

# Electric Railway Journal

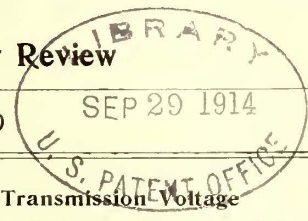
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#### Effect of Raising the Transmission Voltage

The practical doubling of high-tension transmission voltages, made possible through the development of suspension insulators for 100,000-110,000-volt service, promises to have an important commercial effect on existing power stations which hitherto have been outside the sphere of hydroelectric influence. Maximum voltage transmission is a necessity for the hydroelectric promoters because so few of their plants are near industrial centers. The unfavorable feature of this development, so far as the owners of existing steam-power stations are concerned, is that they must compete ruinously with the cheaper power. On the other hand, operating companies can often secure power more cheaply than it can be generated in their own stations, and new railway projects will be encouraged, as no investment will be required for power generation.

#### The Accounting and the Other Departments

The close connection between the accounting and the other departments of an electric railway company is emphasized in a paper presented at the Central Electric Railway convention this week by A. F. Elkins. The developments of the last few years have undoubtedly increased both the actual and the relative importance of the accounting department in the average electric railway organization. Formerly the chief interest of the public and the State in a railway company was with the service which it furnished. Only meager operating reports were required and except in a few States there was but little supervision over the issue of securities. Only a little more importance was attached to the form in which the accounts were kept than if they related to the personal expenses of the president of the company. The function of the accountant, except on the larger roads, was simply that of checking up the receipts and disbursements and tabulating the results when required to do so by the chief operating officials. The changes which have occurred since have been broadly in the best interests of the electric railway companies. We could not return to the primitive methods of the early days, even if we would, but no one wishes to do so. The more attention that is given to detailed costs and statistics of operation and the greater the opportunity of comparison with other properties, the more exact becomes the science of electric railway operation, and upon the accountant rests a large part of the responsibility of providing the basis upon which this improvement can be made.

#### Clearing Right-of-Way

Weeds in summer and snow in winter are persistent bugbears of the interurban section foreman. Of the two, weeds are most exasperating because they require constant attention to keep them down just at the time when work on the track is most urgently needed. If allowed to grow unmolested they soon become a menace to ties and fence posts and a source of con-



stant danger from fire during the summer. One of the largest interurban systems in Ohio solved the problem of relieving the section gangs from the discouraging, because unending, fighting of weeds and snow by arranging with the farmers to do it. Contracts were made with the owners of land along or through which the interurban right-of-way extended to keep a specified section of the right-of-way free from long grass and weeds during the summer and clear of deep snow during the winter, the work to be done under the supervision of the section foremen. For this work a lump sum, agreed upon in advance, was paid regardless of the rate of growth of the vegetation or the severity of the winter. The money was not paid until the expiration of the contract, so that the prospect of future payment was a constant incentive to the farmers satisfactorily to carry out their contract. This arrangement saved money for the company in the end because it took no risks and dispensed with extra section gangs in the summer and emergency help at high wages in the winter. During two severe winters no serious delays to cars were caused by failure of the farmer contractors to keep tracks clear on their sections. In the summer the section gangs devoted their entire time to track maintenance with resulting improvement in the general condition of the roadbed.

#### Making or Buying Shop Appliances

A striking feature of electric railway shop practice is the remarkable diversity in the tools and methods used for repairing and maintaining exactly the same lines of equipment. In a large measure this condition is due to the ingenuity of individual master mechanics who feel that they can save money for their employers by devising their own appliances rather than by purchasing standard devices. This trend evidences a most commendable spirit, but it is proper to ask where the line should be drawn in pursuing a policy of this kind. There are, of course, numerous situations where odds and ends can be used with profit to build shop appliances, particularly in those cases where accuracy, speed and fine machining are of no great importance. Thus, worn steel rails make first-class reinforcing material in concrete construction or they may be made to serve as crane runways; old ties and pole stock can be employed for blocking; cast-off air-brake cylinders and fittings can frequently be used to advantage in making a machine for cutting or bending pipe and bar stock; for intermittent power operations, motors and resistances of bygone periods can be pressed into convenient service at little expense. On the other hand, it is questionable whether it pays a railway company to build such contrivances as commutator slotters and truing devices, coil winders and babbitting molds unless it has the best facilities for accurate machining. Doubtless many of these home devices are doing good work, but their very variety proves that most of them are not giving the best and most economical service. It is but natural that in the long run the best of these inventions should be exploited for general sale with such additional improvements as are due to their being manufactured from patterns and jigs and to the changes suggested by a large body of users. Pride in his own invention should not prejudice a master mechanic against recommending the best thing available. Sometimes the management is at fault in refusing to sanction a direct cash outlay, but more often it expects the master mechanic to prove whether there would be any economy in buying a finished tool if its first cost would exceed that of a home-made article built up of shop scraps.

#### BROADENING THE USEFULNESS OF THE TROLLEY SYSTEM

The close relationship existing between a progressive electric railway system and the public which it serves is a more valuable asset than is sometimes realized in either executive or popular circles. The steam railroads have wrought significant changes in the life of communities which they have entered, but the house-to-house characteristics of the electric line have still more intimately touched the standards of neighborhood existence and scattered provincialism from the routes of traffic. In the country districts this influence has been potent beyond easy measure, and by bringing town and farm closer, and at the same time lowering the cost of transit between the country and the city, the trolley lines have performed an economic service still far from appreciated.

Observation of the results of extending usefulness of electric railways which reach far into the rural districts inclines one to the belief that much yet remains to be done in raising the effectiveness of electric traction as a community force and as a prospering business organization. In many quarters little or no attempt has as yet been made to handle other than a passenger service; the advantages of limited cars, particularly in the summer season, are still to be recognized in many instances; the business-getting results of an established through schedule over lines formerly operated on the step-by-step principle need to be more generally practiced in some localities; and the possibilities of competing with the automobile delivery wagon in the handling of high-class merchandise deserve to be taken into account. The admirable development of a multiple transportation service in some parts of the country may well be followed in others.

The usual headway of 30 minutes to an hour on such systems leaves considerable room for additional service without creating congestion of car movements, and, in general, the spreading of traffic units over a wider time interval accomplishes much the same gain in the system load-factor that the day motor service of a modern central station effects. Anything which tends to substitute the relatively even movement of rolling stock in multiplied units for the use of a few cars operated on a long headway tends to introduce lower costs of power production and distribution, quicken the response of the community to the facilities offered in competition with other means of transit, and diminish the percentage of idle operating time from which rural services suffer so frequently and heavily. Such an increase in the number of car units on the lines cannot be maintained profitably without a liberal supporting traffic, and in very sparsely settled territory with few large towns at the central points probably little can be done to multiply the established service without danger of overburdening expenses. It is not so much along the line of decreased headways in any given type of service that improvement may be expected as in broadening the facilities of the electric railway in such a manner as to fill up the hollows in the hourly earnings curve.

In some of the most thickly settled suburban districts of the country the handling of milk and garden products from the farms into the city is at present done by cumbersome and expensive methods which might well give way to electric railway service during the small hours of the night and early morning when traffic is at its lowest ebb. Combining this class of business with the outward delivery service from the city into the suburban and rural tributary regions would greatly increase the



earning power of many properties which now derive little benefit from any except passenger travel. The operating economies of all off-peak service are more important than is frequently recognized. The handling of mail is another branch of rural service which emphasizes the usefulness of the trolley, and the creation of a popular demand for transportation outside the hours when the equipment is normally taxed to its utmost capacity is a step in the right direction. The gist of the whole matter is that there are innumerable points of contact between the public and the street railway system, and that many of these can more or less completely be turned to account in developing business which comes outside the hours when the strain upon the road is the heaviest. The consumer of the future will be brought into closer touch with distant centers by the trolley service than obtains in many present cases, and the mercantile districts will profit correspondingly from the extension of facilities which tap a larger purchasing area.

### THE UTICA TROLLEY TRIP

We can see considerable possibilities in the way of trolley trips similar to that completed this week by a number of business men of Utica. The excursion lasted just 14 days and included several of the most important cities of the Central States, such as Cleveland, Detroit, Toledo, Indianapolis and Louisville. Its primary purpose was to advertise Utica as a desirable location for factories, to make new business connections and advance the interests of Utica generally. But we do not see why, as this trip was successful, it should not be the precursor of others of the same kind or for any purpose, where the tourists wish to see more of the country through which they are passing than is possible through the windows of a steam train. The car used weighed 40,000 lb. and trouble with clearances was encountered at only one point. This was at a low bridge, but by manipulation of the trolley pole the difficulty was overcome.

The success of the Utica method of booming is attested by recent statements to the effect that a similar trip will be undertaken by members of the Indianapolis Trade Association. The latter intend to visit 32 towns in cities in Northern Indiana and will, according to the reports, travel with a printing press which will be set up in the baggage car of the train so that circulars and other literature can be promptly issued, inviting local merchants to visit Indianapolis during Buyers' Week in June.

The connection of the various networks of interurban electric railways in the Central States makes trips of this kind practicable to an extent which does not exist elsewhere in the country. The through operation of private cars to meetings of the Central Electric Railway Association, which has been a feature of the meetings of that organization, has made a knowledge of these through routes general and has, undoubtedly, been a large factor in interesting the general public in trips of this kind. There have also been instances where similar excursions have been organized by agricultural colleges to educate the communities along the different electric railway routes in scientific farming, and by political spell-binders to instruct the voters before an election as to the issues of a coming campaign. We hardly know where to set a limit on these modern pilgrimages.

### WATCHING THE EXCURSION PARTIES

The passenger agent of an electric railway company which desires to encourage a special-party service, would do well to study the sales methods of the retail merchant. He will learn that the salesman who seriously attempts to encourage regular trade lives up to the saying that a satisfied customer is the best advertisement. He will also find that to attract a customer the goods displayed must fully meet the promises of the advertisement. They must be offered for sale in a courteous way and, if sold, must be delivered at the promised time. Any electric railway passenger agent or traffic manager may safely apply to his own field these methods which get substantial results in the commercial world. When the passenger department has closed a bargain for the handling of a special party it should not think its work is practically concluded after the trainmaster has been given a memorandum of the time of starting and leaving, otherwise the operating department will carry all of the responsibility for making good the passenger traffic solicitors' promises. The operating department usually has its own troubles in securing equipment, crews and running time for special trains; and while undoubtedly it will do its best to fulfill the schedules, it has been known to follow them so rigidly that the party for which a special train was run has been seriously inconvenienced. It is the duty of every member of the operating organization to follow his instructions to the letter, and, usually, these instructions cannot be changed on the spur of the moment or without consultation with headquarters. There are so many ways in which an excursion or special party can be favored at no cost or serious inconvenience to the railway company, it is very advisable for the traffic agent who has solicited the special party to see that everything goes off smoothly, even if he or a representative from his office has to spend part or all of the day with the road's customers to be sure that the service fulfills all expectations.

In this connection we have in mind the practice of the traffic officials of the Chicago, Lake Shore & South Bend Railway to have one representative of the traffic department ride over the road with all excursion parties. Often on such occasions it has been found that a considerable favor can be done for a large number of patrons, either by rearranging the schedule and affording a stop-over at some point of interest, or by postponing the return trip for an hour or so, just to make the day's outing on the electric line one that will be remembered with pleasure. Such favors from a railroad are quickly recognized and appreciated and the number of satisfied customers and boosters is increased. It is the practice on the road mentioned for the representative of the passenger department to report fully to the general manager regarding the apparent success in the transportation furnished each special party. Such reports should be in the form of constructive criticisms so that the general manager will know the weak details of the service that might profitably be rectified. If the representative of the passenger department will mingle with the excursionists so that he can be certain that the road is delivering good service on time as promised, and when the trip is over will write out a full and unbiased report of his observations, possibilities for improvement will be immediately evident.



## ELECTRICAL DEPARTMENT OF THE METROPOLITAN STREET RAILWAY, NEW YORK—II

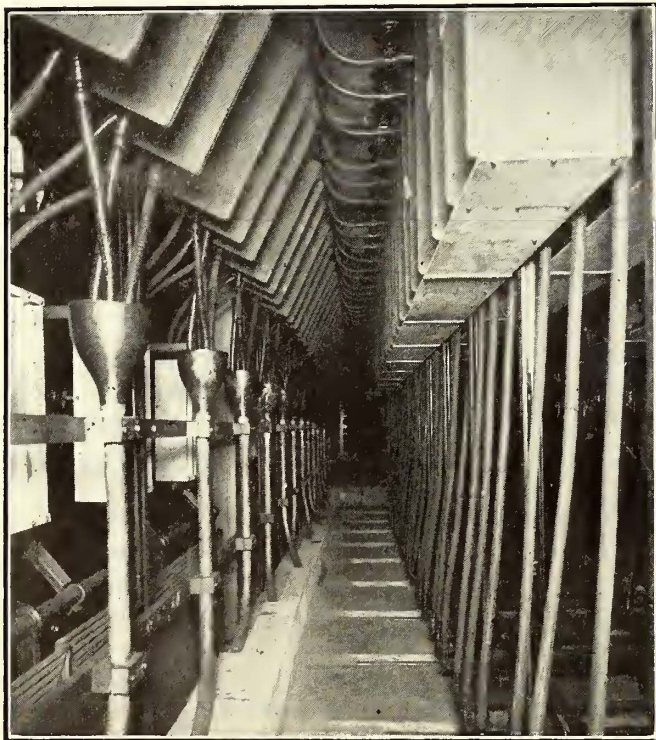
The first portion of this article as printed in the May 21 issue of the *ELECTRIC RAILWAY JOURNAL* described the steam generating improvements at the Ninety-sixth Street power station, high-tension betterments and substation changes. The following paragraphs complete the account of the electrical department.

### THE NINETY-SIXTH STREET POWER STATION SWITCHBOARD RECONSTRUCTION

Equally important changes are under way in the switchboard and wiring at the Ninety-sixth Street power station. The situation there before this work was begun was not greatly different from that which might be expected in a station built 10 years or so ago, and not subsequently brought up to date. All of the switchboard galleries were congested to their utmost capacity. The control wires for the oil switches, current transformers, potential transformers, etc., were crowded into a cable well so that there was liability of injury to all in case of a single

following: The high-tension feeders were so arranged in the cable wells that they could be installed in clay ducts when they reach the feeder oil-switch gallery. The individual feeders were carried in clay ducts to the respective switches, to which they were connected. In this way each feeder was insulated from an adjacent feeder, reducing the effect of a breakdown to one unit. High-tension knife switches were installed between the end of each feeder and its oil switch, and between the oil switches and the a.c. bus to isolate completely the feeder and the oil switch during testing and repairs. The result of this improvement is the reduction of labor in cutting off a feeder from its oil switch, in disconnecting an oil switch from the bus or a feeder for repairs, and protection to the employees. Formerly repairs could be made only when the load on the stations was light, namely, between midnight and 6 a. m., when it was possible to make part of the bus dead.

The oil-switch mechanism and framework were also completely reconstructed. Shutdowns had occasionally resulted from the power jumping from the oil pots to the iron framework in the base of the switch. The breaking-down and the short-circuiting of a switch due to this cause has been prac-

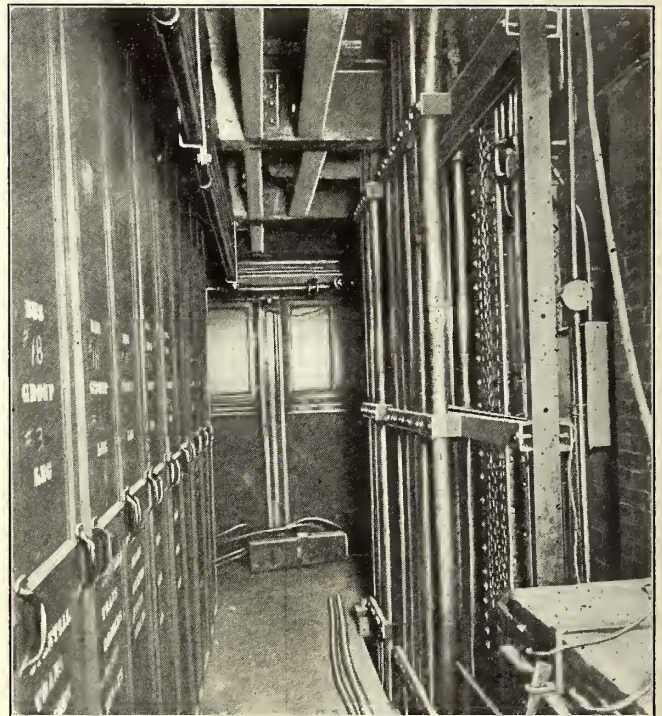


Metropolitan Electrical Department—High-Tension Feeders at Ninety-Sixth Street Power Station

burn-out. There was also considerable crowding of the control wires where they terminated under the two control boards. The high-tension wiring ran directly from the a.c. buses to the oil switches.

The management at first thought that it might be possible to install porcelain insulators on the individual wires, and separating the wires as far as possible, thus reducing the liability of one wire being affected by the breaking down of another. But further investigation showed conclusively that the reconstruction and complete overhauling of all the switchboard apparatus and appurtenances were necessary. Plans were drawn up for this work, in conjunction with one of the large electric companies, and the latter was then requested to submit a bid on the plans which had been decided upon. Its proposal amounted to approximately \$100,000. As this price was too high, the general manager directed the Metropolitan's engineers to work out plans for a more economical, yet safe reconstruction. The new plans resulted in reducing the cost by approximately one-third.

The reconstruction covered by the revised plan embraced the



Metropolitan Electrical Department—Cable Run and South Section of Bus Compartments Under Construction

tically eliminated by reconstructing the iron framework in each of the cells to give a much greater clearance between the live copper and the framework. The top of the switch has been rearranged so that the switch, when thrown in or thrown out from the control board on the lower gallery, remains in the position to which it is thrown. Prior to the reconstruction of this switch, any disturbance on the control circuit or lowering of its voltage would cause all the station switches to open, thereby shutting down the station. Now when any disturbance occurs on a particular control circuit, or on the power cables running to and from the oil switch, the oil switch thus affected automatically cuts itself free from the power supply.

The auxiliary or control switches for operating the oil switches, which are located on bench boards in the operating gallery, have also been rearranged. To separate the wires running from the oil switches, etc., to the control switches, it was necessary to increase the distance between the respective control switches. In doing this, the switches were arranged to indicate whether the particular oil switches with which they were connected were cut in or cut out of circuit. A diagram of



the power circuits was placed on each bench board to indicate just how each switch is connected with respect to the bus and the feeders, and an arrangement also was provided whereby the switches are shown in and out of service. Red and green bull's-eye lamps are used for the tell-tales.

The control wires are being replaced by new four or six-conductor cables in a metal conduit carried from the oil switches to control switches and instruments on the operating gallery. Should this piped multiple conductor break down it will be necessary to pull out and replace only the cable affected. The liability of interrupting other circuits will be practically eliminated, as each burn-out will be confined to one part.

A.C. COLLECTOR RINGS ON ROTARY CONVERTERS

A great deal of trouble has been experienced from the effect of the copper brushes on the a.c. collector rings of the rotary converters. These brushes would cut grooves in the rings, and then, unless the rings were turned down, splinters from them would fall across adjacent rings and short-circuit the rotary, notwithstanding the fact that care was observed in cleaning the rotaries and in blowing them out so that the dust would not be carried into the windings. Short-circuits between the rotary rings were often caused also by the copper dust from the brushes and rings. These troubles have been eliminated by using carbon instead of copper brushes on the a.c. collector rings. The practice proved so desirable that the next set of specifications drawn for the purchase of three new rotaries contained the provision that the a.c. rings should have carbon brushes. This was such a radical departure from the then existing general practice that it was some time before the contractors agreed to comply with it. Shortly after this one of the old rotaries was equipped with a set of carbon brushes and put into regular service. This rotary has now been operating over 16 months with entire satisfaction. The three new rotaries equipped with carbon brushes have been in operation about two years. The use of carbon brushes has also greatly increased the life of the rings.

Formerly the average life of the collecting rings on a converter was estimated at from 9 to 10 years. With the carbon brushes it should be three times as long. The danger from

in all of these cases the automatic devices operated satisfactorily in cutting the power off the main bus.

One result of the rehabilitation which has been carried on during the last two years is shown by the following tabulation indicating the number of times that the continuity of service in a substation or the main station has been interrupted during the four years ended Sept. 24, 1909. This period is taken because it shows the situation during the two years prior to the receivership and the two years subsequent thereto:

INTERRUPTIONS TO METROPOLITAN POWER DISTRIBUTION SYSTEM

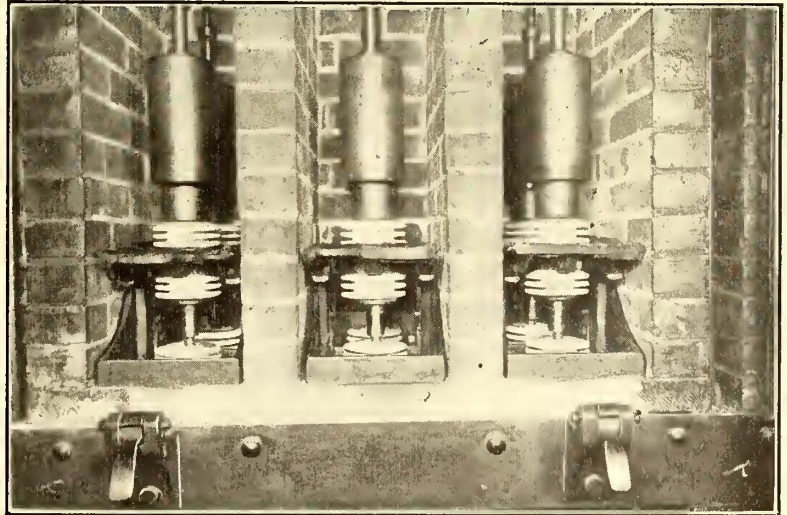
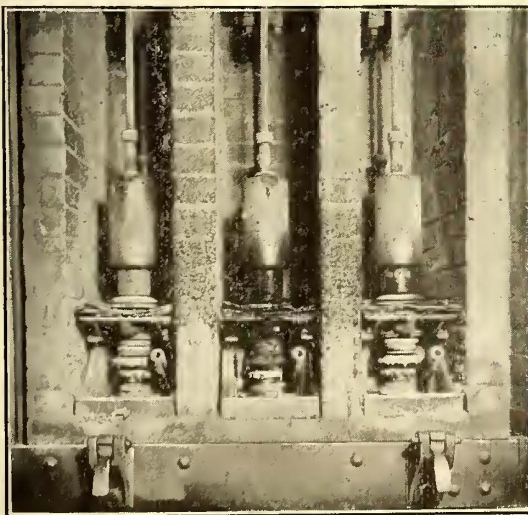
Year ending:	Power station		Substations	
	Number of times out.	Minutes out.	Number of times out.	Average minutes out.
Sept. 24, 1906.....	1	135	58	19.8
Sept. 24, 1907.....	1	28	46	17.8
Sept. 24, 1908.....	1	16	51	8.2
Sept. 24, 1909.....	1	4	36	11.8

On more than one-half of the occasions when the continuity of service in power stations or substations was interrupted the trouble was due to causes outside of the stations themselves. If two substations were affected at the same time due to any cause, such condition is considered as two substation interruptions in the record.

FEEDER DEPARTMENT

The feeder department of the Metropolitan Street Railway Company installs and maintains all the cable and appurtenances of the feeder system. Emergency crews are used to get lines in operation in the shortest possible time after any troubles occur on the feeder system. For this purpose switch boxes are installed in the manholes for transferring sections of lines to different feeders and substations so as to keep the line in operation until repairs are made. The load transfer switches are also used when abnormal loads occur at a substation or when substation units fail. Special men are detailed for general inspection and repairs requiring the splicing of cables, drawing cables in ducts, erecting them in manholes, placing covering on the cables and bonding and grounding them in the manholes.

All cable is purchased in accordance with standard Metropolitan specifications, and is thoroughly inspected both at the factory and after delivery. All ducts are bought on specifica-



Metropolitan Electrical Department—Old Short-Circuited Oil Switches and the Design with the New Terminals

grounds and short-circuits on the collector rings also has been practically eliminated by using carbon brushes.

POWER STATION INTERRUPTIONS

During the last 10 years the service continuity of the Ninety-sixth Street power station has been interrupted but 12 times, and the average length of these interruptions has been only 31 minutes and 35 seconds. The longest interruption lasted 135 minutes and was due to the bursting of a defective steam valve. Eliminating this exceptional case, the average length of the other shutdowns was approximately 20 minutes and 20 seconds. Some of these interruptions were due to construction work, but

and are inspected on delivery; and during the laying of a standard mandril is used to see that the holes are straight, smooth and large enough. Other electrical apparatus is also inspected by this department, as are the construction of manholes and all other work affecting the installation of feeders.

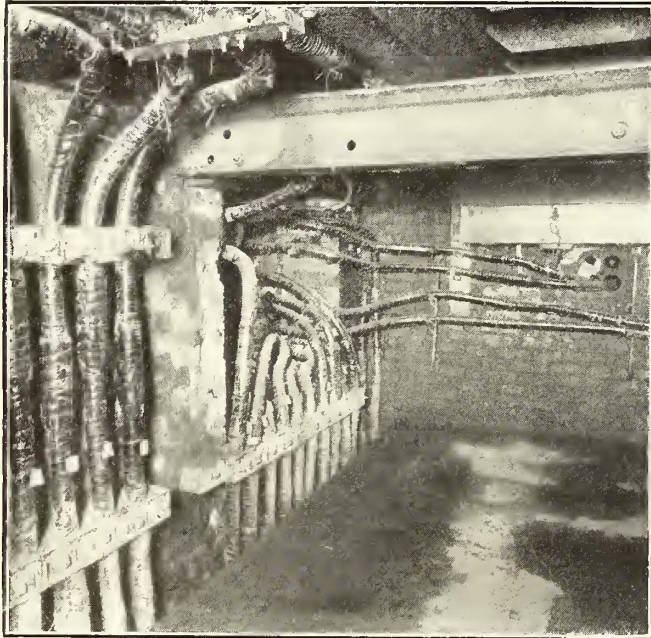
FEEDER RECONSTRUCTION AND NEW CONSTRUCTION

Considerable changes and additions of new cable have been made in the feeder system because of increased service on the various lines, and the removal of the substation machinery from Front Street to Houston Street. The more important changes have been as follows:



The Fourteenth Street line has been divided into three sections and increased by approximately 16,720 ft. of 1,000,000 circ. mil cable. The Avenue A route, which is the only outlet for the Brooklyn service over the Williamsburg Bridge, has been segregated and increased by approximately 14,000 ft. of additional feeders. The Eighth Street line has been reinforced by approximately 18,000 ft. of additional cable. In the upper part of Lexington Avenue, which had been carried only on the conductor rails, ducts and approximately 7200 ft. of 500,000-circ. mil cable have been installed. The change in route of the Sixth and Amsterdam Avenue and Broadway cars from Fifty-ninth Street to Fifty-third Street necessitated the installation of a separate feeder for the Fifty-third Street line, which was approximately 9390 ft. of 1,000,000-circ. mil cable.

The upper West Side near the Hudson River, viz., Eighth Avenue and 116th Street, was so greatly increased and improved with cable that there was not a single tie-up in the entire operation of the extraordinary service required for the Hudson-Fulton celebration in October, 1909. Extra capacity was also required for the operation of the original Madison Avenue pay-as-you-enter cars now used on these lines. About 87,000 ft. of 1,000,000-circ. mil cable was installed on Eighth



South Side of Manhole at Twenty-Third Street and Fourth Avenue.

Avenue (Fifty-ninth Street to 150th Street), 116th Street Crosstown and Lenox Avenue. The pay-as-you-enter cars on Madison Avenue required the installation of approximately 8500 ft. of feeders. The Broadway line, between Thirty-fourth and Forty-second streets, has been equipped with additional feeder of approximately 8600 ft., and the Twenty-third Street Line with one of about 11,000 ft. In all, the length of additional feeders installed since the appointment of the receivers amounts to 170,400 ft., and the length of feeders removed and installed in connection with reconstruction work amounts to 623,000 ft., making a grand total of 803,410 ft.

#### FEEDER DEVELOPMENTS AND IMPROVEMENTS

Many of the feeders in manholes over the principal power cable routes have been covered with an asbestos and fireproof coating. This has greatly decreased the number of burn-outs, as is shown by comparing the amount of burn-outs before and after this change began:

Year.	Cables lost in manholes (no protection).	Cables lost in manholes (protected).	Number of cables lost in manholes (partly protected).
1907.....	202	1	..
1908.....	92	1	..
1909.....	49	..	23

The net saving in maintenance effected by this reduction amounted to from \$15,000 to \$25,000, to say nothing of the ad-

ditional revenue derived through the continuity of the service.

The cable protection now used is the result of six months' experimenting which was performed to develop some form of fireproof and waterproof protection. The usual form of protection is that of asbestos wrapped around the cable and held in place by wire. The main objections to this method are that it is not waterproof and in case of a manhole burn-out a wire wrapped spirally around the asbestos tends to carry the arc to the cables running into the ducts leading from the manhole. The Metropolitan company's method is to saturate asbestos, cut to the proper size, in a fireproof compound. The asbestos thus saturated is wrapped around the individual cables and tied in place with ordinary twine or cord. When this is accomplished, another coating of the fireproof compound is applied with a brush. The asbestos saturated with the compound hardens within a few hours. The compound so applied to the asbestos is to some extent soluble in water, and consequently a waterproof compound must be added. The latter prevents the fireproof compound from being dissolved by water in the manhole.

All the positive cables are tagged with an odd number stamped on a special-shaped brass tag fastened with a lead seal. The negative cables are tagged with an even number on a differently shaped tag similarly sealed. Any tag will become covered with mud and must be rubbed off, but by using different shapes on positive and negative feeders one-half of the search for a defective cable is eliminated. As far as possible positive feeders are placed in the west and north ducts relative to the negative of the same section. This also is of considerable advantage. It is of the utmost importance to know which cable is being cut, as all the splicing work is done on live cables. The fact that the Metropolitan has never had a splicer in the hospital speaks for itself.

Many of the manholes have been enlarged because there was insufficient room properly to hang, support and care for the increased number of feeders. Seventy-five such manholes have been so enlarged and the enlargement of 50 others is now being considered. This change greatly reduces the danger of accidents to workmen, and in case of trouble in the feeder system, the manholes are cleared quicker and at less expense. The original lumber supports for the cables and hangers have been replaced by iron racks bolted to the brick wall. Many of the cables originally ran straight across manholes, obstructed passage and were subjected to abuse by being stepped upon by men in going up and down the manholes for cleaning. These cables have been pieced out around the enlarged holes, protected and supported in first-class shape.

The present method of keeping water out of the switch-box legs is to strip back the lead for a short distance from the terminal on the end of the cable. The cable adjacent to the terminal, and where the cable insulation was removed, is then filled with solder and the portion of the cable between the terminal and the lead sheath is well protected with insulating tape. Over this tape is installed a rubber sleeve which extends back from the terminal over the top of the lead sheath. Lately an additional protection to keep out moisture has been installed adjacent to the terminal. This consists of a slightly tapered collar soldered to the terminal and protected with insulating tape.

#### LINE DEPARTMENT

The line department maintains, inspects and installs all conductor rails, bonding, conductor-rail equipment and connections to conductor rails of equalizers and feeders. It also operates and maintains the emergency wagons, has charge of the private telephone system, etc. The principal maintenance items of the conductor-rail system consist of repairing and renewing conductor rails, bonds, insulators, insulator pins, conductor-rail pins and brackets, taps of equalizers and feeders to the conductor rails. The total amount of single-track construction cared for is about 130 miles, not including the car-house mileage.

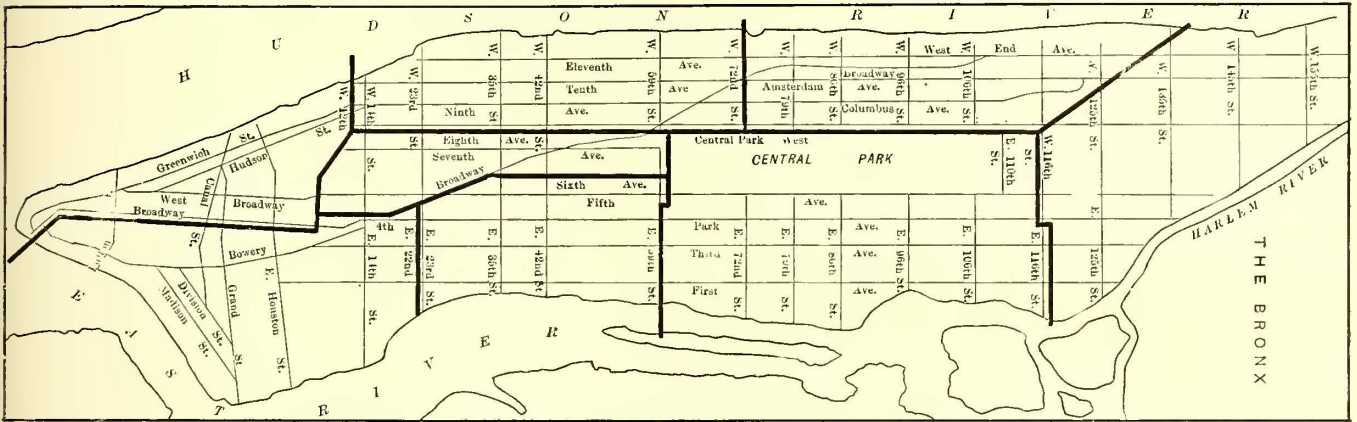
The line department has emergency wagons at central points of the eight sections into which the city is divided, as shown in the map on page 935. The emergency crews are made up



of men who have had considerable experience not only in the work of the line department, but who also have a thorough knowledge of the feeder and power systems and are acquainted with all the car equipments. The wagons are equipped with wrecking materials of all kinds, including devices for making temporary repairs on cars, removing broken-down horse trucks or other obstacles blocking the tracks. Among the troubles which the emergency wagons handle are: Collisions between cars or between cars and horse trucks; car trucks off tracks; contact plows jammed in tight slots; broken plow suspensions or broken trucks caused by the plows taking the wrong slot at

man patrols each section to report all troubles occurring within his beat.

The line department has charge of the electric track switches, of which 32 are installed at present. The operation and maintenance of the two private telephone switchboards located at the Ninety-sixth Street power house and at the Lexington building come under this department, also all telephones on the private system, except those located in the Fiftieth Street building. Several miscellaneous items are handled by the line department, such as the supply and maintenance of stand lights. These stand lights are used temporarily for lighting where



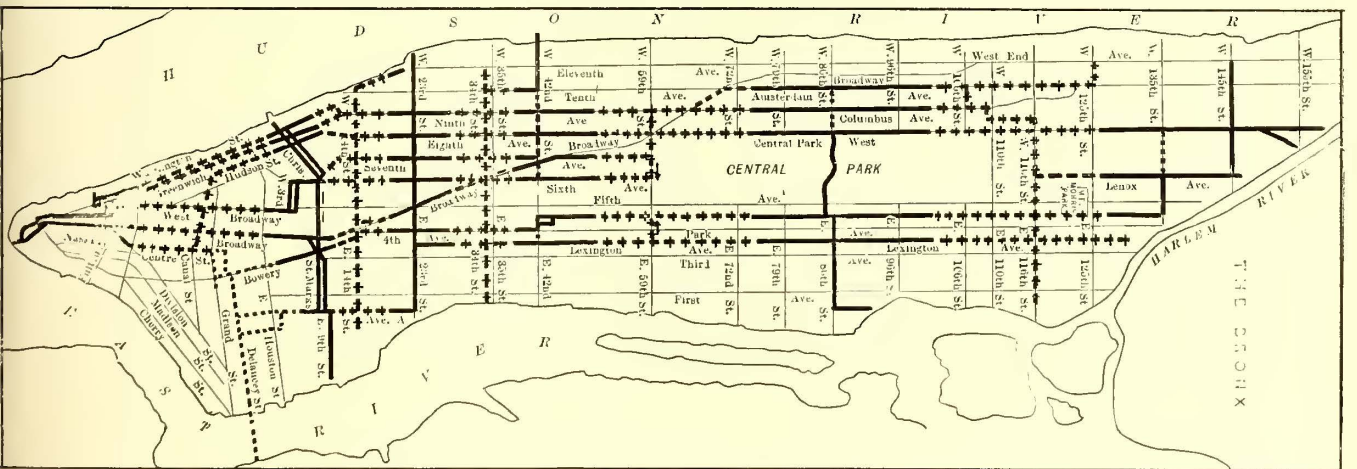
Metropolitan Electrical Department—Division Into Line Sections

switches; parts of equipment of cars falling on pavement; grounded plows; taking horses out of excavations and man-holes; short-circuits across the rails which are frequently caused by boys putting a wire or other metal in the slots, or by rail burnouts, grounded plows, and tubing; feeder trouble; and the closing of switch boxes. Extra assistance may be obtained by calling through the report clerk upon emergency wagons from other sections, upon the different gangs of the line department, or upon men from any of the other departments as may be necessary. Where fire hose is run across the tracks, the emergency wagons clear the lines by raising the hose on tripods to permit the cars to pass. When the snow schedule is in effect during snowstorms, extra emergency wagons are put into service to take care of the increased number of calls. The average

required on repair or other work of the different departments. CONDUCTOR RAILS, INSULATORS, ETC.

All conductor rails, insulators, and other equipment are ordered in accordance with standard specifications and are tested and inspected at the mills and upon delivery. Changes have been made within the last two years in the composition of the conductor rails; they are harder than the old rails. During this interval the conductor rail renewals have approximated 47 miles of single track, or about 36 per cent of the total trackage of the system. Before the close of 1910 approximately 74 miles of single track, or 60 per cent of the entire system, will have been thus renewed.

The general method by which the upkeep of the line has been carried on in the past two years is a combination of re-



Metropolitan Electrical Department—Division Into Patrol Sections

number of emergency wagon calls during the last six months was about 550 per month.

As shown on one of the accompanying maps, the city is divided into eight line sections. One gang is assigned to each section to maintain conductor rails and handle all troubles within the section. During snowstorms these section gangs do extra duty in inspecting and keeping the lines clear of snow troubles. An additional feature is that of dividing the city into 19 patrol sections during snowstorms, as shown on another map, and which was first put into use a year ago. One

construction and maintenance. Rails taken from a reconstructed section are re-used where possible.

LIGHTING DEPARTMENT

The lighting department maintains the lighting systems throughout all the company's properties, and all the telephones in the Fiftieth Street building. Considerable work has been done in improving the lighting of the different buildings and in several properties entirely new systems have been installed.

GENERAL ENGINEERING DEPARTMENT

The general engineering department handles engineering



matters pertaining not only to the electrical department but also in certain instances to other departments of the system. It makes detail plans for all reconstruction and new construction, tabulates data, prepares estimates and tests most of the material and apparatus installed by the electrical department. In this connection it might be said that the investment made in conducting tests has proved well invested. Impact and absorption tests are made of all insulators. This work was started over two years ago, and has been carried on steadily since that time. It will be understood from the foregoing that this department, in addition to handling general engineering work, has also been developed into a testing bureau.

**SPECIAL INVESTIGATIONS**

In addition to testing material purchased the department often conducts special tests to obtain certain data. Thus, after a change in the operating schedule, readings were taken at the different substations on the various feeders to obtain the amount of current delivered to the various feeders every minute. At the same time voltage readings were made at the station and along different points on the line, and simultaneously records were made of the number of cars and approximate passenger loading on the sections under observation.

On other occasions tests were made on different types of cars and equipment to obtain the following information: Power consumption in kw-hours per car-mile, per ton-mile, per passenger-mile; total passengers per car during the day of test; total passenger-miles during day of test; average travel of each passenger in miles; weight of car per passenger carried; total number of stops per mile; total time of stops; average time per stop in seconds; average speed. Tests were also made of different types of cars with different styles of trucks and equipment, the car being loaded with sand equal to various passenger loads. These trials were conducted on both dry and wet tracks, as follows: First, the cars were operated as in regular service, and determinations made of the acceleration, deceleration and shortest emergency braking distance without spinning and skidding of wheels when operating at various speeds up to maximum. Tests were conducted on different types of equipment to find the temperature rise of the several parts of the motor after operating under regular conditions for 10 hours.

The equipment tests mentioned were made to ascertain the relative power consumption of the different weights of cars per passenger carried. They showed that the "weight per passenger carried" was greater in the long than in the shorter cars and that if power consumption and track maintenance are taken into consideration the cost of operation per car increases very rapidly with the weight of the car.

**PRIVATE TELEPHONE SYSTEM**

Plans have been prepared and an installation is under way for the centralizing of the private telephone system at Fiftieth Street and Seventh Avenue, thus eliminating the private telephone switchboards at Twenty-fifth and Ninety-sixth Streets. The new board will be in the same room with the public telephone switchboard, and connected to it by the tie lines. Hereafter all calls on the private system will pass through but one board, so no time will be lost in connecting the different exchanges. All substations will have a direct line to the high-tension gallery at Ninety-sixth Street and First Avenue. When the new system is complete one chief operator will have charge of all the operators.

**MISCELLANEOUS**

Many miscellaneous improvements have been made such as designing metal boxes to replace wooden lockers for the storage of tools and material and the publication of a book of general rules for the guidance of the men handling the electrical apparatus and feeders. In conclusion mention

should be made of the chemist whose chief work is the analysis of coal, ashes, flue gases, etc. Other analyses conducted by the chemist have been of rubber used on insulated wire solder, babbitt metal, etc., to ascertain if they are in accordance with the specifications.

**SOME INTERESTING BLANK FORMS OF SMALL INTER-URBAN RAILWAY COMPANY**

The Indianapolis, Crawfordsville & Western Traction Company connects the cities included in its name with a well-built interurban line. The company owns 10 large interurban cars which make the 45-mile run between the terminal cities in 1 hour and 35 minutes on limited schedule, and in 1 hour and

Form No. 1000 9-10

INDIANAPOLIS, CRAWFORDSVILLE AND WESTERN TRACTION CO.  
COMPARISON OF EARNINGS

	1910	1909	INCREASE	DECREASE	PER CENT
DAY					
PASSENGER					
FREIGHT					
TOTAL OPERATION					
OTHER SOURCES					
TOTAL					
MONTH TO DATE	DAYS				
PASSENGER					
FREIGHT					
TOTAL OPERATION					
OTHER SOURCES					
TOTAL					
YEAR TO DATE	DAYS				
PASSENGER					
FREIGHT					
TOTAL OPERATION					
OTHER SOURCES					
TOTAL					
SPECIAL EVENTS					
1910	WEATHER	1909	TEMPERATURE		
1909	1908	1907	1906		

COMPARISON FOR DAY MADE WITH CORRESPONDING DAY OF WEEK LAST YEAR

**Ben Hur Route—Daily Comparison of Earnings**

50 minutes on local schedule. This road, locally known as the "Ben Hur Route," is under the management of C. E. Morgan whose offices are located in Crawfordsville, Ind.

Form No. 1000

INDIANAPOLIS, CRAWFORDSVILLE & WESTERN TRAC. CO.  
"BEN-HUR ROUTE"

MONTHLY POWER STATION REPORT. MONTH OF \_\_\_\_\_ 19\_\_

COAL						REPAIRS	
NAME	POUNDS ON HAND 1ST OF MONTH	POUNDS RECEIVED DURING MONTH	POUNDS USED DURING MONTH	COST COAL USED	STOCK LAST OF MONTH		
						Repairs of Steam Plant.....	\$.....
						Repairs of Electric Plant (Power House).....	
						Repairs of Sub Stations.....	
						Power Plant Wages.....	
						Sub-Station Wages.....	
						Fuel.....	
						Lubricants and Wastes.....	
						Miscellaneous Supplies and Expenses.....	
						Hired Power.....	
						Total Cost of Operating.....	\$.....
						Output in A. C. K. W. Hours.....	
						Output in D. C. K. W. Hours.....	
						Per Cent. Loss.....	
						Cost per K. W. Hour.....	
						Coal per K. W. Hour.....	
						Total Car Miles.....	
						K. W. per Car Mile.....	
						Cost per Car Mile.....	
						MISCELLANEOUS CHARGES	
						REMARKS	

CREDIT FOR POWER FURNISHED

TO..... K. W. HOURS..... COST \$.....

NOTE: UNDER HEADING "COST COAL USED" GIVE PRICE PER TON

CHIEF ENGINEER.....

**Ben Hur Route—Monthly Power Station Report**

The reproduced blank forms here shown are presented because they satisfactorily fill the needs on the Ben Hur property, and because their arrangement may be of value elsewhere on properties of similar size.







The large Snelling Avenue repair shops of the Twin City Rapid Transit Company were illustrated and described in the *Electric Railway Review* for Oct. 14, 1907, and the *ELECTRIC RAILWAY JOURNAL* for Oct. 10, 1908. The buildings first erected included a machine shop 200 x 150 ft., a smith shop and boiler house 50 x 300 ft., a foundry 60 x 200 ft., mill shop 75 x 200 ft., paint shop 126 x 300 ft., and a dry kiln. Since the time of the first description a storehouse 300 x 120 ft. has been completed and now a shop for repair work on all equipments, except passenger cars, is under construction. In erecting this structure it is planned to provide a shop building in which repair work of all kinds can be done on all of the special rolling stock equipment owned by the company. This will provide against taking miscellaneous equipment into the regular car houses and thus will not permit delaying work on the regular passenger cars. After the completion of the new shop it will be possible to keep all miscellaneous equipments out of the paint shop. This so-called "general" repair shop is 90 x 122 ft. in size and, like all the other buildings in this large shop group, is of fireproof construction and is designed for extension.

The track capacity of the new shop will be sufficient for 11 large cars, and in designing the structure special attention has been given to the provision of ample drainage and heat, so that snow and ice may quickly be removed from sweepers and other special equipments. The interior of the building is lighted from the north by skylights. The tracks, for one-half their length from the entrance doors, will be provided with pits; the other half of the track space is floored over and will be used for carpentry, painting, etc. The building will have two overhead cranes of 15 tons capacity each, so arranged that they can be used to raise the bodies of any of eight cars. A small store room and an oil room are being built in connection with this structure. It is planned to install a waste-reclaiming apparatus.

The earlier description of the Snelling Avenue shops included floor plans of the steel and gray iron foundry, which is now being made ready for use. This building is 200 ft. long by 91 ft. wide and is subdivided into two sections; one 60 ft. wide, which is open to the roof and serves as a general molding and pouring floor; the other 31 ft. wide, which is two stories high and contains the storage spaces and miscellaneous foundry equipment. A single track enters the main section of the building, terminating under a 10-ton traveling crane which spans the entire foundry floor.

The principal equipment on the first floor of the new foundry will include two size 3½ cupolas and a 2-ton open-hearth steel converter manufactured by the Whiting Foundry Equipment Company, Harvey, Ill. The cupolas and converter will deliver hot metal into large ladles which in turn will be handled by the overhead crane serving the molding floor. The ground floor of the two-story section of the foundry is made up of a row of rooms interconnected by an industrial railway track and all opening onto the main room of the building. With the industrial railway it will be possible to transfer heavy parts and foundry supplies such as sand, iron, etc., to any part of the building and to storage yards located outside. The industrial track leads over the platform on an elevator by which a car may be raised to the charging floor.

The row of smaller rooms opening off from the main foundry room includes a brass foundry with four crucibles sunk below the floor level, and a large air-blast crucible. Storage space is provided for sand, coke and pig-iron, both inside the building and outside. The sand room is reached by the industrial railway and its equipment includes a motor-driven sand mill. The core room and its oven will be served by a steel car which will expedite the handling of cores between the molding tables and the oven. A cleaning room is to be equipped with grinders, a tumbler and a cold saw, all driven by electric motors. On the second floor is a large pattern room and the charging room for the cupolas. A motor-driven rotary blower serves the two cupolas and another similar blower driven by a 70-hp motor furnishes air for the converter.

When this foundry equipment has been installed it will be possible for the Twin City Company to manufacture all of the brass, iron and steel castings required for construction and maintenance use.

NEW STORE HOUSE

The new storehouse shown in the original plans of the Snelling Avenue shops, has recently been completed. This is a fireproof building 120 x 300 ft. in ground dimensions, having three floors. The construction of the building required 600 tons of structural-steel columns, girders, beams, etc., all of which was fabricated in the nearby car-building shops of this company. The steel window frames and the steel shelving and storage boxes also were built by the railway company. The new structure provides fireproof storage for the supplies of the entire railway system. The building may be reached by a steam railroad track along one side and by two trolley tracks leading to the shop transfer table.

COMPLAINT SLIPS

As the conductors are the only employees of an electric railway company with whom passengers have direct dealings, many of them thoughtlessly are held by the public responsible for the adoption of every rule of the company. It often requires considerable explanation on the part of the conductor, especially when a new transfer system or other regulation is introduced on a

**TO OUR PATRONS**

THIS CONDUCTOR IS

Governed by Rules he is NOT Authorized to Change

In case of dispute KINDLY PAY FARE and send complaint with this card to the Superintendent for adjustment, Utica, N. Y. Phone 1978.

U. & M. V. RY. CO.

This Conductor's No. is.....

line, to make it clear to passengers that the conductor has to comply with the rule and is powerless to change it. To assist conductors in their dealings with argumentative passengers, the Utica & Mohawk Valley Railway Company has recently supplied its conductors with small blank books containing slips which can be torn out and handed to the passengers. The wording on these slips is reproduced in the first of the accompanying engravings and is self-explanatory. The second engraving is a reproduction of the form which the conductor himself fills out, in case of a dispute with a passenger, and files at the main office.

As the wording on the slip handed the passenger is politely expressed and as it gives the patrons tangible evidence of the fact that the company is willing to consider all complaints the slips have been very favorably received by the public. The records of the company show that over half of these slips issued by conductors are never returned to the main office, indicating that the passengers in one-half of the cases, on thinking the matter over, have concluded that their complaints were unjustified. The first blank has been in force since Jan. 1, and the second since Feb. 1 of this year.

Date.....

..... passenger on

..... car

gave me transfer No. .... issued

by Conductor No. .... from

..... line

to ..... line,

punched ..... M. I refused to accept same and passenger paid fare.

Passenger's name

Witnesses

.....

.....

.....

Conductor No. ....

New Orleans is making a vigorous campaign for selection as the site of the World's Panama Exposition in 1915. It claims to be much nearer the Panama Canal than San Francisco, to have nine times as many people within 500 miles, 10 times as many people within 1000 miles and over five times as many within 1500, and to be able to accommodate a large number of visitors.



## CONVENTION OF THE SOUTHWESTERN GAS AND ELECTRICAL ASSOCIATION

The annual convention of the Southwestern Gas & Electrical Association, was held at Beaumont, Texas, May 12-14, and was attended by about 200 representatives of the central station, electric railway and gas interests in the Southwest. The convention headquarters were at the Crosby Hotel, the meetings were held in the rooms of the local B. P. O. E. Club, and the manufacturers' exhibits were installed in the Kyle Opera House Building. The city and citizens of Beaumont welcomed the visitors in characteristic Southern fashion, decorating the streets with festoons of lights in their honor, and plying them with entertainment when not engaged in convention business.

The first day's session, Thursday, was opened with an address of welcome by Hon. D. P. Wheat in behalf of Mayor E. F. Fletcher, of Beaumont. President W. B. Head, in the chair, called for a response by H. S. Cooper, of Galveston, Tex.

In his presidential address, which followed, Mr. Head called attention to the phenomenal growth in the membership and in the efficiency of the association in developing its objects and purposes. In referring to the educational work the members can yet do, the president declared that public-service corporations are not properly understood by the people, and are, therefore, subject to criticism and distrust, more than any other kind of business. Referring to the advantages of mutual discussion among public-utility operators, Mr. Head said: "In this electrical age in which we live the successful man must acquaint himself with what the world is doing. The man who stays at home will never develop a very high 'potential'; he will have chronic hysteresis all of his days; he is lacking in synchronism; he cannot keep step with his fellow workers; he is inefficient, hard to regulate and some of these days he will burn out and a modern generator will be found in his place." President Head then referred to the volume of valuable material and information supplied by the Southwestern Association's publications and proceedings. He also mentioned the establishment of definite headquarters at Dallas, and said the employment of a permanent paid secretary to give all or a large part of his time to the work, had been one of the best steps made by the association. The expenses of this secretary's office and salary are defrayed by assessments among the member companies, each contributing an amount proportional to its gross receipts. Mr. Head said that this plan of payment had proved a great success, and few members were in arrears.

The president also referred to the importance of establishing a standard classification of accounts for central stations, to the interest in the internal combustion engine and producer plants, to gasoline lighting competition and to the possibility of the establishment in coming years by the legislature of a public service commission. On this point he said that he recognized no valid reason for such a commission but if there was to be one it should be composed of experienced men. Hence he urged that the members should meet the public half way if there should be a demand for such a commission. The address closed with a reference to the need for tact, courtesy and capability on the part of company employees, pointing out that honesty in a company's policy is always essential.

O. Bracker, superintendent of meters of the Brush Electric Light & Power Company, Galveston, Tex., next read a paper on "The Watt-Hour Meter in Actual Operation." This was followed by a paper by H. S. Cooper, manager of the Galveston Electric Company, entitled, "Some Suggestions for a Standard Rule Book for Operation of City Cars." This paper is published elsewhere in this issue.

### RULES FOR CITY RAILWAYS.

The discussion on Mr. Cooper's paper was opened by W. B. Tuttle, general manager, San Antonio Traction Company, who described the method by which the train men in that city were instructed in the application of the rules. As soon as a man is accepted for employment in the company he is given a copy

of the rule book and told of the importance of the rules as a guide in his work. After he has had a chance to study the book for a week or 10 days he is catechised at random on the rules. He is also questioned at intervals during the period of his employment, and lectures and discussions are given by the officers of the company in regard to the provisions of the rules. The company has also followed the practice of posting bulletins calling attention to some rule in the book, even though there has been no recent infraction of it. By thus bringing the rules frequently to the attention of the men they realize that the company is interested in their becoming conversant with the rules. In the debate which followed considerable stress was laid by some speakers on the importance of exercising prudence as to allowing the book to get into the hands of outside persons. Others who took part in the discussion were: W. L. Wood, of Texarkana, Ark.; E. T. Moore, of Dallas, Tex.; David Daly, of Houston, Tex.; T. C. Brown, of San Antonio, Tex.; H. S. Potter, of El Paso, Tex.; W. W. Loomis, of Dallas, Tex., and M. J. Lofties, of Sherman, Tex.

### QUESTION BOX

Dr. A. C. Scott, professor of electrical engineering in the University of Texas, at Austin, was called to the chair to preside at a discussion relating to the Question Box of the association. In the solicitation of this material hereafter, he announced, the plan will be followed of asking that each answer be sent in directly to the editor of the Question Box, instead of accompanying the original inquiry on its trip around to other members.

### FIRE INSURANCE

David Daly, of Houston, Tex., asked for the experience of other companies with the new State rating board which confirms insurance rates. H. S. Cooper pointed out the unfairness of charging a basic rate of 50-cents or more, for theoretically non-destructible plant buildings of perfect construction. If investigation proves that this enormous rate, he said, is totaled by the simple charges of accounting and overhead expenses on the part of the insurance companies, it would be cheaper for the properties to carry their own insurance. S. C. Trimble, of Orange, Tex., doubted whether any rate had yet been fixed by the insurance board, and quoted several conflicting rates given on his combination plant. Mr. Cooper went on to show that the higher rates charged by the incorporated companies probably result from carelessness in the operation of their business, and in their failure to inspect as closely as the mutual companies. If properly carried out, such inspection would enable the old-line companies to duplicate the latter rates he believed. Mr. Reed, an insurance inspector present, declared that on the whole, he believed that the work of the State insurance board had lowered the rates, and had improved inspection. J. E. Carroll, of Beaumont, Tex., testified that after receiving a reduction in rates from \$2.50 to \$1.50, the State board had instructed this to be raised to \$1.75, but had allowed, through the correction of minor defects, such as closing of oil cans, removal of transformers, installation of fire extinguishers, etc., the final reduction of the rate to \$1.01.

### PAY-AS-YOU-ENTER CARS

A paper entitled "Observations on Pay-as-You-Enter Cars," was presented during the session on Friday morning by David Murdoch, special representative of the Pay-as-You-Enter Car Corporation, New York. Mr. Murdoch first reviewed the history of these cars in Montreal, Chicago, Buffalo, New York and Washington. Texas was the first Southern State to use pay-as-you-enter cars and now seven of its cities were operating them. This number of "prepayment" cities exceeded that of any other State. Houston, Texas, was the first city of its size to operate "Pay-as-You-Enter" cars. Considerable credit was due the officials of the Stone & Webster properties for the success of this car in the Southern States. The best evidence of the satisfaction this type of car had given on the different properties managed by this corporation was the fact that they were now remodeling old cars and had ordered "pay-as-you-enter" cars for practically all of these properties even



as far West as Tacoma and Seattle, Washington. Out of 50 cities operating such cars 15 were in the South.

Some managers were under the impression that these cars were intended only for large cities, but that was not the case. Pay-as-you-enter cars were being successfully operated in towns of less than 10,000 population and in one town where it took only two cars to equip the system. The pay-as-you-enter cars were being operated under practically all conditions. Any type of car could be made to incorporate the prepayment feature, as in a "one-man car," center-entrance car, open car, single-truck car and double-truck car.

It was originally supposed to be necessary to have an extremely long platform to operate this type successfully, but now it has been found that a 6-ft. platform can be used satisfactorily. Even cars with a smaller size platform have given good results. From his company's experience in watching the operation of cars in the larger cities it was noted that the passengers after paying their fare passed into the body of the car and moved forward much more rapidly than was the case with the old type of car.

Mr. Murdoch also presented some data on the reduction of platform accidents attained in Montreal and Chicago by using these cars. Other cities have not published definite figures, but all reported a decided decrease in such accidents. It was particularly hard to get figures relating to the effect of these cars on receipts, owing to the reluctance of the railways in giving them out and the difficulty of estimating just how much of the increase was due to natural growth, faster schedules, etc. A careful record made by the Montreal Street Railway showed an increase of 10 per cent when the factors mentioned were eliminated. As to improvements in running time, the 6-mile Niagara-Grace and Niagara-O'Neil lines of Buffalo showed a decrease of almost 6 minutes, while the Cottage Grove line in Chicago showed a decrease of 5 to 10 minutes.

In reply to a question by H. S. Cooper, of Galveston, Texas, covering the application of the pay-as-you-enter principle to an open car, Mr. Murdoch explained that the cross seats would have to be removed or an aisle cut down the center, the running board taken off and the whole car enclosed in wire netting. Mr. Cooper objected to this arrangement as robbing the standard "open" car of its inherent advantage of quick loading and unloading, as well as losing at least two seats on each cross bench, or about one-third of the car's original seating capacity. The so-called "open" car described by Mr. Murdoch would not be suitable on the Galveston lines, thought Mr. Cooper, where in a city of 35,000 the street car system had handled 45,000 fares in a day, of which 3500 were carried in four hours without an accident. Mr. Cooper also said he had observed difficulty in handling the trolley pole of cars which were equipped with a conductor's rail. That class of accidents caused by infirm or careless persons stepping from the car will not be prevented by the system considered, continued Mr. Cooper, who advocated the personal attention of the conductor. "Two burning questions, before street railway men," said Mr. Cooper, are those of the proper point, near or far crossing—for stopping a car, and of allowing passengers to enter by the front door."

#### CONDENSERS

Harry Pennington, of the Pennington Company, of Houston, Tex., next read an excellent paper on "Condensers for Small Central Stations" in which he discussed the results obtained with the new rectangular jet-type condensers manufactured by several companies. The paper described the fuel saving and other advantages of condensing operation, and compared tests of the old and new types of jet condensers. The discussion closed with advice on the arrangement and layout of plants, and the use of cooling towers.

#### BUSINESS SESSION

The convention sessions closed Saturday morning with a business meeting at which the reports of officers and committees were read. Treasurer A. E. Judge, of Tyler, Tex., showed by his report that the finances of the association are in a healthy condition. Secretary D. G. Fisher, of Dallas, Tex., outlined the work of his office during the year, and reported a

total membership of 315 in the association, the 1910 convention registration being 244.

In the selection of officers for the coming year, W. B. Tuttle, of San Antonio, Tex., was made president; J. E. Carroll, Beaumont, first vice-president; E. T. Moore, Dallas, Tex., second vice-president, and D. G. Fisher, of Dallas, Tex., third vice-president. A. E. Judge, of Tyler, Tex., was returned as treasurer, and W. B. Head, of Stephenville, Tex., was elected secretary. The finance committee is made up of A. T. Lloyd, Shreveport, La.; W. A. Guthrie, San Angelo, Tex., and H. S. Potter, El Paso, Tex. The advisory committee comprises: E. S. Fletcher, Temple, Tex.; Oscar Pearson, Balingier, Tex.; F. J. Storm, Amarillo, Tex.; M. T. Walker, Beaumont, Tex.; T. Cook, Waxahachie, Tex.; W. W. Loomis, Dallas, Tex.; J. B. Earl, Waco, Tex.; W. S. Rathell, Waco, Tex., and W. C. Torbess, Ft. Worth, Tex. The executive committee comprises President Tuttle, ex-President Head, Vice-Presidents Carroll, Moore and Fisher, and F. B. Johnson, Stamford, Tex.; W. L. Wood, Texarkana, Ark.; C. H. Dunbar, Houston, Tex., and L. L. Stephenson, Big Spring, Tex.

#### SOCIAL FEATURES

Beaumont entertained its visitors with proverbial Southern hospitality. The city streets and buildings were festooned with hundreds of incandescent lamps, and decorated with flags in their honor. On Thursday afternoon following the convention session, the guests were taken in a procession of 50 automobiles to visit the great irrigation pumping plant, 6 miles from Beaumont, which renders 32,000 acres of land fertile for rice growing. Returning, the parties viewed the oil fields and visited the Country Club where refreshments were served. In the evening there was a theatre party. On Friday, two pleasure yachts took the visitors on a cruise down the beautiful Neeches River. Entertainment of the visiting ladies was taken in charge by a committee of local ladies. J. E. Carroll, of the Beaumont Ice, Light & Refrigerator Company, was in charge of the matters of entertainment of the convention.

Friday evening the Sons of Jove of the Southwest held their annual rejuvenation, and initiated 42 novices into the order, the class being the largest ever inducted into this division where the Sons of Jove was first founded a number of years ago. Following the initiation ceremonies, an elaborate banquet was served.

The Southwestern convention would not be complete without its annual badger fight. The 1910 ceremony was given Saturday morning for the benefit of a gas-appliance salesman, who later left the city on the first train.

### A NEW GYROSCOPE SYSTEM

A demonstration was given on May 4, at the Westminster Palace Hotel, London, Eng., of a mono-rail system with gyroscope control, invented by P. Schilowsky, the Governor of Kostroma, on the Volga, Russia. In this system the single gyroscope is carried on a special car, and one such car is needed between every two vehicles. The leading vehicle is a mono-rail steam locomotive, whose boiler supplies steam to the small auxiliaries on the gyroscope car. The single gyroscope is mounted with its spindle vertical, in a frame carried on trunnions of which the axis is across the car. A small single-cylinder steam-engine drives this gyrostat direct. Towards the other end of the car is a very heavy pendulum, hung with its axis parallel to the rail, so that, on the car tilting, it swings outwards or inwards. If this pendulum moves, a connection causes a quadrant to swing in a direction parallel to the rail. This quadrant carries for part of its length a radial rack which, if the quadrant swings far enough, engages with a constantly revolving pinion driven by another small steam-engine. The engagement of this pinion hastens the forward movement of the quadrant, and this, by means of a rod having spring stops, pushes over the gyroscope on the trunnions of the table. The two auxiliaries are steam-driven. The models were made by Messrs. Bassett-Lowke & Co., Limited, High Holborn, W. C., London.



## SUGGESTIONS WITH REFERENCE TO THE STANDARD CITY RULE-BOOK\*

BY H. S. COOPER, MANAGER, GALVESTON ELECTRIC CO.

The mere "rules" are not the whole, nor—in some matters—the most important portion of a rule book. Besides the "rules," a rule book should contain quite a number of other cognate matters if it is to be a complete disciplinary guide and mentor to the employees to whom it is directed. This point has been partially realized by the committee in the statement regarding the issuance of the Rule Book to the employee, on page 4; the notice on page 6 as to the rules, and the "general notice" on page 7; but none of these is complete for the purpose desired. Rules are simply "specific instructions or commands for specific causes or emergencies." They govern only *specifically*, and must not contain, within themselves, advice, suggestions, or counsel, nor must they contain announcements, statements, nor even certain explanations. All of these should be placed in another part of the rule book where they can be grouped and arranged for convenience or better understanding, or they should be appended as "notes" or "exceptions" to the rule to which they apply.

A complete Rule Book should contain first the title page—which is also often duplicated on the outside of the cover.

The title page in the present standard rule book reads:

RULES AND REGULATIONS  
For the Government  
of Employees of  
The \_\_\_\_\_ Company.

I would suggest:

RULE BOOK  
for  
Trainmen  
(Or Conductors & Motormen)  
on the  
CITY LINES  
of  
The \_\_\_\_\_ Company.  
In effect.....19...

"Rules and Regulations" is an archaic and stereotyped form and is a repetition. Many rules are regulations and many regulations are rules. The book is a Rule Book.

"For the government of" is not necessary, and is not complete even if necessary. Rules instruct in many cases as much as they govern.

"Employees" is not correct. The rules are not for the employees, they are only for a portion of the employees of one (the transportation) department, viz.: for the conductors and motormen (now technically grouped as trainmen), and only for those trainmen who operate city-service cars.

There should also be a separate notice in regard to the book itself and this should form a part of the title page or—better still—be printed on the inside of the cover where it is less liable to be torn out or mutilated. I would suggest the following:

### NOTICE

In regard to Rule Book  
This book is the exclusive and perpetual property of the [Name of Company] and cannot be given, lent nor sold to any person whatsoever, nor has anyone finding it, or receiving it, any title to it. In case of this Rule Book being found, a reward [or a reward of \$... or ..cts.] will be paid on its return to [The office or car barn of the Company].

For many reasons, well understood by those connected with the management or the claim department of a street railway company, it is very undesirable to have any of the rule books of the company in other hands than those of the actual employees of the company who are affected by it and of such officials or officers as need to use it. I have found the above notice—or a similar one—a considerable deterrent as to outside parties obtaining copies, and I have also found that a liberal reward nearly always brings the return of any book lost.

### STATEMENT OF ISSUANCE

The "statement of issuance" of the book to an employee, on page 4, which gives the number of the book and (although this is not stated) apparently bears the signature of the recipient, is not necessary nor proper. This number—identifying any particular rule book and its recipient or holder—

should be embossed or stamped into the cover, back and front, and also printed or stamped indelibly in other portions of the book, so that the number of the book, which is the only certain means of identification of itself and its proper recipient or holder, cannot be obliterated without marring the book and its contents.

If the blanks left after "name," "position" and "division" on this page 4, are intended as a receipt or as a means of identification, they are useless as either or both, for being merely printed the number may be removed, thus destroying the record absolutely. Moreover, as there is only one such page in the book, it is only good for one recipient. If it is taken up from a man leaving the service and the company desires to issue it to another man, either the information written in must be erased or another leaf must be pasted in. Leaving out the notice as to whose property the book is, which, as shown, belongs to another place, there is no need whatever for the matter on this page. No receipt from, nor any identification of, the holder of the book should be attempted in the book itself. The receipt for the book should be on a separate form, filed in the proper records in the office, this receipt giving all the necessary information as to the recipient or holder, the dates of issuance and return, etc., etc. This receipt should also contain an agreement notice by which the holder obligates himself not to lend, give or sell the book to anyone; to return it when leaving the employ of the company, when requested to return it by the company, or at some fixed time and to pay the company for any reward paid in case of loss and return.

It will be seen, therefore, that, by handling this matter of identification of book and holder in the above way, better results will be obtained than by using the form on page 4, and that the form there suggested by the committee is unnecessary and can be eliminated.

### INTRODUCTION

The next matter is the "Introduction" or "General Notice" in regard to the general relations between the company and the employee, the equitable rights of both, advice, suggestions, counsel, requirements, etc., etc. This is a most important section of the rule book and should not be slighted by giving it only a few trite sentences. It is the one opportunity that an impersonal employer (such as a corporation), has to address the individual employee on the subject of the broad principles of duty, loyalty and discipline. Unlike the rules, it should be addressed to the individual employee, the recipient of the rule book, and should therefore be addressed to the "second person"—"you"—whenever the subject admits of it. While its language should never be familiar, it can be less formal than that of the rules and may even be colloquial. Its statements should be absolutely incontrovertible and its spirit should be just and equitable. In it should be incorporated such notices, announcements or explanations as the committee has placed in the first part of the third sentence of the first paragraph of Rule 1; the first sentence of first paragraph of Rule 4; all of Rule 19, and the last sentence of Rule 34. I would suggest the following, which is a digest of "Introductions" or "General Notices" as are used in the rule books of some of the best managed companies:

"The Trainmen, on account of their coming into *direct* personal contact with the patrons of the road and the general public, are the *personal* representatives of the company to its patrons and the public. In one sense the trainmen *are* the company; for whatever the Company can do, or is required to do, *through them*, they *must* do, and whatever the Company cannot do, or is forbidden to do, *through them*, they *must* refrain from doing.

"The success and good reputation of the service depends, to a large extent, on *you*, and your good personal character and habits, on your loyalty to the Company, on your industry, on your attention to duty, on your willing, cheerful and exact obedience to rules and orders, on your neatness, accuracy, and *especially* on your common sense, and good judgment and ability to "get along" with the officials in authority over you, with your fellow employees in *any* department of the Com-

\*Paper presented at meeting of Southwestern Electrical & Gas Association, Beaumont, Texas, May 12-14.



pany and with the patrons of the Company and the general public.

"While the road of this Company belongs to and is intended and expected to be a source of profit to the Company, it was built and is operated for the accommodation and convenience of the public, and while riding on the cars and obeying the rules of the Company, the public has the right to expect every accommodation on the part of the Company and its employees that is consistent with a paying service. It should, therefore, be the special effort of *every* employee to do his part towards making the service so excellent that the public will find the road specially worthy of patronage.

"In doing this the employee subserves his own interests as well as those of the Company, as an efficient employee of a successful Company will always be in better and more secure position than if either the Company or he were *not* a success.

"In the treatment of passengers, universal politeness is required. The temper should always be controlled, and a "wordy war" never engaged in. In case of difficulty or dispute with a passenger neither conductor nor motorman should get angry and use uncivil language even under the greatest provocation, as no excuse could be conceived for insult, rudeness, impudence or sarcasm to passengers under *any* circumstances. It takes two to make a quarrel, and a passenger—no matter how abusive—should not be replied to in the same way. A firm insistence on proper behavior and obedience to the Company's rules—if carried out in a quiet, pleasant way—will always win against any amount of bluster and abuse.

"Avoid *arguments* in regard to the Company's rules with *anyone* not in the employ of the Company and especially with passengers. Inform the person arguing or protesting, that you have nothing to do with the *making* of the rules, that your duty is simply to obey them yourself and to enforce such of them as are entrusted to you to enforce, and that your neglect to do either may be the cause of loss of time or position to yourself.

"Never criticise a rule of the Company to *anyone* until you have proved—or have seen it proved—that such criticism is just. If at any time you find, or feel certain, that any rule, regulation or order of the Company is erroneous in its intention or effect, that it is unjust, unwise or unnecessary, present the reasons for your so thinking to [the proper officer] and *you* and the *reasons* will have courteous consideration.

"Report of anything that any employee considers as a defect of the service, or suggestions as to any betterment in it are always welcomed by the Company. From their close contact with the public and their constant practical experience in the minute details of operation of the cars, the trainmen are in the position to offer valuable suggestions to the management and they are assured that such suggestions will always be courteously considered and greatly appreciated.

"The rules of the Company together with its orders, bulletins, notices and general practice have only been made, adopted and put in force after the most thorough and careful consideration of *all* the circumstances and persons in each case and they must be obeyed and enforced until they are officially annulled, changed or superseded. Their implicit obedience and enforcement is essential for the safety, convenience and comfort of the patrons of the road and the general public; for the protection of property both of the Company and of others; for the well being and efficiency of all employees and for a proper return to the Company for its investment and risk.

"The *safety* of passengers, of the general public, of fellow-employees and of property, is *the first and greatest consideration*. In the transportation of passengers the object is to carry the largest number with the greatest *safety*, convenience and comfort to them and to the general public. You will notice that in everything the Company does, or requires you or the public to do, the intention is to provide *safety*—first, last, and all the time. While convenience and comfort are portions of the service due to all patrons of the road, *general safety* is the one paramount consideration that must forever be in the minds and actions of *every* employe. In *every* case of *doubt*—Take the *Safe Side*!

"Remember, that in accepting the pay of the Company, you bind yourself to obey *all* its rules,—and that when you continue to take the Company's pay and do not obey them—in spirit as well as in letter—those that are *not* agreeable to you as well as those that *are* agreeable to you—you break contract with the Company, and are not honestly earning the pay you accept.

"Remember, that the Company pays you to think as well as to act! Therefore, "I didn't think" is not only no excuse, but it is an aggravation of the offense, as it shows carelessness—and *that* is criminal in this business.

"Remember, that no rule made for the benefit of the many, but may bear hard on a few.

"Remember, that on *you* probably depends the safety to life and limb of every passenger you carry.

"Remember, that on *you* depends greatly the convenience and comfort of the passengers.

"Remember, that the property of the Company, with which you are entrusted, is costly to buy, repair and maintain.

"Remember, that the profitable business of the Company depends very greatly on the way in which you conduct yourself toward passengers, and the exactness with which you perform your duties and obey the rules.

"Therefore, you will continually bear in mind the fact that carelessness, negligence or inattention on your part—even in very small and, to you—apparently trivial matters—may lead to very grave results to you and others and to great loss to the Company."

#### PROPOSED SPECIAL NOTICE.

Following this "Introduction" should be a positive and formal statement of certain *specific* obligations which the employee assumes when he takes service with the company. This statement should also contain an equally positive and formal declaration of certain rights of self-protection of the company, as an employer responsible under the law for certain acts of the employee. It should also contain a positive and specific statement of the reserved rights of the company regarding dismissal, suspension or other punishment. This might be called a "Special Notice." It must be carefully written, for it is, in a certain sense, a "legal" notice. It must be just and equitable, not encroaching on the moral and legal rights of the employee, nor transcending the moral and legal rights of the employer. It must cover in full detail those points that may cause dispute or even litigation if they are not clearly stated, defined and understood before the employee takes actual service with the company.

This "Special Notice" should have nothing to do with the requirements of applicants for service; those vary so in different localities at the present time that any attempt to "standardize" them, even in a few vital particulars, would be impossible. Besides that, such requirements for applicants are out of place in the rule-book, they are fully stated, or inferred by interrogatories, in the "application blanks" which every well managed company should compel an applicant to fill out and swear to before even considering him as an employe. This Special Notice is for a special purpose, a warning in effect, and every manager, superintendent or official whose duty it is to punish or discharge employees will recognize in every portion of it the fact that it covers cases of everyday occurrence, and those who have had no such—or no similar notice and warning in their rule-book or other "governing" literature, will recognize the fact that such or similar notice in use by them would have saved them trouble, dispute, annoyance or even litigation.

The suggested matter follows:

#### SPECIAL NOTICE.

"This company does not, either directly or indirectly, assume any responsibility for any act committed by an employee, nor for the results of same, where such act is a violation of the published rules, orders, notices, etc., of this company, and it especially does not assume, either directly or indirectly, any responsibility for any *illegal* act, nor the results of same, when committed by *any* employee engaged in his duty in the service



of this company, or even though such act is committed under the sanction of, permission by or orders of any superior officer or official, or any employee in authority, of this company. The company hereby gives formal notice that every officer, official and employee in its service at any time, is expressly prohibited from authorizing, ordering, permitting or committing *any* illegal act while engaged in his duties in the service of this company.

"Commission of any of the following offenses carries its own penalty of *summary* dismissal without privilege of reference or re-employment:

"Wilful infraction of any safety rule.

"Dishonesty.

"Untruthfulness.

"Disloyalty.

"Insubordination.

"*Habitual* intoxication.

"Sprees.

"Habitual drinking of intoxicating liquors.

"Habitual use of deleterious drugs.

"Drinking intoxicating liquors while on duty.

"Drinking intoxicating liquors *before* going on duty.

"Bringing intoxicating liquors on the cars or on or into the carbarns or *any* of the property or premises of the company.

"Gross immorality.

"Gambling, in *any* form.

"For any violation by an employee of any published rules, orders, notices, etc., of this company or of any law or ordinance governing his duties or responsibilities; whether the violation be ignorant, negligent, or wilful; the company reserves the right to suspend such employee for any length of time, without pay and with loss of any or all privileges usually allowed "employees in good standing," and, where the company deems that the occasion or circumstance warrants it, to discharge such employee without notice and without privilege of reference or re-employment in *any* department.

"No employee shall be held to have 'resigned' from the service of this company who shall have been, suspended for fault, and who, upon investigation of the matter, is afterward discharged for such fault; even should he have 'quit' or tendered his resignation at the time of, or at any time after the commission of the fault for which he was suspended and discharged.

"No employee shall be held to have 'resigned' from the service of this company who has not given the proper notice of his intention to resign or has not been excused from giving such notice.

"In all cases of 'suspension' or of other penalty for fault, except discharge, the company will post upon [regular notice-board or boards], a notice of same, stating the name of the employee, the rules, orders, notices, etc., transgressed and the penalty given.

"In case of discharge a similar notice will be posted and it will also state, by dates, the period or periods of service with this company, and the positions held. It will give the rules, orders, notices, etc., transgressed and causing the discharge and it will state whether the discharge carries with it the further penalty of the loss of 'privilege of reference.'

"In case of accepted resignation or 'honorable discharge' a notice of same will also be posted as above, giving the fact of the resignation or honorable discharge, the period or periods of employment with the company and whether it allows him the privilege of reference or re-employment.

"In the case of any employee performing any meritorious act or service worthy of special mention, commendation or reward; the company will post a notice of such act or service, giving the name and position of the employee, the act or service performed and the commendation or reward given.

"Every employee affected by any of such above notices will be given a verbatim copy of same on personal application at [the proper office].

"In case of promotion; seniority, length of service, good record and loyalty will all be given their full value, but in

every case *capacity for the higher position* must have been previously shown.

"Any employee having what he believes to be just cause of complaint against any fellow employee, inspector or other minor official may bring the matter before [the officer or official having the power to discharge him] and will in all cases receive a hearing, and, if the complaint is justified in the [above officer's] opinion the matter will be thoroughly investigated at once.

"Any employee believing himself unjustly discharged may bring the matter before [the local officer or final authority] who will investigate the matter if he deems the complaint warrants it and his decision in such matter will be final.

"When any damage or loss to the Company, or to others, is caused by any such above stated violations of rules, orders, notices, laws, ordinances, etc., the Company will hold responsible for such damage or loss the employee or employees guilty of such violation, and it reserves the right to retain from the wages due to or deposit received from such employee or employees the amount necessary to reimburse it, or the others, for the damage or loss occasioned by such violation.

"In consideration of all the above conditions of this 'Special Notice' it will be held by the company that any and every person who enters or remains in the service of this company hereafter, accepts all the conditions thereof and binds himself to willingly and implicitly obey those published rules, orders, notices, etc., of the company which, either directly or indirectly, apply to him."

The next matter should be a "special notice in regard to the promulgation of the rules, etc., contained in the rule book." It is suggested as follows:

#### SPECIAL NOTICE IN REGARD TO RULES

"The rules, notices, etc., contained in this rule book are for the government and instruction of all trainmen operating cars on the city lines of the \_\_\_\_\_ Company, and become effective \_\_\_\_\_ 19\_\_\_\_, superseding all previous rules, orders, bulletins, notices, announcements, etc., which in any way conflict with the contents of this rule book.

"Each of the above trainmen and all officers and officials in authority over them will be furnished with a copy of this rule book, which copy is to be receipted for and used as ordered in Rule 1.

"The rules, notices, etc., contained in this rule book may at any time be temporarily or permanently changed, amended, superseded, annulled or added to. In case of a *permanent* change in any rule, notice, etc., contained in this rule book, a 'pasting slip' containing such changes will be immediately furnished to all employees properly holding a copy of the book, such 'pasting slip' to be used as ordered in Rule 1.

"In case of *temporary* or 'time limited' changes, etc., of the rules, notices, etc., contained in this rule book, official notice of same will be posted in the 'bulletin' [or other 'information'] boards at [carbarn or elsewhere]."

The rules themselves naturally follow such a notice concerning them.

#### LAWS

Immediately following the rules must come an abstract of every law and ordinance directly affecting the duties or responsibilities of the employees who are governed by the rule book. It may be necessary to place in the book only the certain sections of each of these laws directly affecting the trainmen or it may be necessary to print them in full, but enough should be printed to inform and warn the trainmen fully as to any legal liability, while on duty, of themselves either as individuals or as employees of the company.

Under this head will come laws or ordinances in regard to legal speed of cars, legal or illegal stopping places, any rules of the Board of Health, or any ordinances in regard to smoking or spitting in the cars, any ordinance or franchise contractual-obligation as to the free riding of police, firemen or other city employees, officials, etc., any laws or ordinances governing fares, tickets, transfers, age of children riding free



or at a cut fare; any laws or ordinances as to the right of way of fire apparatus, police wagons, ambulances, funerals, processions, parades, etc., any ordinances as to the sounding or non-sounding of gongs or whistles at certain points or in certain places, any ordinances as to crossings at grade of other electric or of steam roads, ordinances regulating the crossing of bridges, viaducts, etc. As a matter of fact the employee must in some way be informed of all such things or he cannot, either disciplinarily or legally, be held liable for their infraction. It is true that he will be instructed in some of them verbally by the shop or barn instructors, and practically by the "platform" instructor, but the opportunity of these instructors may not cover all of such legal requirements and the best and simplest way is to give the employee, in his rule book, as much of the original law, ordinance or legal order as fully informs, instructs, or warns him as to the legal requirements and the penalties of infraction, if any.

#### SIGNALS

Following this, or at least somewhere by itself and outside of the rules should be placed the "signals." This section should give every signal authorized by the company for the use of the trainmen themselves or those liable to be "given them" by other employees or by outside persons. The signals should be fully detailed, their meaning thoroughly explained, and the limits of their use, if any, exactly defined. Besides the signal bell signals there should be given any signals permitted or ordered on the foot or hand gong used by the trainmen, and as some companies allow on their open cars the use of a mouth whistle or a vocal signal such as "all aboard" or "go ahead" or "right," these should also be included.

The signal section should also include air-whistle signals, for many suburban city cars using air-brakes also carry air whistles for use for caution, alarm or communication with other cars or other employees. It should also contain all cautionary danger or special signals used by inspectors, linemen, contractors, the municipality or the general public, viz.: such as lanterns, lights, flags, or any sort or color torpedoes, etc. It should also contain any manual signals in use such as the waving of the arms in particular ways. It must, in fact, fully inform the trainmen as to all signals in use, not only for his information, but for his instruction and guidance. If this is not done, definitely, positively and thoroughly, it leaves loop-holes for irregularity in the use of signals, for the introduction of non-standard, unnecessary and misleading signals by the trainmen or others and opens up the way for accidents, errors and delays.

#### CROSS INDEX

Last of all should be a complete and thorough cross index of everything contained in the rule book, by subject, by heading and by division. To a comparatively new employee the rule book should be one of constant reference until he becomes as familiar with it as almost to have memorized it. He should be encouraged to refer to it until it does become so familiar and nothing tends to such familiarity as easy and accurate reference to its every division, heading and subject.

### ELECTRIC RAILWAY EXHIBITS AT SOUTHWESTERN CONVENTION

Manufacturers and dealers in electric railway supplies were well represented among the exhibitors and associate members present at the sixth annual convention of the Southwestern Gas and Electrical Association, at Beaumont, Texas, May 12 to 14. The following companies had exhibition booths in the Kyle opera house building where the convention sessions were held:

American Car Co., St. Louis, Mo.; Edward Bronenkamp, car seats, fare boxes, etc.; Atlas Railway Supply Co., Chicago, Ill.; J. G. McMichael, rail joints; C.-A. Wood Preserver Co., Austin, Texas; H. F. Gerhard, wood preservatives; Crocker-Wheeler Co., Ampere, N. J., photographs of large machinery

installations; Duncan Electric Manufacturing Co., Lafayette, Ind.; C. M. Welsh, meters and transformers; Electric Traction Supply Co., St. Louis, Mo.; O. W. Uthoff, fenders, fare boxes, registers and couplers; Electric Service Supplies Co., W. P. Hall, St. Louis, Mo., insulators, pins, bonds, lamp guards, lightning arresters, and cutouts; Goldschmidt Thermit Co., New York, N. Y., H. S. Mann, rail, pipe and solid section welding appliances; W. N. Matthews & Bro., St. Louis, Mo., guy anchors and lamp guards; Moloney Electric Co., St. Louis, Mo., J. J. Mullen, transformers; Westinghouse Electric and Manufacturing Co., Pittsburgh, Pa., H. B. Chamberlin, J. R. Cox, A. Ashley, L. Jolesby, and G. W. Foote; Wagner Electric Manufacturing Co., St. Louis, Mo., J. A. Gelzer; Westinghouse Machine Co., Pittsburgh, Pa., A. B. Johnson; Western Electric Co., Chicago, Ill., N. S. Arnold, R. D. Cummings, J. C. Mow, W. J. Thompson and Paul Joyslin; Weston Electrical Instrument Co., Newark, N. J.; Wheeler Condenser & Engineering Co., Carteret, N. J., condensers and pumps, Harry Pennington.

Other manufacturers represented at the convention were:

American Diesel Engine Co., G. E. D. Fouge; Allis-Chalmers Co., W. H. Yates, F. G. Bolles, H. R. Sewell; Bonner Oil Co., J. S. Bonner; Buckeye Electric Co., J. Lee Norman; Buda Foundry & Machine Co., H. R. Taylor; Columbia Incandescent Lamp Co., Charles L. Martin; Dickson Car Wheel Company, George C. Dickson; Detroit Stove Works, J. A. Kerr; General Electric Company, S. Harvey, J. W. Thorne, O. A. Jennings, H. W. Kilkenny; General Incandescent Light Co., Harry C. Rice, W. S. McFarland; Harrisburg Foundry & Machine Co., Walter Castenado; Houston Armature Works, Fred E. Ward; H. W. Johns-Manville Co., Edward A. Paetschow, R. B. Autry; Lorain Steel Co., William W. Kingston; Ohio Brass Co., F. L. Cook; Pay-As-You-Enter Car Co., David Murdoch; St. Louis Car Wheel Co., F. O. Grayson; Standard Underground Cable Co., E. J. Pirtzker; Tool Steel Gear & Pinion Co., C. E. Sawtelle; Wesco Supply Co., Thos. H. Harris, W. C. McIlheran, R. A. Warfield.

### THE RELATIONS BETWEEN THE ACCOUNTING AND OPERATING DEPARTMENTS \*

BY A. F. ELKINS, AUDITOR, COLUMBUS, DELAWARE & MARION RAILWAY COMPANY.

If I were to sum up the entire question which has been assigned to me I would not hesitate to say that the cardinal requisite to a successful organization of an electric railway property is co-operation. Every official should be given a responsibility, and he should understand that his own success or failure depends entirely upon his own efforts, and the judge must be the official to whom he is directly responsible. The official family should be made up and all sub-departments so arranged that each may operate independently of the other, though so closely allied that complete harmony may obtain. Where this system exists the accounting department will find no obstacles in the way of furnishing prompt and correct reports to the executives. The lack of this system makes it quite impossible for the auditor to assemble the necessary data to compile his general reports. The successful auditor desires no authority. He has no time to exercise authority, if he would keep up with his work. He simply demands that sub-departments shall furnish the kind of information he wants and when he wants it. In this he should have the cordial support of the general manager.

"A unit of service" was framed into a bill passed by the Ohio House of Representatives, to create a utilities commission. Had this bill been enacted into law, complete revolution would have resulted among the railroads, and especially in their accounting departments, but the bill met its death in the Senate. The author of this bill attempted to require us to furnish a unit of service. He could not say what constituted a unit of service, neither could the committee. I be-

\* Abstract of paper read at meeting of the Central Electric Railway Association, Toledo, O., May 26-27.



lieve it would be a difficult matter for each of you to say just what constitutes a unit of service on your railroad, but I can tell you about a unit of service in the accounting department, if that department is placed in the proper division, and the auditor clothed with sufficient power to accomplish the results expected and demanded of him.

Andrew Carnegie once said: "There is not a science or class of men on whom the business world is more dependent than the science of accounts and accountants." During the early history of steam railroads the auditing department was given little, if any, official standing. Executive officials, however, were able to see, finally, the inconsistency of this system, and the net result was the creation of executive departments, completely divorced one from the other, and in charge of vice-presidents. Directly under one of these executives you will find the auditing department, when not under the president or chairman of the board. The organization of one large railroad places the auditor under the board itself.

A railroad corporation owes its existence to the suffrage of the people. It is public property, subject to public control. Its securities are sold to the people, who make the laws that govern its operation. Upon the shoulders of the auditor rests the burden of responsibility to disclose by means of carefully worked out reports that the corporation, in its struggle for life, is keeping within the law. There is no term such as "moral evasion or mental reservation" that could be truthfully applied to the auditor to-day. He prepares his reports from his records, which are prescribed by the Interstate Commerce Commission and the various State commissions. He knows that the same law which applies to the executive applies to him personally. He must not make a false statement. He must keep his accounts in strict compliance with the laws, in the fulfillment of which he must act diversely to the executive who desires a better showing for the sake of the securities, or the general manager, who would make a better showing than the records disclose. Wood, in his "Modern Business Methods," written from the standpoint of a lawyer, says, in connection with the auditor of a corporation, "He should not be a partisan of any stockholder or group of stockholders, and should be the most independent employee of the corporation."

The multiplicity of laws designed to govern corporations in this State have so increased in number as to make the position of the auditor most discouraging. In keeping with the laws he gets his books in shape to render comparative annual reports, and the first thing he is up against is another set of laws which completely upsets his system and further burdens him with statistical requirements which are utterly worthless to the Government or corporation. With this fact in view, the Central Electric Accounting Conference came into existence, for the interchange of ideas, and the promotion and adoption of a uniform system of accounts. One of the recent valuable papers presented before this association was upon the accounting features of the corporation tax law, which contains some knotty problems that the auditor must work out. The Langdon tax law is another accounting hotchpotch, and requires the auditor to segregate his accounts between State and interstate, so as properly to apply the earnings. No operating official has the time to delve into the detail work of the proper classification of these accounts. It must, of necessity, be undertaken by the accounting department. Take, for instance, the classification prescribed by the Interstate Commerce Commission and adopted by many of the State commissions. Accounting Bulletin No. 5, issued by the Interstate Commerce Commission and effective May 1, 1910, contains 75 pages of questions raised under these classifications.

Uniformity in accounting methods and forms has been the watch-word with the accountants, and when this applies more fully within the actual operation of the interurban railroad, the auditor may find his labors less burdensome. We are coming gradually to the point where we may find uniform methods in use on all lines, in every department, and I know

of no other medium to which more credit can be given for this fact than to the electric railway publications. Their careful collection and distribution of the reports touching operation of electric railway properties deserves our commendation and support.

The man behind the machine in the accounting department stands for everything that makes for advancement in every other department. "The supreme mark of wisdom is the willingness to replace an excellent thing with a better one." He is constantly thinking along this line.

He is supposed to take the initiative, and usually does the right thing without being told. The accounting department touches all of the other departments, thus occupying a peculiar position. The department is important to individual companies to the extent of furnishing records of the highest order, and the auditor, by his training and personality, may command the respect and esteem of those in charge of every branch of the service.

## VALUATION OF OPERATING PROPERTIES\*

BY EDGAR S. NETHERCUT, CIVIL ENGINEER, CHICAGO.

While it is by no means new, the rather recent use of an appraisal by the various State commissions, as well as by certain municipalities, commends this subject to our consideration.

Various uses have been made of the valuations thus obtained, among them may be mentioned the determination of rates, bond issue, sale or transfer of property, total capitalization, establishment of maintenance or reserve funds, establishment of uniform accounting.

I shall consider as briefly as possible the various divisions of this subject, namely:

The present demand on the part of the public for regulation of public service corporations.

Determination of the total cost to reproduce new the tangible property.

Determination of intangible values entering into the cost of the property.

Determination of franchise value.

Determination of present value.

Certain methods are indicated briefly. Local conditions, the uses to which the appraisal is to be put, and the availability of records will modify the method of procedure.

Experience has shown that totals may be obtained by an appraisal, which are fair to the corporation and to the public, and will represent within a small percentage the actual value of the property as a going concern. Manufacturing companies find it necessary to have appraisals made at certain intervals, so that the exact condition of their business may be determined. It is equally important that a traction company should have this information. Especially is this true as the relation between the public and the public service corporation is now undergoing a change. In order that this relation may become less political and of a more business relation, a full knowledge on the part of the traction company of its exact condition will enable it to protect its rights.

It is not necessary in this presence, to recite the conditions which have brought about the present situation. It is in evidence in more or less degree throughout the entire country, and may be stated in the following manner. The public is entitled to and demand adequate service at a low cost. The corporation is, however, entitled to a reasonable return on a fair investment.

Outside of some Eastern States we have been used to a determinate franchise, which has given the corporation more or less of a monopoly for a term of years, without much regulation on the part of the municipality. At the present time many of these franchises are expiring. Preliminary to their renewal, the foregoing relation is being recognized. The Federal Government and many States have organized boards

\* Paper read at meeting of Central Electric Railway Association, Toledo, May 28-29.



of supervision. Some western States have adopted indeterminate franchises or permits, which are subject to revocation upon the failure by the corporation to comply with the conditions. New grants which may be made on this basis will involve in some form the valuation of the property, in order to determine the investment. Settlements of this form practically amount to a determination of the rate. Reduction in the rate below a certain point will result in reduction of the service, or the return on the investment, unless the municipality assume part of the construction cost. What is then saved in fare is made up in taxation. The man who has no property but patronizes the public service corporation does so cheaply at the expense of the man who has taxable property.

It has been customary in the past to value properties by various methods. These have served their purpose. They have failed to convince the public, however, that the results obtained should form a basis of new franchises.

A valuation in order to be complete must consider the property as a going concern. A value must be given to all the parts of the property which represent investment and earning power. These values should be determined in their order.

Considering the value of the tangible physical property, the appraisal is an estimate of the cost to reproduce new at the present day. All expenses which would be incurred in the construction of the property shall be considered. They are (1) the estimated cost of material and labor on the basis of a sub-contract; (2) reasonable contractor's profits; (3) engineering and supervision cost; (4) real estate; (5) overhead charges; (6) development charges.

The tangible property is deemed to be reproduced in its exact present form, whether obsolete or not, and its value determined as of new material of like kind, purchased at present-day prices, except that the value of material in obsolete form shall not be greater than that of like material in improved form.

The appraisal, then, of the physical property involves, first, an inventory. This is a difficult and expensive part of the appraisal. While it should be complete and with much detail, it should be on the basis of units of equipment. To inventory the bolts or springs in a truck would entail considerable expense and cause confusion. Additions to or omissions from certain typical units can be noted without going into unnecessary detail. Satisfactory results may be obtained by classifying track, for instance, so as to note the major distinctions while small distinctions would involve only expense and liability to error.

There must be applied to items of the inventory prices which will represent the fair market value. Where, because of a fluctuating market such price would be unreasonable and unfair, a price should be taken which will represent average conditions.

Labor charges for the delivery of material and the installation of the same will form a large element in a proper appraisal. The labor costs should be based on the fair rate of the present day. The labor charge should, however, involve the use of such mechanical devices as are employed at the present time and as may be included in the inventory. For instance, it would not be proper to use the labor cost for the erection of a large generator by means of main strength when there is included in the inventory of the same power house a traveling crane of ample proportions.

The priced inventory obtained in the above manner will be on the basis of a sub-contract, and represents only the cost of material and the actual labor of installation or erection. To this sum there must be added a percentage which will represent contractor's profits. This percentage should, however, only be applied to items of a construction nature. An additional percentage should be added to all items except real estate to cover the cost of engineering and supervision.

I think that there is one assumption which must be made in determining the cost of track which does not apply to other items of street railway property. While the type of the track, including the pavement, is considered as reproduced in its exact present form, the charge for excavation should be based on the type of pavements outside the track. In other words, the exca-

vation is considered as though the streets were at the present grade and free from tracks. It is conceived to be paved or unpaved from curb to curb with the same type of pavement, both wearing surface and base, as is now found between the curb and the tracks.

The real estate holdings of the company can generally be determined by comparative value of corresponding real estate. Proper allowance should be given to the extra value represented by the right-of-way over and above the value of adjacent real estate.

#### INTANGIBLE VALUES

Consideration must now be given to the overhead charges, which are, in general: Legal expenses, carrying charges, brokerage, contingencies.

In certain instances an exact charge can be added as a lump sum to cover these items, or they may be added in the form of a percentage of the construction and engineering cost. Having added these overhead charges, the sum of the foregoing will represent the total cost new of the tangible property.

The history of any going property will disclose certain expenditures known as development charges, which are not evidenced by the property itself. A change in the art has rendered obsolete expensive construction. Shifting population may have rendered inadequate certain parts of the property before the full right of this property has expired. City requirements may have necessitated a change of grade or the removal of overhead wires and placing the same under ground, without the addition of any earning power to the plant. These charges should be listed and classified, and such items of expenditure as are definite should be added to the total cost new of the property, provided they are of comparatively recent date and the character of the business has been such that these expenditures could not be absorbed and reasonable profits be earned.

#### FRANCHISE VALUES

It is recognized that unexpired franchises have a value. This value may be computed for a street railway by using the excess earnings of the route covered by the franchise over and above a normal dividend rate as applied to the appraised value of such a route. It will be noted that with a fixed income the franchise value will vary inversely with the physical valuation.

#### PRESENT VALUE

No sooner is the property completed and put into operation than it begins to depreciate. This lessening of value is the result of several natural causes, among them may be mentioned, normal wear and tear, neglect, obsolescence, inadequacy. On certain parts maintenance and adjustment may be applied at short intervals and at small expense. Other parts of the property, however, can only be economically maintained at long intervals in the form of major renewals. The bearings on the motors are frequently renewed at small expense, while the rail can only be economically renewed when the wear has continued for a longer period and its wearing value extinguished. Maintenance, however well applied, cannot keep the property up to the full 100 per cent of its original value; while one part is being renewed another is wearing out.

The greatest possible depreciation will reduce the value of the property only to scrap. The scrap value is the net proceeds which may be realized by the sale of all removable materials from the property, after deducting the cost of removing and placing this material on the market. The difference between the total cost of an article and the scrap value will represent the wearing value. Depreciation can conveniently be computed as a function of this value.

Depreciation of certain parts may be determined by mechanical measurements, like the wear on the rail. Depreciation of other parts may be determined by consideration of the age of the part. The depreciation of still other parts can be determined only by expert inspection and a computation of the maintenance now due. Careful inspection will in nearly all instances reveal conditions that will modify the determination of depreciation by measurements either mechanical or by age.

Whether depreciation should be subtracted for obsolescence



is a much-discussed question. In some appraisals depreciation has been recognized as being due to obsolescence, when the improvement in the art indicates that a new type of apparatus will soon supplant the present one. The charge for obsolescence is computed by using the age of the device; thus, if a certain machine is considered to be obsolete in 40 years from its date of installation, and it has now been installed 10 years, it would be depreciated 25 per cent of its service value for obsolescence.

It has been argued that obsolescence should not be considered at all, or until it is an actual fact, on the theory that an apparatus is either obsolete now or it is not obsolete, and cannot be partly obsolete. As a statement of fact this probably is true, but in the determination of the present value of a property it does not seem to apply.

Judgment should be exercised in the consideration of depreciation, each class of construction will present its peculiar problem. It may be noted, however, that the total deduction for depreciation is not the sum of that due to obsolescence, wear and tear, inadequacy or age, but only the particular class of depreciation which represents the greatest impairment of the value of the apparatus.

The efficiency of the property is not a safe basis for the determination of the present value. It may under certain conditions give an inflated present value, while the property itself may be in a seriously neglected condition. A system of tracks, cars and power houses may be installed to serve a certain population. By means of crowding the cars or placing additional cars in service a much larger population can be served without additions to the track. This does not increase the value of the tracks. The increase in traffic will only shorten the time before which extraordinary repairs must be undertaken.

In conclusion I may say that recent experience clearly shows the necessity for full information as to the costs of every part of the property and the value of each item of expenditure. As a basis of such information an appraisal to determine the value new and the present value is of the greatest assistance. Such an appraisal can, by a proper system of accounting, be brought forward to any reasonable date. The value new should form a basis of capitalization, bond issue, or the establishment of a rate. The present value will serve as a guide for the establishment of reserve or maintenance funds and for a sale or transfer of the property.

## REPORT OF COMMITTEE ON INSURANCE\*

BY H. N. STAATS (CHAIRMAN), F. W. COEN, H. P. CLEGG

In the year 1904, the first important step was taken by thirty big traction companies in an organized effort to get reduced rates of insurance through reduced hazard. The American Railway Insurance Company was chartered by individual members of these traction companies, and is still in existence, being maintained by these companies. In the same year, plans and specifications for the protection of traction properties against loss by fire were originated in the office of the American Railway Insurance Company. These plans and specifications were submitted to and approved by the National Fire Protection Association, an organization of leading insurance companies in the United States. The object of this association is to promote the science and improve the methods of fire protection and prevention, to obtain and circulate information on these subjects and to secure the co-operation of its members in establishing proper safeguards against loss of life and property by fire. This was the first step taken as an organized movement to protect traction properties with the most modern and scientific means to prevent loss by fire. No small credit should be given the American Railway Insurance Company and those identified with it in this very important movement.

Henry J. Davies, secretary of the Cleveland Electric Railway Company was appointed chairman of the Committee on Insurance and Fire Protection of the American Street & Interurban

\*Abstract of report read at meeting of Central Electric Railway Association, Toledo, May 26-27.

Railway Association, and has been re-appointed from year to year, and at the present time is serving as chairman of that committee.

In 1906 your chairman was honored by the Central Electric Railway Association in being appointed chairman of its Committee on Insurance and Fire Protection, and has been re-appointed and served in this capacity during the past four years. There have been associated with him at various times in this work Henry J. Davies, secretary and treasurer of the Cleveland Railway Company, F. W. Coen, vice-president and general manager of the Lake Shore Electric Railway Company, Harry P. Clegg, president of the Dayton & Troy Electric Railway Company, H. A. Nichol, general manager of the Indiana Union Traction Company and F. D. Carpenter, general manager of the Western Ohio Railway Company.

We will now attempt to prove to you conclusively that insurance agents and insurance brokers do not make your rates of insurance, but that every traction company establishes the rate of insurance applicable to its property by first protecting its own interests irrespective of any or all insurance companies and by observing the following rules:

First.—Erect buildings of slow burning or non-combustible materials.

Second.—Protect same with complete automatic sprinkler equipment.

Third.—Separate the risks by fire walls to reduce the danger of heavy loss to rolling stock.

Fourth.—Give careful attention to wiring and electrical supervision.

Fifth.—Appoint inspectors whose main duty is to watch and reduce the fire hazard.

There is another old adage that we would like to make use of at this time—"the proof of the pudding is in the eating thereof," and we submit herewith attached letters from traction companies, who have during the past four years followed out in some instances all of the above rules, and in others the major number. Study these letters and learn how to make your own rates of insurance.

The work of your chairman during the past five years has been along educational lines with the prime object always in view of helping traction companies to protect their valuable interests against the fire fiend. The work has been one of pleasure. The results of his labors in conjunction with the insurance committees of the several associations are now apparent in the very large reductions in the rates of insurance on traction properties. Briefly, the rates on traction properties to-day are less than one-half of the average rates charged in 1905, and in some instances the rates have been reduced 90 per cent from the rates charged in 1905.

Permit us to say there is a safe point to which the insurance rates can be reduced. If they are forced below that point, it is only a matter of time when there will be a rebound, and the insurance companies must increase the rates to a point where they can secure a fair and reasonable profit.

Your committee strongly urges upon every traction company to protect its valuable interests with the most modern and scientific means to prevent and to extinguish fire. Equip your properties so that you feel that you can safely carry your own insurance, and then we are confident that the regular established insurance companies will freely offer you a rate lower than you can afford to carry the insurance yourselves.

We recommend that your committee on insurance and fire protection be continued and the committee suggests that you consider the advisability of employing an insurance expert to aid it and to represent the association, or any member company that may call for his services in any negotiation or dispute with insurers, as well as to advise members on the subject of insurance and the better protection of their property against loss by fire. A recommendation of this kind was approved by the Executive Committee of the American Street & Interurban Railway Association at their meeting held in New York on May 11, 1910.



## RECORDS OF INSTALLATIONS

J. J. Stanley, president and general manager of the Cleveland Railway Company, writes under date of April 7, 1910: "We have 11 car houses equipped with automatic sprinklers, and the sprinklers have put out at least three incipient fires. In one case the fire started in our storeroom at our car shops from contact of an electric lamp with our stock of celluloid. An explosion followed, and a disastrous fire was prevented by the opening of six sprinkler heads in the ceiling of the room. In another case that occurred in February last, a fire that started in a car from an overheated stove in one of our car houses was extinguished by four sprinklers in the aisles between cars, without aid from the city fire department, which had been called, and without the opening of any ceiling sprinklers. We believe that every car house should be equipped with automatic sprinklers distributed along the ceiling and in the aisles between cars."

J. C. Hutchins, president, Detroit United Railway, writes under date of March 31, 1910: "We have installed automatic sprinkler equipment in some of our car houses and car shops according to the plans and specifications originated in the office of the American Railway Insurance Company. The result of such installation has been most satisfactory, for the reason that it furnishes a substantial degree of protection against destruction of the property by fire, and at the same time makes it possible to buy insurance at rates that are not prohibitive. It is our policy to eventually protect all of our large storage plants with such equipment."

T. A. Cross, general manager, United Railways & Electric Company, of Baltimore, writes under date of May 10, 1910: "Our recent fireproof concrete structures embody every improvement known to safeguard the building and its contents against fire. The building itself, therefore, is fire resistive to a very high degree. The only cause for concern arises with the rolling stock or other contents that the building may contain, and it is for protection against fire arising in the contents themselves that sprinklers are being used in these properties. Automatic sprinkler equipments, as designed by a number of the leading sprinkler concerns, represent the highest type of fire protection that is obtainable at the present time. I, therefore, feel assured that a building, if designed to resist a fire at every point, and in addition to this is equipped with automatic sprinklers to protect the contents of the building, the possibility of serious fire is totally removed. As railway companies do not possess rolling stock greatly in excess of that which is in daily operation, any large fire which removes from service a large number of equipments must necessarily cause a serious situation."

F. J. Spaulding, Brooklyn Rapid Transit Company, writes under date of March 23, 1910: "We have two buildings which are sprinkled, viz., the car depot at Fifty-eighth Street and Second Avenue and the repair shop at Fifty-second Street and Second Avenue. The equipment in the Fifty-eighth Street depot was installed when the building was constructed, I believe, in 1892, and the installation of sprinklers in the repair shop was made in 1903. There have been two instances of the sprinkler equipment in the repair shops operating and probably preventing serious damage by extinguishing fires."

W. E. Moore, operating manager, West Penn Railways Company, Pittsburgh, Pa., writes: "We have had no trouble with our sprinkler equipment. The same is entirely satisfactory and, of course, the reduction in the insurance rate is very satisfactory to us."

Edgar S. Fassett, general manager, United Traction Company, Albany, N. Y., writes under date of March 30, 1910: "The United Traction Company installed the sprinkler system, both overhead and aisle, in all of its car houses about five years ago. Aside from the very large reduction in our insurance rate, we have since been satisfied that we have the best possible protection for our rolling stock and buildings."

L. D. Mathes, general manager, Union Electric Company, Dubuque, Ia., writes under date of March 30, 1910: "There is no property more deserving of the highest class of fire protection than the equipment of street railway companies. A suspension of service due to loss of equipment involves not only a

financial loss to the company, but inconvenience and hardship to the entire community. The introduction of a sprinkler system reduces the possibility of a loss by fire to practically the zero mark, as properties protected by an approved sprinkler system do not burn. Aside from the absolute protection afforded by the system there is the material economy resulting through lowering of the yearly insurance premium account. We should be very glad to invest more money in our plant which would bring a smaller rate of insurance. Aside from the economy mentioned, there is a state of composure of mind which is of itself worth something."

W. S. Kirkpatrick, vice-president and treasurer, Kansas City Railway & Light Company, writes under date of March 30, 1910: "This company stores its cars in open yards and in car houses. The yards are equipped with modern fire apparatus, and with the exception of two, all the car houses are equipped with automatic sprinklers. We hope before long to have all our car houses so equipped. We consider automatic sprinklers the best means of safe-guarding our cars against loss by fire while contained in car houses."

D. A. Hegarty, general manager, Little Rock Railway & Electric Company, writes under date of March 30, 1910: "We have an automatic sprinkler system installed in our car barn and it is not only the means of giving us valuable fire protection, but also greatly reduced our insurance cost on account of making the risk being less hazardous. We are very well satisfied with having installed it and would not want to have a car barn or building in which we were interested without the protection of the sprinkler system."

J. H. Hanna, chief engineer, The Capital Traction Company, Washington, D. C., writes under date of March 31, 1910: "We have installed automatic sprinkler equipments in two of our car barns. Both of these car barns are new and are of reinforced concrete fireproof construction. The sprinkler equipment consists of aisle sprinklers only and is installed with the idea of taking care of fire originating in the cars themselves, as these constitute the only inflammable material in the buildings. We fortunately have had no opportunity to try the efficiency of the apparatus, but believe it is of much value for this service."

John N. Shannahan, general manager, Washington, Baltimore & Annapolis Electric Railway Company, Baltimore, Md., writes under date of March 30, 1910: "Our car shops at Naval Academy Junction are equipped with a complete automatic sprinkler equipment. We regard this as a wise and proper investment, and since that time, on one occasion, are convinced that it saved us from very serious conflagration."

L. L. Dagrón, engineer, Utah Light & Railway Company, Salt Lake City, Utah, writes under date of April 5, 1910: "Our car barn is as nearly fireproof as possible with a concrete-brick-steel building. With the additional safeguard of the sprinkler system in aisles and roof, the cars are given the best protection possible. This practically eliminates the possibility of a tie-up on system from lack of cars in case of fire. As yet we have had no fire to give a demonstration of what the system will do, but from tests we have made everything works to satisfaction. The equipment gives a feeling to all that in case of fire with the barn full of cars, the damage would only be slight. The reduction of insurance from the sprinklers is alone sufficient cause for installation."

## REDUCTIONS IN RATES

The following are some of the reductions secured in rates by the introduction of sprinkler systems, correct methods of building and other means to reduce loss by fire:

Albany, United Traction Company.—Reduction from \$1.10 to 35 cents.

Little Rock, Ark., Little Rock Railway & Electric Company.—Reduction from \$1.50 to 44 cents.

East St. Louis, Ill., East St. Louis & Suburban Railway Company, Winstanley shops and barns.—Reduction from \$1.45 to 25 cents.

Sandusky, Ohio, The Lake Shore Electric Railway Company.—Reduction from \$1.65 to 30 cents.

Spokane, Wash., The Washington Water-Power Company.—



Reduction in car-barn building from \$1.56 to 50 cents; in machinery and supplies from \$1.65 to 75 cents, and in rolling stock from \$1 to \$38 cents.

Willoughby, Ohio., The Cleveland, Painesville & Eastern Railroad Company.—Reduction at Willoughby in buildings and contents from \$1.74 to 30 cents; at Nottingham from \$2.29 to 30 cents.

## THE NATIONAL ELECTRIC LIGHT CONVENTION

The St. Louis convention of the National Electric Light Association, the thirty-third in number and marking the twenty-fifth anniversary of the organization, began May 23 with the opening of exhibits of associated members. The special convention trains bearing delegates from the East, West and North arrived on time and without mishap. Following the opening of the exhibits, there was a reception by the officers of the association to delegates and visitors, on the stage back of the exhibition hall. The reception was followed by a dance.

The first general session was opened Tuesday morning, May 24, with an address of welcome by Hon. Frederick H. Kreisemann, Mayor of St. Louis, who referred briefly to the past history of the electrical industry and touched upon important work done by electricity in upbuilding St. Louis. He concluded by presenting to President Frueauff the key of the city. W. W. Freeman, of the Brooklyn Edison Company, then took the chair while Mr. Frueauff delivered his presidential address.

Mr. Frueauff first reviewed the history of the association, stating that at the end of the first year there were 62 members in good standing; at present the association has 823 company members and a total of more than 6000 members of all classes. He recommended the grouping of membership into several classes according to the population of the cities served by member companies, one class corresponding to 25,000 population, another to a population of from 25,000 to 100,000, and a third to a population in excess of 100,000. According to this plan, a topic, of which the importance has a bearing on the size of the plant, may be discussed in one group, and the various committees may so arrange their work as to serve each of the several groups. In referring to the conservation of natural resources, he said that much which has been appearing in the public press on the subject would appear to indicate a belief in some quarters that steps should be taken to curtail the development of the natural resources of the country. By the development of water-power, resources which may otherwise be dissipated never to return, such as coal, wood and oil, are necessarily saved; but even more important is the conservation of time, the conservation of effort and the conservation of thought, in all of which electricity has played an important part. He referred to the constant downward trend in the rates charged for electric service, which service is the one cheaper thing enjoyed by the public in these days of high cost of living. The central-station man has been satisfied with an increase in gross earnings from an increase in sales, and has given to the public the greater part of the benefit from this policy. Mr. Frueauff said that we stand appalled at the tremendous amount of capital necessary to develop the opportunities which yet lie before us. The arid lands of the West and South will be made fertile, and unproductive lands in other sections will be made productive through fertilization electrically produced. Some of the steam roads of the country are now changing to electric power, others are considering the advisability of such a change, and in the city streets the future is only for the electric vehicle.

The address was referred to the following committee, who will suggest such action on the recommendations of the president as may be called for: Samuel Insull, Chicago; C. L. Edgar, Boston, and M. C. Osborn, Spokane.

H. O. Stewart, of Rochester, N. Y., then presented the report of John C. Parker, of the Rochester Railway & Light Company, editor of the Question Box. Mr. Parker reported that the work on the Question Box has now attained such proportions that a permanent editor should be

engaged with headquarters at the offices of the association. The report on Question Box Revision by Paul Lupke and Alex. J. Campbell, former editors, was presented by Mr. Campbell. The report states that the task of the revision of the Question Box is becoming less and less a mere revision, and more and more the development and production of a central-station operators' handbook, which should be to the whole field of central-station work what the solicitors' handbook is to the "new business" department.

T. C. Martin presented his report as committee on progress, which, as printed, comprises 74 pages, and gives an excellent résumé covering every phase of central-station activity. The aggregate of present investment in the central-station business is stated to be \$1,500,000,000, with an income of \$300,000,000 gross. Referring to the great proposition of small central stations, he said that the entire State of New York, which has now 358 stations, could easily be covered by 25 plants having a distributing radius of 50 miles each. The report of the Public Service Commission of New York indicated that a large part of the small companies show a deficit each year. Commenting on the present status of water-power conservation policy, he said that the realities of the situation are serious, for a definite policy of restriction is rapidly shaping up that bids fair to check development. Referring to the electric automobile, it was stated that 20,000 electric vehicles are now in use in this country, the annual energy consumed by them being valued at over \$2,000,000.

Mr. Martin then presented, in the absence of the author, a paper by Paul Lupke, which dealt in a witty manner with some of the faults of superspecialization. While admitting the necessity under modern industrialism of the benefits of intense specialization, one's back should not be bent forever in one narrow furrow; and any employee who puts the interests of the department to which he belongs above the interest of the company as a whole, makes it impossible for himself to be a good employee. Such a condition tends to diminish service toward the company as a whole, and also to develop an exaggerated ego and produce little men. There are, he said, more little jobs than little men and always more big jobs than big men, while in the very nature of things big jobs must be above any one single department. The fact, he said, that corporations have no souls imposes upon every employee, high or low, the duty to demonstrate clearly on every occasion that he has one.

H. H. Scott, of the Doherty Operating Company, and chairman of the membership committee, presented a report showing an expansion in 10 years from 200 to 5523 members, and a net gain for last year of 2386 members of various classes. The report closed with a résumé of the methods used in the successful membership campaign of last year. The committee recommends aggressive methods toward the formation of additional geographic sections, following out the plan outlined by the committee on State and company branches last year.

Dudley Farrand, past-president and the official representative of the association on the National Conservation Commission, was unable to be present owing to an accident confining him to bed. His report, read by W. B. Robbins, of St. Louis, stated that owing to the fact that the National Conservation Commission lost its legal existence by act of Congress, the association's representative was left with empty title. During the year no national meetings were held, but the National Conservation Association has been organized with headquarters in Washington, which will carry on its work through voluntary contributions, this work consisting largely of a series of bulletins calling attention to particular phases of conservation. Agents are delegated to watch bills in Congress, and at the present time the association is trying to prevent the passage of the Senate bill giving the control of water-powers on public domains to the States in which they are located. No action being demanded of the association at the present time, Mr. Farrand reported progress, and the report was referred to the executive committee.

John R. Bailey, of the Consolidated Gas, Electric Light & Power Company, Baltimore, chairman of the accounting com-



mittee, submitted a report summarizing the work done last year and reserving other matters for discussion in the accounting sessions. The classifications adopted at the 1908 and 1909 conventions are now published in book form by the association for \$1.

Upon the conclusion of Mr. Bailey's report the convention adjourned to 2:30 p. m., May 24, when in a general session the following report and papers were to be presented: Report of lamp committee, W. F. Wells, Brooklyn Edison Company, chairman; periodic lamp renewals and customers' service inspection, by A. G. Strickrott, Schenectady Illuminating Company; magnetite and flaming arcs vs. open and enclosed carbon arcs for street illumination, by M. W. D'A. Ryan, General Electric Company; new form of tungsten lamp, by C. F. Scott, Westinghouse Electric & Manufacturing Company; high-efficiency lamps, by S. E. Doane, chief engineer, National Electric Lamp Association.

### SUCCESSFUL COMPLETION OF THE UTICA ELECTRIC RAILWAY TRIP

The 2000-mile all-electric excursion of the committee of Utica (N. Y.) business men, which was referred to in the *ELECTRIC RAILWAY JOURNAL* of May 21 and earlier issues, was successfully completed according to schedule in Utica on Monday, May 23. The delegation was met at Syracuse by two cars of the Oneida Railway in charge of C. Loomis Allen, general manager, and C. R. Gowen, the general passenger agent of the Oneida Railway. Mr. Allen acted as motorman of the excursion car on the homeward trip between Syracuse and Oneida, bringing the car into the city in record time. At Oneida, a band and automobile parade escorted the tourists to Bagg's Hotel, where a banquet was served. The menu card showed a photograph of the car and the party just as both appeared when the start from Utica was made. Underneath this was the inscription, "Dinner and Reception Tendered to the Members of the Utica Electric Railway Tour, May 10, 23, 1910, by the Citizens of Utica, New York, May 23, 1910, Bagg's Hotel." The entire trip was made without mishap of any kind, either to the car or its occupants. The tourists were well received throughout this novel trip, which so effectively advertised their home city.

### COST OF ESTABLISHING AN ELEVATED STATION IN BOSTON

In connection with a recent hearing before the Massachusetts Railroad Commission upon facilities provided on the Forest Hill extension of the Boston Elevated Railway Company, Frederic E. Snow, counsel for the company, submitted the following estimate of the cost of establishing and maintaining an elevated station at Green Street, Jamaica Plain, the total annual expenditure, including fixed charges, being \$45,031.46.

CAPITAL INVESTMENT.		FIXED CHARGES.	
Station .....	\$ 50,000	Int. and taxes, 6% .....	\$ 3,000
8 Sectional Cars .....	88,000	Depreciation, 3.3% .....	1,650
Power Station Capacity, 65		Int. and taxes 6% .....	5,280
kw per car, at \$125 .....	65,000	Depreciation, 5% .....	4,400
Transmission Expense, 65		Int. and taxes, 6% .....	3,900
kw per car; \$45 per kw ..	23,400	Depreciation, 4.8% .....	3,120
Yard and Structure .....	16,000	Int. and taxes, 6% .....	1,404
		Depreciation, 2.5% .....	585
Totals .....	\$242,400	Int. and taxes, 6% .....	960
		Depreciation, 2.5% .....	400
		Totals .....	\$24,699
OPERATING EXPENSES.			
Care, repair and lighting of station .....			\$2,118.63
Manning station .....			3,686.50
Cost of stopping trains, wear, tear and power .....			11,789.83
Additional train wage cost .....			2,737.50
			\$20,332.46
			24,699.00
			\$45,031.46

Care and maintenance of additional cars was not included for the reason that such expense is based on the mileage, and additional mileage is not entailed.

### INSTRUCTIONS ON LIGHTNING TO DENVER ELECTRIC RAILWAY MEN

The approach of the summer season has had the superintendent of overhead wires, and the trainmaster of the Denver City Tramway Co. to offer suggestions through the "Tramway Bulletin," to the employees of that company in regard to lighting. The trainmaster tells the men to let their cars coast as much as possible, during a thunder storm, with the overhead switch off. This will save the electrical apparatus.

Continuing he says in part: "Try also to remember where the controller handle stood when the car was struck. It may help to locate disabled parts quickly. For instance if controller was on the off point when struck, the chances are that the lightning discharge did not get beyond the controller. In that case you will find that when you apply the current, the controller will blow up. The blow magnet has probably become grounded. If on a hand brake car, quickly cut out the controller, by detaching the trolley lead to the blow magnet, carefully taping the end of the wire. Then go to the rear and operate the car from that end to the Loop. If on an air brake car, throw off overhead circuit breaker, which will cut out the controller on that end of the car. This course can also be followed to advantage when the controller is grounded from other causes.

"If the car is struck while the current is on, the lightning may disable one of the motors, although this does not always happen. In some cases the discharge goes to the ground before reaching the motor. The trolley wire is sometimes burned off at the base of the trolley on the roof. When this happens there is very little to do but to have the car pushed to the Loop. Otherwise, if the motors do not take current when it is applied through the controller, examine the overhead circuit breaker or the fuse, if on a hand brake car. If they are O. K., cut out the disabled motor and proceed to the Loop, as cases are very rare where both motors have been disabled by one discharge. Field coils are also very rarely damaged. If, however, you find the overhead circuit breaker damaged, promptly go to the rear platform and take the car to the repair shop. If the fuse of a hand brake car is blown, replace it, unless box is badly damaged as sometimes occurs. In that instance get a jumper and connect the wires across the box, carefully taping exposed parts of wire, cut out disabled motor, if there is one and take the car to the repair shop."

### EDWARD W. BEMIS ON THE CLEVELAND TRACTION SETTLEMENT

Edward W. Bemis, who was connected with the Johnson administration in Cleveland, has contributed to the department "Notes and Memoranda" in the *Quarterly Journal of Economics* for May, 1910, an article entitled "The Cleveland Street Railway Settlement," which in a measure supplements an article by him in the same publication in August, 1908. Mr. Bemis says that the Taylor ordinance, under which the Cleveland Railway took over the management of the lines in Cleveland, "is an attempt to apply through a city commission the principles and theories of regulation which have underlain the State public service commissions of Massachusetts, New York and Wisconsin." According to Mr. Bemis, the attempt to provide more definitely for municipal ownership in the grant is unique in the world's experiments. He gives the principal provisions of the grant in their order in the franchise. Mr. Bemis refers to questions which have come up for settlement recently, such as the fare to Collingwood, and whether the Council can, with the consent of the company, extend the limits of 3-cent fare by mere amendment, or whether it will be necessary to have a new ordinance approved by referendum. Two questions, Mr. Bemis says, confront the people of Cleveland to-day: first, is the settlement really a settlement; and second, will the fare, after the first eight or ten months, remain at the present point?

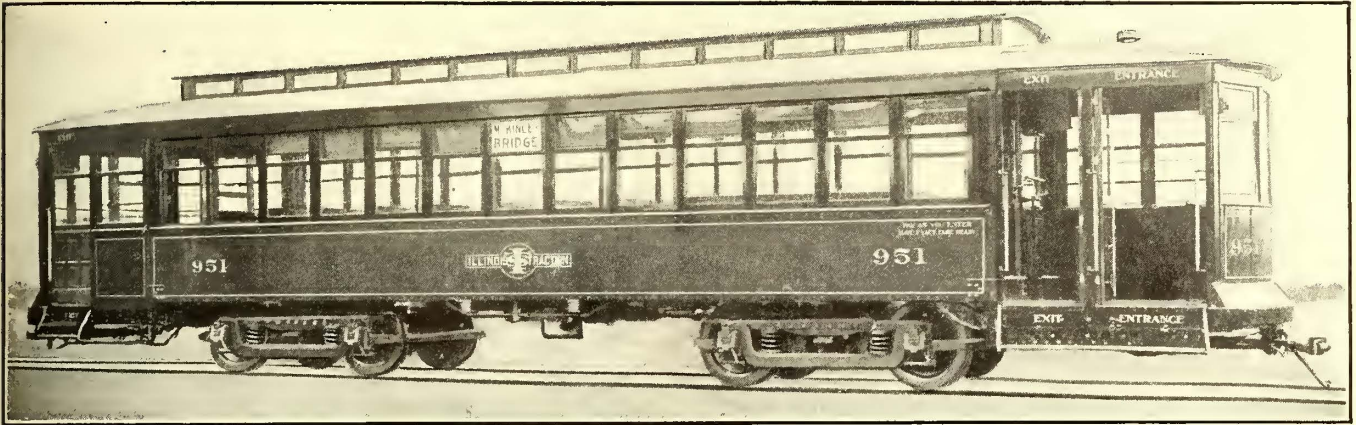


## PAY-AS-YOU-ENTER CARS FOR THE MCKINLEY BRIDGE SERVICE OF THE ILLINOIS TRACTION SYSTEM

The Illinois Traction System has recently received 30 cars from the American Car Company, St. Louis, Mo., to form the initial equipment for service over the new McKinley Bridge across the Mississippi River above St. Louis. Twenty of the cars are motor cars of the pay-as-you-enter type mounted on Brill No. 27-M. C. B. 2 trucks and the other ten are cars of the same type for trail service. All were built under license of the Pay-As-You-Enter Car Corporation. The trail cars have the same dimensions as the motor cars and are alike in every respect

railings are arranged with vertical members running through the floor and secured to the platform knees. Both the folding doors for use in winter and the folding gates for summer operation are operated by the conductor without leaving his usual position. The front vestibule has two sliding doors entering the end of the car and one sliding exit door at the right hand corner of the vestibule. There is a railing to protect the motorman from interference from passengers and the sliding exit door is under the control of the motorman.

The interior finish of the cars is mahogany with three-ply poplar veneer headlining and ceilings. There are 16 transverse seats, upholstered in rattan, which have stationary backs with

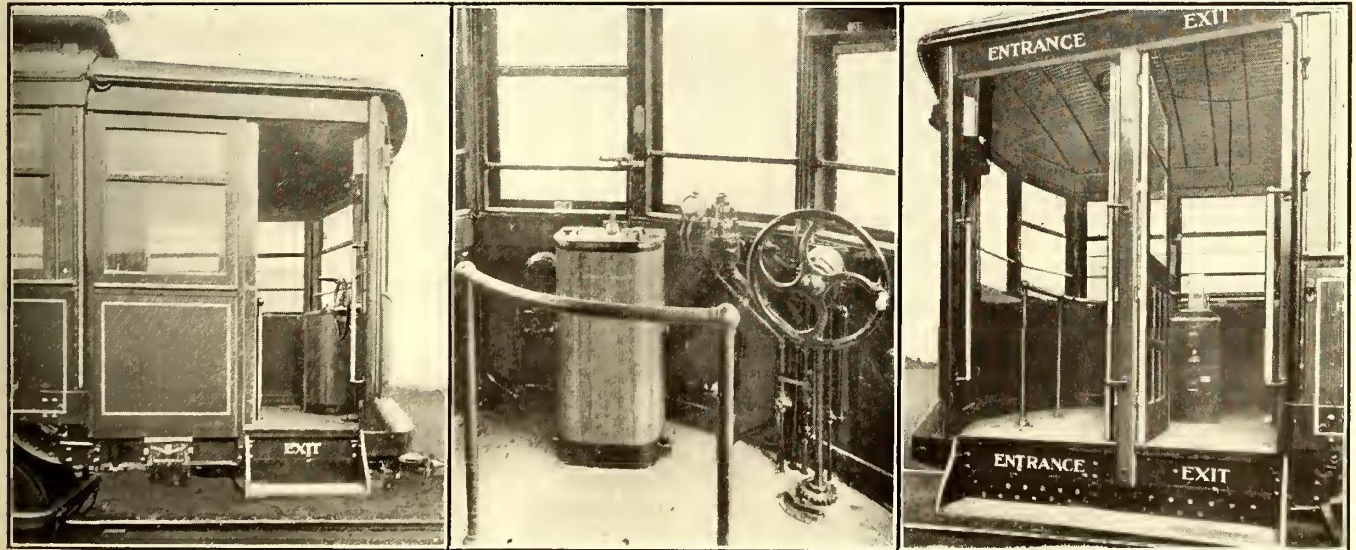


Pay-As-You-Enter Car for Train Service on the Illinois Traction System

except that the platform arrangement on the rear of the trail cars is the same as the front platform on the motor car and the pay-as-you-enter feature of the trail cars is embodied in the front platform instead of the rear. Both motor and trail cars are of the single-end type with full vestibules at both ends.

brass corner grab handles. These seats are 37-in. long and the aisle width is  $27\frac{1}{4}$  in. There are two longitudinal seats each 7 ft. 6 in. long. The lower portion of each window sash drops into a pocket, the upper half is fixed.

The principal members of the underframing are the four



Front Exit, Motorman's Platform and Conductor's Platform of Pay-As-You-Enter Car

The rear platform of the motor car and the front platform of the trail car are provided with doors for winter and gates for summer. The cars have straight sides and straight topped window sash which are made in two parts, both in the body of the cars and in the vestibules, except the center end vestibule sash. The cars are covered on the outside with  $1\frac{3}{16}$ -in. matched yellow pine boards and over this is placed a sheathing of No. 14 sheet steel. Where the steel siding terminates just below the window sill joint it is covered by an iron molding  $1\frac{3}{4}$  by  $\frac{1}{4}$ -in. extending the full length of the car body in one piece.

The rear vestibule of the motor car and the front vestibule of the trail car have standard pay-as-you-enter features. The

sills. The side sills consist of two pieces of long leaf yellow pine filled in between with an 18-in. x  $\frac{3}{8}$ -in. plate the full length of the car body and bent at right angles at the end sill and securely bolted to the end sill. The outer member of the side sill is  $4\frac{11}{16}$  x 8-in. and the inner member is  $2\frac{3}{4}$ -in. x  $7\frac{1}{8}$ -in. This composite sill is bolted together independently of tie rod bolts and angle iron bolts. The center sills consist of 6-in. I-beams,  $12\frac{1}{4}$  lb. per ft., which are filled in on each side with  $2\frac{3}{8}$ -in. x  $6\frac{3}{16}$ -in. long leaf yellow pine. The fillers rise  $\frac{3}{16}$ -in. above the top flange of the I-beam to make up the bottom framing members at the end sills and to provide nailing strips for the floor. The cross framing consists of  $3\frac{1}{2}$ -in. x  $6\frac{3}{16}$ -in. oak tenoned into the center sills and side sill

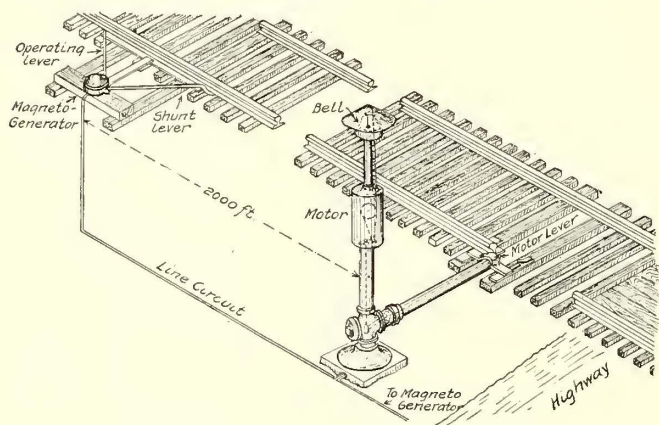


fillers. At each crossing there are two 1 3/4-in. tie rods, one on each side, with the heads countersunk in the side sill under the sheathing and the other end of the rod terminating in a malleable iron casting between the center sills. In addition, the cross framing is secured to the side sills by 4-in. x 1/2-in. angle irons. The platform framing consists of 6-in. Z-bars reinforced at the turn with gusset plates. The Z-bars are filled under the platform with oak fillers and are snugly fitted to the center sills and extend back beyond the bolster plate. The outside knees consist of 3-in. oak plated with 12-in. x 1/2-in. steel plates. The following are a few dimensions of the cars: Length over bumpers, 50 ft.; length over vestibules, 48 ft. 8 in.; length over end panels, 33 ft. 8 in.; width over sheathing, 9 ft. 3 in.; height from top of rail to roof, 12 ft. 1 in.; truck centers, 21 ft. 0 in.

### A NOVEL HIGHWAY CROSSING BELL

The Omaha & Council Bluffs Street Railway Company recently has installed a new highway crossing bell made by the Hoeschen Manufacturing Company, Omaha, Neb. The most striking feature of this signal is its operation by electro-mechanical means which are entirely independent of storage batteries, track circuits or other methods requiring delicate apparatus. The main element of this device is a unique magneto-mechanical generator which is placed at the desired distance each way from the crossing.

As shown in the drawing the mechanical portion consists of one operating and one shunt lever, each having its inner ends resting against the underside of the rail and fulcrumed close to it. The outer ends of the lever terminate next to a releasing rod used in connection with an armature resting on the cores of a pair of induction coils. These coils in turn are fastened to the poles of a group of permanent magnets. When a train moves toward the crossing a slight depression of the rail above the operating lever causes the outer end of this lever to lift the armature from the induction coils. This action induces a momentary current which is transmitted by a metallic circuit to releasing magnets which control the bell motor, thus causing the bell to ring until the train reaches the crossing. A train passing in the opposite direction will depress the rail above the shunt lever first, thereby making

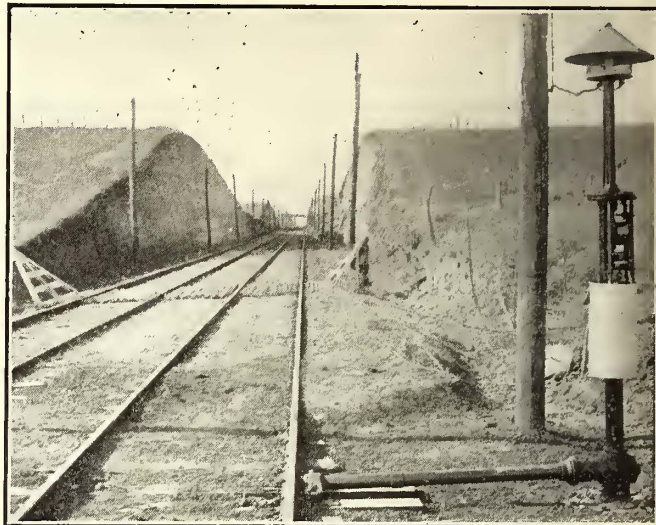


Perspective View of Crossing Signal

the outer end of this lever shift the releasing rod away from the armature so that the immediately following depression of the operating lever has no actuating effect.

The spring motor used to operate the bell is completely enclosed in a metal cylinder as shown in the same drawing. This motor is compactly built; the few parts required for its construction consist of a simple gear movement of three wheels used in connection with three motor springs. These springs are secured to the main driving shaft of the motor and are wound by a rod connected directly with the lever resting against the underside of the rail at a point opposite the motor. When the rail at that point is depressed by the wheel of each car of a passing train, a reciprocating motion of the winding

rod (motor lever) is obtained, thus winding the springs and restoring the releasing lever which controls the motor. The connecting rods, extending from the winding rod to the pawl plates on which are carried the dogs for turning the ratchet wheel, are arranged to wind the ratchet wheel on both the upward and downward stroke of the winding rod. The passing of one car will wind the ratchet more than 4 in. The motor gearing is so arranged that less than this amount of winding is needed to ring the bell for the passing



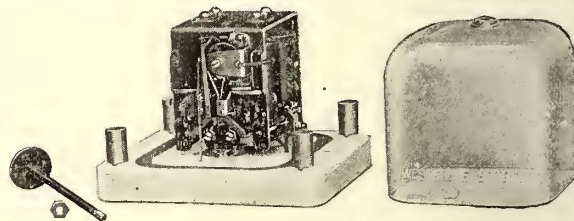
Crossing Signal Installed

of two following cars. In general the motor stores sufficient energy to ring the bell for say 100 cars before rewinding is necessary. Means are provided to prevent overwinding.

It will be understood that the bell does not ring until the motor is released by an approaching train passing over the generator levers as hereinbefore mentioned. The bell gives 200 strokes per minute until the train reaches the crossing. Any number of tracks may be protected by placing additional magneto generators with shunt and operating levers in connection with the bell motor releasing circuit.

### A NEW TELEPHONE SELECTOR

For a year or more the engineers of the Western Electric Company, New York, have been working in conjunction with some prominent railway operators to develop a selector which, with its standard "Bell" telephone apparatus, would enable the company to offer a complete installation to railways which use



Telephone Selector

the telephone for train dispatching or messages. It is reported that the final model of this selector was made several months ago and since then a complete installation has been undergoing a successful service test on one of the busiest railroad divisions in the United States. Orders have already been placed for the new selector by three large railway systems.

The new selector is a step-by-step mechanism with but three moving parts, bridged directly across the line. A most desirable simplicity is attained because there is only one contact to make, while all relays and other complicated parts are eliminated. Central-battery ringing is provided, thus doing away with the necessity for installing dry batteries at the way stations. The selector is also arranged for local-battery ringing if desired.



# News of Electric Railways

## Mr. Whitridge and the New York Commission at Odds Again

On May 12, 1910, shortly after the suit had been dismissed which had been instituted against him for \$860,000 by the Public Service Commission of the First District of New York for failure to equip cars of the Third Avenue Railroad and the Union Railway with wheel guards in a specified time in accordance with an order of the commission, Frederick W. Whitridge, receiver of these companies, addressed the following letter to Travis H. Whitney, secretary of the commission:

"The suit of the commission against me for the recovery of a penalty amounting to \$860,000 for an alleged disobedience of an order having been dismissed, I feel bound to say to the commission what I may say about them.

"I am indignant that such a suit should have been brought upon what is, at the worst, the merest technicality, and I cannot imagine how the commission could fail to perceive that any jury and the public generally would be certain to find—the circumstances in the case being what they were—that the action was, as several of the jurors volunteered to say to my counsel, perfectly ridiculous.

"I think it is a possible explanation that the commission is continually being misled by its inspectors. It appeared on the trial, as I previously suspected, that your inspectors are given a roving commission to wander through your jurisdiction in search of violations of laws and regulations, and a system of petty espionage is thus established which I do not think was contemplated by the statute, and which I am sure the American people will not in the long run tolerate.

"Whether as an abstract proposition it is a good thing for the public I am not prepared to say, but I wish the members of your commission could get out of their heads the idea that the United States receivers of these roads, who are public officials and as responsible as the commissioners themselves, have any desire on earth except to comply with all the laws and legal regulations affecting them, and in every way to accept anybody's suggestions for the improvement of the service.

"If, however, the commission persists in holding their present views, I feel justified in warning them against giving their inspectors too much credence. You already know that in the case of the repairs of the Forty-second Street cars two years ago your inspectors reported to you an absolute falsehood; in the case of the service on the Southern Boulevard they later suppressed the obvious cause of the delays of which they complained, and they have repeatedly been guilty during the past year of the most colossal absurdities in their blue-prints.

"In the litigation just dismissed they put your chairman in the position of making oath that for 160 days I have disobeyed your orders, whereas their evidence showed only two days, and I hope that it is the inspectors alone who are responsible for having put the commission in the position of collecting what they suppose to be evidence, keeping it secret, and bringing an action against me for an enormous and ruinous sum of money, without any notice of warning, contrary to the recognized principles of law, justice, common sense, and good manners.

"I may add that I have lately been having your inspectors inspected, and the results would convince anybody that their labors are generally of the most trivial character. I inclose two or three of the reports on their movements, and I regret that the evident dislike and even terror of your observers to being observed put the expense of continuing my observations beyond my means.

"I cannot but believe that the commission has been misled in all of these matters, and I know that their whole attitude toward the receivers of these properties is mistaken. I really believe that the members of the commission can be persuaded to change their mental attitude as well as the course of their procedure in some particulars.

"I should be very happy, and I think it would be in the public interest, if the commission should feel disposed to

meet me for a candid talk upon the whole subject. If they are so disposed I will endeavor to find some day within a week or 10 days when they, together with their counsel, their transportation engineer, and you yourself can come and lunch or dine with me."

The following letter was sent by the commission to Mr. Whitridge in reply to his letter of May 12, 1910:

"Receipt is acknowledged of the letter of May 12 from you as receiver for the Federal Court of the property of the Union Railway. In your letter you embody anonymous charges against a certain class of employees of the commission, who, under the provisions of the Public Service Commissions law, are public officers. Accordingly I am directed to ask that you furnish the names of the employees to whom you refer and also the names and addresses of those making the reports to you, or that you have such persons call at this office in order that they may identify the employees watched by them.

"The commission is ready to deal summarily with any of its employees who fail in the performance of their duties, but it is impossible to take any action upon anonymous charges. At the same time it is unfair and not straightforward to have an entire class of public officers condemned without notice being taken of such charges, and I therefore ask that you furnish as speedily as possible information showing the dereliction of employees of the commission which you, as an officer of the court, have secured through detectives whom you say you employed."

## Cleveland Traction Situation

A difference in the accounts between the city and the Cleveland Railway developed when the city presented bills amounting to \$86,000 on May 17. Officers of the company supposed that \$43,586.97 was due the city, but City Auditor Wright, after examining the books of the company, said that he found \$42,870.61 in bills which had been marked as outlawed, uncollectable and disputed. The oldest of these alleged claims was dated June 30, 1892. The largest one, \$15,644.80, for stone on Euclid Avenue, was dated Dec. 5, 1900. At a conference attended by Mr. Wright, City Solicitor Baker, Col. C. X. Zimmerman and H. J. Davies, secretary of the Cleveland Railway, the company presented bills against the city which amounted to \$47,598.15. As a result another meeting will be held. Of the bills recognized by the company, \$23,092.16 is on account of the Cleveland Electric Railway; \$19,330.69, obligations of the Municipal Traction Company, and \$1,104.12, debts of the Forest City Railway. All of the recent claims are against the Cleveland Electric Railway.

At the regular meeting of the City Council on May 16, 1910, improvements to the Cleveland Railway which will involve the expenditure of \$250,000 were authorized. Of this amount, \$196,468 will be used for converting 230 cars into cars of the pay-as-you-enter type. The report of the company for April was received by the Council. G. M. Dahl, street railway commissioner, reported the expenses of his office for March as \$733 and for April, \$1,565. It was shown that \$270 was expended in April for secret service. Mr. Dahl said that some things in connection with his office could not be made public, and he did not explain the import of this item.

Councilman Schwarzer introduced a resolution at this meeting to prohibit the operation of cars which are equipped only with hand brakes. The company is now using small cars not equipped with power brakes on Lorain Avenue to maintain the service which has been demanded, but these cars will be retired later. An ordinance introduced by Councilman Laferty would grant the company permission to extend the Superior Avenue line to 125th Street at the East Cleveland village line. The street railway committee reported adversely on the Menning resolution which would have effectually killed the no smoking rule of Mr. Dahl. This action was followed by the introduction of a resolution which would require all rules formulated by the company to be filed with Mr. Dahl.



As a result of the refusal of J. J. Stanley, president of the company, to comply with the request that he should discharge 250 conductors and motormen who did not take part in the strike after the Municipal Traction Company took over the property, these men have been invited to become members of the union. Mr. Stanley told the committee that he would assist in any reasonable way in having the men become members of their organization, but that the men were under contract with him before the Municipal Traction Company took over the property of the Cleveland Electric Railway, and that he could not discharge them. It is said that the men will become affiliated with the union provided their membership in that body will not require them to relinquish any of the advantages which have accrued to them through their fealty to the company.

#### Program of Meeting of Engineers' Society of Pennsylvania

All the space provided for the exhibit in connection with the second annual convention of the Engineers' Society of Pennsylvania in Harrisburg, Pa., on June 1, 2, 3 and 4, has been taken. The question of a code governing the practice of engineering in Pennsylvania, will be one of the important matters to be discussed at the convention, and the committee of twelve, appointed at the last convention and consisting of three members from each of the four large engineering organizations of the State, will submit its report and recommendations for discussion by the convention. The program of the business sessions of the convention follows:

##### JUNE 1, MORNING SESSION, 9:30 A. M.

Opening of the Manufacturers' exhibition, at Exhibition Hall, Cameron Street, above State Street.

Address by the Mayor of Harrisburg.

Convention called to order in the House of Representatives. Address by Chairman Jackson, of the convention.

Meeting of the county chairmen, Senate Caucus Room, State Capitol.

Illustrated lecture, entitled "The Improvement of the Highways of America," by Logan Waller Page, director Bureau of Highways, Agricultural Department, Washington, D. C.

##### JUNE 1, AFTERNOON SESSION, 2:30 P. M.

Address by President Reynders, of the Engineers' Society of Pennsylvania.

Address by Governor Edwin S. Stuart.

Business meeting of the convention. Report of code committee.

##### JUNE 2, MORNING SESSION, 9 A. M.

Paper, "Road Work in Pennsylvania and Some of Its Problems," by J. W. Hunter, Pennsylvania State Highway Commissioner.

Paper, "Melleville-MacAlpine Reduction Gear," by J. A. MacMurchie.

##### JUNE 3, MORNING SESSION, 9 A. M.

Paper, "Power Engineering and Producer Gas," by Nisbet Latta.

Paper, "Illumination," by Clayton H. Sharpe, director of the Electrical Testing Laboratories, New York, N. Y.

##### JUNE 3, AFTERNOON SESSION, 1:30 P. M.

Paper, "Aviation."

Paper, "Sanitation," by Samuel G. Dixon, M.D., LL.D., State Commissioner of Health.

On June 4, at 9:30 a. m., there will be an excursion by special train on the Pennsylvania Railroad to the Pennsylvania Water & Power Company's McCall Ferry 135,000-hp hydroelectric plant, 50 miles below Harrisburg, on the Susquehanna River.

#### Transit Affairs in New York

Attorney-General O'Malley, of New York, has announced the closing of all the special franchise tax cases which have been pending for several years in the Borough of Manhattan, with the exception of the Manhattan Elevated Railway and the New York Central & Hudson River Railroad. Among the cases disposed of was the agreement by the Metropolitan Street Railway to pay about \$4,000,000 of special franchise taxes held against it.

The Public Service Commission has sent a letter to the

Board of Estimate asking for authority to make a deviation in the route of the Fourth Avenue subway, Brooklyn, so as to prevent interference with the Academy of Music. In connection with this matter a dissenting opinion was filed by Commissioners Bassett and Maltbie, who originally opposed the Fourth Avenue subway. Commissioners Bassett and Maltbie recorded their opinion in favor of abandoning the route of the Fourth Avenue subway north of Atlantic Avenue and continuing it instead to Atlantic Avenue to the East River, with a tunnel connecting with Manhattan. The letter to the Board of Estimate states that it has deemed advisable to shift the subway in Ashland Place about 10 ft. to the west because of the presence and character of building of the Brooklyn Academy of Music.

The Court of Appeals has sustained the decision of the Appellate Division of the Supreme Court in favor of the Third Avenue Railroad in its suit for a reduction in the valuation placed on its special franchise in the Borough of Manhattan for the year of 1901 by the State Board of Tax Commissioners. The company was assessed by the State board at \$10,525,605, and began an action to review the board's decision as illegal and erroneous by reason of alleged over-valuation by \$9,000,000. The company's contention is now upheld by the Court of Appeals.

Justice O'Gorman, in the Supreme Court, has handed down a decision in which he refuses to reduce the amount of the special tax on the franchise of the Manhattan Railway for 1906, 1908 and 1909. The Justice holds the assessment in The Bronx has been underestimated, and must be increased. He says 6 per cent is a fair rate of return and a fair rate of capitalization, and 4 per cent compound interest is a proper basis for the depreciation fund. The Justice finds the value of the easements is \$12,182,652, the amount of their cost, and says they are included properly in the company's assets, and that the company is entitled to a 6 per cent return thereon. He holds further these easements must be taken into consideration in ascertaining the value of the tangible property in the streets. Dealing with a similar application by the company for 1909, Justice O'Gorman says the equalized value of its special franchise in The Bronx is clearly in excess of the assessment under review, and the objections thereto are overruled. As to the assessment in Manhattan, he finds the tangible property to be worth \$48,412,015 and the earnings \$6,115,242.59, the net earnings being \$3,091,768.12. Computed on the basis indicated in the 1906 and 1908 cases, he says, the assessment as made seems to be slightly excessive, and a comparative reduction is to be made accordingly.

On May 24, 1910, the Public Service Commission sold at auction three plots of real estate in Centre Street subject to easements for the Centre Street line of the Brooklyn loop subway. This property was purchased by the city to secure land for stations and other purposes for the loop subway, and after taking such parts as were necessary for the subway the commission decided to sell off the rest subject to perpetual easements for the subway. Six plots were offered, but only three were sold. The sale of these three brought a total of \$536,000, against an aggregate upset price of \$370,000.

**Reservations for the New York Convention.**—Reservations for accommodations at the Hotel Otesaga, Cooperstown, N. Y., at which the annual convention of the Street Railway Association of the State of New York will be held on June 28 and 29, 1910, can be secured by writing direct to J. D. Price, manager of the Hotel Otesaga, care of Bretton Hall, Eighty-sixth Street and Broadway, New York, N. Y., any time prior to June 23, 1910, and after that date by applying direct to the hotel at Cooperstown, N. Y.

**Decision in Favor of Chicago & Oak Park Elevated Railroad.**—Judge Windes in the Circuit Court at Chicago has held that the city cannot collect back car license fees from the Chicago & Oak Park Elevated Railroad, which amount to \$40,000. The decision was rendered after the matter had been transferred to a master in chancery. The suit was brought by the city in 1906 to compel the company to pay car license fees under an ordinance which was passed in 1890.

**Interurban Railway Wins in Injunction Suit.**—Judge Baldwin, of the Common Pleas Court at Bowling Green,



Ohio, has denied the Cincinnati, Hamilton & Dayton Railroad an injunction to prevent the Lake Erie, Bowling Green & Napoleon Railway from crossing the tracks of the Cincinnati, Hamilton & Dayton Railroad at Tontogany. About four months ago a temporary restraining order was issued, and the cars of the Lake Erie, Bowling Green & Napoleon Railway were not able to reach the depot of the company at Tontogany.

**Report on Transit Matters in Toronto.**—The Board of Control of Toronto has recommended that Jacobs & Davies, New York and London, should be employed to consider and report upon the traffic situation in Toronto, particularly the present street railway system and the city's rights to construct underground lines in the central part of the city and surface lines in the outlying districts and the likelihood of such an undertaking being self-sustaining. Charles M. Jacobs and James Forgie, members of the firm, were in Toronto on May 18 and 19. The dispute between the Toronto (Ont.) Railway Company and the city of Toronto in regard to the rights of the company to construct lines in Toronto has been disposed of by the Imperial Privy Council in England which has rendered judgment in favor of the company. The company maintained that it had the right under its franchises, granted in 1892, to determine new routes and construct new lines without reference to the municipal authorities. This contention has been opposed by the city. As soon as the case was decided the company applied to the Ontario Railway & Municipal Board for an order confirming its right to construct the new lines. On May 19 the board granted the company's application, stating in its order that the lines selected by the company were chosen in the public interest and that construction was necessary on account of the traffic to be carried in the territory selected. The extensions granted by the board cover about 26 miles of line.

**Spring Meeting of the A. S. M. E.**—The regular semi-annual meeting of the American Society of Mechanical Engineers will be held at Atlantic City, N. J., on May 31, June 1, 2 and 3. The joint meeting to be held in England in July is an additional meeting. The headquarters of the association at Atlantic City will be at the Marlborough-Blenheim. On May 31 there will be an informal reunion of members in the parlors of the hotel. The regular sessions will be begun on June 1 at 10 a. m. when the business meetings will be held and reports of the committee and of the tellers of election will be received. On June 1 at 10 a. m. a number of papers on machine construction and operation will be presented. The afternoon of June 1 has been left unassigned to give those in attendance an opportunity for sight-seeing. On June 2 there will be a business meeting of the gas power section and reports of committees will be presented. At this session the following papers will be presented: "A Regenerator Cycle for Gas Engines Using Sub-Adiabatic Expansion," by Prof. A. J. Frith; "Gas Engines for Driving Alternating-Current Generators," by H. G. Reist; "Two Proposed Units of Power," by Prof. William T. Magruder; "Some Operating Experiences with a Blast Furnace Gas Power Plant," by H. J. Freyn. A number of miscellaneous papers will also be presented on June 2, among them "The Resistance of Freight Trains," by Prof. Edward C. Schmidt. At 9 p. m. on June 2 there will be a reception, following which Rear Admiral George W. Melville, U. S. N., retired, will have honorary membership in the society conferred upon him. On June 3 the following papers will be presented: "Improvements in Lineshaft Hangers and Bearings," by Henry Hess; "Experimental Analysis of a Friction Clutch Coupling," by Prof. William T. Magruder; "An Improved Absorption Dynamometer," by Prof. C. M. Garland; "Critical Speed Calculation," by S. H. Weaver.

#### LEGISLATION AFFECTING ELECTRIC RAILWAYS

**Massachusetts.**—The Boston Transit Commission and the Railroad Commission have been requested by the committee on metropolitan affairs to frame a bill to give the Boston & Eastern Electric Railroad the right to build a tunnel under Boston Harbor. The measure to extend the authority of the Railroad Commission over street railway bond issues has been passed to be engrossed. The House has passed the bill which provides for an investigation by

the Boston Transit Commission of the cost and feasibility of subways to Milton, Dorchester and South Boston. The bill which authorizes the Shelburne Falls & Colrairie Street Railway to fund its indebtedness has been laid before Governor Draper. A resolution has been introduced into the House which provides for an investigation of the advisability of a tunnel between the North and South Stations. A resolution has also been introduced into the House to require an investigation of the common control of lighting and transportation companies by a voluntary organization.

The bill which extends the authority of the Railroad Commission in connection with the issue of street railway bonds has been passed, to be enacted by the Senate. An attempt was made last week in the Senate to secure a reconsideration of the bill which provides for the transportation of pupils of normal schools at half fare by street and elevated railways, but without success. The bill, which provides for a half fare for pupils of industrial schools, however, has been passed to be engrossed. The attempt was lost which was made to secure reconsideration of the bill to limit the hours of street railway employees to nine hours in 11 consecutive hours per day. The committees on railroads and street railways, sitting jointly, have voted to report favorably a bill to permit the New York, New Haven & Hartford Railroad to purchase the stock of the Berkshire Street Railway and develop the territory west of the Connecticut River. The committee on street railways will report favorably the bill to permit the Boston Elevated Railway to acquire control of other street railways, but the form which the bill will take is uncertain. The resolution relative to the electrification of railroads within the metropolitan district of Boston has been passed to be engrossed. This provides for an investigation by the railroads during the present summer and fall, and a report by Nov. 1, 1910, to the joint commission on metropolitan improvements, with a report by the latter to the Legislature of 1911, in which a bill is to be presented providing for electrification by a definite date. The bill which limits the time of construction of electric railways after certificates of exigency are granted has been ordered to a third reading.

**New York.**—At the request of the Public Service Commission for the First District, Senator Agnew has introduced a bill to permit the Public Service Commission, in any future subway contracts, to rent trackage rights to others than the persons who may obtain the contract for operation of the subway. Owing to the approaching end of the session Senator Agnew sought to have the bill advanced to a third reading. The measure, however, was referred to the cities committee. The Senate has passed the Steinway tunnel bill, which provides that the tunnel may be operated by some company which in the future may receive a franchise. The Senate has passed the Frawley bill amending the Rapid Transit act by allowing the construction of a third track on elevated railroads. In the Assembly the Senate amendments to the Public Service Commission bill making the law more effective have been concurred in by a vote of 100 to 8. The bill will now go to the Governor. One of the amendments by the Senate was for the supervision of commutation and mileage rates.

**Ohio.**—The Langdon tax bill was approved by both branches of the General Assembly and signed by the officers on May 10, 1910, the last day of the session. This bill provides for a State tax commission of three members to supersede all the small taxing bodies that have heretofore had charge of the appraisal of properties for taxing purposes, and abolishes the State board of equalization and gives the commission supervisory authority over local taxing officials. Governor Harmon has vetoed the Calvey bill, which would have made obligatory the full vestibuling of cars of street railways. The Governor said that the measure was loosely drawn and that the provision which would have made it necessary to keep the temperature in the vestibules not less than 60 deg. Fahr. was impracticable, particularly as the months during which the vestibules were to be heated were not stipulated. The Governor has signed the bill giving the interurban electric railways the right to appropriate property for right of way purposes. This measure will be of great assistance, both in the construction of new lines, and in building extensions to existing electric railways.



# Financial and Corporate

## New York Stock and Money Market

May 24, 1910.

There was little of interest in the stock market last week. Although prices were strong the trading was apathetic. There was no news of sufficient importance to give direction to the market and no influence to stimulate enthusiasm. The commission houses were almost entirely without business, as outsiders were not buying and traders were conservative. The bond market was fully as dull as that for stocks, and money for investment was not in evidence.

The money market was easier than at any period for several months, but the demands of borrowers were light. Quotations to-day were: Call,  $2\frac{3}{4}$  to  $3\frac{1}{2}$  per cent; 90 days, 4 per cent.

### Other Markets

In the limited trading in Philadelphia prices have been fairly well sustained, although there have been no advances. The selling pressure directed against Rapid Transit has been removed, but buyers are few.

The feature of the Chicago market during the past week was the sudden demoralization in price for Chicago Railways Series 2, following the unexpected appointment of a receiver. On May 23 this issue sold as low as 14. The issue closed to-day at 17.

Massachusetts Electric and Boston Elevated were the only traction shares dealt in on the Boston Exchange. These were moderately active at unchanged prices.

In Baltimore there were no transactions in traction stocks and the bonds of the United Railways Company were much less active.

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

	May 17.	May 24.
American Railways Company.....	a45	a45
Aurora, Elgin & Chicago Railroad (common).....	*57 $\frac{3}{4}$	*57 $\frac{3}{4}$
Aurora, Elgin & Chicago Railroad (preferred).....	*94 $\frac{1}{4}$	*94 $\frac{1}{4}$
Boston Elevated Railway.....	a128 $\frac{1}{2}$	128
Boston & Suburban Electric Companies.....	a16	*16
Boston & Suburban Electric Companies (preferred)....	a74 $\frac{1}{2}$	*74 $\frac{1}{2}$
Boston & Worcester Electric Companies (common).....	a10 $\frac{1}{2}$	a10 $\frac{1}{2}$
Boston & Worcester Electric Companies (preferred)....	a43	*43
Brooklyn Rapid Transit Company.....	a81 $\frac{1}{4}$	*81 $\frac{1}{4}$
Brooklyn Rapid Transit Company, 1st pref. conv. 4s....	85	*85
Capital Traction Company, Washington.....	a130 $\frac{1}{2}$	a132
Chicago City Railway.....	a195	a195
Chicago & Oak Park Elevated Railroad (common).....	*3 $\frac{1}{2}$	*3 $\frac{1}{2}$
Chicago & Oak Park Elevated Railroad (preferred).....	*7 $\frac{1}{2}$	*7 $\frac{1}{2}$
Chicago Railways, pteptg., ctf. 1.....	a100	*75
Chicago Railways, pteptg., ctf. 2.....	a29	a18
Chicago Railways, pteptg., ctf. 3.....	a12	a9
Chicago Railways, pteptg., ctf. 4s.....	a7 $\frac{1}{2}$	a4
Cleveland Railways.....	*91 $\frac{1}{2}$	*91 $\frac{1}{2}$
Consolidated Traction of New Jersey.....	a76	a76
Consolidated Traction of New Jersey, 5 per cent bonds..	a104	a104
Detroit United Railway.....	*59 $\frac{1}{2}$	*59 $\frac{1}{2}$
General Electric Company.....	a150	a150 $\frac{1}{4}$
Georgia Railway & Electric Company (common).....	110	*110
Georgia Railway & Electric Company (preferred).....	a87	*87
Interborough-Metropolitan Company (common).....	20 $\frac{3}{8}$	20 $\frac{5}{8}$
Interborough-Metropolitan Company (preferred).....	55	56 $\frac{1}{4}$
Interborough-Metropolitan Company (4 $\frac{1}{2}$ s).....	80 $\frac{1}{2}$	80 $\frac{7}{8}$
Kansas City Railway & Light Company (common).....	a27 $\frac{1}{2}$	a26
Kansas City Railway & Light Company (preferred).....	a77	a76
Manhattan Railway.....	a138	135
Massachusetts Electric Companies (common).....	a18 $\frac{1}{2}$	17 $\frac{1}{2}$
Massachusetts Electric Companies (preferred).....	a87	86
Metropolitan West Side, Chicago (common).....	a18 $\frac{1}{2}$	a17
Metropolitan West Side, Chicago (preferred).....	a57 $\frac{3}{4}$	a58
Metropolitan Street Railway.....	*15	*15
Milwaukee Electric Railway & Light (preferred).....	*110	*110
North American Company.....	*73 $\frac{3}{4}$	74 $\frac{3}{8}$
Northwestern Elevated Railroad (common).....	a19	a18
Northwestern Elevated Railroad (preferred).....	a70	a60
Philadelphia Company, Pittsburg (common).....	*49 $\frac{1}{2}$	a49 $\frac{1}{2}$
Philadelphia Company, Pittsburg (preferred).....	44	a44
Philadelphia Rapid Transit Company.....	a18 $\frac{3}{4}$	a19
Philadelphia Traction Company.....	*85 $\frac{1}{4}$	*85 $\frac{1}{4}$
Public Service Corporation, 5 per cent col. notes.....	*96 $\frac{1}{2}$	*96 $\frac{1}{2}$
Public Service Corporation, ctf.s.....	a102 $\frac{1}{2}$	103 $\frac{1}{2}$
Seattle Electric Company (common).....	a112 $\frac{1}{2}$	111 $\frac{1}{4}$
Seattle Electric Company (preferred).....	a102	103
South Side Elevated Railroad (Chicago).....	a59	a59
Third Avenue Railroad, New York.....	a7 $\frac{1}{4}$	6 $\frac{1}{2}$
Toledo Railways & Light Company.....	*9 $\frac{3}{8}$	9
Twin City Rapid Transit, Minneapolis (common).....	*112 $\frac{3}{4}$	111
Union Traction Company, Philadelphia.....	a48 $\frac{3}{4}$	a48
United Rys. & Electric Company, Baltimore.....	*12 $\frac{1}{4}$	*12 $\frac{1}{4}$
United Rys. Inv. Co. (common).....	*37	*37
United Rys. Inv. Co. (preferred).....	*65	*65
Washington Ry. & Electric Company (common).....	35 $\frac{1}{2}$	a38
Washington Ry. & Electric Company (preferred).....	a91	a89
West End Street Railway, Boston (common).....	88	88
West End Street Railway, Boston (preferred).....	102	102 $\frac{1}{2}$
Westinghouse Elec. & Mfg. Company.....	64 $\frac{1}{2}$	65
Westinghouse Elec. & Mfg. Company (1st pref.).....	*125	*125

a Asked.

\* Last Sale.

## Voluntary Receivership for Chicago Railways

On May 23, 1910, directly after a judgment for \$1,344,000 had been entered against the Chicago (Ill.) Railways Company by Judge Tarlin Q. Ball, of the Superior Court, Federal Judge Peter S. Grosscup placed the company in the hands of John M. Roach, general manager, and Henry A. Blair, chairman of the board of directors, as receivers. W. W. Gurley, counsel for the company, in a statement which he made public about the affairs of the company, said in part:

"The representatives of the Chicago Railways Company were entirely unprepared for the decision of Judge Ball on May 18, 1910. The amount involved was so large as to make it impossible to secure a stay of execution by giving an appeal bond. Without such appeal bond the plaintiffs could levy execution on the receipts or other property of the company or could move for a receiver under the corporation act."

"Any action of the plaintiffs in that behalf would have effectually prevented compliance by the company with the covenants and conditions of the ordinance of Feb. 11, 1907 (the rehabilitation ordinance), and in addition would have compelled a suspension of rehabilitation. Recently a non-resident creditor of the Chicago Railways filed a bill in the United States Court asking that the court take over the property of the company and that the company continue service for the public and for the benefit of the city of Chicago."

"There was due upon the bonds upon which recovery was had \$1,344,684.78, and in another suit of the same character, wherein it was stipulated that judgment should be entered according to the determination of the first-mentioned case, a judgment is due to be entered for approximately \$100,000. It was simply impossible to carry such a burden or to face it, and the company was compelled to acquiesce in the views of the creditors, who were such creditors through contracts for supplies and materials, and were forced to consent to the appointment of receivers for the protection of its property and its bona-fide creditors, and for the protection also of its patrons and of the city of Chicago. That consent was given with a full realization of the embarrassments and difficulties it would necessarily entail, but no other alternative presented itself consistent with the safety of the interests of all concerned. The assertion and enforcement of the claims presented to Judge Ball involved consequences which were inequitable and unjust to other parties in interest."

"The Chicago Railways was carrying out the plan of reorganization required by the terms of its ordinance. It acquired title to its property through decrees and orders of the Circuit Court of the United States and had supposed that it owned this property absolutely free and clear of all claims and demands whatsoever except the obligations issued by it pursuant to said plan of reorganization."

"The causes of action presented to Judge Ball were claims by bondholders of the Chicago Consolidated Traction Company, which bonds were alleged to have been guaranteed by the Chicago Union Traction Company. The Chicago Traction Company was a mere lessee, directly or remotely, of the properties of the Chicago West Division Railway, the Chicago Passenger Railway, the West Chicago Street Railroad Tunnel Company, the West Chicago Street Railroad, the North Chicago City Railroad and the North Chicago Street Railroad. It had no railroad tracks of its own except an unimportant piece of railway on North Avenue, about 1 mile in length, and was utterly insolvent and unable to pay more than a very small part of its debts."

"The practical result of the judgment rendered by Judge Ball is that although none of the companies above named except the Chicago Union Traction Company were parties to the said guaranty, and although their properties constituted practically all of the property which the Chicago Railways acquired through decrees and orders of the United States Circuit Court, yet these judgments in their enforcement would destroy or greatly impair the value of the securities which the representatives and creditors of these old companies had received for properties which were not in any way responsible for the debts of the Chicago Union Traction Company."



It was explained that the receivership is in the nature of a friendly proceeding and that the bonds of the Chicago Railways are not prejudiced thereby nor by the judgment claims which induced it, since they constitute a prior lien on the \$50,000,000 property. It was also stated that physical improvements undertaken under the ordinances of 1907 will proceed as before under the Board of Supervising Engineers, Chicago Traction.

**Quarterly Earnings of New York City Companies**

The Public Service Commission of the First District of New York has issued a statement in which the earnings of the railways in New York City are compared for the quarter ended Dec. 31, 1908 and 1909 (a). Following are the principal operating figures for several of the large properties:

System or company and year.	Railway operating revenue.	Railway operating expenses.	Net revenue railway operations.	Revenue car-mileage.
<b>Hudson &amp; Manhattan (b):</b>				
1909.....	\$572,902	\$277,323	\$295,579	1,599,369
1908.....	198,144	137,239	60,905	459,707
<b>Interborough Rapid Transit:</b>				
Elevated division—1909	3,897,469	1,651,734	2,245,735	} 128,498,918
Subway division—1909	3,730,773	1,195,678	2,535,095	
Both divisions—1908	6,978,511	2,691,804	4,286,707	27,428,188
<b>Brooklyn Rapid Transit:</b>				
1909.....	5,135,907	3,148,360	1,987,547	18,831,586
1908.....	4,604,324	3,034,263	1,630,061	17,964,721
<b>Metropolitan Street Railway:</b>				
1909.....	3,802,649	2,655,805	1,146,844	10,962,104
1908.....	3,608,097	2,727,606	880,491	10,421,809
<b>Third Avenue Railroad (exclusive of Yonkers R. R.):</b>				
1909.....	1,908,884	1,190,248	718,636	5,968,468
1908.....	1,792,207	1,116,162	676,046	6,122,308
<b>Minor companies:</b>				
1909.....	878,812	731,407	147,405	4,095,139
1908.....	824,035	714,586	109,449	3,880,252
<b>Coney Island &amp; Brooklyn:</b>				
1909.....	318,332	c 223,779	c 94,552	1,314,406
1908.....	314,977	227,740	86,336	1,349,137
<b>New York &amp; Queens:</b>				
1909.....	232,011	214,890	17,121	1,198,343
1908.....	215,907	201,831	14,076	1,006,571
<b>Richmond Light &amp; Railroad:</b>				
1909.....	71,013	76,293	D 5,280	348,877
1908.....	70,367	84,347	D 13,981	358,837
<b>Staten Island Midland:</b>				
1909.....	50,766	49,562	1,204	314,038
1908.....	48,682	48,847	D 166	314,427

N. B.—Deficits and losses are designated by the prefix D. (a) The statements of the receivers do not include capital stock, funded debt or fixed capital Dec. 31, 1908, save those capital expenditures which have been made within the receivership. (b) Bonds temporarily in the treasury, which were sold in February. (c) Includes construction plant. (d) Reserve for special franchise tax, \$1,004,513.53; \$160,760.64 contingent liabilities (\$12,500, interest on funded debt of roads operated under agreement; \$148,260.64, rent of leased lines permanently defaulted).

**Atchison Railway, Light & Power Company, Atchison, Kan.**—W. B. McKinley, Champaign, Ill., and some of his associates in the Illinois Traction System are said to be negotiating to purchase the property of the Atchison Railway, Light & Power Company.

**Burlington County Railway, Mt. Holly, N. J.**—The property of the Burlington County Railway will be sold under foreclosure at the court house in Mt. Holly, on June 16, 1910.

**Camden & Trenton Traction Company, Camden, N. J.**—The Camden & Trenton Traction Company has been incorporated in New Jersey with a capital stock of \$675,000 as successor to the Camden & Trenton Railway, the property of which was sold under foreclosure on March 18, 1910. The incorporators of the Camden & Trenton Traction Company are: Freysinger Evans, Eugene A. Martin and Chas. R. Rens.

**Denver, Greeley & Northwestern Railroad, Greeley, Col.**—The Denver, Greeley & Northwestern Railroad has been incorporated with a capital stock of \$2,700,000 by A. W. Trenholm, Otto Bremer, C. McC. Reeve, J. R. Hutchison, Ralph Hartzell, Edward W. Genter, George L. Nye, George J. Spear, C. H. Ramsay and H. E. Churchill, to take over the Denver, Greeley & Fort Collins Railway and the Northern Colorado Railway & Utility Company.

**Elizabeth & Trenton Railroad, Trenton, N. J.**—The Elizabeth & Trenton Railroad has been incorporated with a capital stock of \$1,200,000, of which \$300,000 is 5 per cent cumulative stock and \$900,000 common stock, to take over

the Trenton & New Brunswick Railroad and the New Jersey Short Line Railroad, which were sold under foreclosure on May 4, 1910. The incorporators of the Elizabeth & Trenton Railroad are: Irvin Shupp, Jr., and Claud L. Rihl, Philadelphia; Charles Sinnickson, Rosemont, Pa.; H. Hays Aikens, John W. Kelly and A. E. Garwood, Lanerch, Pa.; Chester A. Entrekin, Ardmore, Pa.; John R. Turner, Basking Ridge, N. J., and H. O. Coughlan, Brooklyn.

**Frederick (Md.) Railway.**—The Public Service Commission of Maryland has authorized the Frederick Railway to issue \$557,000 of bonds to retire bonds of companies which were recently taken over by the Frederick Railway.

**Lehigh Valley Transit Company, Allentown, Pa.**—On May 19, 1910, the stockholders of the Lehigh Valley Transit Company voted to authorize a mortgage to secure an issue of \$10,000,000 of bonds with the right to increase the issue to \$15,000,000, to retire \$5,000,000 of first mortgage bonds due in 1935 and for other purposes.

**London & Lake Erie Railway & Transportation Company, London, Ont.**—The London & Lake Erie Railway & Transportation Company proposes to issue \$700,000 of first mortgage 5 per cent gold bonds, to be used in connection with the purchase of the property of the Southwestern Traction Company. The bonds will be dated June 1, 1910, and mature in 1950, without option of earlier redemption.

**Los Angeles-Pacific Company, Los Angeles, Cal.**—The Southern Pacific Railroad is reported to have purchased from E. P. Clark, president of the Los Angeles-Pacific Company, and M. H. Sherman, vice-president and treasurer of the company, their minority interest in the stock of the Los Angeles-Pacific Company. The Southern Pacific Railroad is now said to own all the stock of the Los Angeles-Pacific Company.

**Mahoning & Shenango Railway & Light Company, New Castle, Pa.**—The stockholders of the Mahoning & Shenango Railway & Light Company have voted to increase the capital stock of the company from \$10,000,000 to \$11,000,000 by increasing the cumulative preferred stock from \$4,000,000 to \$5,000,000.

**Metropolitan Street Railway, New York, N. Y.**—In referring to the offer of the property of the Metropolitan Street Railway for sale on May 12, 1910, the statement was made that "protests against the sale were offered by Adrian H. Joline, one of the receivers of the Metropolitan Street Railway." The facts in the case are that it was Julien T. Davies, counsel for the Guaranty Trust Company, trustee of the mortgage under foreclosure, who protested against the sale. G. E. Tripp, chairman of the joint committee on reorganization of the Metropolitan Street Railway, has authorized the following announcement regarding the plans for reorganizing the company: "It is proper, in order to avoid false impressions, to say that all publications which have thus far appeared concerning a plan for the reorganization of the Metropolitan Street Railway have been and are unauthorized and without foundation in fact."

**New York State Railways, Rochester, N. Y.**—The Public Service Commission of the Second District of New York has approved a first consolidated and refunding mortgage to the Security Trust Company, Rochester, N. Y., by the New York State Railways to secure \$35,000,000 of 5 per cent 50-year gold bonds.

**Norfolk & Portsmouth Traction Company, Norfolk, Va.**—Middendorf, Williams & Company, Baltimore, Md., have proposed a plan for refinancing the Norfolk & Portsmouth Traction Company so as to care for unfunded debt and to make \$1,800,000 available for improvements under which it is proposed that the \$6,000,000 common stock of the company shall be surrendered and in lieu thereof new stock shall be issued of an aggregate par value of \$6,000,000, of which \$3,000,000 par value shall be 5 per cent cumulative preferred stock and \$3,000,000 par value common stock. A letter to the stockholders of the company says in part: "Negotiable certificates will be issued for stock deposited, one of said certificates entitling the holder, if said plan becomes effective, upon surrender of said certificate to 50 per cent of the par value of the stock deposited in new common stock, and the other entitling the holder to receive 50 per cent of the par value of the stock deposited in new 5 per cent cumulative preferred stock, upon surrender of the certificate, and the payment of 60 per cent of the par



value of such preferred stock in cash. In effect, this plan gives to the present stockholders the privilege of subscribing to the new preferred stock on the basis of \$60 per share of \$100 par value, upon surrender of 50 per cent of the present common stock. The present common stock is thereby reduced 50 per cent in amount, but as the aggregate par value of the outstanding common stock equity is reduced from \$6,000,000 to \$3,000,000, the pro rata interest of stockholders in the common stock equity remains the same."

**Owensboro (Ky.) City Railroad.**—W. H. McCurdy, president of the Evansville Railways; A. F. Karges, Charles Hartmetz, Albert Funkhouser, Arthur Funkhouser and W. A. Koch, Evansville, and C. C. Tennis, of the Tennis Construction Company, are reported to have secured control of the Owensboro City Railroad and the Henderson Traction Company.

**Pacific Coast Power Company, Seattle, Wash.**—Stone & Webster, Boston, Mass., offer for subscription at 100 to yield 6 per cent, an initial issue of \$675,000 of 6 per cent cumulative preferred stock of the Pacific Coast Power Company, which owns more than 66 per cent of the common stock of the Seattle Electric Company, and proposes to develop water power on the White River within 20 miles of Seattle and 15 miles of Tacoma.

**Pensacola (Fla.) Electric Company.**—Stone & Webster, Boston, Mass., announce that a regular semi-annual dividend of \$3 per share in final payment of deferred dividends has been declared payable on June 1, 1910, on the preferred stock of the Pensacola Electric Company to stockholders of record on May 23, 1910.

**Terre Haute, Indianapolis & Eastern Traction Company, Indianapolis, Ind.**—The Terre Haute, Indianapolis & Eastern Traction Company has sold to Drexel & Company, Philadelphia, Pa.; Lee Higginson & Company, Boston, Mass., and Estabrook & Company, Boston, Mass., \$5,000,000 of its 5 per cent bonds to finance the purchase of a majority of the \$5,000,000 of stock of the Indianapolis Traction & Terminal Company, the basis of which purchase was mentioned in the *ELECTRIC RAILWAY JOURNAL* of April 30, 1910, page 800.

**West Penn Railways, Connellsville, Pa.**—The plan under which the American Water Works & Guarantee Company acquires control of the West Penn Railways has been declared operative, and the stockholders of the West Penn Railways have voted to increase the bonded debt of the company from \$6,000,000 to \$12,000,000. Notice of the increase in indebtedness has already been filed with the Secretary of State of Pennsylvania at Harrisburg. The terms under which the merger was effected were given in the *ELECTRIC RAILWAY JOURNAL* of Feb. 19, 1910, page 330.

**Youngstown & Ohio River Railroad, Salem, Ohio.**—Announcements will soon be issued of the distribution of the securities of the Youngstown & Ohio River Railroad, the affairs of which have been in the hands of Will Christy, Warren Bicknell and George A. Stanley as syndicate managers. Each holder of \$1,000 will receive \$100, or 10 per cent in cash; participation certificates entitling him to \$200 or 20 per cent in cash when the unsold portion of the bonds are sold; 12.125 shares of 5 per cent preferred stock of the company, or 10 shares of common stock. The capital of the company for the present will be \$2,000,000, of which \$1,000,000 will be preferred stock and \$1,000,000 common stock. The authorized bond issue is \$2,500,000, but only \$1,000,000 of 5 per cent bonds will be issued at this time under the present authorization. Cleveland bankers have agreed to take the entire issue of bonds. The earnings of the company for the 11 months ended April 30, 1910, follow: Gross receipts, \$175,388; operating expenses, \$94,289; net earnings, \$81,099; taxes, \$11,015; surplus, \$70,084.

**Youngstown & Sharon Railway & Light Company, Youngstown, Ohio.**—It was proposed to resume on May 26, 1910, the hearings which were begun on April 27, 1910, before D. Cady Herrick, New York, N. Y., as referee in an action against the New York Trust Company as successor to the New York Security & Trust Company, in which E. Clarence Jones seeks an accounting in behalf of the stockholders of the Mahoning Valley Railway, which has been merged with the Youngstown & Sharon Railway & Light Company.

## Traffic and Transportation

### Full Vestibules Hereafter in Brooklyn and Queens

The Public Service Commission of the First District of New York adopted on May 16, 1910, the following order, which requires that all street cars hereafter placed in service in the Boroughs of Brooklyn and Queens shall be equipped with full vestibules:

"Ordered, that the Brooklyn Heights Railroad, Nassau Electric Railroad, Coney Island & Gravesend Railway, Queens County & Suburban Railroad, South Brooklyn Railroad, Sea Beach Railway, Coney Island & Brooklyn Railroad, Van Brunt Street & Erie Basin Railroad, Bush Terminal Railroad and the New York & Queens County Railway, respectively, equip with full vestibules, enclosing both platforms of each car, all new or additional cars or car bodies of the closed, convertible or semi-convertible type acquired by said companies respectively by purchase, lease, operating agreement or otherwise, after the date of this order, May 16, 1910, and it is

"Further ordered, that this order shall take effect immediately and continue in force until modified by further order or orders of this commission; and it is

"Further ordered, that each of said companies \* \* \* notify the Public Service Commission for the First District within 10 days after the service of this order upon it, whether the terms of this order are accepted and will be obeyed."

The proceedings before the commission were instituted on Aug. 15, 1909. The complainant alleged that the so-called one-third vestibule cars on the street railways in Brooklyn and Queens afforded insufficient protection against inclement weather, and asked that the platforms of all such cars be completely enclosed. It appeared at the hearing that all cars of the New York & Long Island Traction Company, the Long Island Electric Railway and the Ocean Electric Railway were equipped with full vestibules, and the complaint was accordingly dismissed as to them on consent. The platforms of a considerable number of cars in the Borough of Queens were also enclosed with full vestibules, but practically all closed cars in Brooklyn were fitted with one-third vestibules, consisting of screens or wind shields inserted between the dashboard and the roof at each end of the car which extend across the full width of the platform, but do not enclose the sides of the platform. The commission deems it unreasonable to require the reconstruction of cars now in service.

The hearings on the complaint were held before Edward M. Bassett of the commission, and were reported in the *ELECTRIC RAILWAY JOURNAL* of Oct. 16, 1909, page 889; Nov. 20, 1909, page 1083; Dec. 4, 1909, page 1138; Feb. 26, 1910, page 353. In his opinion, Mr. Bassett said:

"The evidence at the hearing shows that these one-third vestibules do not afford sufficient protection to the motor-men and conductors, and establishes that full vestibules ought reasonably to be installed on all cars used in winter service, in order to promote the security and convenience of the public and the employees, and to bring the equipment of the several companies up to a proper standard. This improvement of equipment ought to be effected as soon as it can reasonably be done, but it would be unjust and unreasonable to require the reconstruction of cars now in service upon the statement of facts shown in this proceeding.

"It is conceded that the one-third vestibules fully comply with the requirements prescribed by the Legislature. Those requirements were enacted by Chapter 453 of the Laws of 1905, which is section 112 of the Railroad Law. In compliance with that section the several defendants commenced in the summer of 1905 to equip their cars with one-third vestibules and completed such equipment in December, 1907, which was the time set by the statute. This change of equipment involved a heavy expenditure on the part of the companies. The cost to the Brooklyn Heights Railroad was \$156,700; to the Nassau Electric Railroad, \$45,500; to the Brooklyn, Queens County & Suburban Railroad, \$19,700; to the New York & Queens County Railway, \$5,000; to the Coney Island & Gravesend Railway, \$3,500. The installation of full vestibules on cars now in use would in-



volve discarding most of the expensive wind-shield equipment thus installed under the direction of the State Legislature. It would involve a substantial reconstruction of the platforms of most of the cars affected and would require a very heavy additional expenditure. The evidence indicates that the cost to the Brooklyn Heights Railroad alone would amount to between \$150,000 and \$200,000. In view of the large expenditures already made by the companies in bringing their equipment up to the standard recently prescribed by the State, the commission would not be warranted in compelling the companies to reconstruct existing car equipment without some urgent reasons being shown for immediate action. Such reason has not been shown. The correct disposition of the proceeding would seem to lie in an order requiring future equipment to conform to the standard which has been shown to be reasonable and proper. I accordingly recommend that an order be made requiring that all closed cars hereafter acquired shall be equipped with full vestibule on each platform."

**Accidents in New York in April**

The Public Service Commission of the First District of New York has issued the following comparative summary of accidents which occurred during April, 1908; April, 1909, and April, 1910, on the railways in the territory under its jurisdiction:

April	1908	1909	1910
Car collisions .....	140	88	99
Persons and vehicles struck by cars.....	930	994	963
Boarding .....	562	563	690
Alighting .....	544	557	625
Contact electricity .....	36	21	26
Other accidents .....	2498	1947	1920
<b>Totals .....</b>	<b>4710</b>	<b>4170</b>	<b>4323</b>
<b>INJURIES</b>			
Passengers .....	1681	1610	1828
Not passengers .....	662	484	487
Employees .....	503	400	490
<b>Totals .....</b>	<b>2846</b>	<b>2494</b>	<b>2805</b>
<b>SERIOUS</b>			
(Inc. in above)			
Killed .....	30	28	36
Fractured skulls .....	24	8	9
Amputated limbs .....	5	3	8
Broken limbs .....	30	18	38
Other serious .....	102	120	133
<b>Totals .....</b>	<b>191</b>	<b>177</b>	<b>224</b>

In explanation, the commission says that the increase in the number of persons killed is accounted for partly by the fact that two of the deaths were from suicide and six from employees working on tracks, and 10 from stealing rides, falling from structures, trespassing, contact with electricity and deaths from natural causes. No one was killed in collisions between cars, and only one person was killed from collisions between cars and vehicles. Nine persons were killed by being struck by cars this year, as against 12 last year.

**Prizes for Garden Displays Along Elevated Line**

The Northwestern Elevated Railroad, Chicago, Ill., has offered prizes for the best garden or window-box displays facing its structure. The announcement, which was made by distributing handbills in the elevated cars, follows:

"With a sincere wish to improve the appearance of the property abutting upon its right of way, and thereby to make the use of its cars more pleasing to its patrons, the Northwestern Elevated Railroad will offer a series of cash prizes for the best-kept yards, gardens and fences and for the best window-box and porch displays fronting its structure.

"It offers three prizes of each grade for each of the following territorial divisions:

"(a) Fronting its structure from Michigan Street to and including Wilson Avenue.

"(b) Fronting its structure from Wilson Avenue to Howard Avenue.

"(c) Fronting its structure from Clark Street to Kimball Avenue.

"These prizes are as follows:

FOR BEST YARD AND GARDEN

"First prize for each of the above sections, \$50

"Second prize for each of the above sections, \$25.

"Third prize for each of the above sections, \$10.

FOR BEST WINDOW-BOX OR PORCH DISPLAY

"First prize for each of the above sections, \$25.

"Second prize for each of the above sections, \$15.

"Third prize for each of the above sections, \$10.

"All entries must be in by June 15, 1910."

A coupon is attached to each announcement, and these are to be filled out by those who wish to enter the contest and deposited with any ticket agent north of Kinzie Street.

**New Agreement Asked in Toronto.**—The employees of the Toronto Railway have suggested new terms of service to govern their employment after May 31, 1910, when the agreement now in force between the company and the men expires. A proposal which they have submitted for an increase in wages would involve an additional yearly outlay of \$239,077 by the company for help.

**Pacific Electric Railway Time Card.**—A new time card has been published by the Pacific Electric Railway in the form of the regulation railway folder. The tables give the time each car leaves the end of the line and show the time of every car at every station. Heretofore there has been no way of telling when a car would pass any particular station. The new cards also give much other information of value to patrons of the company.

**Hearing on Commutation Rates.**—The Public Service Commission of the Second District of New York decided to hold a hearing at Albany on May 26, 1910, on the complaint of W. P. Hickok and B. G. Tallman against the New York, New Haven & Hartford Railroad in the matter of increased commutation rates which the company proposed to put in effect on June 1, 1910, as mentioned in the ELECTRIC RAILWAY JOURNAL of May 14, 1910, page 886, and May 21, page 923.

**New Electric Railway Terminal in Hoboken.**—The Public Service Railway of New Jersey placed in service on May 22, 1910, the large terminal in Hoboken adjacent to the new passenger terminal and ferry house of the Delaware, Lackawanna & Western Railroad and directly over the station of the Hudson & Manhattan Railroad, which operates the tunnels under the Hudson River to New York. The plans for the terminal were described in the ELECTRIC RAILWAY JOURNAL of Aug. 7, 1909, page 204, by Martin Schreiber, engineer of maintenance of way of the Public Service Railway.

**Interurban Loop in Denver Completed.**—The new loop of the Denver (Col.) City Tramway on Thirteenth Avenue, Arapahoe Street and Curtis Street, and the alley between Arapahoe Street and Curtis Street, Fourteenth Street and Fifteenth Street, for the cars of the interurban lines has been completed. The old loop for cars of the city lines is retained. The interurban lines are all standard gage, while the city lines are narrow gage. The Denver & Interurban Railroad, the Denver & Inter-Mountain Railroad and the Denver and Barnum line of the Denver City Tramway will use the interurban loop. The interurban loop and the city loops are only one block apart, and each is within one block of the passenger station and the car house of the Denver City Tramway being erected.

**Air Brakes and Hand Brakes in Canada.**—In the matter of air brake equipment on the Hamilton & Brantford Railway and the Hamilton & Radial Electric Railway, and the proposed order of the Board of Railway Commissioners for Canada requiring all electric railways subject to the jurisdiction of the board to equip their cars with automatic air brakes as well as hand brakes, the board has adopted the following order: "1. On or before June 1, 1911, all electric railways under the jurisdiction of the board shall equip all rolling stock in use by them 37 ft. or more in length, or weighing 35,000 lb. or more, with power brakes, to be approved by the board, in addition to hand brakes and proper sanding appliances. 2. Immediately upon the completion of said equipment the said railways shall notify the board thereof and furnish a detailed account of the rolling stock so equipped."

**Fare Changes on the Buffalo, Lockport & Rochester Railway.**—On May 17, 1910, with the permission of the Public Service Commission of the Second District of New



York, the Buffalo, Lockport & Rochester Railway effected reductions in one-way fares in either direction between Rochester and Car House, 4 cents; Lees, 1 cent; Lockport, 5 cents; and on round-trip fare between Rochester and Lockport, 10 cents; also between agency stations intermediate between Rochester and Lockport various reductions. Rates for the sale of 46-trip school and 54-trip commutation ticket books for distances from 3 miles to 54 miles inclusive are provided; heretofore rates for such tickets covered distances from 3 miles to 35 miles inclusive on 46-trip school and from 3 miles to 26 miles on 54-trip commutation. Changes were also made in chartered car rates between agency stations.

**Tour of Indiana by Trolley to Boom Indianapolis.**—Plans have been completed by the Indianapolis Trade Association to tour Northern Indiana by trolley on May 31, June 1 and 2, in the interest of Indianapolis, using the lines of the Indiana Union Traction Company, the Fort Wayne & Wabash Valley Traction Company, the Winona Interurban Railway and the Chicago, South Bend & Northern Indiana Railway. The firms, manufacturers and corporations holding membership in the Indianapolis Trade Association will be represented with a view to extending trade and renewing acquaintances particularly within territory made accessible by the opening of the Peru division of the Winona Interurban Railway. Thirty-two towns and cities will be visited. Stops over night will be made at Warsaw and South Bend. Local merchants in the towns and cities which are to be visited will be invited to Indianapolis from June 14 to 16, the dates of the aviation meet and races, during "Buyers' Week." John N. Cary, president of the Trade Association, will manage the tour.

**Detroit, Monroe & Toledo Short Line Folder.**—The Detroit, Monroe & Toledo Short Line Railway has issued a folder descriptive of its line. The burden of the text is "Some Outing Suggestions for the Strangers Within Our Gates." Under this caption are included the itinerary of trips that can be made on the city lines, a trip across the river to Windsor, Ont.; special excursion trips and places that can be visited along the Rapid Railway; the Flint division of the Detroit United Railways; the Detroit, Jackson & Chicago Railway; the Detroit, Monroe & Toledo Short Line and along other railways. A feature of the folder which the traveler will find particularly useful is a table in which the distance is given between Toledo and Detroit and towns in Michigan, Ohio, Pennsylvania and Indiana, arranged alphabetically, together with the one-way and round-trip fares from Detroit and the one-way and round-trip fares from Toledo. The name of the line is also given on which the towns mentioned are situated. The routes of the various lines mentioned in the publication are shown in a panoramic view printed in colors.

#### NEW PUBLICATION

**The Corrosion and Preservation of Iron and Steel.** By Allerton S. Cushman and Henry A. Gardner. New York, 1910; McGraw-Hill Book Company. Cloth, 373 pages, illus., including bibliography and index. Price, \$4.00 net.

Every electric railway manager and engineer has reason to know the practical effects of corrosion, whether they have occurred on buildings, on the line or on the rolling stock. Aside from the corrosion of rails, the subject is so closely allied to painting that the authors might well have been justified in calling their book "A Painter's Guide." The work which Messrs. Cushman and Gardner have prepared is certainly a most practical one on the subject of metal corrosion and preservation. The authors have combined their own experiences with those of other investigators and have digested the whole into a series of most interesting and valuable chapters on the problem of corrosion; the theories of solution, corrosion and electrolytic action; the technical properties of iron and steel, including the different methods of galvanizing; the relation of pigments to the corrosion of iron; tests on protective coating for iron and steel; the properties and selection of paints for certain purposes; properties of pigments and paint vehicles. These references are sufficient to indicate the scope of the work, but they cannot give a fair idea of the thoroughness with which each chapter has been handled.

## Personal Mention

**Mr. W. W. Abell** has declined the appointment as a member of the Public Service Commission of Maryland. Mr. Abell is at present abroad.

**Mr. L. B. Wickersham** has been elected vice-president and general manager of the United Railways, Portland, Ore., to succeed Mr. Charles D. Pullen.

**Mr. John F. Stevens**, who resigned about a year ago as vice-president of the New York, New Haven & Hartford Railroad to become connected with the Great Northern Railroad, has been elected president of the United Railways, Portland, Ore., to succeed Mr. T. L. Greenough.

**Mr. George H. Earle, Jr.**, has resigned as a representative of the City of Philadelphia on the board of directors of the Philadelphia (Pa.) Rapid Transit Company because he is no longer able to give the attention to the affairs of the company which he feels that the position of city director demands.

**Mr. F. G. Kelley**, who has been secretary-treasurer of the Topeka (Kan.) Railway for the last eight years, has resigned from the company to become connected with a syndicate headed by the Arkansas Valley Town & Land Company, Topeka, Kan., which will dispose of large tracts of land to settlers and investors.

**Mr. Guy W. Talbot**, whose resignation as vice-president and general manager of the Oregon Electric Railway, Portland, Ore., to become president of the Portland Gas & Coke Company, Portland, Ore., was announced in the *ELECTRIC RAILWAY JOURNAL* of May 14, 1910, has been presented a silver loving cup by the employees of the Oregon Electric Railway as a token of esteem.

**Mr. William Myers**, superintendent of overhead construction of the Indianapolis, Columbus & Southern Traction Company, Columbus, Ind., has been appointed master mechanic of the company to succeed Mr. S. W. Shelton, who has been appointed master mechanic of the Fort Dodge, Des Moines & Southern Railroad.

**Mr. T. W. Shelton** has resigned as master mechanic of the Indianapolis, Columbus & Southern Traction Company, at Greenwood, Ind., to become master mechanic of the Fort Dodge, Des Moines & Southern Railroad, Fort Dodge, Ia. Mr. Shelton was formerly with the Northern Ohio Traction & Light Company, Akron, Ohio. Later he became connected with the Fort Wayne & Springfield Railway, Decatur, Ind., as electrical engineer and subsequently with the Indianapolis, Columbus & Southern Traction Company.

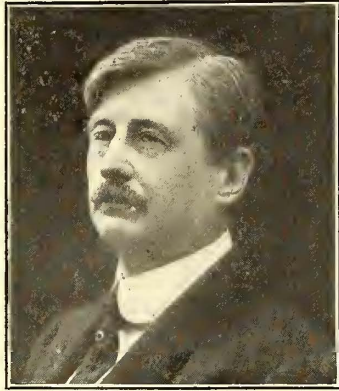
**Mr. Emil G. Schmidt**, who will retire on July 1, 1910, as vice-president of the Rockford & Interurban Railway, Rockford, Ill.; vice-president and manager of the Peoria Gas & Electric Company, Peoria, Ill.; vice-president of the Evansville Gas & Electric Company, Evansville, Ind., and as vice-president and general manager of the Springfield Gas Light Company, Springfield Consolidated Railway and Springfield Light, Heat & Power Company, Springfield, Ill., entertained the heads of the departments of the various companies from which he will soon retire at a farewell dinner at the St. Nicholas Hotel, Springfield, on May 16, 1910. Mr. Schmidt was presented a Swiss striking watch by the officers and employees of the companies as a token of esteem.

**Mr. L. C. Bradley** has resigned as general manager of the Eastern Pennsylvania Railways, Pottsville, Pa.; the Pottsville Union Traction Company and the Eastern Pennsylvania Light, Heat & Power Company, which are controlled and operated by J. G. White & Company, Inc., New York, N. Y., to accept a position with Stone & Webster, Boston, Mass., as manager of the Galveston (Tex.) Electric Company, effective on June 15, 1910. Prior to his connection with the companies at Pottsville, Mr. Bradley was general manager of the Scioto Valley Traction Company, Columbus, Ohio; superintendent of the Puget Sound Electric Railway, Seattle, Wash.; general manager of the Key West Mining & Railway Company, Salt Lake City, Utah, and superintendent of the Tennessee Northern Railway, Knoxville, Tenn. He was formerly connected with the



Seattle properties of Stone & Webster. Mr. Bradley has been connected with the properties at Pottsville for three years.

Mr. William S. Twining, chief engineer of the Philadelphia (Pa.) Rapid Transit Company, has tendered his resignation, to take effect on July 1, 1910. After that date he will be associated with Ford, Bacon & Davis, New York, N. Y., for whom he will take up important work on heavy electric traction and power development in the neighborhood of large cities. Mr. Twining has been chief engineer of the Philadelphia Rapid Transit Company and of its predecessor, the Union Traction Company of Philadelphia, since the organization of the latter company in 1895 and is one of the best known electrical and mechanical engineers in this country. It was under his direction and supervision that the Market Street subway and elevated railway in Philadelphia were built. Both of these undertakings, especially the subway, presented extraordinary engineering problems, but all were satisfactorily solved and Mr. Twining introduced into each a number of novel features which will undoubtedly be standard for future railways of their type. Mr. Twining was born on Feb. 20, 1865, and was graduated from Allegheny College with the degree of C.E. in 1887. He acted as instructor in physics and engineering in Allegheny College for three years following his graduation and then entered the employ of the railway engineering department of the Thomson-Houston Company, Boston, Mass., for which he had charge of electric railway construction in Indianapolis and Toledo. In the latter part of 1891 he assisted in equipping the Harlem Bridge, Morrisania & Fordham Railway, now a part of the Union Railway, New York, N. Y., with electricity, and in the following year was one of the engineers in charge of the electrical equipment of the Atlantic Avenue Railway, now a part of the Brooklyn Rapid Transit system. In 1893 he was appointed assistant to the chief engineer of the People's Traction Company, Philadelphia, and while connected with that road was largely responsible for the design of the Delaware Avenue power station, which is still one of the principal railway power stations in Philadelphia. All of the important electric railway work undertaken in Philadelphia during the last 17 years has been under Mr. Twining's direct supervision. Mr. Twining is a member of the Cornell Club, University Club and Engineers' Club of Philadelphia, of the American Society of Mechanical Engineers, and is an associate member of the American Institute of Electrical Engineers.



W. S. Twining

Mr. Twining was born on Feb. 20, 1865, and was graduated from Allegheny College with the degree of C.E. in 1887. He acted as instructor in physics and engineering in Allegheny College for three years following his graduation and then entered the employ of the railway engineering department of the Thomson-Houston Company, Boston, Mass., for which he had charge of electric railway construction in Indianapolis and Toledo. In the latter part of 1891 he assisted in equipping the Harlem Bridge, Morrisania & Fordham Railway, now a part of the Union Railway, New York, N. Y., with electricity, and in the following year was one of the engineers in charge of the electrical equipment of the Atlantic Avenue Railway, now a part of the Brooklyn Rapid Transit system. In 1893 he was appointed assistant to the chief engineer of the People's Traction Company, Philadelphia, and while connected with that road was largely responsible for the design of the Delaware Avenue power station, which is still one of the principal railway power stations in Philadelphia. All of the important electric railway work undertaken in Philadelphia during the last 17 years has been under Mr. Twining's direct supervision. Mr. Twining is a member of the Cornell Club, University Club and Engineers' Club of Philadelphia, of the American Society of Mechanical Engineers, and is an associate member of the American Institute of Electrical Engineers.

#### OBITUARY

J. J. King, general superintendent of the San Antonio (Tex.) Traction Company, is dead. Mr. King was 38 years old and entered street railway service in San Antonio 17 years ago in a subordinate capacity with one of the street railways which were subsequently merged into the San Antonio Traction Company. He is survived by a widow and two brothers, one of whom, Mr. Perry King, is auditor of the San Antonio Traction Company.

A. B. R. Sprague, president of the Worcester (Mass.) Electric Light Company, died recently in the eighty-fourth year of his age, after an illness of nine days. Mr. Sprague was a native of Ware, Mass. He was appointed city marshal of Worcester in 1867, and later in that year became collector of internal revenue of the Eighth Massachusetts District, remaining in that office five years. Mr. Sprague was sheriff of Worcester County from 1871 to 1890, having been elected for six successive terms of three years each. He served in both branches of the City Council, and in 1895 was elected Mayor of Worcester, and re-elected the following year. He was at one time president of the Worcester & Holden Street Railway.

## Construction News

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

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

#### RECENT INCORPORATIONS

**Camden & Trenton Traction Company, Trenton, N. J.**—Incorporated in New Jersey to succeed the Camden & Trenton Street Railway, whose property was sold some time ago under mortgage foreclosure proceedings. The line will connect Trenton and Camden. Capital stock, \$675,000. Incorporators: Frensinger Evans, Eugene A. Martin and Charles R. Renz.

**\*Elizabeth & Trenton Railroad, Trenton, N. J.**—Incorporated in New Jersey to take over and operate the line of the Trenton & New Brunswick Railroad, which was sold May 4 under mortgage foreclosure proceedings. This new company will also take over the property and franchise of the New Jersey Short Line Railroad, which is the extension of the main line from Milltown through New Brunswick to Elizabeth. Capital stock, authorized, \$1,200,000; common stock, \$900,000; preferred stock, \$300,000. Incorporators: Irvin Shupp, Jr., and Claude L. Rihl, Philadelphia, Pa.; Charles Sinnickson, Rosemont, Pa.; H. Hay Aikens, John W. Kelly, John Turner and H. O. Coughlan.

**\*Alliance-Akron Railroad, Alliance, Ohio.**—Incorporated in Ohio to build a 26-mile electric railway between Alliance and Akron. Incorporators: M. B. Keith, R. M. Scranton, Arthur Wright and B. F. Smyth.

#### FRANCHISES

**Birmingham, Ala.**—George Kelley and associates have been granted a franchise by the Council to build an electric railway over certain streets in Birmingham. [E. R. J., Aug. 7, '09.]

**Hope, Ark.**—The Texarkana Gas & Electric Company, Texarkana, has asked the City Council for a franchise to build a railway in Hope.

**Stockton, Cal.**—The Stockton Terminal & Eastern Railroad has been granted a franchise to build a railway over the revised route in Stockton. The line will extend from Stockton Channel to Jenny Lind. R. N. Griffith, president. [E. R. J., Nov. 20, '10.]

**Marion, Ill.**—The Marion Railroad has asked the Council for a franchise to build an electric railway in Marion. S. E. Harper is interested. [E. R. J., May 14, '10.]

**Indianapolis, Ind.**—The Council has ratified a franchise granted by the Board of Public Works to the Indianapolis, New Castle & Toledo Traction Company to build a railway in Indianapolis.

**\*Anaconda, Mont.**—John A. Connelly, Muskogee, Okla., has been granted a franchise by the Council to build a railway in Anaconda. The franchise stipulates that construction must begin within 30 days after the ordinance is accepted by the applicant, and at least 4 miles of track must be completed within 13 months.

**St. Charles, Mo.**—R. E. Race, representing the St. Louis, St. Charles & Northern Traction Company, Mexico, has asked the Council for a franchise for a railway over certain streets in St. Charles. C. B. Duncan, manager. [E. R. J., May 14, '10.]

**Morristown, N. J.**—The Morris Traction Company has asked the Aldermen for a 35-year franchise to extend its tracks in Morristown.

**Fremont, Ohio.**—The Fremont City Street Railway has been granted a 25-year franchise for the use of certain streets in Fremont, and this, in turn, will be assigned to the Fostoria & Fremont Railway, which will build its line this summer.

**Marshfield, Ore.**—The Coos Bay Rapid Transit Company, North Bend, has been granted a franchise to build a railway over certain streets in Marshfield. A similar franchise has been granted the company in North Bend. W. P. Evans, North Bend, president. [E. R. J., May 14, '10.]

**Philadelphia, Pa.**—The Philadelphia & Suburban Railroad has asked the City Council for a franchise to build an elec-



tric railway over certain streets in Philadelphia. S. S. Neff, president. [E. R. J., May 7, '10.]

**Phoenixville, Pa.**—The Montgomery & Chester Electric Railway has been granted a franchise to extend its lines in Phoenixville.

**Phoenixville, Pa.**—The Phoenixville, Valley Forge & Stafford Street Railway has been granted a street railway franchise in Phoenixville. This is part of a plan to connect Phoenixville, Valley Forge and Stafford. [E. R. J., April 30, '10.]

**Vancouver, Wash.**—The Vancouver Traction Company has been granted a franchise by the Council to construct an electric railway over certain streets in Vancouver.

**Weston, W. Va.**—J. O. Watson, representing the Clarksburg & Weston Electric Railway, Clarksburg, has been granted a franchise for an electric railway in Weston. [E. R. J., May 21, '10.]

#### TRACK AND ROADWAY

**San Francisco, Oakland & San José Railway, Oakland, Cal.**—The company has completed surveys and rights of way have been secured for its Key Route extension through East Oakland, Dimond, Allendale, Melrose Heights, Elmcrest and East San Leandro. As soon as franchises have been granted construction will begin. The central station will be at Allendale.

**Connecticut Company, Bridgeport, Conn.**—This company, which is planning an extension of its railway to Stratford, has secured the approval of the Railroad Commissioners and the town of Stratford for the construction of the proposed plan.

**Savannah (Ga.) Electric Company.**—This company is rebuilding about 1¼ miles of double track with 70-lb. rails in Savannah. All material is at hand.

**Vincennes & Washington Transit Company, Washington, Ind.**—This company will soon place the contract for building 1 mile of new track to East Side Park.

**\*Frankfort, Ky.**—Charles E. Hage, Frankfort, and associates are said to be preparing plans to form a preliminary organization for the construction of an electric railway between Owenton and Frankfort.

**\*Hammond (La.) Interurban Railway.**—This company is reported to have been organized to build a railway in Hammond. Capital stock, \$1,000,000. Directors: L. D. Spencer, B. H. Brooks, T. W. Cate, D. H. Taylor, B. M. Morrison and E. R. Moore.

**Boston & Eastern Electric Railroad, Boston, Mass.**—This company has secured the approval of the legislative committee to build soon its proposed electric railway from Beverly, Darius and Boston. MacArthur Brothers, New York, will build the line, which will be double-tracked all the way with 90-lb. rails. Some of the incorporators are: Melville Woodbury, Beverly; Arthur E. Jenks and Andrew McKinney, New York; Fred A. Norton and John H. Bickford, Salem; Arthur Sturgis, Brookline, and George H. Young, Taftville, Conn. [E. R. J., July 4, '08.]

**Baltimore & Pennsylvania Railway & Power Company, Annapolis, Md.**—This company has awarded the contract to the Maryland Construction Company for building its proposed railway to connect Baltimore, Hanover and Reisters-town. Temporary office, 1209 Calvert Building, Baltimore. [E. R. J., May 7, '10.]

**Detroit United Railway, Detroit, Mich.**—This company is reported to be considering plans for building a line to connect Muskegon, Flint, Bailey, Belding and Owosso. F. W. Brook, general manager.

**\*Grosse Isle Railway, Detroit, Mich.**—This company has been organized to build a new bridge three-fifths of a mile below Wyandotte and an electric railway around the islands in Detroit. Rights of way are being secured. Frank Whitehall and P. N. Jacobsen are interested.

**\*Valentine, Neb.**—C. H. Cornell, Valentine, is promoting a 128-mile interurban railway to extend from Valentine to Spencer via Lincoln, Pierre and Sioux City. Power is to be obtained from the Niobrara River. Right of way has nearly been secured and surveys have been completed.

**New Jersey & Hudson River Railway & Ferry Company, Edgewater, N. J.**—This company reports it expects to build

a 1-mile extension to Highwood and contemplates building 1½ miles further to Tenafly. F. W. Bacon, Edgewater, general manager.

**Utica & Mohawk Valley Railway, Utica, N. Y.**—This company is reported to be considering a plan to build several extensions to its lines in Rome.

**\*General Traction Development Company, Cleveland, Ohio.**—This company is organizing, financing and constructing a system of interurban railways in Ohio connecting Mount Gilead, Mansfield, Mount Vernon, Delaware, Marion and Galion. The Roberts & Abbott Company is making preliminary investigations. The General Traction Development Company is also taking up the financing and construction of an electric railway proposition in the Georgian Bay District of Canada.

**Dayton, Springfield & Xenia Southern Railway, Dayton, Ohio.**—This company has completed preliminary surveys for its proposed extension between Xenia and Washington.

**Oakwood Street Railway, Dayton, Ohio.**—This company expects to place the contract for rebuilding 1½ miles of double track within the next two months. Henry Gebhart, Dayton, superintendent.

**Jennings, Okla.**—A bonus of \$10,000 has been raised in Jennings for an interurban railway to connect Morrison, Glencoe, Stillwater and Perkins. Surveyors are in the field. L. J. Lampke is interested. [E. R. J., April 2, '10.]

**Grand Valley Railway, Brantford, Ont.**—This company has awarded contracts to the Warren Bituminous Paving Company and to P. H. Secord & Sons, Ltd., for the construction of 11 miles of single track in Brantford. It is intended to use 80-lb. T-rails and white oak ties laid in 12 in. of concrete. It is expected that this work will be completed by Oct. 15. William P. Kellett, chief engineer. [E. R. J., Feb. 12, '10.]

**Toronto (Ont.) Railway.**—This company has been granted permission by the Ontario Railway Municipal Board to build 15 miles of track on certain streets in Toronto. Construction will begin in a few days. R. J. Flemming, manager.

**Portland, Eugene & Eastern Railway, Eugene, Ore.**—This company has made a proposition to the Northwestern Eugene Improvement Club to build a 6-mile loop to the western end of Eugene for a bonus of \$12,000.

**Philadelphia & Suburban Elevated Railroad, Philadelphia, Pa.**—This company advises that it will start construction in the fall on its proposed 20-mile railway to connect Roxborough, Philadelphia and suburbs of Frankford, Germantown, Chestnut Hill and Tiogo. Franchise has been applied for and the matter is now pending. It will operate 125 cars. Capital stock, \$1,000,000. Headquarters, 416 Franklin Bank Building, Philadelphia. Officers: S. S. Neff, president; Caspar W. Haines, vice-president; F. F. Finch, secretary, and Coates Coleman, treasurer. [E. R. J., May 7, '10.]

**West Penn Railway, Pittsburgh, Pa.**—This company is said to have completed plans for the building of a 10-mile extension from Greensburg to the Jamison Coke Works, and thence to Latrobe. W. E. Moore, Connellsville, general manager.

**\*Abbeville, S. C.**—J. S. Stark and R. E. Cox, Abbeville, and R. C. Brownlee and J. Bell, Due West, are promoting the building of a 15-mile electric railway to extend from Abbeville to Greenville.

**\*Trinity Valley Traction Company, Dallas, Tex.**—This company has been organized for the purpose of building the proposed 119-mile railway to connect Waxahachie, Dallas, Corsicana and Palestine. Preliminary matters have been completed and construction will be started this summer. J. V. Watkins, Dallas, president.

**\*Lynchburg, Amherst & Northern Railway, Lynchburg, Va.**—This company has been organized to build a railway from Lynchburg through Amherst County and into Nelson County. Preliminary survey will soon be started. H. L. Page, president, and J. T. Bonny, secretary.

**Western Washington Railway, Aberdeen, Wash.**—Preliminary surveys are being made by this company for its 77-mile railway from Grays Harbor toward Seattle. C. C. Quackenbush, president, and W. B. Sammons, chief engineer, Aberdeen. [E. R. J., April 16, '10.]



**Parkersburg & Ohio Valley Electric Railway, Parkersburg, W. Va.**—This company has started work rebuilding its line between Friendly and Sisterville. It also expects to extend its railway down the Ohio River to connect with the Parkersburg, Marietta & Interurban Railway at Willamstown.

**Buckhannon & Clarksburg Traction Company, Clarksburg, W. Va.**—This company has completed the final survey and grading will soon be started on its proposed 30-mile railway between Clarksburg and Buckhannon, via Quiet Dell, Craigmoor, Romines Mills, Pildtree and Hodgesville. [E. R. J., April 2, '10.]

**SHOPS AND BUILDINGS**

**Gallatin Valley Electric Railway, Bozeman, Mont.**—It is stated that this company will soon begin work on a depot and terminal yards in Bozeman.

**Public Service Corporation, Hoboken, N. J.**—This company has opened to the public its new terminal station at Hoboken. It is a two-story building and cost \$250,000. It will accommodate passengers for sub-surface, elevated or steam railroad cars or ferry boats for New York. [E. R. J., May 29, '09.]

**Cincinnati Union Depot Terminal Company, Cincinnati, Ohio.**—This company has been incorporated with a capital stock of \$1,000,000 by Archibald S. White, Louis G. Hauck, F. R. Williams, Lewis Seasongood and C. B. Matthews, for the purpose, it is said, of erecting a union depot for both steam and interurban railroads in the southern portion of the city. This plan contemplates terminals, buildings and other properties that will entail an outlay of about \$25,000,000. The City Council will soon be asked for a franchise for the depot, the General Assembly having enacted a law recently that makes it possible to construct terminals, as property may be condemned for that purpose.

**Du Bois Electric & Traction Company, Du Bois, Pa.**—This company is considering plans for the erection of a new car house this summer at Du Bois.

**Twin City Light & Traction Company, Centralia, Wash.**—This company will build a depot at the fair grounds in Centralia.

**Sheboygan Light, Power & Railway Company, Sheboygan, Wis.**—This company has made arrangements with the Milwaukee Northern Railway to use a part of its new terminal station and yards in Sheboygan for the purpose of loading and unloading its freight. A temporary frame building will be erected for a station and a permanent building later.

**POWER HOUSES AND SUBSTATIONS**

**Urbana & Champaign Railway, Gas & Electric Company, Champaign, Ill.**—This company expects to purchase a 1000-kw, 2300-volt, 60-cycle alternator, a 1500-hp boiler and a 1500-hp Corliss engine. H. J. Pepper, Champaign, general superintendent.

**Aurora, Elgin & Chicago Railroad, Chicago, Ill.**—This company is receiving bids for the erection of a one-story brick, 47 ft. x 66 ft., addition to its boiler house in Batavia. It also plans to build a one-story brick, 24 ft. x 36 ft., addition to its substation at Clintonville. E. F. Gould, engineer, Wheaton, Ill.

**Elkton, Fair Hill & Oxford Electric Railway, Elkton, Md.**—This company is considering plans for building a power plant in Elkton. Heister Hess is interested. [E. R. J., April 30, '10.]

**Marquette County Gas & Electric Company, Ishpeming, Mich.**—This company expects to purchase a 500-hp water-tube boiler, boiler feed pumps, barometers and condenser. W. J. McCorkindale, general manager.

**Portland Railway, Light & Power Company, Portland, Ore.**—This company has let a contract to the Puget Sound Bridge & Dredge Company, western representative for the Ambursen Hydraulic Construction Company, for the construction of a dam 86 ft. high in the rollway, 100 ft. high in the bulkhead and 680 ft. long, across the Clackamas River, 3 miles below the Cazadero plant.

**Philadelphia (Pa.) Rapid Transit Company.**—This company will erect a transformer station at Germantown Avenue and Erie Avenue.

**Manufactures & Supplies**

**ROLLING STOCK**

**Sheffield (Ala.) Company** is in the market for a car for hauling cinders and ashes.

**Lexington (Ky.) Railway** expects to purchase one-single or double-truck snow sweeper within the next 60 days.

**West Jersey & Sea Shore Railroad, Camden, N. J.**, is receiving bids for eight new cars, complete with motors, air brakes, etc.

**Cleveland (Ohio) Railway** has been authorized by the city to spend \$196,468 in converting 230 cars into the pay-as-you-enter type.

**Marquette County Gas & Electric Company, Ishpeming, Mich.**, is in the market for two 40-hp street railway motors. W. J. McCorkindale, general manager.

**Illinois Traction System, Peoria, Ill.**, has asked for bids on 21 single-truck cars of the pay-as-you-enter type, which are to be distributed among several of its city systems.

**Hutchinson Inter-Urban Railway, Hutchinson, Kans.**, expects to purchase two new pay-as-you-enter cars, and will also convert its other cars to the pay-as-you-enter type.

**Portsmouth (N. H.) Electric Railway** expects to place contracts during the next five weeks for four AA-6 motor-driven air compressors for Christensen straight-air brake equipment.

**New York & North Shore Traction Company, Mineola, N. Y.**, expects to purchase four 40-hp motor equipments for its regular cars, two 75-hp equipments for a sweeper and two 75-hp equipments for a sprinkler.

**Morgantown & Dunkard Valley Railroad, Morgantown, W. Va.**, is considering the purchase of several new or second-hand cars, complete with motors, etc., with bodies about 28 ft. long. J. A. Martin, general manager.

**Slippery Rock & Grove City Railway, Grove City, Pa.**, which expects to complete its 10-mile railway between Slippery Rock and Grove City by Oct. 1, is considering the purchase of several cars. S. L. McClure, Grove City, general manager.

**Homestead & Mifflin Street Railway, Homestead, Pa.**, expects to buy one open and one closed car, either new or second hand, this fall. The company wants the cars to be equipped with McGuire-Cummings single trucks and No. 56 Westinghouse motors. C. H. Kapp, general superintendent.

**Cumberland Railway, Carlisle, Pa.**, which was mentioned in the ELECTRIC RAILWAY JOURNAL of April 9, 1910, as having purchased two combination baggage and vestibuled passenger cars from the J. G. Brill Company, has included the following details for this equipment:

Length of body	.....29 ft.	Gongs	.....Brill Dedenda
Over vestibule	...38 ft. 5 in.	Heaters	.....Cooper
Width over sills	7 ft. 11½ in.	Motors	.....West. 101-B
Over posts at belt	.8 ft. 2 in.	Registers	.....International
Interior trim	.....cherry	Sanders	.....Brill Dumpit
Air brakes	.....West.	Seats	.....Winner
Bumpers	.....Brill angle iron	Springs	.....Brill
Couplers	.....Brill-Hovey	Trolley base	.....Nuttall
Curtain fixtures	...Cur. S. Co.	Trucks	.....Brill No. 27-G1

**Puget Sound Electric Railway, Tacoma, Wash.**, noted in the ELECTRIC RAILWAY JOURNAL of March 12, 1910, as having ordered two cars from the Cincinnati Car Company, has drawn the following details for one of the cars which is to be of the closed motor type:

Length of body	...44 ft. 11 in.	Hand brakes	..frt. end, 18 ft.
Over vestibule	.....54 ft		.....brz handle
Width over sills	..9 ft. ½ in.	Headlights	.....Imperial
Height from top of rail	.....4 G.E. No. 66		
to trol. base	.....13 ft.	Paint	...Pull. std. body color
Body	.....wood	Roofs	.....monitor deck
Interior trim	.....mahogany	Sanders	..air sanders, front end
Underframe	..... composite	Sash fixtures	.....drop sash
Air brakes	...West. A. M. M.	Seats	.....Hollywood 54-AC
Bolsters, body	..built-up steel	Seating material	...Smok.
Car trimmings	..solid bronze		.....rattan, pass. plush



Couplers..... Tomlinson Step treads..... Mason  
 Curtain fixtures..... Keeler Trolley retrievers... Knutson  
 Curtain material... pantasote Trucks, type..... Baldwin  
 Destination sign. Std cur. sign Ventilators.... ordinary deck  
 Heaters..... Consolidated sash

#### TRADE NOTES

**A. L. Prentiss & Company, Buffalo, N. Y.,** have moved their office from 749 Eagle Street to 227 White Building.

**Waclark Wire Company, Elizabeth, N. J.,** has moved its New York office from 49 Wall Street to 20 Exchange Place.

**Economy Switchboard & Manufacturing Company, Cleveland, Ohio,** has been incorporated with a capital stock of \$5,000 by A. Tucker, A. D. Levy, S. S. Levy, H. C. Dowds and G. P. Ziebot.

**A. R. Sutter,** formerly with the Consolidated Car Heating Company, New York, in the Chicago sales office, is now in the employ of the Railway Specialty & Supply Company, Monadnock Block, Chicago.

**S. T. Fulton,** formerly assistant to B. L. Winchell, president of the St. Louis & San Francisco Railroad, has accepted a position in the sales department of the Railway Steel Spring Company, New York. Mr. Fulton will have offices at Chicago, succeeding J. L. Woods, resigned.

**Lindsley Brothers Company, Spokane, Wash.,** has appointed R. L. Bayne, formerly connected with the Valentine-Clark Company, as Eastern sales manager, with offices in the Monadnock Building, Chicago, Ill. Mr. Bayne succeeds G. L. Lindsley, who was forced to resign on account of ill-health.

**Western Electric Roofing Company, Denver, Colo.,** is building an addition to its factory to enable the output to be increased to meet the growing demand for elaterite roofing. The paint department will also be enlarged and an elaterite floor covering will be added to the list of the company's products.

**E. S. Marshall,** sales agent of the American Car & Foundry Company, St. Louis, Mo., who was formerly general master mechanic of the St. Louis Southwestern Railroad, has been placed in charge of the railway lubricating department of the Pierce Fordyce Oil Association, Dallas, Tex., successors in Texas to the Waters Pierce Oil Company.

**General Electric Company, Schenectady, N. Y.,** has placed a contract with the Aberthaw Construction Company for a new reinforced concrete building in Lynn, Mass. The building is to be fireproof, 130 ft. x 51 ft., and three stories high. The exterior walls are to be reinforced concrete frame, paneled with brick, and large window area.

**National Electrical Manufacturing Company, Elgin, Ill.,** reports that it has made from one to 40 installations of its electric visible and audible highway crossing signals on the following electric railways: Aurora, Elgin & Chicago Railroad; Chicago & Milwaukee Electric Railway; Indiana Union Traction Company; Fort Wayne & Wabash Valley Traction Company; Louisville & Southern Indiana Traction Company; Lehigh Valley Transit Company; Water, Light & Transit Company; Evansville & Suburban & Newburgh Railway; Ottawa Electric Railway, and Elgin & Belvidere Electric Railway. The company has also recently made several successful installations in Canada.

**Automatic Ventilator Company, New York, N. Y.,** has recently applied its ventilating equipment to cars of the following companies: Lehigh Valley Traction Company, 10 cars; Schenectady Railway, 5 cars; Oneida Railway, 2 cars; Terre Haute, Indianapolis & Eastern Traction Company, 14 cars; Aurora, Elgin & Chicago Railroad, 10 cars; Indiana Union Traction Company, 10 cars. The Automatic Ventilator Company also reports the receipt of the following orders for the installation of its equipment on cars for steam railroad service: Lehigh Valley Railroad, 18 steel coaches and 15 steel diners; New York, New Haven & Hartford Railroad, 127 coaches and 8 sleepers; Maine Central Railroad, 8 cars; Delaware, Lackawanna & Western Railroad, 20 cars; Boston & Maine Railroad, 125 cars; Delaware & Hudson Company, 1 car; Central Railroad of New Jersey, 15 cars.

#### ADVERTISING LITERATURE

**Automatic Ventilator Company, New York, N. Y.,** has issued a new edition of its catalog on car ventilation.

**National Brake & Electric Company, Milwaukee, Wis.,** has issued Bulletin No. 390, in which Types N, R and A of National governors are described and illustrated.

**Ohmer Fare Register Company, Dayton, Ohio,** has issued a small booklet entitled "What There Is in It for You," which deals with its system of collecting and recording fares.

**Burton W. Mudge & Company, Chicago, Ill.,** have issued a folder calling attention to the merits for passenger service of Garland ventilators which they are now handling exclusively.

**Peter Smith Heater Company, Detroit, Mich.,** has issued two circulars containing data compiled from actual tests showing comparative costs of heating 45-ft. and 32-ft. inter-urban cars with Nos. 1C and 2C, Peter Smith magazine hot-water heaters and modern electric heater equipment.

**R. Woodman Manufacturing & Supply Company, Boston, Mass.,** has printed a 50-page catalog and price list in which its principal products are listed and illustrated. Special attention is called to the company's line of ticket punches, many of which are illustrated in full size. They are accompanied by lists of designs for the dies, which this company makes in great variety.

**Barrett Manufacturing Company, New York, N. Y.,** has printed a 40-page catalog which contains a description of Tarvia, and information regarding the construction of roads with this product. Numerous illustrations are shown of thoroughfares in different parts of the country which have been built with Tarvia. Several letters, from town and city authorities, indorsing the use of Tarvia, are reproduced.

**Aberthaw Construction Company, Boston, Mass.,** has published a report on the wearing surfaces for factory floors. It is the result of an extended investigation and presents the experience of many engineers, builders and manufacturers. The discussion has been concerned mainly with granolithic and wood floors, and it is concluded with specifications for the two types, representing the practice of the Aberthaw Construction Company in concrete, and that of Lockwood, Greene & Company and F. W. Dean in wood floors. In addition there are some brief notes on other types of floor finish that appear to have valuable qualities.

**National Electric Lamp Association, Cleveland, Ohio,** has issued bulletin 7B entitled "Data on Illumination," in which the requirements and methods of good illumination, direct and indirect lighting and calculation of illumination are discussed. It contains illustrations of Mazda lamps equipped with high-efficiency, extensive, intensive and focusing holophane reflectors; characteristic light distribution curves of these units and other illumination data from which the intensity of illumination can be found for the regular sizes of the Mazda lamps. Several pages are devoted to wiring tables, rules, formulas, etc., which are convenient in laying out lighting installations.

**J. G. Brill Company, Philadelphia, Pa.,** in the *Brill Magazine* for May prints the fifth of a series of biographical sketches of well-known street railway officials in the United States. The subject in the present issue is R. D. Apperson, president of the Lynchburg Traction & Light Company and the Roanoke Railway & Electric Company. The sketch is accompanied with an excellent portrait of Mr. Apperson as a supplement. The magazine also contains the seventeenth of the series of articles on the type of car adopted for use in the large cities of the world. The city considered is Winnipeg, Man. The following articles also appear: "Cars for the Rochester Lines of the New York State Railways," "Private Car for the Illinois Traction System," "Cars of the Staten Island Rapid Transit Railway," "A Brake Rigging Improvement in Brill Truck No. 21-E," "Cars for the Zacatlan Branch of the Mexican Railway," "Pay-As-You-Enter Cars for the Illinois Traction System" and "Summer Equipment for the Boston & Northern Street Railway."