and proper rule, and does not infringe a passenger's right under an agreement to give passengers a continuous trip between any two points in the city by the most direct route for a single fare, which agreement was not to be construed as entitling a passenger to a return trip or round trip.—(Crandall v. International Ry. Co., 117 N. Y. Sup., 1055.)

LIABILITY FOR NEGLIGENCE

California. — Damages — Evidence — Admissibility — "Expenses" Incurred—Witnesses—Examination—Answers —Responsiveness—Appeal and Error—Harmless Error —Admission of Evidence—Questions of Fact—Excessive Damages—Personal Injuries.

In a personal injury action, where plaintiff claimed damages for medical and nurse hire, a question to him as to what expenses he was put to by the injuries for medieal attendance, medicines, etc., was not objectionable as requiring testimony of anything but actual expenditures, within the rule forbidding evidence of liability incurred, but not discharged, under an allegation of payment: "expense" meaning the laying out or expending of money or other resourees.

An answer by witness that he supposed "somewhere in the neighborhood of $500 or $600" was responsive to a question as to what expenses he was put to by his injuries for medieal attendance, medicines, etc.

In a personal injury action in which plaintiff elaimed damages for medical attendance, etc., any error in striking an answer to a question as to what expense plaintiff was put to for medieal attendance, etc., that he "supposed somewhere in the neighborhood of $500 or $600," as too indefinite, was not prejudicial, where plaintiff afterward testified that this $500 or $600 included doctor bills, nursing, medicines, and inereased household expenses because of the injuries, and that he paid the nurse $35 a week for four weeks, and paid physicians over $100, but had not yet paid some physicians, and the court instructed that plaintiff could only recover for medieal expenses actually paid out, and that the elements of damages, consisting of physicians' expenses and nurse hire, were subjects of direet proof, and must be proved by direct evidence, and plaintiff eould only recover such aetual damages as the evidence showed to a reasonable certainty he had sustained.

What is a proper compensation for personal injuries is for the sound diseretion of the jury and its verdiet will not be disturbed on appeal as excessive, unless the award is obviously disproportionate to the injuries proved, so as to justify the conclusion that the verdict was not the result of dispassionate consideration.

In a passenger's aetion for personal injuries by being thrown from a street ear in a collision, evidence held to sustain a finding that plaintiff's injuries had permanently affeeted his nervous system, so as to seriously interfere with his comfort and happiness and affect or destroy his ability to conduct his business, so that a verdiet for $6,400 was not excessive. (Kimick vs. San Jose-Los Gatos Interurban Ry. Co. et al., 104 Pac. Rep., 312.)

Delaware.—Damages—Personal Injuries—Aggravation of Injury by Disease—Death—Death of Child—Loss of Services—Refusal to Give Instructions.

In an action against a carrier for the pain and suffering of a passenger, plaintiff cannot recover for the effects of a disease contracted by the passenger after the accident, unless such disease was the natural and probable consequence of the negligence.

Plaintiff can recover for the aggravation of a previous disease only to the extent that such aggravation resulted from defendant's negligence.

A father in an action for the death of his child cannot recover for the loss of services after the death of the child; his right being limited to the loss occurring before the child's death.

Where, in an action by a father for the loss of services of a minor child, who died before majority, the evidence showed that the value of the lost serviees of the child before her death and the expenses incurred by the father in her behalf before her death exceeded the amount of the verdict, and the eourt expressly limited the right to recover for loss of services and expenses during the daughter's minority, the refusal to charge that damages for loss of services could not be allowed after the death of the child was not reversible error. [People's Ry. Co. vs Baldwin (two cases), 72 Atl. Rep., 979.]

Indiana.—Railroads—Care Required as to Trespassing Animals—Injury to Animals—Lookouts.

A railroad company owes no duty to the owner of animals trespassing on its right of way, when the same is properly fenced, and is not liable for injury to them, unless its employees have been guilty of wanton and reckless misconduct in the operation of ears.

A railroad company need not keep a lookout for animals at places where its tracks are properly fenced. (Indianapolis & E. Ry. Co. vs. Goar, 86 N. E. Rep., 968.)

Indiana.—Negligence—Contributory Negligence—Pleading and Proof—Collisions—Injury to Property—Complaint —Imputed Negligence.

Burns' Ann. St. 1908, Sec. 362, providing that, in aetions for negligence eausing personal injury or death, it shall not be necessary for plaintiff to allege or prove want of contributory negligence, does not apply to an action for negligent injury to personal property, but in such actions plaintiff must affirmatively aver in the complaint that he and his servant in control of the property were without fault, or must allege facts conclusively showing that they were not guilty of contributory negligence.

A complaint in an action for injuries to a carriage in a street car collision, which shows that at no time after the carriage entered a street, neither while the same was going north along the street a distance of 100 feet, nor when opposite another street in approaching the tracks, did the driver look for an approaching car, and which fails to allege that the driver used due care when he drove on the track, is fatally defeetive for failing to show freedom from contributory negligence.

The negligence of a servant in control of a carriage contributing to the injury thereof in a street car collision is the negligenee of the master, defeating a recovery. (Potter vs. Ft. Wayne & W. V. Traction Co., 87 N. E. Rep., 694.)

Iowa.—Street Railroads—Injuries—Contributory Negligenee —Care Required.

While one cannot rely upon nice calculations as to his safety in going into a place of imminent danger by crossing a street car track, mere error of judgment does not conclusively show contributory negligence, if the injured party is exercising reasonable care for his safety.

The duty of street car employees to avoid injuring one approaching the track was not greater than his duty to himself to use care to avoid injury.

If plaintiff was negligent in failing to look out for the approaching street ear immediately before he went upon the track and was struck, the company would not be liable for the negligenee of its employees in failing to avoid injuring plaintiff at that time. (Powers vs. Des Moines City Ry. Co., 121 N. W. Rep., 1095.)

News of Electric Railways

Program of Central Electric Railway Association

The Central Electric Railway Association will meet at Toledo, on May 26 and 27. The principal features of the meeting, as announced by the secretary, follow:

MAY 26, MORNING SESSION, 10 A. M.

Address of welcome by the Mayor of Toledo.

Report of the committee on address of George F. Whysall, president of the association, at the South Bend meeting.

Discussion.

Discussion of paper, "Prevention of Accidents," which was read at the South Bend meeting of the association by E. F. Schneider, secretary, claim agent and purchasing agent of the Cleveland, Southwestern & Columbus Railway.

MAY 26, AFTERNOON SESSION, 1 P. M.

Paper, "Valuation of Operating Properties," by E. S. Nethercut.

Paper, "Universal Standard Car Stop Sign vs. Present Methods of Indicating Car Stops," by R. M. Hemming, assistant superintendent and electrical engineer of the Ohio & Southern Traction Company.

Discussion.

MAY 27, MORNING SESSION, 10 A. M.

Business session and reports of special and standing committees.

Paper, "Track Bonding," by T. W. Shelton, master mechanic of the Indianapolis, Columbus & Southern Traction Company.

Discussion.

Paper, "Relations between Accounting Department and Operating Department," by A. F. Elkins, auditor of the Columbus, Delaware & Marion Railway.

Discussion.

The secretary states that the program, as announced above, is not entirely complete and there may be additions to it before the meeting.

Preparing for Arbitration in Detroit

Since the meeting on May 11, 1910, of the board of arbitration appointed to set a valuation on the properties of the Detroit United Railway for the purpose of furnishing authoritative details on which to base a settlement ordinance, the work that has been done by the members of the committee of fifty and its representatives and by the city administration would be of little interest to the public if it were given out, except that part of it which pertains to the attendance and testimony of 25 or 30 engineers and experts who assisted Frederick T. Barcroft in making the appraisal.

Frederick W. Walker, vice-president and chief engineer of the Milwaukee Northern Railway, Cedarburg, Wis., who was appointed to represent the city during the hearings before the court after the withdrawal of Mr. Barcroft, has been working to familiarize himself concerning the details of the appraisal.

The efforts to discredit the plan to have the board of arbitration effect a settlement of the differences have been encouraged by some of the local politicians who hope to prevent the submission of any sort of a settlement ordinance before the regular November election. If these politicians succeed they would go before the people in the fall campaign with the cry that the present administration and its plan of settlement have been a failure. The campaign to discredit the plan for settlement is supported by one of the four English daily newspapers in Detroit. Various clubs and organizations throughout the city, however, are preparing to support the administration by starting a campaign for the approval of the settlement ordinance when the final valuation is determined before the board of arbitration and the Council has approved the submission of a franchise ordinance to the electorate at a special election.

Practically all of the important commercial and manufacturing interests of the city want a settlement. They are tired of the 20-year wrangle between the politicians over traction questions, and, furthermore, they feel that the city needs the extensions and the improvements in service that an equitable settlement would assure. There have been practically no extensions of the lines for several years and the city has outgrown the street railway system.

Brief mention was made in the Electric Railway Journal of May 14, 1910, page 881, of the application of the Michigan United Railways, Lansing, Mich., to the Council of Detroit for a 30-year franchise for an entrance to the center of the city from the west for its interurban lines. The company has named several routes, over any one of which it would be willing to enter the city. Perhaps the most important feature of the proposal is the offer to sell tickets at the rate of 8 for 25 cents, good over its line into the city, and to operate a special city service on a 10-minute schedule over the line on which the interurban cars would enter the city. A reasonable rental, to be decided by arbitration if necessary, is suggested as compensation for the privilege which the company desires. T-rails, to weigh not less than 70 lb. per yard, are suggested. It is recommended that all paving between the rails and outside the tracks should be done by the board of public works, but that the foundations should be constructed by the company.

Cleveland Traction Situation

The detailed report of operation of the Cleveland Railway for April, 1910, submitted to Street Railway Commissioner Dahl on May 12, 1910, shows that the surplus, with the maintenance charge computed on the basis of 4 cents per car-mile, was $25,257.93, as compared with a surplus of $18,880.94 for March. The statement of earnings for April compared with that of March follows:

	April	March
Gross receipts	$475,210.86	$475,749.50
Operating expenses	313,857.95	321,181.86
Net earnings	$161,352.91	$154,567.64
Miscellaneous income	2,077.29	1,743.56
Total net earnings	$163,430.20	$156,311.20
Taxes	26,715.17	26,641.84
Interest	111,457.10	110,788.42
Surplus	$ 25,257.93	$ 18,880.94
Car miles operated in April	2,024,890	
Car miles operated in March	2,072,141	

Prospects for the immediate success of a 3-cent fare plus 1 cent for a transfer have been somewhat dimmed by Judge Vickery, of the Common Pleas Court, granting the Humphrey Company's plea for a permanent injunction preventing the Cleveland Railway from collecting a fare of 10 cents to and from Euclid Beach. The court held that the contract made in 1901, by which the company agreed to carry passengers from the Public Square, Cleveland, to Euclid Beach for 5 cents in return for track privileges in the park is a lease. Attorneys for the company argued that it was a license. This agreement was to continue until 1906. No new contract was made, however, and the single fare was collected until March 10, 1910, when the company began charging 10 cents. The court also held that the lease holds good until January, 1911. The city was held as a party defendant in the suit on account of the conditions of the Tayler grant, and was enjoined with the company against continuing the double fare. The company will probably not appeal the case, as a legal decision places it in position to reckon with the city in case the change endangers the low fare within its limits. It is said that Mayor Baehr, City Solicitor Baker and Commissioner Dahl have decided not to appeal the case on behalf of the city.

At the regular meeting of the City Council on May 9, 1910, the rules promulgated by Mr. Dahl against smoking on cars and standing on the rear platform were approved as to pay-as-you-enter cars, but on all others the old conditions are to prevail. About 240 out of 800 cars are affected by the change which the Council made in the rules. As fast as the cars of the various lines are equipped for pay-as-you-enter operation, however, the Dahl rules will go into effect.

People insist upon riding where they please, feeling that

neither the city nor the company has a right to dictate to them so long as they pay their fares. As anticipated a week ago, Richard Van Rensselaer, an architect, has filed suit for damages to the extent of $5,000 against the company because he was ejected from a St. Clair Avenue car. He alleges that drawings he was carrying were injured by another passenger bumping against him and that he went to the platform to prevent their being further injured. He was ordered inside the car by the conductor, and was put off when he refused to go inside. He intends to test the right of the company to compel passengers to ride inside the cars.

The Cleveland Railway will ask the Council for authority to construct a crosstown line on West Sixty-fifth Street to accommodate the West Side. While there are two such lines on the East Side, none have as yet been constructed west of the Cuyahoga River.

The local branch of the Amalgamated Association of Street & Interurban Railway Employees has requested the Cleveland Railway to dismiss about 250 men who remained at work during the strike after the Municipal Traction Company took over the property of the Cleveland Electric Railway. Some time ago a number of men hired by the Municipal Traction Company were replaced by men formerly in the employ of the Cleveland Electric Railway. The company is willing to have these men join the union, provided that they are allowed to retain their present standing with the company as regards seniority and runs. The officials of the union insist that the men shall take their places at the foot of the list if they are admitted to membership.

Transit Affairs in New York

The Public Service Commission at its regular meeting on May 13, 1910, adopted resolutions instructing the chief engineer to report upon the feasibility from an engineering point of view of a rapid transit line extending from Battery Park to Fifty-ninth Street, by way of Greenwich Street, West Broadway, Varick Street, Seventh Avenue and Queensboro Bridge, and thence into the Borough of Queens. This is assuming that the city will decide to extend Seventh Avenue to connect with Varick Street and that Varick Street will be widened. The Rapid Transit Commission, which was succeeded by the Public Service Commission, laid out a route which was known as the Seventh and Eighth Avenue route, extending up both avenues to Fifty-ninth Street, and continuing in Eighth Avenue to 153d Street, and bids were called for the work, but none was received. The time for completing a substantial part of this route was extended to Oct. 15, 1911. For some time negotiations have been carried on between the Interborough Rapid Transit Company and the commission with a view of having the company extend its present subway line down Seventh Avenue past the new Pennsylvania tunnels. A hearing on the new route has been fixed for May 26. It will cover the proposed route and also the desired connections in Queens County, which will be built on the assessment plan. Another resolution adopted by the commission directed counsel to prepare the necessary preliminary papers to lay out the route in question and also to prepare a report on the feasibility of extending the Eighth Avenue route to Queensboro Bridge and of laying out a route from the eastern terminus of Queensboro Bridge to the North River, on Fifty-ninth Street.

More than 150 property owners in the vicinity of Nostrand Avenue, Brooklyn, have petitioned the Public Service Commission to construct a subway extension of the so-called Eastern Parkway subway, beginning at Eastern Parkway and Nostrand Avenue, running southerly to Nostrand Avenue, and thence to Coney Island, and the cost to be assessed upon the property benefited.

The Public Service Commission has received a letter from Ira A. Place, vice-president of the New York Central & Hudson River Railroad, announcing that plans were under way in connection with the new Grand Central terminal for the construction of a joint concourse to connect the railway station with all the rapid transit lines in Forty-second Street.

The Public Service Commission has granted an extension of time to the Hudson & Manhattan Railroad for completing its tunnel in Sixth Avenue as far as Twenty-third Street. The time expires on June 15, 1910, and the extension is for one year. The same conditions apply to the spur on Ninth Street from Sixth to Fourth Avenues. The company has filed the consent of property owners along the proposed route from Thirty-third Street to the Grand Central Station at Fourth Avenue and Forty-second Street. Should the commission approve of the consent filed, work would have to begin within six months and be completed in three years.

The hearing before the Public Service Commission on May 16, 1910, on the form of contract for the construction on the city's credit of the proposed tri-borough subway system digressed largely into a meeting at which the representatives of various civic organizations and property owners' associations took it upon themselves to advance protests in the interest of the particular parties which they represented.

Exhibits Before Engineers' Society of Pennsylvania.

The space has all been taken for the exhibit to be held in the car house of the Central Pennsylvania Traction Company, Harrisburg, Pa., in connection with the convention of the Engineers' Society of Pennsylvania on June 1, 2, 3 and 4, 1910. Among those who will exhibit at the convention are the following: U. S. Metal & Manufacturing Company, *Engineering News*, A. Pomerantz & Company, John A. Roebling's Sons Company, Clement Restein & Company, Westinghouse Publicity Bureau, the Pennsylvania Steel Company, Q. & C. Company, James Boyd & Brothers, Harrison Safety Boiler Company, Harrisburg Foundry & Machine Company, Van Dyke-Churchill Company, Harrisburg Pipe & Pipe Bending Company, The J. G. Brill Company, W. K. Mitchell & Company, Alliance Machine Company, Cleveland Pneumatic Tool Company, Green Fuel Economizer Company, Norton Company, Van Dorn & Dutton Company, The Rail Joint Company, Cleveland Twist Drill Company, Crane Company, Hunter & Dickson Company, Electric Controller & Manufacturing Company, Henry, Millard & Henry, H. Bellfield Company, Keystone Chemical Company, Ingersoll-Rand Company, Goldschmidt Thermit Company, Pressed Steel Car Company, Merritt & Company, Garlock Packing Company, American Iron & Steel Manufacturing Company, American Car & Foundry Company, J. H. Jolly & Company, Detroit Graphite Company, Standard Roller Bearing Company, The Standard Tool Company, McGraw Publishing Company, Heany Fireproof Wire Company, Call Automatic Switch Company, National Lead Company, York Engineering Company, Standard Scale & Supply Company, Semet Solvay Company, Michigan Lubricator Company, Joseph Dixon Crucible Company, Ford & Kendig, Nelson Valve Company, W. H. Wynn & Company, Henry Gilbert & Son, Nachod Signal Company, Eugene Dietzgen Company, Link Belt Company, H. C. Roberts Electric Company, Dauphin Electrical Supplies Company, Williams, Brown & Earl, Sloan, Howell & Company, Allis-Chalmers Company, W. C. Robinson & Son, General Electric Company, W. R. Jones & Brother, Western Electric Company, Geo. Oldham & Son Company, Keystone Lubricating Company, Pratt & Whitney, Yale & Towne Manufacturing Company, Homestead Valve Company, Holophane Lamp Company, Strong Machinery & Supply Simplex Valve & Meter Company, Electro-Clock Company.

Oklahoma Convention in September.—The meeting of the Oklahoma Public Utilities Association which was to have been held at Sapulpa, Okla., on May 10, 1910, was adjourned on account of the small number of plant operators present. The members of the association will convene again at Oklahoma City on Sept. 30 and Oct. 1, 1910.

Strike in Vincennes Ended.—The strike of the conductors and motormen in the employ of the Vincennes (Ind.) Traction Company was ended on May 14, 1910, on the basis of an increase in wages of one cent an hour and a 12-hour day. The men demanded an increase in wages of three cents an hour, a 9-hour day and recognition of the union.

Suit for Failure to Comply With Commission's Order Dismissed.—Justice Brady, of the Supreme Court, dismissed the suit brought by the Public Service Commission of the First District of New York to recover $750,000

for failure on the part of Frederick W. Whitridge, receiver of the Third Avenue Railroad and the Union Railway, to equip the cars of these companies with wheel guards in a specified time, in accordance with an order of the commission. The case came to trial before Judge Brady and a jury on May 9, 1910.

Appeal in San Francisco Suit.—W. I. Brobeck, representing Horace C. Platt in the suit to enjoin San Francisco from selling bonds for the reconstruction of the Geary Street, Park & Ocean Railroad as a municipal line, has filed in the Supreme Court an application for a temporary restraining order during the hearing of the appeal from the recent decision of Judge Ellison of the Supreme Court of Panama County declaring the bonds valid. A motion has also been filed for an advancement of the hearing of the trial of the appeal, so that the issue may be decided at once.

Additional Time Asked in Which to Install Fenders in San Francisco.—A resolution calling on the police of San Francisco to proceed against the United Railroads of San Francisco for failure to comply with the ordinance requiring improved fenders to be placed on all street cars, has been referred to the public utilities committee of the Board of Supervisors. The company says that it will not be able to secure the needed fenders before Aug. 1, 1910, and has asked for an extension of time within which to equip the cars with fenders. The ordinance requiring the placing of fenders on the cars fixed April 30, 1910, as the date on which fenders should be installed.

Principal Long Island Railroad Offices in New York.—Ralph Peters, president of the Long Island Railroad, has announced that it has been decided that the office of the president and the principal executive officers of the company will be moved to the Eighth Avenue end of the third floor of the Pennsylvania Railroad's station at Thirty-fourth Street, New York, N. Y., instead of to Jamaica, Long Island. The offices of Mr. Peters, the general superintendent, the real estate agent, the purchasing agent and the electrical superintendent, now in Long Island City, will be moved to the new offices; the offices of the legal department, the claim department and the general secretary will be moved from the corner of Cedar Street and Broadway, New York; the offices of the traffic manager, the general passenger agent and the auditor, which are now at Twenty-ninth Street and Fifth Avenue, New York, N. Y., together with the office of the chief engineer of electrical traction, which is a joint office of the Long Island Railroad and the Pennsylvania Railroad, will be moved from Bridge Street, New York, N. Y., to the Pennsylvania station.

LEGISLATION AFFECTING ELECTRIC RAILWAYS

Massachusetts.—Governor Draper has signed the bill exempting the transit bonds of Boston from the provisions of the law which relates to loans made by the municipality, and has also signed the bill which provides that no street railway shall require passengers whom it permits to ride upon the platform to do so at their own risk. The Railroad Commission has submitted a draft of a bill to allow the Boston Elevated Railway to acquire control of other street railways which contains several provisions not in the original draft by the company's attorneys. A section which deals with minority control provides that whenever the company acquires 35 per cent of the stock of any street railway, it shall offer to purchase all remaining stock at the price paid for the 35 per cent, the offer to hold good for six months. The possible prevention of competition in connection with the leasing of Boston tunnels or subways has been taken care of in a section which provides that the act shall take effect if the company accepts the measure within one year from its passage, and agrees that at least one year before the expiration of the term of the several existing contracts for the use by it of the tunnels and subways owned by Boston it will execute extensions of such contracts to the dates when the bonds issued by the city for the construction of such tunnels and subways become due.

The Joint Commission on Metropolitan Improvements has advised the committee on metropolitan affairs to report against legislation at the present session to authorize the construction of a tunnel between the North and South stations at Boston. The committees on railroads and street railways have decided to report favorably a bill to provide for the acquisition of the Berkshire Street Railway by the New York, New Haven & Hartford Railroad, subject to the approval of the Railroad Commission. Improvement to be carried out as specified by the measure will involve an expenditure of $2,000,000 within the next two years. The committee on railroads has introduced a resolution which provides that the Railroad Commission shall report to the next Legislature how the danger from fire from steam locomotive operation may be decreased, with recommendations for legislation. The committee on street railways has reported a bill which limits the time of construction of electric railways which have been granted certificates of exigency by providing that a company must expend at least 10 per cent of its original stock in construction within two years from the date of its certificate and open the line in four years. A similar provision applies to extensions. The resolution which provides that the Boston Transit Commission shall report upon subways from Park Street to Milton, Dorchester and South Boston has been given a first reading in the Senate. The House resolution which provides for an investigation by the same board of the cost of a subway from Park Street to the South Station has been passed to be engrossed by the Senate. It is probable that this measure will be enacted and that next year a bill will be passed to authorize the construction of such a subway. The committee on railroads has reported a bill to transfer supervision of the transportation of explosives from the Railroad Commissioners to the district police. The committee on street railways has reported a bill which provides for the transportation of pupils of industrial schools at half fare. The bill does not apply to students of normal schools and business colleges. The committee on metropolitan affairs has voted to report a resolution to the House to provide for an investigation by the Massachusetts Railroad Commission of the problem of electrifying the railroads within 10 miles of Boston, the report to be made by Nov. 1, 1910. The Boston, Revere Beach & Lynn Railroad is investigating gasoline and gasoline-electric cars under the law recently passed which gives railroads the right to use other motive power than steam or electricity, subject to the approval of the Railroad Commission.

New York.—The bill to empower the Public Service Commission to certify to the public necessity of one street surface railway to use the tracks and equipment of another in a city of the first class, has been reported favorably by the committee on miscellaneous corporations. This is the bill introduced in the interests of the Manhattan Bridge Three-Cent Line, and would make possible in the discretion of the Public Service Commission for the company the use of the tracks of other street railways in building its proposed railway from the North River to the Flatbush Avenue depot of the Long Island Railroad across the new Manhattan Bridge.

Governor Hughes has signed the so-called New York City debt limit bill of the Senate cities committee which was approved by Mayor Gaynor. The bill is designed to carry into effect the constitutional amendment approved by the people at the election in November, 1909, to give New York City additional funds estimated at $100,000,000 for subway construction. The bill provides the legal procedure necessary to exclude self-sustaining subway and dock bonds in computing the debt limit of New York City. On May 17 Governor Hughes sent to the Senate an emergency message insisting upon the immediate passage of the amendment to the Public Service Commissions bill to give the commission for the second district power to determine rates of fare on railroads covering suburban traffic. The Assembly has passed the bill placing the telegraph and telephone companies of the State under the supervision of the Public Service Commission for the Second District. On May 11 the Senate passed the Wainwright-Phillips workmen's compulsory compensation bill, drafted by the legislative employers' liability committee. It provides the same rates of compensation to be paid to an employee in case of accident as the permissive bill passed on May 10, but it only applies to certain dangerous employments. These include the operation of elevators and hoisting apparatus, work on scaffolds, work about electric conductors or gunpowder, the operation of steam and electric railroads, the construction of tunnels and subways and work under compressed air. The principal features of these bills were referred to in the Electric Railway Journal of May 14, 1910, page 883, after they had been favorably reported by the judiciary committees of the Senate and the House.

Financial and Corporate

New York Stock and Money Market

May 17, 1910.

While the tone of the Wall Street stock market during the past week has been strong and prices have as a general thing advanced, trading has been dull and brokers and commission houses are greatly discouraged. Outsiders are neither trading in stocks nor investing in bonds. Tractions have had their full share in the limited trading. Interborough issues continue fairly active, and Brooklyn Rapid Transit has been one of the market leaders.

The money market continues easy. There are plenty of funds for those who wish to trade and rates are moderate. Quotations to-day were: Call, 3 to 4 per cent; 90 days, 4 per cent.

Other Markets

Traction prices in the Philadelphia market have been well maintained. Rapid Transit has hovered around 19 or 20, but there has not appeared any distinct selling pressure. The new bond issue of the company, it is said, has been satisfactorily underwritten.

In the Boston market there have been a few scattering sales of traction stocks during the past week. Massachusetts Electric and Boston Elevated have been the most active, but the changes in price have been merely fractional. A few shares of West End have also been sold.

In Chicago, a few sales of Chicago Railways Series 2 at about 28½ have practically been the total of the business.

In the Baltimore market the regular trading in the bonds of the United Railways Company has been done at unchanged prices.

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

	May 10.	May 17.
American Railways Company	a45¼	a45
Aurora, Elgin & Chicago Railroad (common)	*57¾	*57¾
Aurora, Elgin & Chicago Railroad (preferred)	*94¼	*94¼
Boston Elevated Railway	a127½	a128½
Boston & Suburban Electric Companies	*16	a16
Boston & Suburban Electric Companies (preferred)	*75	a74½
Boston & Worcester Electric Companies (common)	a10½	a10½
Boston & Worcester Electric Companies (preferred)	a43	a43
Brooklyn Rapid Transit Company	79⅛	a81¼
Brooklyn Rapid Transit Company, 1st pref. conv. 4s	84¾	85
Capital Traction Company, Washington	a131	a130½
Chicago City Railway	a195	a195
Chicago & Oak Park Elevated Railroad (common)	*3¼	*3¼
Chicago & Oak Park Elevated Railroad (preferred)	*7½	*7½
Chicago Railways, ptcptg., ctf. 1	a99	a100
Chicago Railways, ptcptg., ctf. 2	a28¾	a29
Chicago Railways, ptcptg., ctf. 3	a13	a12
Chicago Railways, ptcptg., ctf. 4s	a8	a7½
Cleveland Railways	*91½	*91½
Consolidated Traction of New Jersey	a76	a76
Consolidated Traction of New Jersey, 5 per cent bonds	a104½	a104
Detroit United Railway	*59½	*59½
General Electric Company	149	a150
Georgia Railway & Electric Company (common)	a112	110
Georgia Railway & Electric Company (preferred)	a87	a87
Interborough-Metropolitan Company (common)	21⅜	20⅜
Interborough-Metropolitan Company (preferred)	56⅜	55
Interborough-Metropolitan Company (4½s)	*79⅝	80½
Kansas City Railway & Light Company (common)	a28	a27½
Kansas City Railway & Light Company (preferred)	*77⅜	a77
Manhattan Railway	136	a138
Massachusetts Electric Companies (common)	a18½	a18½
Massachusetts Electric Companies (preferred)	a86	a87
Metropolitan West Side, Chicago (common)	a17	a18½
Metropolitan West Side, Chicago (preferred)	a58	a57¾
Metropolitan Street Railway	*15	*15
Milwaukee Electric Railway & Light (preferred)	*100	*110
North American Company	73¾	*73¼
Northwestern Elevated Railroad (common)	a18	a19
Northwestern Elevated Railroad (preferred)	a70	a70
Philadelphia Company, Pittsburg (common)	a49½	*49½
Philadelphia Company, Pittsburg (preferred)	a44	*44
Philadelphia Rapid Transit Company	a19⅜	a18¾
Philadelphia Traction Company	a85¼	*85¼
Public Service Corporation, 5 per cent col. notes	*96½	*96½
Public Service Corporation, ctfs	a102½	a102½
Seattle Electric Company (common)	*113½	a112½
Seattle Electric Company (preferred)	103	a102
South Side Elevated Railroad (Chicago)	a58½	a59
Third Avenue Railroad, New York	7	a7¼
Toledo Railways & Light Company	9⅜	*9⅜
Twin City Rapid Transit, Minneapolis (common)	112¾	*112¾
Union Traction Company, Philadelphia	a48½	a48¾
United Rys. & Electric Company, Baltimore	*12¼	*12¼
United Rys. Inv. Co. (common)	*37	*37
United Rys. Inv. Co. (preferred)	*65	*65
Washington Ry. & Electric Company (common)	36½	35½
Washington Ry. & Electric Company (preferred)	90¼	a91
West End Street Railway, Boston (common)	87½	88
West End Street Railway, Boston (preferred)	102¼	102
Westinghouse Elec. & Mfg. Company	65	64½
Westinghouse Elec. & Mfg. Company (1st pref.)	*125	*125

a Asked. * Last Sale.

Annual Report of Public Service Corporation

The first annual report of the Public Service Corporation of New Jersey, covering the year ended Dec. 31, 1909, has been issued. It contains the following statement of gross earnings of the systems operated by the Public Service Corporation, the Public Service Gas Company, and the Public Service Railway Company:

	Corporation			
	From operation.	Miscellaneous.	Gas company.	Railway company.
*1903	$1,776,558	$187,404	$3,026,993	$4,471,244
1904	3,502,812	463,250	5,378,440	8,415,279
1905	3,721,632	640,406	6,059,446	9,488,358
1906	4,161,918	723,658	6,526,316	10,086,934
1907	4,647,219	1,023,951	7,251,480	10,705,393
1908	4,584,682	1,246,721	7,349,930	11,086,354
1909	5,117,728	1,457,432	7,870,879	12,114,412

* Seven months only.

Earnings and expenses of the corporation, the gas company, the railway company and controlled companies during the calendar year 1909 were as follows:

Gross earnings of leased and controlled companies	$25,103,019
Public Service Corporation of New Jersey miscellaneous income	1,457,432
	$26,560,451
Operating expenses and taxes	13,331,228
	$13,229,223
Bond interest and rentals of leased and controlled companies	10,111,403
	$3,117,820
Fixed charges of Public Service Corporation of New Jersey	1,689,372
Surplus	$1,428,448

Thomas N. McCarter, the president, in his statement to shareholders, says in part:

"Dividends were paid for the first two quarters of the year 1909 at the rate of 4 per cent per annum, and for the last two quarters at the rate of 5 per cent per annum.

"When the corporation began business in 1903, the electric properties acquired by it were in a fair operating condition and state of development. The gas properties now operated by the Public Service Gas Company were in a high state of efficiency, with one or two minor exceptions. The street railway properties acquired and now operated by the Public Service Railway Company were run down and demoralized, and required rehabilitation, and it is only now that they have been brought to a proper operating condition.

"At the instance of bankers, the properties of the corporation, the gas company and the railway company were thoroughly examined during the year 1909 by Stone & Webster, of Boston, and E. C. Foster, of New Orleans. On the strength of their reports a sale of $8,000,000 at par of the general mortgage bonds of the corporation was negotiated with J. P. Morgan & Company, of New York, and Drexel & Company, of Philadelphia.

"The 5-cent zone and the transfer limit have both been largely extended by the railway company, so that with certain exceptions, where such a result would be altogether impracticable, it is now possible to travel on a continuous journey with a single transfer, throughout the limits of any one division, for five cents.

"During the period between June 1, 1903, and the date covered by this report there have been three increases in the pay of the railway men, and during the year 1909 the company adopted a new and comprehensive wage scale, effective Jan. 1, 1910, and increasing in subsequent years until the maximum is reached.

"When this plan shall have been consummated the first year men will each receive 23 cents per hour, second year men 24 cents per hour, and men who have been in the employ of the company above two years 25 cents per hour. This is regarded as a fair, liberal wage scale, and has been received by the men in a manner most gratifying to the company.

"The runs are based as nearly as practicable on a 10-hour a day basis, and time and a half is given to men who volunteer for an extra run. By the same plan each man on the extra list who presents himself at every roll call for a week is guaranteed a minimum wage of $10.50 per week.

"A repair shop having a capacity of 125 cars was built on the Plank Road in 1905, together with a large storage barn at the same point for 108 large cars, and a storeroom for supplies for all the northern divisions.

"In Camden a repair shop for 20 cars was constructed in 1907, and also a new car house with a capacity of 91 cars.

"It is the intention of the company to construct, annually, two or more first-class modern car houses, until the entire equipment of the company is properly housed.

"At Hudson Place, Hoboken, a double deck terminal is being completed at a cost of $250,000. This terminal will double the facilities for car operation at that point. At Fourteenth Street Ferry, Hoboken, a new terminal has also been constructed, which has greatly improved the conditions there.

"In the maintenance of way department extensive improvements have been made at Passaic Wharf, where many money- and labor-saving devices have been provided, including a large sand-drying plant and a tie-treating plant. At Fairview, on the Bergen Turnpike, a large quarry has been purchased and modern stone crushing machinery installed, which enable the company to turn out crushed stone at minimum cost for practically the entire system, except the Southern division.

"A complete equipment of large work cars has been installed, with which the company is able to haul track building materials, thus doing away with the teams which it was necessary, formerly, to hire to do such work.

"The pay-as-you-enter system of fare collection was investigated in 1907, and 150 p-a-y-e cars were purchased and put in service in the spring of 1908, and other cars have since been converted into p-a-y-e or other prepayment type. As of this date we have 650 prepayment cars of this general character in service.

"This system eliminates the missed fares. Where these cars are used the receipts have been substantially increased. Passengers are relieved from the annoyance caused by conductors passing back and forth through the cars collecting fares, and from mistakes being made by conductors in demanding fare a second time. By this system the conductor is also to remain on the rear platform to attend to the safety of passengers boarding and leaving the car. It is proposed eventually to have all cars operated in city service equipped with fare boxes, so that the prepayment system of fare collection may be used. It has been found advisable, in order to reduce the number of accidents arising from passengers boarding and leaving cars while the latter are in motion, to equip the cars with doors or gates at the entrance and exit steps, these doors or gates at the rear platform to be operated by the conductor from his station, the doors at the front exit being operated by the motorman. On all cars so equipped in 1909 the platform accidents were practically eliminated. This p-a-y-e system as a whole has proved popular with the public and the operating force of the company.

"On July 1, 1903, the amount of insurance in force on the properties controlled by the corporation was $9,455,000, and the annual premium thereon was $122,400, or an average rate of $1.29 per $100 of insurance. At the present time the insurance carried amounts to $20,273,000, and the annual premium thereon is $122,909, or an average rate of 60 cents per $100. Thus the total amount of insurance carried has been more than doubled for practically the same premium. The total losses occurring during the same period aggregated $158,600, of which all but $22,500 was covered by insurance.

"To secure these results the corporation has authorized, up to the present time, the expenditure of approximately $200,000 for minimizing the fire hazard by installing fire extinguishers, sprinkler systems, fire hose, fire doors, parapet walls, concrete floors, etc.

"It is expected that additional substantial economies will be obtained in the near future, either through the further lowering of rates by the insurance companies, or the establishment of a self-insurance fund which the corporation now has under consideration."

The taxes paid by the properties during the year aggregated $1,225,583, of which $702,566 were paid by the railway, $337,295 by the gas company, and $185,722 by the corporation.

Of a total of 695 miles of track, 416 miles were main track, 242 second main track, 17 turnouts and 20 in carhouses and yards. There were available for operation 1391 closed cars and 506 open cars, of which there had been added since 1903 a total of 640 closed cars and 130 open cars. In 1910 there will be added 110 closed cars.

The number of municipalities served by the railway company was 101, with a population in 1905 of 1,398,153.

Expenditures charged to capital account for the railway during the period from June 1, 1903, to December 31, 1909, aggregated $20,004,341, of which $1,610,789 was charged during the last calendar year.

Following are the railway traffic statistics for 1904, 1908 and 1909:

	1904.	1908.	1909.
Revenue passengers	165,400,000	219,421,974	238,171,257
Transfers and passes	50,000,000	74,688,628	81,548,978
Total passengers	215,400,000	294,110,602	319,720,235
Percentage of passengers using transfers	21.8	23.0	23.0
Average fare per passenger	3.83	3.70	3.72
Car-mileage	32,168,888	39,519,972	40.890,360
Car-hours	4,003,614	4,598,714	4,747,729
Passengers per day	588,525	803,581	875,946
Passenger receipts per car-mile, cents	25.59	27.56	29.08
Passenger receipts per car-hour	$2.06	$2.37	$2.50

No Bids at Metropolitan Street Railway Sale

When part of the property of the Metropolitan Street Railway, New York, N. Y., was offered for sale under foreclosure on May 12, 1910, no bids were received, but L. C. Krauthoff, counsel for the joint reorganization committee of the bondholders, announced that the reorganization committee will bid on the property as soon as it is offered for sale in its entirety. Protests against the sale were also offered by Adrian H. Joline, one of the receivers of the Metropolitan Street Railway; the representative of the bondholders of the Fulton Street Railway; the representatives of the holders of the first mortgage 5 per cent bonds of the Second Avenue Railroad, and William W. Burnham, who is a stockholder in the Central Park, North & East River Railway. A communication from Frederick W. Whitridge, receiver for the Forty-second Street, Manhattanville & St. Nicholas Avenue Railway, was also read, in which Mr. Whitridge gave notice that any purchaser of the property of the Metropolitan Street Railway would be subject to the rights, claims and equity of the Forty-second Street, Manhattanville & St. Nicholas Avenue Railway to operate the tracks on Amsterdam Avenue between Seventy-first and 125th Streets. The following statement was filed with William L. Turner, special master, explaining why the joint reorganization committee, of which G. D. Tripp is chairman, was not willing to bid for the property at this time:

"The joint committee on reorganization, representing the bondholders' committees of the general 5 per cent and refunding 4 per cent bonds of the Metropolitan Street Railway, has qualified as a bidder at the special master's sale advertised for this day. It has not, however, utilized its qualification because its familiarity with the conditions bearing upon the situation makes its members feel certain that a sale of the property cannot at the present time be satisfactorily had. Self-evidently, a purchase can be made only for reorganization purposes. The property now offered is but a part of what is known as the Metropolitan system.

"However important a part it may be, it cannot be operated except in connection with the indispensable portion thereof which is not and cannot now be offered for sale. The latter portion will, in all probability, be made the subject of a decree of foreclosure at an early day, and in due course offered for sale. The committee believes that the interests of all concerned and of the public require that a sale of the properties should be had so that they can be purchased at practically the same time. The large amount of new cash to be raised and the practical conditions to be met are each of such a character that the property can be utilized only as a 'unitary system.'

"It is manifestly to the interest of the public that this shall be done, and it is an absolute necessity, from every standpoint, that this difficult and complicated situation shall be permitted to be solved on a broad basis.

"As soon as the property constituting the unitary system is offered for sale this committee intends to bid thereat in full accord with the terms of the decree under which this sale has been advertised, and in the meantime it will proceed, with all possible expedition, to complete a plan of reorganization of the system as an entirety, now well under way, the most important and difficult problems of which have already been solved, and of arranging for the funds and other steps necessary to effect a purchase and the provisions of such plan, and thereby a conservation of every interest concerned."

The following is a summary of the principal provisions of a plan for reorganizing the company, which is said to have been prepared in the interest of the holders of the 4 per cent and 5 per cent bonds of the company: New 5 per cent or 6 per cent bonds to raise $12,000,000 cash; application of the proceeds of the new issue to retire $3,500,000 of receivers' certificates which are outstanding, to pay franchise taxes which are due from 1900 to 1907, to pay the running expenses of the receivership and to pay $1,500,000 of accident claims against the New York City Railway; replace with new issues the $12,500,000 of collateral trust 5 per cent bonds of 1908 and the $16,000,000 of refunding mortgage 4 per cent bonds of 1902; readjust the rental terms upon which many of the underlying properties still in the Metropolitan Street Railway system are operated; reduce taxes to a nominal amount by offering the city in return for remitting taxes now unpaid a share in the net earnings of the company; the remission by the holders of the 5 per cent bonds of 1898 of $200,000 in interest now paid to the trustees of their mortgage by the Metropolitan Street Railway upon bonds of underlying properties included in the collateral of the mortgage.

Berkshire Street Railway, Pittsfield, Mass.—The Railroad Commission of Massachusetts has authorized the Berkshire Street Railway to issue 3000 shares of stock, amounting at par value to $300,000, for the purpose of carrying out the terms of consolidation with the Pittsfield Electric Street Railway, the stock of the Berkshire Street Railway to be exchanged share for share for the stock of the Pittsfield Electric Street Railway.

Brooklyn (N. Y.) Rapid Transit Company.—The directors of the Brooklyn Rapid Transit Company have declared a quarterly dividend of 1¼ per cent, payable on July 1, 1910, to holders of record on June 9, 1910. The company has paid a dividend of 1 per cent quarterly since April, 1909. The Brooklyn Union Elevated Railroad, a subsidiary of the Brooklyn Rapid Transit Company, has declared a dividend of 5 per cent on its common stock, payable on June 10, 1910, to stockholders of record on May 31, 1910. The Brooklyn Rapid Transit Company owns $12,530,831 of the $13,000,000 of common stock of the Brooklyn Union Elevated Railroad and $4,785,985 of the $5,000,000 of preferred stock of the company. The Brooklyn Rapid Transit Company will therefore receive through this distribution $626,542.

Chicago (Ill.) Consolidated Traction Company.—The bondholders of the Chicago North Shore Street Railway have agreed to the plan for the reorganization of the Chicago Consolidated Traction Company as the United Railways Company in accordance with terms proposed by Chas. G. Dawes, of the Central Trust Company, Chicago, Ill., as outlined in the ELECTRIC RAILWAY JOURNAL of Jan. 22, 1910, page 164. As the holders of the bonds of other underlying companies have already approved the Dawes plan, the reorganization of the company in accordance with the terms of that plan seems to be assured. It is stated that the agreement under which the lines of the Chicago Consolidated Traction Company will be operated by the Chicago Railways has been completed with the exception of minor details.

Dartmouth & Westport Street Railway, New Bedford, Mass.—The Railroad Commission of Massachusetts has authorized the Dartmouth & Westport Street Railway to issue $237,500 additional capital stock at $150 a share, in part to retire $90,000 bonds payable, it is said, Oct. 1, 1910, and the remainder on account of improvements and additions. The new shares when issued will increase the capital stock to $500,000.

Duluth-Superior Traction Company, Duluth, Minn.—The Wisconsin Railroad Commission has authorized the Duluth Street Railway to create $2,500,000 of 5 per cent general mortgage 20-year gold coupon bonds of $1,000 each, redeemable at the option of the company on any interest day after May 1, 1915, at 105. Of the total issue $300,000, it is stated, are to be used to reimburse the treasury for additions and extensions made during 1908 and 1909, and the remainder only for subsequent additions, extensions and permanent improvements. The bonds are to be issued at not less than 75 per cent of par.

Frederick (Md.) Railway.—The Frederick Railway has filed a mortgage to the Fidelity Trust Company, Baltimore, Md., as trustee, to secure an issue of $1,500,000 of first and refunding 50-year 5 per cent gold bonds, to refund outstanding bonds and provide for extensions and improvements. The new bonds are dated April 29, 1910, and mature on March 1, 1960, but are subject to recall as an entirety only on any interest day at 105. The present issue is to be $500,000, $250,000 of the remaining $1,000,000 to be reserved to take up the $250,000 of prior liens.

Henderson (Ky.) Traction Company.—The interests which control the Evansville & Eastern Electric Railway are reported to have secured control of the property of the Henderson Traction Company and the Owensboro City Railroad.

Mohawk Valley Company, New York, N. Y.—The Mohawk Valley Company has declared a dividend of 1½ per cent on its common stock, the first since February, 1907, before the readjustment of the stock. The dividend is payable on July 1, 1910, to stockholders of record on June 15, 1910.

New York State Railways, Rochester, N. Y.—The New York State Railways has declared an initial dividend of 1½ per cent on its preferred stock, payable on July 1, 1910, to holders of record on June 15, 1910. On Dec. 31, 1909, the New York Central & Hudson River Railroad owned $8.866,507 of the $14,777,264 of common stock of the company.

Niagara, St. Catherines & Toronto Railway, St. Catherines, Ont.—The Niagara, St. Catherines & Toronto Railway has made a mortgage to the National Trust Company, Ltd., Toronto, Ont., as trustee, to secure an issue of second mortgage bonds at the rate of $10,000 per mile for the 43 miles of line included in its system.

Saginaw-Bay City Railway & Light Company, Saginaw, Mich.—The Saginaw-Bay City Railway & Light Company having sold certain of the securities deposited under the collateral trust indenture dated on Sept. 1, 1903, for which it has received $3,216,600, the Michigan Trust Company, Grand Rapids, Mich., trustee thereunder, will, as required by the indenture, receive tenders for the sale of bonds secured thereunder at not more than $105, up to 3 p. m. on May 23, 1910. There were at last accounts only $3,355,000 of the bonds outstanding.

San Jose (Cal.) Railroads.—The San Jose Railroads, which was incorporated in December, 1909, with $5,000,000 of capital stock, all common, as a consolidation of the street railways in San Jose and vicinity, has made a mortgage to the Mercantile Trust Company, San Francisco, as trustee, to secure an issue of $1,500,000 of 5 per cent 45-year gold sinking fund first mortgage bonds of $1,000 each, dated Jan. 1, 1910, and due in 1955, with sinking fund from Jan. 1, 1915.

Watsonville (Cal.) Transportation Company.—Edward White, receiver of the Watsonville Transportation Company, has been ordered by the court to offer the property of the company for sale at public auction on May 23, 1910.

Worcester & Southbridge Street Railway.—The Massachusetts Railroad Commission has approved the purchase of the property of the Hartford & Worcester Street Railway by the Worcester & Southbridge Street Railway for $140,000.

Justice O'Gorman, in the Supreme Court, has decided that the tunnel under the East River was properly embraced in the assessment of the State Board of Tax Commissioners, and has confirmed the assessment. The suit to review the assessments and reduce them was brought by E. P. Bryan and others as trustees of the New York & Long Island Railroad. The suit was filed to review the assessments of $3,175,000 and $3,350,000 for the years 1908 and 1909 respectively. The assessments were made by the State Board of Tax Commissioners against the special franchise of the railroad in question in the Borough of Manhattan. The alleged illegality was that the State Board improperly included in the assessments the value of the tunnel under the East River.

Traffic and Transportation

Northampton Fare Changes Approved

The Railroad Commission of Massachusetts has issued an order approving the petition of the Northampton Street Railway relative to a readjustment of fares and transfers amounting to an increase in charges as described in the Electric Railway Journal of May 7, 1910, page 823. The board says:

"In 1909 the Northampton Street Railway increased the unit of fare on its lines from 5 cents to 6 cents, and upon complaint of Northampton and others the board on Feb. 26, 1909, issued an order declaring the increase unreasonable and excessive.

"The Northampton Street Railway now asks a modification of the order referred to and of such other orders of the board as are inconsistent with its proposals, and submits with its petition schedules of proposed changes in its rate of fare. The company contemplates increases of fares between Easthampton and Northampton and between Williamsburg and Northampton, leaving the fare within the city limits of Northampton at 5 cents, as heretofore.

"The authority to fix rates of fare upon street railways is conferred by statute upon the companies, subject, however, to review and recommendation by the Railroad Commissioners. The sole question presented, therefore, is whether, in view of the whole situation, a modification of the orders of the board ought in the public interest to be made. In determining this question the board must of necessity assume that the company is proposing to establish the fares submitted in the schedules filed with its petition.

"After a careful study of the proposals now before it, and a review of the financial condition of the Northampton Street Railway, the board is of opinion that its outstanding orders should be so modified as to permit the adoption of the schedules of fare submitted by the petitioner."

Change in Commutation Rate over Long Island Railroad

The Long Island Railroad, through P. H. Woodward, secretary to Ralph Peters, president of the company, has announced that after the terminal of the Pennsylvania Railroad at Seventh Avenue and Thirty-third Street, New York, N. Y., is opened to the trains of the Long Island Railroad, that company will add 95 cents a month to the cost of tickets to the terminal over the previous rates to the foot of Thirty-fourth Street, New York, for the additional distance between the East River and the terminal station at Seventh Avenue. There will be no change, however, in either the straight or the commutation fares on the Long Island Railroad between any point on Long Island and Long Island City. A charge of $1.05 a month is now added to the commutation rate over the Long Island Railroad to Long Island City to cover ferriage from Long Island City to the foot of Thirty-fourth Street, New York. After the terminal at Seventh Avenue is opened, $2 a month will be added to the commutation now in force over the Long Island Railroad to Long Island City, or 95 cents will be added to the commutation now in force over the Long Island Railroad to the foot of Thirty-fourth Street, New York. It is explained that this readjustment of fares will work to the benefit of the commuter, as comparatively few of those who travel over the Long Island Railroad regularly have their places of business within walking distance of the Thirty-fourth Street ferry. Those patrons of the company who are compelled to ride to their places of business in New York from the Thirty-fourth Street ferry now pay approximately $3 a month in car fare in New York for this service, whereas the increase in fare between the rate now charged to Thirty-fourth Street, New York, and the terminal at Seventh Avenue will be only 95 cents a month. Thus a monthly saving of $2.05 will be effected in the case of the commuter who now is compelled to patronize the street railways in New York to reach his place of business, but who will be able to walk to his place of business from the Pennsylvania terminal, which is centrally located.

Train Service Over the Pacific Electric Railway.—Service with two-car trains has been begun between Los Angeles, Alhambra and San Gabriel by the Pacific Electric Railway.

Fatalities on Electric Railways in Ohio.—Six fatal accidents occurred on the interurban electric railways in Ohio during April, 1910, according to the report made by the State Railroad Commission.

Side Door Trains in the Subway.—The Interborough Rapid Transit Company has notified the Public Service Commission of the First District of New York that it has 27 side-door trains in operation in the subway.

Terms of Service to Be Arbitrated in Detroit.—The differences between the Detroit (Mich.) United Railways and its employees regarding the readjustment of the terms of service of the men are to be submitted to arbitration.

Comet Specials.—The Carbon Street Railway, Mauch Chunk, Pa., has taken advantage of the interest aroused in Halley's comet by the newspapers to run special cars over its line early each morning to Flagstaff Park, the point of highest elevation on its lines.

Service Between Seattle and Everett.—The extension of the line of the Seattle-Everett Traction Company from Hall Lake to Everett has been completed and regular service is now being given between Seattle and Everett with four cars.

From Stockton to Sacramento.—The Central California Traction Company, which established service over its line between Stockton and Sacramento on May 9, 1910, will operate cars between the cities every hour for the present. It is expected within a short time, however, to run cars every 15 minutes.

Freight Terminal of Illinois Traction System in St. Louis.—The Illinois Traction System, Peoria, Ill., established its own terminal in St. Louis, Mo., on May 1, 1910, for handling package freight. The arrangement which the company had with the Big Four Transfer Company has been discontinued.

Increase in Service Between Indianapolis and New Castle.—The Terre Haute, Indianapolis & Eastern Traction Company, Indianapolis, Ind., will increase the service over its line between New Castle and Indianapolis as soon as the new substation is installed at Newcastle, and will reduce the running time from 2 hours and 30 minutes to 2 hours.

Meeting of Central Electric Traffic Association.—The meeting of the Central Electric Traffic Association at Fort Wayne, Ind., on May 14, 1910, was executive in character, and the proceedings are not available for publication. In point of attendance the meeting was very satisfactory. The next meeting of the association will be held on June 11, 1910, in the office of the chairman in Indianapolis.

Trade Campaign by Trolley.—Members of the Trade Association of Indianapolis, Ind., have arranged to tour Indiana in special interurban cars to arouse the interest of residents of the State generally in Indianapolis, and incidentally to better the trade of the city. The first trip was scheduled for May 21, 1910, to be made over the lines of Indiana Union Traction and the Winona Interurban Railway.

New Indiana Road Opened.—The Bluffton, Geneva & Celina Traction Company, Bluffton, Ind., announced that it would open its line from Bluffton to Geneva on May 15, 1910, with a three-hour passenger service and one freight car a day. The road was built as an extension of the Marion, Bluffton & Eastern Traction Company's line. The company has added a portable substation to its power equipment.

Passengers to Board and Alight from Right Side of Cars in Harrisburg.—Hereafter patrons of the lines of the Central Pennsylvania Traction Company, Harrisburg, Pa., will get on and off the right side of street cars in obedience to the following resolution adopted by Common Council, concurred in by the Select Council and approved by the Mayor of Harrisburg: "Resolved, That the Central Pennsylvania Traction Company be and is hereby requested to see that all passengers are received and discharged from the right side only of the cars on the highways of the city."

Arbitration of Wages in Michigan.—The board of arbitration which is considering the terms of service of the employees of the Kalamazoo and interurban lines of the Michigan United Railways held its first session in Lansing, Mich., on May 10, 1910. The board is composed of F. A.

Kulp, who represents the men; Sanford W. Ladd, who represents the company, and Justice R. C. Ostrander of the Supreme Court of Michigan. The employees of the company in Kalamazoo receive 21, 22 and 23 cents an hour, according to length of service. They have asked for a flat rate of 25 cents an hour. The employees of the interurban lines receive 23, 24 and 25 cents an hour. They desire 25, 26 and 27 cents an hour.

Crusade Against Smoking in New York Subway.—Following several conferences which he held recently with Commissioner of Health Lederle of New York, Frank Hedley, vice-president and general manager of the Interborough Rapid Transit Company, sent a letter on May 11, 1910, to the Public Service Commission of the First District of New York in which he said: "Referring to the conversation had with you several days ago on the subject of smoking in the subway, would say that I had a conference with Commissioner Lederle of the Health Department, at which it was agreed that we would have printed large signs calling attention to the fact that smoking or carrying lighted cigars, cigarettes or pipes into the subway would not be permitted. These signs we have had posted in conspicuous positions in the subway and special orders have been issued to all employees to call attention to any violation of this ordinance."

Increase in Wages in Toledo.—The Toledo Railways & Light Company, Toledo, Ohio, has increased the wages of conductors and motormen on the city lines 1 cent, as follows: First year, 21 cents; second year, 23 cents; third year, 23 cents; over three years, 24 cents. Similar increases have been made in the wages of employees on the lines of the controlled companies. For the first year's service on the Maumee Valley Railway and the Toledo, Ottawa Beach & Northern Railroad conductors and motormen will receive 21 cents an hour; second year, 22 cents; third year, 23 cents, and fourth year and over, 24 cents. Employees on the Toledo & Western line will receive 20 cents the first year, 21 cents the second year, 22 cents the third year and 23½ cents the fourth year. The men in the shops, power houses, operating, lighting and heating departments receive a proportionate increase.

Attractive Advertising of Hayden Lake.—The traffic department of the Spokane & Inland Empire Railroad, Spokane, Wash., has published a booklet entitled "Golf at Hayden Lake," prepared by Charles E. Flagg, publicity agent of the company. It is 5 in. x 9 in. in size, with a cover of heavy-coated stock embossed in gold and white. Two or more half-tone engravings illustrate each page and interspersed artistically are small reproductions of wood berries and native ferns. The larger half-tone engravings show Bozanta Tavern and several views of the grounds about the tavern and station, including the golf course. Other engravings show wilder scenes of lake, mountain and woods. The Cœur d'Alene division of the Spokane & Inland Empire Railroad is the only transportation line to Hayden Lake, which is in the Government Forest Reserve of Idaho, 40 miles east of Spokane. Six trains are operated daily between Hayden and Spokane.

Limited Service Changes of the Detroit United Railway.—Many important changes have been made in the limited car service by the Detroit United Railway. Under the new schedules there are six cars a day each way between Detroit and Toledo, leaving Detroit at 7:20 a. m. and every two hours thereafter until 5:20 p. m., while on Saturdays and Sundays an extra limited car leaves Detroit at 7:20 p. m. and Toledo at 7:35 p. m. The regular limited cars leave Toledo at 7:20 a. m. and every two hours thereafter. To Port Huron there are five limiteds each day daily at 6:45 a. m. and every three hours until 6:45 p. m. To Flint there are five limited cars each way daily, leaving Detroit at 6:35 a. m. and every three hours to 6:35 p. m. The first, third and fourth limited cars run through to Saginaw without change and leave Saginaw at 6 a. m., 11:30 a. m. and 5 p. m. No change has been made in the operation of the four limited trains to Jackson.

Brooklyn Rapid Transit Company, a Brooklyn Institution.—The following advertisement was published by the Brooklyn (N. Y.) Rapid Transit Company in the Brooklyn section of the *New York World* of May 8, 1910: "The Brooklyn Rapid Transit lines employ 13,000 persons—practically all of them in Brooklyn. Upon these 13,000 employees many families are dependent. It is estimated that 65,000 persons—a city the size of Troy—earn their bread and butter from the local traction system. The weekly payroll of the Brooklyn Rapid Transit lines exceeds $200,000. Almost the entire amount of that payroll—$10,000,000 a year—is expended in Brooklyn. Beyond that are the millions that the company spends each year in Brooklyn for materials and supplies. As its business grows within this borough the Brooklyn Rapid Transit lines will employ many more persons who will add greatly to that weekly payroll. As the community grows so grow its transportation companies. As the transportation companies grow so grows the community. Their interests are identical."

Complaint Against Increase in Fare on New Haven Road.—The Public Service Commission of the Second District of New York has served on the New York, New Haven & Hartford Railroad the complaint of W. P. Hickok and D. G. Tallman against the increase in commutation rates between Mount Vernon and New York. The company has been required to make answer within 10 days. Messrs. Hickok and Tallman allege that the rates which are to go into effect between Mount Vernon and New York on June 1, 1910, are unjust, unreasonable and unlawful and contrary to and in violation of law, and they ask the commission to commence proceedings in the Supreme Court of New York to prevent the increase in rates and charges either by mandamus or injunction, on the ground that the company is about to demand unjust and unreasonable rates and charges in violation of law. It is suggested that preliminary to making this order a hearing be accorded the complainants and others who may care to go on record as opposed to the proposed increase.

Seeing Lancaster County from a Trolley Window.—This is the title of a publication of 80 pages 6¾ in. wide by 10 in. high with a story woven around the electric railways, because they afford one of the most convenient and economical modes of travel for the sightseer. The book is divided into the following parts: Part 1, The City of Lancaster; Part 2, A Trip to Marietta; Part 3, A Trip to Elizabethtown; Part 4, A Trip to Pretty Pequea; Part 5, From Quarryville to Lancaster; Part 6, A Trip to the "East End"; Part 7, A Trip to Pierre Hill; Part 8, A Trip to Ephrata and Adamstown; Part 9, A Trip to Manheim and Lititz; Part 10, Lancaster in the Days of Yore. There is a map of Lancaster County which shows the lines of the Conestoga Traction Company and the population of the townships, and there is also an index to the various trips and to the illustrations. The front cover contains a section of an electric railway car filled with passengers, who are presumably taking one of the trips described in the publication. "Seeing Lancaster County from a Trolley Window" is published by the Conestoga Traction Company, Lancaster, Pa., to sell at 10 cents a copy.

Service Orders in Washington.—The District Electric Railway Commission has recently adopted several orders relative to the operation of street cars in the District of Columbia. One modifies a previous order regarding service on the Fourteenth Street division of the Capital Traction Company by requiring the company to operate a sufficient number of cars with a seating capacity of 36 or more over the Fourteenth Street line between the Peace Monument and Fourteenth Street and Park Road, Northwest, to maintain a headway of not more than one minute between 4:15 p. m. and 6:15 p. m. on all days except Sundays and holidays. Another extends until June 30, 1910, the order adopted on Feb. 18, 1910, which provides for the employment of conductors on trail cars. Other orders prescribe the service which shall be furnished between certain hours on the Maryland line of the Washington Railway & Electric Company and the City & Suburban Railway and the Center Market route of the Washington Railway & Electric Company and the Anacostia & Potomac River Railroad. To make it possible for cars to operate on short headway in congested districts the commission has modified that portion of section 7 of the regulations governing the operation of street cars, which says that "no street car shall follow a preceding car moving in the same direction at a less interval than 100 feet unless coupled thereto," to read that "no street car moving at a speed exceeding 10 m.p.h., shall follow, etc."

Personal Mention

Mr. C. F. Bruce, Tulsa, Okla., has been appointed general manager of the Port Arthur (Tex.) Traction Company, which is completing 7 miles of electric railway in Port Arthur.

Mr. Van Horn Ely has resigned as president of the Steubenville & East Liverpool Railway & Light Company, Steubenville, Ohio, to devote his attention to the Beaver County Light Company, Beaver, Pa.

Mr. J. E. Sewell, formerly general manager of the Connecticut Railway & Lighting Company, Bridgeport, Conn., has been appointed general manager of the Shore Line Electric Railway, New Haven, Conn.

Mr. George Faulk has been elected secretary of the Steubenville & East Liverpool Railway & Light Company, Steubenville, Ohio, to succeed Mr. Edward McDonnell, who has been elected president and treasurer of the company.

Mr. Edward McDonnell, secretary and treasurer of the Steubenville & East Liverpool Railway & Light Company, Steubenville, Ohio, has been elected president of the company to succeed Mr. Van Horn Ely. Mr. McDonnell will retain the office of treasurer.

Mr. W. C. Cuntz, of the Goldschmidt Thermit Company, whose appointment by the United States Government to represent it at the International Railway Congress at Berne, this summer, was mentioned last week, was erroneously given the title of general manager of the company.

Mr. Charles Murray has been appointed manager of the Schuylkill Railway, Girardville, Pa. Mr. Murray has been superintendent and manager of different properties controlled by the Railways Company General for nine years, and for the last three years he has been connected with J. G. White & Company, Inc., and Ford, Bacon & Davis, New York, N. Y.

Mr. J. C. Rothery, who has resigned as general manager of the Steubenville & East Liverpool Railway & Light Company, Steubenville, Ohio, will give his attention to the construction of electric railways in South American cities. Mr. Rothery has been succeeded with the Steubenville & East Liverpool Railway & Light Company and the East Liverpool Traction & Light Company, East Liverpool, Ohio, by Mr. W. R. W. Griffin, as announced in the Electric Railway Journal of May 7, 1910, page 849.

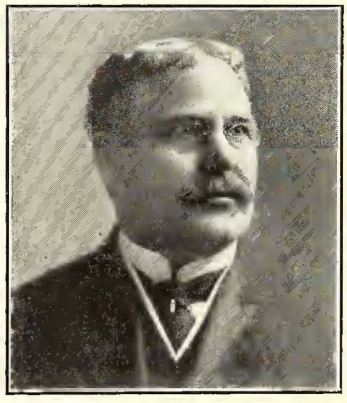
Mr. W. C. Callaghan as superintendent of transportation of the city lines of the New York State Railways (Rochester Lines) and Mr. M. D. Kilbride as superintendent of transportation of the interurban lines of the company at Rochester, will divide between them the responsibility of the office of general superintendent, from which Mr. W. R. W. Griffin recently resigned to become general manager of the East Liverpool Traction & Light Company, East Liverpool, Ohio, and the Steubenville & East Liverpool Railway & Light Company.

Mr. F. W. Watts, who has been appointed general express agent of the Syracuse (N. Y.) Rapid Transit Company, Utica & Mohawk Valley Railway, Utica, N. Y., and the Oneida (N. Y.) Railway, entered electric railway work in 1903 as local express agent of the Utica & Mohawk Valley Railway at Little Falls. In October, 1907, he was appointed division express agent of the company, and in January, 1908, he was appointed division express agent of the Oneida Railway. Before becoming connected with the Utica & Mohawk Valley Railway Mr. Watts served in the traffic department of the New York Central & Hudson River Railroad for 14 years.

Mr. J. G. Baukat has accepted a position as mechanical engineer with the Foundation Company, New York, N. Y., which makes a specialty of constructing foundations for large buildings, bridge piers, mining shafts, power plants, sea walls, wharfs, dams, etc. Mr. Baukat was chief engineer of the Miami Valley Construction Company, from December, 1909, until the company went into the hands of a receiver. Previous to this, he was for four years assistant superintendent of electrical equipment with the New York Central & Hudson River Railroad, in charge of maintenance of electrical equipment and repair shops. Before his connection with the latter company, Mr. Baukat was engineer of the Schenectady (N. Y.) Railway. Mr. Baukat began his railway work by spending three years in the railway department of the General Electric Company at Schenectady.

Mr. Walter G. Barlow has resigned as master mechanic of Easton (Pa.) Transit Company, effective on May 15, 1910, to go to Galion, Ohio, to attend to personal business. Mr. Barlow was born at Galion on Oct. 22, 1873, and attended the public schools there until January, 1888, when his parents moved to Philadelphia. He then entered the Philadelphia Manual Training School and was graduated from that institution in 1892. In 1894 he was graduated from the Philadelphia College of Pharmacy, and in March, 1896, was graduated from the electrical department of the Drexel Institute of Science. He entered the employ of the Philadelphia & West Chester Traction Company on April 1, 1896, as electrician in charge of cars and lines, and was later promoted to master mechanic, and in 1898 was appointed assistant superintendent of the company. In February, 1900, Mr. Barlow accepted the position of general superintendent and master mechanic of the Lewiston & Reedsville Electric Railway, Lewiston, Pa., but resigned from that company on July 1, 1903. He was employed from 1903 to 1905 in the line and cable department of the Philadelphia Rapid Transit Company under Mr. F. H. Lincoln. For a year Mr. Barlow was associated with his brother as a druggist. Subsequently he had charge of electrical construction for the Keller-Pike Company, Philadelphia, Pa., electrical engineers and contractors.

Mr. E. E. Downs has been appointed general manager of the Chicago & Milwaukee Electric Railway, Highwood, Ill., to succeed Mr. A. W. McLimont, who has been elected vice-president and general manager of the Michigan United Railway, Lansing, Mich., as noted in the Electric Railway Journal of May 7, 1910, page 849. Mr. Downs has been connected with the construction and operation of electric railways for the last 17 years, and for the last two years he has been vice-president and general manager of the Sterling & Dixon Electric Railway, Sterling, Ill., and the Lee County Lighting Company, Sterling. Mr. Downs was born in Boston, Mass., and his first business experience was in general contracting and telephone work. When the electrification of street railways began he became connected with the construction department of the Thomson-Houston Company and had charge of installing electricity on the Second Avenue Passengers' Railway, Pittsburgh, Pa., the first railway in Pittsburgh to adopt electricity. Later Mr. Downs installed electricity on the Missouri Street Railway, St. Louis, Mo.; City Electric Railway, Little Rock, Ark.; Fort Clark Street Railway, Peoria, Ill., and the Fort Wayne & Belle Isle Railway, Detroit, Mich. In his work at Little Rock Mr. Downs was associated with Mr. Bion J. Arnold. Subsequently Mr. Downs became manager of the street railways in Kalamazoo and Battle Creek, Mich., for the General Electric Company, and later was associated with his brother and Mr. F. N. Rowley in the Michigan Traction Company and the Railways Company General. Mr. Downs next assisted in constructing an electric railway between Anderson and Marion, Ind., and in 1897 was engaged by Mr. George J. Kobush, St. Louis, Mo., as general manager of the Winnebago Traction Company, Oshkosh, Wis., with which company he remained for more than seven years. In October, 1904, Mr. Downs went to San Francisco in the interest of E. H. Rollins & Son, Boston, Mass., as general manager of the Petaluma & Santa Rosa Railway. In March, 1906, he returned to the East and promoted and partially completed Beechwood Park, near Philadelphia. In March, 1908, he succeeded Mr. E. R. Kirk as general manager of the Sterling, Dixon & Eastern Electric Railway.



E. E. Downs

Construction News

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

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

RECENT INCORPORATIONS

***Central Ohio Promoting Company, Columbus, Ohio.**—Incorporated in Ohio to promote an interurban railroad between Columbus and Zanesville. Capital stock, $25,000. Incorporators: Albert E. Boone, Dorse H. King, Henry A. Auxline, James L. Holden and James L. Grimsley, Zanesville.

***Astoria (Ore.) Southern Railway.**—Application for a charter has been made in Oregon by this company to build a railway from Young's Bay, Astoria, to points on Nehalem Bay and Tillamoon County. Capital stock, $500,000. Incorporators: L. W. Humphreys, W. Thomas and C. J. Kraemer.

***Consolidated Traction Company, Philipsburg, Pa.**—Application will soon be made in Pennsylvania for a charter by this company to build an electric railway from Philipsburg to Curwinsville via Blue Ball, Wallacetown, Bigler, Woodland and Clearfield. It is said to be backed by Philadelphia capital.

Mt. Adams Railway, White Salmon, Wash.—Incorporated in Washington to build a 60-mile railway from White Salmon to Glenwood. Capital stock, $50,000. Incorporators: Charles L. Colburn, Tunis Wyers, Rik Field, Rudolph Lauterback and Theodore F. Shepler, all of White Salmon, Wash. [E. R. J., Jan. 15, '10.]

FRANCHISES

***San Rafael, Cal.**—W. L. Courtright and associates have asked the Council for a franchise to operate an electric railway in Fourth Street, San Rafael, as far as the town limits toward San Anselmo.

Griffin, Ga.—The Griffin City & Suburban Railway has been granted a franchise by the Council to build an electric railway in Griffin, with the stipulation that work must start within the next twelve months. [E. R. J., April 23, '10.]

Harvey, Ill.—The Eastern Illinois Railway has been granted a 50-year franchise by the Council to build an electric railway in Harvey. This line will connect West Hammond, Harvey, Burnham, Hegewisch and Riverdale. [E. R. J., May 14, '10.]

Milford, Ind.—Neff Brothers, Milford, have asked the County Commissioners for a franchise to build an interurban railway from Bremen to Mishawaka. [E. R. J., April 23, '10.]

Williamston, Mich.—The Detroit, Lansing & Grand Rapids Railway, Detroit, was granted a franchise at a recent special election to build a railway in Williamston. [E. R. J., March 19, '10.]

Hoboken, N. J.—The Hoboken Manufacturers' Railroad has asked the Common Council for a franchise to extend its tracks across the city to the west side, and thence to the Lackawanna Railroad, in Hoboken.

Ashland, Neb.—Frank Schaaf, representing the Omaha, Western & Lincoln Railway, Lincoln, has asked the Council for a franchise to build a railway in Ashland. A similar franchise is asked for in University Place. This is part of a plan to connect Omaha, Hastings and Lincoln with an electric railway, a distance of 219 miles. [E. R. J., April 30, '10.]

Altoona, Pa.—The Altoona & Johnstown Street Railway, Johnstown, has accepted the franchise granting it an entrance into Altoona. Construction will be started in June and the work will be divided in 15 sections. This 40-mile projected railway will connect Altoona and Johnstown. Geo. L. Holman, Johnstown, general manager. [E. R. J., April 9, '10.]

Norristown, Pa.—The Norristown Transit Company, a subsidiary company of the Philadelphia & Western Railway, Philadelphia, has been granted a franchise by the Town Council to operate a 2-mile railway over certain streets in Norristown.

New Castle, Pa.—The New Castle & Beaver Valley Street Railway, Beaver Falls, has asked Council to extend the time for a period of six months in which to begin work on its 22-mile railway from New Castle to Beaver Falls. [E. R. J., Feb. 5, '10.]

Fort Worth, Tex.—The Northern Texas Traction Company has been granted a franchise to extend and double-track several of its lines in Fort Worth.

Salt Lake, Utah.—Le Grand Young, representing the Emigration Canyon Railroad, has been granted a franchise by the County Commissioners to build an extension of the line to Holliday.

Spokane, Wash.—The Washington Water Power Company has asked the Council for a franchise to extend its Cannon Hill Line through Cannon Hill Park, Irving Heights, Clifton Highlands, Jerome Park and the Highlands additions to Twenty-ninth Avenue and Howard Street, in Spokane.

Morgantown, W. Va.—The South Morgantown Traction Company has asked the council for a franchise to extend its tracks in Morgantown.

TRACK AND ROADWAY

Los Angeles (Cal.) Railway.—This company has started work on its Eagle Rock extension, also on a 1½-mile extension to Harvard Boulevard.

Pacific Electric Railway, Los Angeles, Cal.—This company has obtained right-of-way for its 7-mile extension from Corina to San Dimas and Lordsburg, and construction of the line will soon begin.

Peninsular Railway, San José, Cal.—This company has started work grading on its extension from Palo Alto into Ravenswood and Woodland Place.

Evansville & Eastern Railway, Evansville, Ind.—Interests which control this company have purchased the Owensboro City Railroad and the Henderson Traction Company, and are planning, according to a report, the organization of a large interurban system having Evansville as a base and extending through that section of Indiana and Western Kentucky. The Evansville & Eastern Railway already has connections with Newburgh, Yankeetown, Hatfield, Rockport and Richland, and the plan now proposed is the extension of the line from Rockport to a point opposite Owensboro, the building of a bridge across the Ohio at that point and the connecting of Owensboro and Henderson by way of Calhoun, Ky. Surveys for these lines have already been made. Those who are interested are: W. H. McCurdy, president of the Evansville & Eastern Electric Railway; A. S. Karges, president of the Evansville Terminal Railway; Charles Hartmetz, Albert Funkhauser, Arthur Funkhauser and C. C. Tennis. [E. R. J., March 12, '10.]

Chicago, Lake Shore & South Bend Railway, Michigan City, Ind.—This company announces that it will at once begin double-tracking its lines between Pullman, Ill., and Gary, Ind., a distance of 17 miles. The construction work, for which material is being received, will be done by the Cleveland Construction Company. It is expected to have the new track finished this fall. It is probable that the entire line will soon require double-tracking. The new work will be in charge of J. B. Tuffel as superintendent of construction for the Cleveland Construction Company.

Louisville & Northern Railway & Lighting Company, New Albany, Ind.—This company expects to build an extension into the county to connect with the grounds of the New Albany Park & Fair Association, provided the city grants the right of way for the extensions in the city limits.

Wabash & Northern Indiana Traction Company, Warsaw, Ind.—Press reports state that this company is now financed and work will be started within 2 months on this projected railway between Wabash, North Manchester and Warsaw. J. A. Berry is interested. [E. R. J., Dec. 11, '09.]

***Des Moines, Ia.**—F. C. Hubbell, B. F. Kaufmann and G. M. Hippee are promoting the construction of a 100-mile interurban railway between Red Oak and Des Moines, via Greenfield.

Sioux City & Spirit Lake Railway, Sioux City, Ia.—This company announces that satisfactory progress is being made in the work preliminary to the construction of a 106-mile

freight and passenger electric railway to connect Sioux City and Spirit Lake. It will traverse a section of the State which now has only indirect rail connections with Sioux City and Omaha. Intervening towns on the proposed route are: La Mars, Potosia, Ellendale, Granville, Primghar and Hartley. The new line will afford a short route to the Okobojee Lakes and to Spirit Lake, which are the only lake resorts of any considerable size in Iowa. The project, while yet in the preliminary stage, is said to be near the construction period. General offices, American Block, Sioux City. Fred Davis, secretary. [E. R. J., Nov. 6, '09.]

Lexington & Interurban Railway, Lexington, Ky.—This company has completed its new line between Lexington and Nicholasville, a distance of 12 miles, and has put it into operation. Cars will be run every four hours. The company now controls 4 lines extending out of Lexington.

***Butte, Mont.**—I. A. Heilbronner and Charles F. Kelley are said to be projecting the construction of an electric railway to Anaconda by way of Gregson Springs.

Missoula (Mont.) Street Railway.—This company, which is building a street railway in Missoula, will probably extend it to Hamilton.

Hudson, Center & New Salem Electric Railway, Schafer, N. D.—Press report states that this company has secured right of way for its proposed 110-mile electric railway from Center to Hettinger, Hudson and New Salem. Charles Whitmere is in charge of the work. [E. R. J., March 8, '10.]

***Akron, Canton & Youngstown Electric Railway, Canton, Ohio.**—Press report states that interest has again been revived in this proposed railway to connect Akron, Canton and Youngstown. Milton Schaffer, Canton, president.

Fostoria, Ohio.—Charles A. Bliss, Toledo, representing the Toledo Promoting & Developing Company is securing right of way for an electric line from Fostoria to Paulding. Right of way has been secured nearly to Bloomdale and the Council in Bloomdale has granted a franchise to the company. [E. R. J., Dec. 4, '10.]

Lawton & Fort Sill Electric Railway, Lawton, Okla.—A bill has been introduced in the House by this company, asking additional right-of-way through 2½ miles of public domain near Lawton, whereby the line can be built between Lawton and Medicine Park. This proposed 15-mile railway will connect Lawton, Medicine Park & Fort Sill. D. L. Sleeper, vice-president. [E. R. J., March 19, '10.]

Lehigh Valley Transit Company, Allentown, Pa.—This company will build a steel bridge, paralleling the New Street bridge. It is estimated that the bridge will cost $100,000.

Clarion & East Brady Electric Railway, Clarion, Pa.—This company advises that it will soon start the construction of its proposed 30-mile railway to connect Clarion, Reidsburg, Sligo, Rimersburg and East Brady. Its power house, which will have a capacity of 2000 hp, and repair shops, will be located between Sligo and Rimersburg. The company also plans to furnish power for lighting. Capital stock, authorized, $1,000,000. Bonds authorized, $1,000,000. Officers: G. E. Arnold, Clarion, president, and T. S. Arnold, secretary and treasurer. [E. R. J., Feb. 5, '10.]

Slippery Rock & Grove City Railway, Grove City, Pa.—It is announced that this company will begin the construction of its 9½-mile gasoline motor railway between Slippery Rock and Grove City within ten days. The contract for building has been awarded to Alfred De Mayo & Company. H. B. Graves, Butler, chief engineer. [E. R. J., March 19, '10.]

Central Pennsylvania Traction Company, Harrisburg, Pa.—It is stated that this company has reached a mutually satisfactory agreement with the Pennsylvania Railroad whereby it will be allowed to build its extension from Rockville to Dauphin through the Dauphin Narrows.

Chambersburg, Greencastle & Waynesboro Electric Railway, Waynesboro, Pa.—This company is building a 3-mile extension from Memorial Square, Chambersburg, to the Red Bridge along the Conococheague Creek. Materials are at hand and the line will be in operation July 4.

Quebec Railway, Light, Heat & Power Company, Ltd., Quebec, Que.—This company proposes to build a double-track extension westward from Maple Avenue to the top of Sillery Hill, a distance of 2½ miles. As soon as the required time under the railway act has elapsed the company will proceed with the work. Rails and other materials are on order and it is expected to have the line in operation early in July. The company does not at present contemplate operating to the Quebec Bridge, neither does it propose to construct a double track from Montmorency Falls to Ste. Anne de Beaupre this year. C. E. A. Carr, Quebec, general manager.

Aberdeen (S. D.) Street Railway.—This company has let the contract for the material for 5 miles of track to the Bell Lumber Company, of Minneapolis. Charles N. Herreid, Aberdeen, general manager. [E. R. J., March 5, '10.]

Lake View Traction Company, Memphis, Tenn.—This company, which proposes to build a 160-mile railway to connect Memphis and Clarksdale, Miss., advises that it is now laying rails on the section from Memphis to Lake View, a distance of 11 miles. It is expected to have this division in operation by July 1. The company has decided to operate by electricity instead of using gasoline motor cars, as was originally planned. The overhead construction will consist of double pole suspension, No. 0000 Fig. 8 trolley wire and No. 0000 10-in. compressed flexible bonds, furnished equally by the Ohio Brass Company, American Steel & Wire Company, and the General Electric Company. Lee Massengale, Iola, Kan., general manager.

***Dallas, Tex.**—H. M. Hyatt, of the Empire Construction Company, St. Louis, is organizing a company in Dallas to build an interurban railway from Dallas to Cleburne via Eagle Ford, Grand Prairie, Webb, Mansfield, Lillian, Pleasant Point, Alvarado and Mooston. It is said that St. Louis interests will finance the project if $350,000 is subscribed by citizens along the line.

Clarksburg & Weston Electric Railway, Clarksburg, W. Va.—This company advises that construction will begin this month on its proposed 24-mile electric railway between Clarksburg and Weston. Capital stock, $500,000. Officers: S. L. Watson, president, Fairmont; C. W. Watson, Baltimore, Md., vice-president; Walton Miller, Fairmont, secretary and treasurer; James O. Watson, Fairmont, general manager; A. T. Watson, Fairmont, purchasing agent, and D. D. Britt, Clarksburg, chief engineer. [E. R. J., May 14, '10.]

Sheridan Railway & Light Company, Sheridan, Wyo.—This company advises that it is ordering material and will begin construction within two months on its 13-mile interurban railway in Sheridan, Wyo., extending 9 miles out of Sheridan to various coal mines in Wyoming. Power station will be located 7 miles west of Sheridan, and repair shops in Sheridan. It will also furnish power for lighting and power for the mines, and will operate six cars. Albert Emanuel and William Sullivan, Conover Building, Dayton, Ohio, are promoting the line. [E. R. J., May 14, '10.]

***Ontario Railway Company, Ontario, Wis.**—This company is being organized for the purpose of building a line on the route recently surveyed from Ontario either to Wilton or Norwalk. A. E. Rau, Sparta, engineer. C. Lord, Ontario, is interested.

SHOPS AND BUILDINGS

Pacific Electric Railway, Los Angeles, Cal.—This company expects to build a new depot on North Fair Oaks Avenue in Los Angeles.

Centerville Light & Traction Company, Centerville, Ia.—This company has secured a site for the erection of a waiting room in Centerville, and has also started work on its new car house, 60 ft. x 100 ft. It will be built with concrete foundation. Frank S. Payne, Centerville, general manager.

New York, Westchester & Boston Railway, New York, N. Y.—This company plans to build stations at the following places, and bids for the work will soon be asked for: Morris Park, Pelham Parkway, Allerton Avenue, Dyer Avenue, Gunville Road and Baychester Avenue, Bronx; South Third Avenue, East Sixth Street, Lincoln Avenue, Fulton Avenue and Columbus Avenue in Mount Vernon; one at North Pelham, Pelhamwood, at Webster Avenue and North Avenue, New Rochelle, and at New Rochelle.

Lake View Traction Company, Memphis, Tenn.—This company plans to build a car shed adjoining its power station, to be 24 ft. x 140 ft. and 24 ft. high in front and 20 ft.

in the rear. It will contain two standard-gage tracks, with a 60-ft. cement pit under each track, also a small machine shop.

Houston-Bay Shore Traction Company, Houston, Tex.—This company, which will build an electric ralway between Houston and La Porte, proposes to erect a passenger station at South Houston and six cement passenger and express depots along the line. [E. R. J., May 14, '10.]

Seattle, Snohomish & Everett Railway, Seattle, Wash.—This company will soon erect a new interurban depot at Pacific Avenue and Hoyt Avenue. It will be constructed by the Stone & Webster Engineering Corporation.

POWER HOUSES AND SUBSTATIONS

Hudson & Manhattan Railroad, New York, N. Y.—This company has recently been furnished by the American Blower Company, Detroit, with its entire supply of ventilating equipment. The following apparatus has been installed: At the Hoboken station, two 140-in. steel plate fans, housed with pedestals and direct connected to 40-hp variable speed motors; two 100-in. steel plate fans, direct connected to 13-hp variable speed motors; at the Fifteenth Street station, two 96-in. cone fans direct connected to 30-hp variable speed motors; at Morton Street shaft, two 180-in. steel plate fans direct connected to 55-hp variable speed motors; at Hudson Street station, two 100-in. steel plate fans connected to 50-hp variable speed motors.

Interborough Rapid Transit Company, New York, N. Y.—This company has awarded a contract to the Westinghouse Electric & Manufacturing Company for 1,000 line switches and various minor appliances.

Public Service Railway, Newark, N. J.—It is reported that this company, which recently purchased the Camden & Trenton Railway, will build a power station at Burlington, N. J.

Oklahoma City (Okla.) Railway.—It is stated that this company has completed plans for enlarging its power station at Belle Isle. New apparatus will be installed and it is estimated that the total cost of the improvements will be $150,000.

Gettysburg (Pa.) Railway.—This company has placed an order with the Coatsville Boiler Works for two 200-hp boilers for its power plant in Gettysburg.

Lake View Traction Company, Memphis, Tenn.—This company advises that it will soon erect a power plant on that section of its line which is now being completed between Memphis and Lake View. The engine room will be 40 ft. x 40 ft., and the boiler room will be of the same size and will contain three 200 or 250-hp Heine water-tube boilers. The electrical equipment will consist of two 200-kw, 550-volt d.c. generators for railway service and one 200-kw, a.c., 60-cycle, 2300-volt, single-phase generator for lighting service.

Northern Texas Traction Company, Fort Worth, Tex.—This company will erect a substation and waiting room at Grand Prairie and will increase the substation capacity at Oakcliffe.

Houston-Bay Shore Traction Company, La Porte, Tex.—This company will build a joint steam power station and car house, 225 ft. x 175 ft. and 24 ft. in height. It will be constructed of concrete and will have a steel frame. The power plant will have a capacity of 900 hp. The car house section will have a storage capacity of 16 cars. Estimated cost is $110,000. The company will also build a substation at South Houston. [E. R. J., May 14, '10.]

Utah Light & Railway Company, Salt Lake City, Utah.—This company is installing a new 1000-kw Westinghouse steam turbine at the Jordan River station.

Rutland Railway, Light & Power Company, Rutland, Vt.—This company is building a new substation at Fair Haven, and also expects to build one at Poultney.

Wheeling (W. Va.) Traction Company.—This company advises that it will place contracts during the next three weeks for one low-pressure, 1875-k.v.a. turbine, two 500-kw motor generator sets, with all necessary switchboards; also two motor-driven centrifugal pumps and condensing apparatus. George O. Nagle, general manager.

Manufactures & Supplies

ROLLING STOCK

Rio de Janeiro Tramway, Light & Power Company, Rio de Janeiro, Brazil, S. A., is building 12 cars at its own shops.

Scranton (Pa.) Railway is building a combination baggage and express car at its shops in Scranton.

Chicago, Aurora & De Kalb Railroad, Aurora, Ill., is said to be considering the purchase of three 50,000-lb. capacity second-hand flat cars.

Fort Dodge, Des Moines & Southern Railroad, Fort Dodge, Ia., has under consideration the purchase of additional heavy electric freight locomotives.

Schuylkill & Dauphin Traction Company, Williamstown, Pa., is in the market for a 30-ft. single-truck, open work car, with roof, for hauling dirt and lumber, to be equipped with two GE-800 motors.

Sheridan Railway & Light Company, Sheridan, Wyo., which is preparing to begin work soon on an electric railway in Sheridan, will require six cars. Albert Emanuel, Conover Building, Dayton, Ohio, is promoting the line.

Interborough Rapid Transit Company, New York, N. Y., has placed an order with the Westinghouse Electric & Manufacturing Company for 188 motors, with controls, wiring, etc., for the subway division, and 120 motors and controls for the new elevated cars.

Clarion & East Brady Electric Railway, Clarion, Pa., will need three interurban, several box and trailer cars, also an electric locomotive for its line between Clarion and East Brady, Pa., upon which construction is to be begun at once. G. E. Arnold, Clarion, Pa., president.

Elmira Water, Light & Railroad Company, Elmira, N. Y., noted in the ELECTRIC RAILWAY JOURNAL of April 2, 1910, as contemplating the purchase of several cars, has placed an order with The J. G. Brill Company for six closed single-truck cars for delivery in September. They will be equipped with two GE-78 motors each.

Humboldt Transit Company, Eureka, Cal., mentioned in the ELECTRIC RAILWAY JOURNAL of Feb. 5, 1910, as having ordered four cars of the California type from the W. L. Holman Company, has drawn the following details for this equipment:

Seating capacity.....30	Bolsters, body.....Holman
Weight (car body only) .....18,000 lb.	Bolsters, truck.....Standard
Bolster centers, length..19 ft.	Car trimmings.....A. & W.
Length over vest...33 ft. 9 in.	Control system.....G. E.
Width over sills.... 7 ft. 6 in.	Couplers .....Holman
Width over posts at belt ..... 8 ft.	Curtain fixtures...Cur. S. Co.
Sill to trolley base.. 9 ft.	Curtain material..Cur. S. Co.
Body .....wood	Gears and pinions.....G E.
Interior trim.....ash	Gongs.....A. & W.
Underframe .....composite	Hand brakes.....Holman
	Trucks, type.....Standard

Oregon Electric Railway, Portland, Ore., reported in the ELECTRIC RAILWAY JOURNAL of Jan. 15, 1910, as having ordered two observation parlor cars from the Niles Car & Manufacturing Company, has included the following in its specifications for this equipment:

Seating Capacity.....35	Underframe .....semi-steel
Weight (car body only) .....33,000 lb.	Axles.....St'd Steel Works
Bolster centers, length .....38 ft. 6 in.	Bolsters, body.....Niles
Length, body....51 ft. 3½ in.	Bolsters, truck.....Baldwin
Over vest.....60 ft.	Control system.....GE
Width over sills.. 9 ft. 2 in.	Couplers..Janney ....M.C.B.
Width over posts at belt..... 9 ft. 6 in.	Curtain material...pantasote
Sill to trolley base 9 ft. 6½ in.	Heaters.....Smith hot water
Height, rail to sills...42½ in.	Sanders .....Nichols-Lintern
Body .....wood	Seats, Parlor chairs, Heywood
	Seating....leather and plush
	Trucks, type..Baldwin 78-30-B

American Railways Company, Philadelphia, Pa., has ordered 21 cars from The J. G. Brill Company and the G. C. Kuhlman Car Company for use on the lines which it controls in Dayton, Ohio; Scranton, Pa., and Joliet, Ill. The

car bodies will be 20 ft., 30 ft. and 36 ft. long, respectively, and will have turtle-back roofs with space between roof and headlining for ventilation. They will be equipped with the Cooke vacuum system.

TRADE NOTES

Hobart Allfree Company, Chicago, Ill., has moved its office from 470 Old Colony Building to Room 1380 in the same building.

American Wood Preserving Company, Chicago, Ill., has moved its main office to its new factory location at 1345-1351 North Branch Street, Chicago.

Gerard Van Schaick has been elected president of the W. K. Kenly Company, Chicago, Ill., succeeding his brother, A. P. Van Schaick, resigned.

Cutter Electrical & Manufacturing Company, Philadelphia, Pa., has moved its Western office to 98 Jackson Boulevard, Chicago, Ill.

Dressel Railway Lamp Works, New York, N. Y., has moved its Chicago office from the Western Union Building to Suite 1216 of the People's Gas Building.

General Railway Company, Chicago, Ill., has moved its office from the Monadnock Building to the People's Gas Building, Michigan Avenue and Adams Street.

McKeen Motor Car Company, Omaha, Neb., recently shipped two 55-ft. cars to the North Coast Railway, Spokane, Wash., and one 70-ft. car to the Virginia & Truckee Railway.

Lackawanna Steel Company, New York, N. Y., has appointed Arthur P. Van Schaick district sales agent in charge of the Chicago office and territory, succeeding Charles R. Robinson.

Robert Wetherill & Company, Inc., Chester, Pa., have opened an office in New York at Room 2053, Hudson Terminal Building, 50 Church Street, in charge of Robert Wetherill, Jr.

Electric Equipment Company, Philadelphia, Pa., has received an order from the Chambersburg, Greencastle & Waynesboro Street Railway, Waynesboro, Pa., for two 10-bench and one 11-bench open cars for use on its Red Bridge Park extension.

National Brake & Electric Company, Milwaukee, Wis., has made changes in its advertising and purchasing departments, whereby E. Durr has been appointed advertising manager to succeed A. C. Loose, who will have charge of the purchasing department.

Union Spring & Manufacturing Company, Pittsburgh, Pa., has appointed W. F. La Bonta representative, with headquarters in the American National Bank Building, Richmond, Va. Mr. La Bonta was formerly purchasing agent of the Chesapeake & Ohio Railroad.

Power Specialty Company, New York, N. Y., has removed its Chicago office from the Rookery to the People's Gas Building, where larger quarters have been secured for handling the company's increased business. The office is in charge of R. B. Nutting, manager, and R. H. Wyld, assistant manager.

F. J. Angier, who recently resigned as manager of the tie and timber department of the Chicago, Burlington & Quincy Railroad, has accepted a position with the Kettle River Quarries Company, with office in the First National Bank Building, Chicago, Ill. On account of this change, the headquarters of the Wood Preservers' Association, of which Mr. F. J. Angier is secretary and treasurer, will also be in the same building.

Cooper Heater Company, Dayton, Ohio, has been awarded a number of contracts recently. Among them are the following: 25 heaters for the Omaha & Council Bluffs Street Railway, Omaha, Neb.; 8 for the Parsons Street Railway & Light Company, Parsons, Kan.; 5 for the Peoria Railway & Terminal Company, Peoria, Ill.; 8 for the Gary & Interurban Railway, Gary, Ind., and 7 for Lawrence Railway & Light Company, Lawrence, Kan.

Buckeye Manufacturing Company, Anderson, Ind., has built a gasoline motor car, which was recently operated on a test run over 65 miles of steam road, at a cost of $3.74, which includes the cost of fuel and the crew's time. The car ran at a maximum speed of 38.2 miles an hour, and made the trip from Anderson to Lebanon, 65 miles, in 2 hours and 19 minutes. The car wil shortly make a run into Ohio over various steam and interurban lines.

Ohio Brass Company, Mansfield, Ohio, has purchased a controlling interest in the Insulator Pottery, Barberton, which for the past two years has been manufacturing the O-B Hi-Tension porcelain insulators, sold exclusively by the Ohio Brass Company. G. A. Mead, previously chief engineer of the Ohio Brass Company, is in active charge of the pottery. Orders and inquiries will be handled from the main office of the Ohio Brass Company, at Mansfield, as heretofore.

Electric Storage Battery Company, Philadelphia, Pa., has opened two new sales offices, one located at 729 Ford Building, Detroit, Mich., and another at 1424 Wazee Street, Denver, Colo., so that customers in adjacent territory will be better served. A stock of battery material will be carried in Denver, from which orders can be promptly filled. The addition of these offices and the St. Louis Exide storeroom, opened recently at Sixteenth Street and Pine Street, very materially increases the facilities of the company in the West.

ADVERTISING LITERATURE

Frank Ridlon Company, Boston, Mass., has issued its list of second-hand electrical machinery for May.

United Nut Lock Company, Springfield, Mass., has issued a small catalog and price list of "Hugtite" nut and bolt fasteners.

National Machinery & Wrecking Company, Cleveland, Ohio, has just issued a list of new and second-hand steam and electrical machinery.

E. Prouty, Chicago, Ill., is mailing a circular describing the Prouty type of gasoline car. A set of motor specifications accompanies the circular.

Dearborn Drug & Chemical Works, Chicago, Ill., has issued an attractive folder calling attention to its new headquarters in the McCormick Building, Michigan avenue and Van Buren street.

Curtis & Company Manufacturing Company, St. Louis, Mo., operators of the St. Louis Steel Foundry, have published a new catalog, No. 8, showing a large assortment of castings of machinery, electrical, manganese and carbon steels.

R. E. Dietz Company, New York, N. Y., has issued catalog No. 41, which contains complete descriptions of the various types of railway lamps and lanterns which it manufactures. Each description is accompanied by a price list and illustrations in color. The catalog contains 100 pages.

Joseph Dixon Crucible Company, Jersey City, N. J., has published "Graphite" for May, 1910, which contains a brief account of the recent convention of the American Railway Engineering and Maintenance of Way Association. A group photograph taken at the banquet of the association accompanies the article.

McGuire-Cummings Manufacturing Company, Chicago, Ill., has issued catalog No. 120 on sprinkling cars. Each of the three types of sprinklers made by the company is illustrated and described in detail. Tables showing weights, dimensions and areas sprinkled, based on actual tests with the cars operated at different speeds are given. Attention is also called in the catalog to several types of trucks manufactured by the company.

Sprague Electric Company, New York, N. Y., has issued catalog No. 321, in which various sizes and types of direct-current and alternating-current fans are described and illustrated. The company has also issued a 28-page booklet on Sprague flexible steel armored hose for compressed air or steam. Another catalog issued by the company, No. 233, describes and illustrates a few of the types of electric hoists which it manufactures.

W. N. Matthews & Brother, St. Louis, Mo., have printed the second edition of their Telephone Line Construction Book. Besides most of the data which has been retained from the first edition, 13 pages of specifications and diagrams have been added on the subject of interior block distribution and the proper sag for open wire construction. In addition, several new inventions are described, and an article is included by Charles Milan on "The Use of Cable Rollers."