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Improved Insurance Conditions

The elimination or reduction of the fire insurance hazards in electric railway properties is receiving closer attention than ever before. It was not so very long ago that this matter was almost the last thing considered in the design of a great many of the buildings used for electric railway purposes. The operating and architectural features were looked upon as the predominant factors. The result was structures covering large areas and with roofs supported on light trestles, all pleasing to the eye, but very undesirable from an insurance standpoint. The fault was not entirely that of the architect or designer because the principles of fire protection as applied to buildings of this kind were not fully understood. Nevertheless, a great many of the car houses erected 10 years or more ago, and now in use, are of the character described.

It is safe to say that at present the question of the best method of protecting against fire is one of the most important, if not the most important, consideration in the design of structures of this kind. Large areas have given place to small areas, in which the property in one "risk" is reduced to a minimum. Improvements have been introduced in the roof construction so that if sprinklers are used they can be placed in the position where they are most effective. Fire hazards have been eliminated as far as possible and in general the car house or other building, housing valuable property, is a very different sort of affair from those constructed a decade or so ago. Many companies, however, still have a large number of the older class of buildings which are too valuable to be torn down, but can often be improved at slight expense so far as this feature is concerned.

It is an axiom in fire insurance that there is more profit in insuring a good risk at a low rate than a poor risk at a high rate. It is not surprising, therefore, that the insurance companies have taken an active part in pointing out how such property can be improved and then reinsured at a lower rate. An illustration how such a campaign has been carried out is given in the article elsewhere in this issue on the fire insurance practice of the Ohio Electric Railway. The methods followed by this road were not confined to physical changes in the buildings themselves, although this was an essential part of the program. Fire hazards often occur from wrong methods of doing work, from the careless storage of waste and other inflammable materials, from neglect in clearing away rubbish, from an inadequate system of extinguishing incipient fires or of the quick removal of cars after the fire has gained headway, and in many other ways. Good fire protection, consequently, can often be gained better, or in quite as great a degree, by a strict system of supervision and inspection as by a reconstruction of the property. The methods followed in these particulars by the Ohio Electric Railway are particularly interesting because the system is a duplicate of many others in the country in the

sense that all of its property is not new. Nevertheless by the establishment of a regular method of dealing with this problem, such as the organization of the men into squads for dealing with fires if they should originate, by removing the smaller fire hazards and by some reconstruction of the property, the insurance premiums to be paid were greatly reduced, in fact so much as to make a very large annual net saving.

Of course this was not the only benefit derived, because every reduction in rates means less chance of fire, hence less danger of an interruption to the continuity of the service, for which insurance cannot be procured. Considered from this point of view it is safe to say that the establishment by a railway company of any reasonable precautions against fire are fully warranted, whether there is an actual reduction in insurance premiums or not. It is doubtful whether the same amount of energy and engineering ability expended in any other direction on the average property, which has not been "rehabilitated" from this standpoint, will bring such large returns as when applied to improve insurance conditions.

Dasher Advertising

The value of the car dasher as an advertising medium needs little emphasis at this time, but there are certain limitations and opportunities invested in this method of publicity which are well worth considering. The problem is peculiarly that of making the most of a very limited space exposed to public view for a relatively short time, the exposure, however, being of an intense and striking character. Practice favors the restriction of dasher advertisements to announcements of events or attractions which can be reached by the company's cars, and the general opinion among experienced operating men is hostile to more commodity advertising on the outside of rolling stock. There is good reason for this attitude, for the public is interested in car externals chiefly from the point of view of directions and destinations, and is apt to resent the placarding of car body parts with printed or other illustrated matter having no direct connection with routes.

The impression of a good dasher sign is so sharp that the merest announcement of the attraction should ordinarily be sufficient to attract the desired riding. As the number of signs hung upon a single dasher increases, their effectiveness is certain to grow less. Hence one or two large, well-printed signs, with a reasonable space between them, are sure to be more effective than several posters covering the entire dasher area. Often it pays to put the time at which an event occurs on the sign, and if such posters are used throughout a city system, it may pay in some cases to designate specially those cars which pass the point of interest. Extreme brevity is imperative, but this may be combined with a suggestive design, as a lithographed baseball, to heighten the effect. It costs so little to employ effective stenciled signs for special events that there is little excuse for the failure to put them on, where there is ample room on the car. For night advertising, the cost of installing incandescent lamps for reflector service above the signs is also small, giving a handsome profit if one or two extra fares per car-hour are secured thereby. It is almost impossible to advertise specific events in detail on dashboards, but if the fact is concisely and emphatically brought to the attention of the public that the car serves particular attractions, the results are likely to be thoroughly satisfying from the standpoint of increased patronage.

Through Routing in Chicago

The chief argument of popular interest in favor of the proposed consolidation of the local transportation systems of Chicago is the possibility of a consolidated property being able to establish many through routes and thus serve the public better than individual roads, each confined to one section of the city. Through routing of cars on the surface and of trains on the elevated roads is held by its advocates to be the best method of relieving the present congestion of traffic in the central business district. Of course, such a combination as that proposed would make possible some operating economies, particularly on the elevated roads, where the chief problem is that of handling the trains on the loop during the rush periods. It is a debatable question, however, whether these economies would balance the loss in revenue if many rides of double the present length were made available for a single fare. It may not be uninteresting to look more closely into the Chicago situation, bearing in mind that the question of the practicability of through routing is largely the deciding factor.

In the case of the elevated roads, the question is complicated because of the proposal of the companies to increase the capacity of the Union loop by extending the loading platforms. If this should be done sufficiently to allow two seven-car trains to load at once, it is asserted by railway experts that the capacity of the loop would be increased 25 per cent and would relieve the worst of the congestion on the loop. On the other hand, they claim that through routing for one fare would be financially ruinous, certainly as long as the roads are now operated under diverse ownership, and of very doubtful practicability under one control. The "Loop Protective Association," composed of owners of property abutting on the loop, has taken a firm stand against the extension of the platforms on the plea of the probable increase of noise and darkness to their store windows, and in favor of the through routing of the elevated trains. Some of the members of this association have claimed that through routing would increase the capacity of the loop 180 per cent over the present plan of looping the trains. The present attitude of the local transportation committee of the Chicago City Council indicates that this body will withhold from the elevated railroads the privilege of extending their platforms simply as a means to force through routing. The situation now is practically a deadlock, with no promise of relief for the admittedly overcrowded loop.

The general public looks forward to the construction of a subway as a means of relief, but such an undertaking could not be completed short of two or three years, even though the city and the transportation companies were prepared financially to undertake immediate construction.

The surface railways also are deeply interested in a through-route problem of their own. At the time the traction rehabilitation ordinances of 1907 were drawn and accepted, it was generally thought that the through-route problem, so far as the surface traffic was concerned, had been fairly well settled. The ordinances specify that the railway companies interested in the 21 prescribed through routes shall make an operating agreement for the establishment, maintenance and operation of the through-routed cars. It also is specified in the ordinances that the Council shall have the right to prescribe new through routes as traffic conditions shall warrant. But after through-route operation had been begun in a small way, it became apparent that a number of obstacles of no small magnitude stood in

the way of its extension, when applied to the combined trackage of the Chicago Railways and the Chicago City Railway companies. Those of a physical nature, such as low viaducts, elevated railway posts and diverse special track work, though serious, were not irremovable. But a more serious difficulty lay in the apparent impossibility of the two surface transportation companies to decide upon mutually equitable operating arrangements. So far neither company has proposed a scheme for through operation which is acceptable to the other.

At present about 100 cars are through-routed over three temporary routes. Each company assumes the liability on all points of the route for accidents to its own cars and for accidents caused by them. In a number of instances injured passengers have sued both railway companies. A matter less easily settled, however, is the equitable division of the revenue on the through-routed cars. Up to this time, the proportion of cars supplied by each company is based upon its proportionate track mileage and each company retains the fares collected on its cars, no matter whether the cars are operating on home or foreign tracks. But this plan involves inequalities in receipts. For instance, the franchise districts of the main north and south trunk lines of the two railways meet in the middle of the Chicago River so that under the present method a large portion of the northbound traffic pays fares within the City Railway territory, although the greater part of the ride is over the Chicago Railways property. There are other objections which will occur to every railway manager to the practice of having the employees of one company collect money while on the tracks of another. Again, the ordinances provide that each company shall report the earnings of its entire property. This brings about another complication, because if a car of one company is earning money on the other company's tracks and there is not an equitable distribution of traffic over the entire through route, the earning power of the property will be changed. Questions of division of track mileages, density of population and trend of travel along the prescribed through routes enhance the serious character of the problem.

There has also been a division of opinion as to the proper assessment of the cost of removing physical obstacles to the operation of the cars. For instance, which should pay for raising a viaduct necessary in the case of the cars of one company, but not for those of the other? The city corporation counsel has said that the expense should be borne by both companies and the steam railroad company using the viaduct. The city will not admit its liability. Again, it has been found necessary to move about 80 elevated railway columns located along one property so that the through-routed cars of both companies can be operated. The apportionment of costs of this kind further complicates the problem of equitable through routing.

So far, the street railway companies have been unable to agree on the operating details of through routing. The ordinances specify that if an agreement cannot be reached at the end of the rehabilitation period, which still has about a year to run, the Board of Supervising Engineers of Chicago Traction shall prepare an operating agreement. If this agreement does not suit the contending companies, the matter shall be taken into court and the objecting company must prove to the court that the conditions laid down by the board are not reasonable.

The popular solution of the question of through routing, as stated, is consolidation, either of all the elevated properties in one company and of the surface lines in another, or in one

large corporation owning or controlling both systems of transit.

But if such a plan includes also any material reduction in the average receipts per passenger-mile on the consolidated system it would be most unwise. Consolidation might remove some of the present hindrances to good service, but all of them are of minor importance compared to any plan which involves an extension of the average ride given for 5 cents. Other companies are awakening to the necessity of reducing the distances for which they carry passengers for a nickel and it would be a backward step to adopt any other policy in Chicago. It has been claimed that as the greater part of the traffic in Chicago travels in radial lines from the business center, a general extension of the through-routing principle of cars would not increase greatly the average distance which a passenger is hauled. The truth of this contention could be determined only by careful study of the situation. We believe, however, that whatever the status at present, the result of the adoption of any extensive system of through routing would be to increase the amount of long-distance riding, and this would mean longer hauls for a single fare, the condition from which the traction systems in New York, Boston and practically every other large city are trying to free themselves.

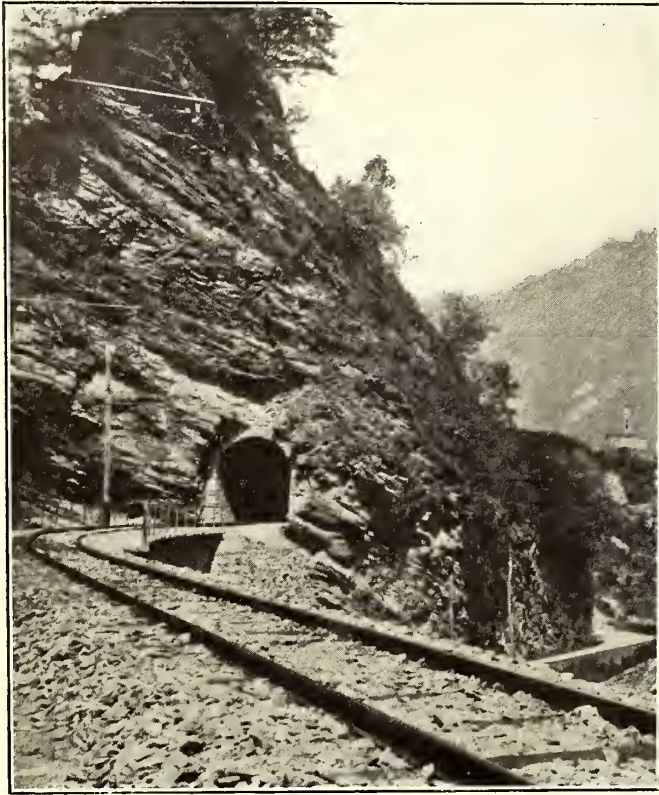
Safeguarding Telephone Service

The lines of telephone communication of an interurban railway system are like the nerves in the body: when they break down co-ordination ceases and confusion reigns. In the early days of interurban construction small importance was attached to the telephone line, which was strung with light iron wire and built as cheaply as possible. Some of these old lines have given excellent service, but they are depreciating rapidly, and every storm results in broken wires and a more or less complete tie-up of operation until the breaks are located and repaired. As a general rule, the roads with the most unreliable company telephone lines have made the least provision for connecting up in times of emergency with the public long-distance telephone systems and the telegraph companies. One road in the middle West which operates over 100 miles of track went through the experience of trying to operate with a single, worn-out telephone line, and as a result of one severe winter's interruptions decided that a first-class duplicate line was none too good. It installed a copper despatcher's line and a company business line from end to end of the road, made an arrangement with the telegraph company whose wires were strung on a parallel steam railroad right-of-way to give preference to all emergency messages, and contracted with both the long-distance telephone companies to install their instruments in every station and substation, with the understanding that railway calls were to be rushed through. There has not been an occasion when it has been necessary to annul a train or flag through because the crews could not get into communication with the despatcher. A few times only both of the railway company's lines have failed together, but the long-distance service was immediately available and serious delays to trains were avoided. The cost of the duplicate long-distance service is considerable, but when it is needed it is well worth the price paid. The necessity for rule 203a in the standard code of interurban rules is not concurred in by the officers of this road nor would it be by any other company which had taken the same precautions against failure of the train crews to get into communication with the despatcher.

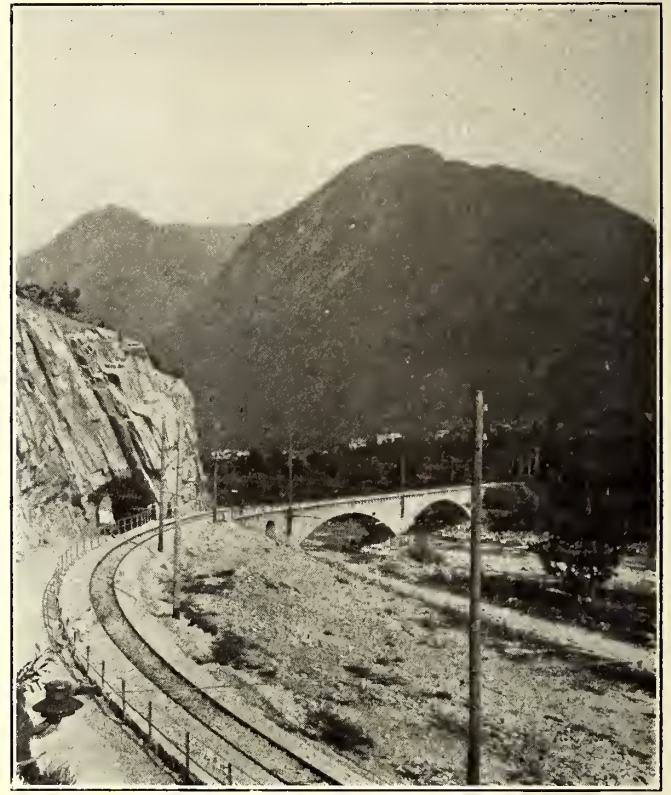
THE BELLINZONA-MESOCCO 1500-VOLT RAILWAY

The Bellinzona-Mesocco Railway is a 1500-volt d.c. line which runs through the Calanca Valley in the canton of Graubünden in southern Switzerland. The district now traversed by the electric railway was at one time the most popular highroad be-

one of the few meter (39.37 in.) gage lines in Europe which not only has a trolley potential of 1500 volts d.c., but operates with multiple unit control. The profile conditions are not exceptionally severe for a mountain railway as the track usually closely parallels the highways or rivers. Fully 71 per cent of the line is on tangents. The maximum grade is 6 per cent and the



Bellinzona-Mesocco Railway—Entrance to Tunnel on Mountain Side



Bellinzona-Mesocco Railway—Bridge Over the Moësa River

tween Switzerland and Italy, but its importance greatly decreased after the opening of the St. Gothard tunnel. The population of the two valleys now hardly exceeds 5500, but it was believed that an electric line could be made a profitable under-

minimum radius of curvature 80 meters (263 ft.). The difference between the highest and lowest points on the line is 619 meters (2031 ft.). Between Lostallo and Mesocco there is a 6 per cent grade fully 4.6 km (2.85 miles) long on which it



Bellinzona-Mesocco Railway—Motor Car, Trailer and Freight Car Near Bellinzona Station

taking because of the large tourist traffic and the transportation of lumber and local farming products. The last portion of the road was placed in service late in 1907. The Bellinzona terminal is the more important as it is only 1 mile from the St. Gothard Railway. Owing to the great additional cost which would have been required, there is no direct connection between the two stations in spite of the large interchange of traffic.

The line is a single track 31½ km (19.2 miles) long. It is

necessary to lay curves of the minimum radius mentioned. Naturally a large number of viaducts, tunnels, cuts and fills was required in constructing the road. Among the most interesting of the viaducts is one shown in an accompanying illustration. This crosses the Moësa River 9.9 km (6.14 miles) from Bellinzona and consists of two 30-meter (98 ft. 5 in.) stone arches. An illustration shows that a tunnel was cut through the mountain directly ahead of the viaduct. This

tunnel accommodates both the public road and the railway and is 17 meters (55 ft. 10 in.) long. The excavated rock was used in the construction of the viaduct.

In general the track lay-out consists of a single track with a siding and stub at every station. The rails weigh 25 kg per meter (50 lb. per yard) and are usually laid on impregnated oak ties. Grooved rails are used only at one point where there is heavy freight and wagon traffic. On curves of 100 meters (328 ft.) radius, the outer rail is elevated 126 mm (5 in.) for a speed of 40 km (24.8 miles) an hour, the gage widening amounting to 24 mm (1.4 in.). Tangents at least 10 meters (37 ft. 10 in.) long connect all reverse curves. The profile conditions throughout the line are such that cars can be run by coasting on 46.7 per cent of the route. The running time of a standard 55-ton train for the 19.2 miles between the terminals is 90 minutes on the mountain trip and 78 minutes on the valley trip, allowing 15 minutes in each case for 13 intermediate station stops. These periods allow a schedule speed of 20.9 km (12.9 miles) an hour in the first case and 24.1 km (14.9 miles) an hour in the second case. The highest permissible speed is 45 km (27.9 miles) an hour.

ELECTRICAL FEATURES

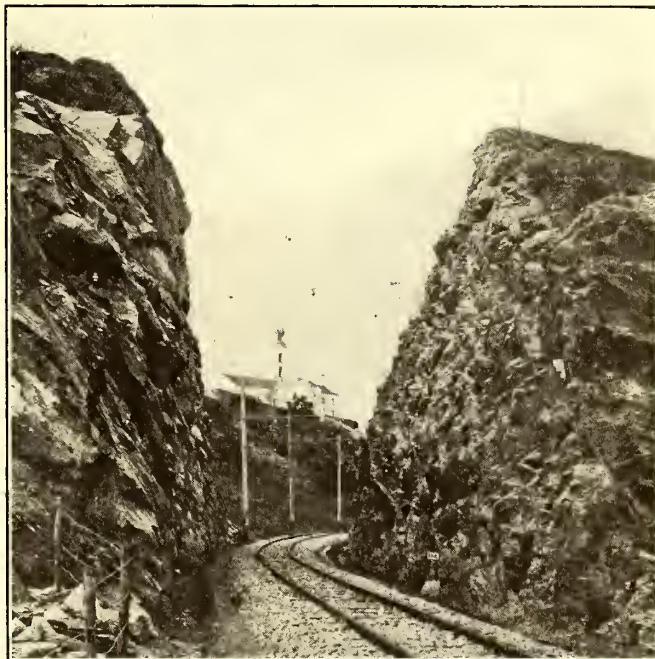
When the construction of the line was being planned, various plans were brought forward to operate the line either by single-phase or three-phase motors. Single phase was not considered seriously at the time because it had not been sufficiently developed, while polyphase operation with stationary transformers for the several sections was rejected because of its unsuitability for the topographical and operating conditions. It was believed that with the ordinary parallel connection of three-phase motors the speed on the level sections would not be high enough or else the heavy grades would impose too much load on the power station. The advantages of three-phase motors for recuperating current on down grades were more than balanced by their fixed speed characteristics which would have been undesirable on a line of this kind. The principal objection, however, was the additional overhead work as it would have been necessary to install and maintain the wires under very unfavorable conditions.

The power for the operation of the line is furnished by a hydroelectric station at Cebbia where both 1500-volt d.c. and 10,000-volt a.c. generators are installed. The current from the d.c. machines is fed directly into the trolley lines at Mesocco,

power station are of 275 kw capacity each, when delivering 1650-volt current and running at 500 r.p.m. They are capable of operating up to 1800 volts with sparking. The two d.c. generators at the converter station are of similar design, but of 272 kw capacity each. They are driven by two 400-hp asynchronous three-phase motors.

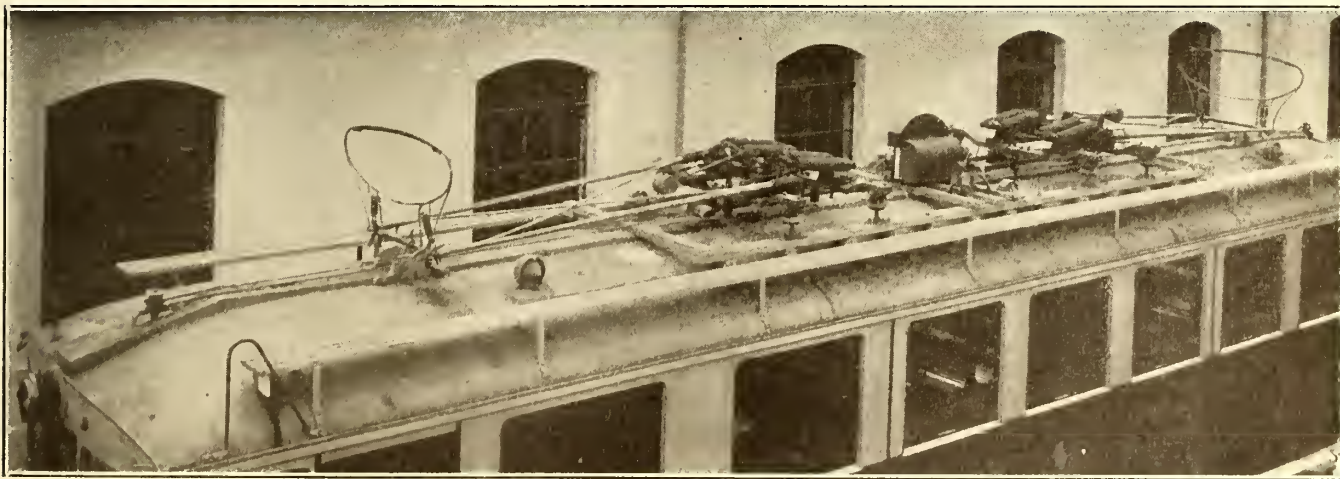
LINE CONSTRUCTION

The overhead construction is of both the bracket and the span types with kyanized, iron-capped wooden poles set no



Bellinzona-Mesocco Railway—A Typical Rock Cut at Benabbia

further than 30 meters (98 ft.) apart. In some cases, as illustrated, it was necessary to attach the span wires to insulated rosettes set in solid rock. The trolley wire used throughout the route is of No. 00 round-section, hard-drawn copper. On the bracket sections the wire is carried on Mannesmann seamless



Bellinzona-Mesocco Railway—Adjustable Bow Type Current Collectors

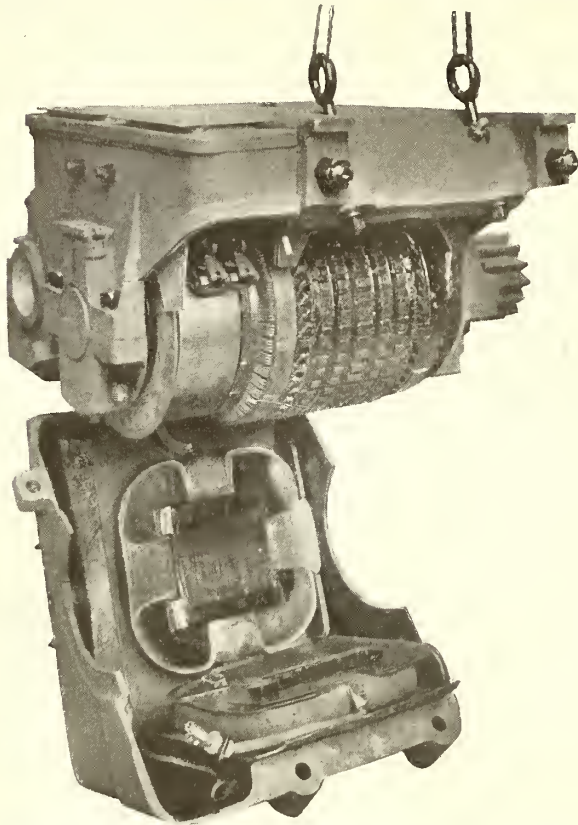
1½ km (.93 miles) distant, while the 10,000 three-phase 50-cycle current is transmitted 22.2 km (13.76 miles) to a motor-generator station at Roveredo. As the generators in the latter are operated in parallel with the 1500-volt machines in the power station, any cars between the two feeding-in points receive power from two sources. Thus the load is gradually shifted from one station to the other in accordance with the changing positions of the cars. The two d.c. machines in the

steel tubing. All of the iron fittings for the trolley wire were given two coats of oil paint. The trolley is doubly insulated, the first protection being afforded by the insulated hangers on the bracket or spans and the second insulation by two porcelain suspension insulators between which the wire is carried. The clearance between the trolley wire and the top of the rails varies as follows: 6.3 meters (20.7 ft.) in the yards and at crossings, 5.8 meters (19 ft.) on right-of-way and 4.3 meters (14 ft. 1 in.)

in tunnels. The span wires are of No. 4 steel except at anchorages where No. 3 wires are used. A telephone circuit with metallic return is installed in connection with instruments at

trated. The bottom framing of the collectors is carried on four 10,000-volt insulators set in wooden blocks on the car roof. The lower half of each collector is adjustable for the greater variations in clearance while the upper part adjusts itself instantly for minor variations. This upper part is under separate spring tension and always tends to maintain a perpendicular position, but it is at a slight angle when the car is running. The tension of the trolley wire is 4 kg (8.8 lb.) under all conditions. The collectors are raised and lowered through gearing controlled from a hand wheel in the motorman's cab. This mechanism is carefully insulated from the collector framing and is also grounded. The contact piece of the collectors is of the well-known Siemens design consisting of a V-shaped piece of aluminum with a lubricated groove.

The motor cars have an overall width of 2.7 meters (8 ft. 10 in.), an overall length over the bumpers of 15.1 meters (49 ft. 6 in.) and seating capacity for 51 passengers distributed in several compartments. The empty weight of the car is 31,300 kg (68,985 lb.); the dead weight per passenger, 614 kg (1352 lb.); the weight of electrical equipment, 11,150 kg (24,575 lb.). The truck wheelbase is 2 meters (6 ft. 6 in.) and the diameter of the wheels 850 mm (33.5 in.). The cars are electrically heated and electrically lighted, the heating current being taken from the trolley, and the lighting current from the batteries which operate the contactors.



Bellinzona-Mesocco Railway—Standard 750-Volt Motor

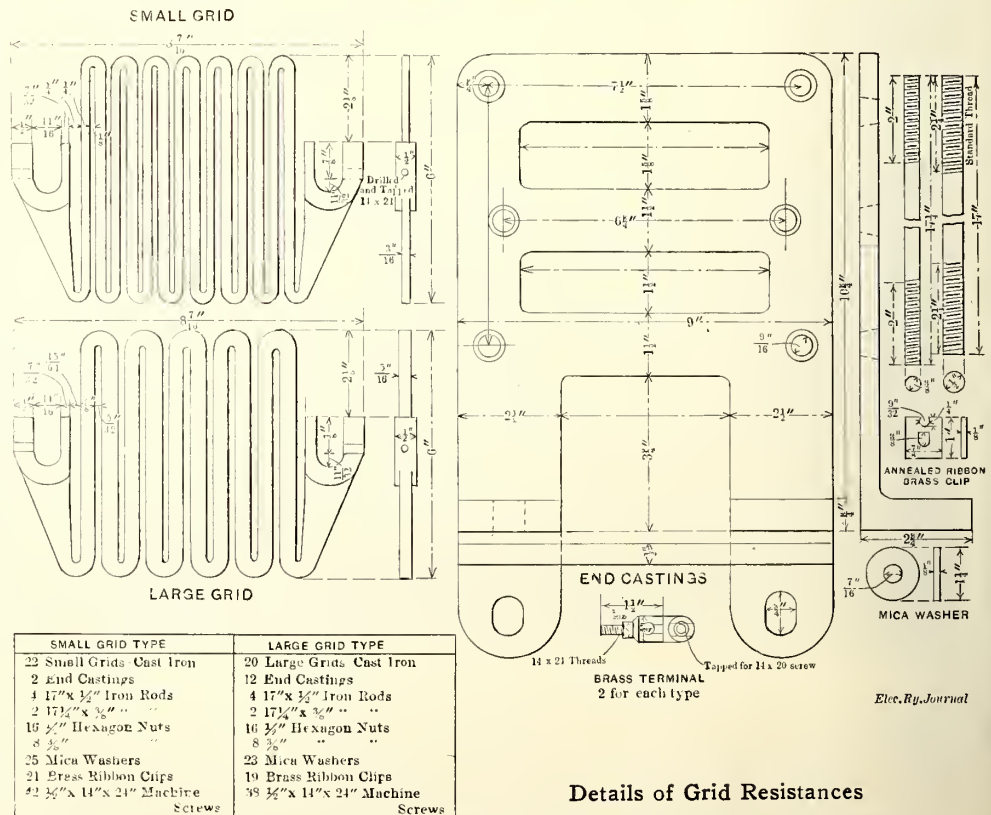
every station. The overhead line is protected by Nonn lightning arresters placed every 2 km (1.24 miles). The overhead work was furnished by the Oerlikon Company, Zürich, Switzerland, which also supplied most of the other electrical equipment with the exceptions noted later.

The cars are equipped with 750-volt motors and Siemens-Schukert multiple unit control, using 60-volt current from storage batteries. In addition to the ordinary connections, the controllers are provided with five steps for emergency electric braking. The four motors per car are rated at 65 hp and were designed to pull a train weighing 50 metric tons up a 6 per cent grade at 19.8 km (12.26 miles) an hour, assuming the rolling resistance to be 8 kg (17.6 lb.) per ton. The factory tests of these motors showed the following increases in temperature for 25 per cent overload for 30 minutes. Armature, 53.5 deg. C.; commutator, 58.5 deg. C.; field coil, 33.5 deg. C. The motors are so arranged that first the two armatures and then the two fields are connected in series. Thus the two motors per truck are considered as a double motor, and as such are connected in series and parallel. The performance of the motors is indicated by an ammeter and voltmeter in the motorman's cab. The latter also contains a voltmeter connected to the storage battery circuit.

Current is collected through sliding bows of the type illus-

The accompanying illustration shows the detail construction of a small and large grid resistance made by a foreign railway after the models of the Detroit United Railway. These grid resistances are arranged to give a first-step resistance of 5 3/4 ohms on single-truck cars and 3 ohms on double-truck cars. The rheostats are built so that broken grids can be removed without disturbing the others. This is done by slackening the outer and inner end bolts on the middle micanite tubes and the individual screw at the side. The 3/8-in. micanite tubes which carry the grids are insulated by mica from the end casting.

RESISTANCES WITH REMOVABLE GRIDS



Details of Grid Resistances

Brass ribbon clips are used to insure good contact between the connecting ends of adjacent grids, and mica washers are employed on the opposite ends.

INSURANCE METHODS OF THE OHIO ELECTRIC RAILWAY COMPANY

Three years ago a systematic campaign for obtaining better fire inspection service was inaugurated by the officers of the traction lines that now compose the Ohio Electric Railway Company. This campaign included improving the property from a fire insurance standpoint and reducing the rate of insurance. The property then consisted of a number of separate companies, all under one management, viz., the Indiana, Columbus & Eastern Traction Company; Lima & Toledo Traction Company and Cincinnati Northern Traction Company. Each had been formed from the consolidation of a number of smaller companies either by lease or purchase, and before the final consolidation of the companies into the Ohio Electric Railway Company each individual risk was insured separately. This made it necessary to execute and handle more than 400 separate policies.

FORM OF POLICY

Under the present system all the property is covered by one general form and schedule, in which each building is described as to its construction and location, the values of the buildings are shown, and the contents are classified in separate columns as Buildings, Section A; Contents, not Electrical, Section B; Electrical Machinery, Section C. In the body of the form a full description explains just what is covered by each section (A, B, C), and what classifications of rates are made on each. Rolling stock is covered by Section D, with a full explanation as to how and when the cars are insured and what classification of rates apply. All property covered by Sections A, B and C is insured for 80 per cent of its value, while the rolling stock (Section D) is insured for its full or replacement value."

Each insurance company in writing a policy on this property covers a certain percentage of the total schedule, pastes a copy of the general form and schedule to its policy, charges the average rate, has the policy signed by agents in Ohio and Indiana (the property insured is located in both States), and charges the premium to the traction company.

The railway company pays each insuring company its premium at the average rate for the entire risk, and in accordance with the proportionate amount of the total value carried by that insuring company. If a loss occurs each insuring company pays its proportion of the loss prorated according to the ratio between the face value of its policy and the total amount of insurance carried on all companies. Proofs of the losses are made by the Western Adjustment & Inspection Company, and one copy is furnished to each insuring company. Such a proof describes the risk, as set forth in the form and schedule attached to the policy, and gives an account of the fire, a statement of the value, loss, insurance and a prorated apportionment of the claim among the participating companies. All the cost for adjusting losses is assumed by the insurance companies.

Under this method the number of policies has been decreased from 400 to about 60.

The Ohio Electric Railway Company has 617 miles of interurban and city tracks in Ohio and Indiana, extending from Cincinnati to Toledo via Hamilton, Dayton, Springfield, Urbana, Bellefontaine and Lima; from Richmond, Ind., to Zanesville, Ohio, via Dayton, Springfield, Columbus and Newark, with branches from Columbus to Morgans, Hebron to Buckeye Lake, Newark to Granville, and from Dayton to Union City, Ind.; from Lima to Fort Wayne, Ind., and from Lima to Defiance. Large power plants are located at Lindenwald, near Hamilton, Brookville, West Alexandria, Medway, Hebron, Zanesville and Lima. The principal car houses are at Hamilton, Trenton, Brookville, West Alexandria, Medway, Columbus, Newark, Zanesville and Lima, with smaller ones at other points. There are about 25 substations. The total insurance value, including rolling stock, is now over \$3,250,000.

INSPECTION WORK

To carry out the plans formulated by the officers of the company, advantage was taken of the offer of Bruce E. Loomis,

manager of the Fire Underwriters' Electrical Bureau, of New York, made in 1906 to the insurance committee of the American Street & Interurban Railway Association, to inspect the properties of electric railway companies and recommend improvements from a fire insurance standpoint.

In March, 1907, Mr. Loomis made a preliminary inspection of this property, and part of the improvements recommended by him were made at once. These changes resulted in a reduction of the rate of insurance from April 1 of that year. In October, 1907, the Electrical Inspection Bureau of Chicago made a complete survey of every risk on the Ohio Electric Railway system. In the report of this survey a map of the property in the neighborhood of each risk is prepared, as well as a large map showing the locations of the various risks along the interurban routes. Each risk is described in detail, and following the description of each is a list of suggested improvements which, if made, should reduce the hazard and make available a lower insurance rate. The report was made without any expense to the railroad company, and as it includes a full description of each piece of property, a summary of the hazards and existing protection methods and recommendations for the improvement of the risks, the report can be used by a rating bureau to determine the proper rate on any risk without the necessity of viewing the property. The Electrical Inspection Bureau of Chicago, which did this work, does not make rates, but carries on the work of making insurance surveys and suggesting improvements which will bring the risks up to the standards required by the insurance companies.

After the Ohio Electric Railway had obtained the survey report and its recommendations, still another survey was made, this time by the Ohio Inspection Bureau, representing the insurance companies doing business in Ohio. This survey was completed in December, 1907, and the information thus gained was used in fixing the rates on the individual risks. Subsequently, the report made by the Ohio Inspection Bureau, describing each risk and the controlling features of the whole property, was published, and copies were distributed to the insurance companies, so that each might determine what portion of the total risk it desired to carry.

METHODS AS APPLIED TO ONE RISK

To afford a clearer understanding of the methods pursued in placing the insurance of the Ohio Electric Railway on the basis described, an account will be given of the way in which one risk was handled. This risk comprised a car house and machine shop, with division offices above, and the quotation below shows the manner in which this risk was described in the report:

INSPECTION BUREAU REPORT SUMMARY

"A new one to three-story brick car barn, repair shop and office building, part of which is fireproof, and all of substantial construction. The structural features are such that the building may be classed as three separate and distinct risks; namely, the western, middle and eastern sections. The first two practically are fireproof, but the last is, structurally, much inferior. Hazards are few in the western and middle sections and rather poorly guarded in the eastern; unexposed; fair public and private protection, but both inadequate. With the hazards in the eastern section properly guarded it would be an excellent risk of its class.

"*Building Construction.*—New and in good repair; a one-story car storage section, 40 x 240 ft.; a one-story car repair section, 40 x 240 ft.; a three-story machine shop and office building, 40 x 240 ft., with side and end projections for office building, armature rewinding and blacksmith shop sections, making a total area of about 30,000 sq. ft. In addition a one-story, 10 x 15-ft. frame sand drying house adjoins the west section. Plain 12-in. brick walls pilastered inside to 16 in. every 15 ft. Front end of car barn consists of wooden doors hung to wooden frames, bolted to brick posts supporting steel I-beam headers, on which rests the brick wall above the doors; doors open outward. Reinforced concrete roof 6 in. in thickness; 10 wire-glass skylights in metal frames, size 6 x 14 ft.

over car storage section; 10 skylights, same size and construction, over car repair section; also machine shop and office section, making 30 in all. Earth and cinder floor in west section, concrete and 2-in. plank on 4 x 5-in. wooden timbers resting on flanges of rails in middle section; 2-in. plank floor on 2 x 10-in. joists, resting on foundation and boiler wall in blacksmith shop; wooden floor on joists in machine shop, armature rewinding room, paint and carpenter shop, also office sections; earth in oil room. Open concrete ceilings, except wood laid and plaster finish in office section. Two open stairways from first to second floors, one open, second to third. Twelve-inch brick division walls between the three main sections; also one between blacksmith shop and machine shop, one between machine shop and armature rewinding department, one between the latter and carpenter and paint shop, also between the latter and office section. One opening in division wall between west and middle sections covered with an automatic, double tin-clad fire door; two openings in wall between middle and east section, one covered by single, the other a double, standard tin-clad fire door, but could not close because obstructed by electric light wires; openings in walls on both sides of armature department covered with single, standard, tin-clad fire doors; wooden sills under some fire doors.

"Supply House.—New and in good repair; two-story; are 20 x 140 ft., equaling 2800 sq. ft.; plain brick walls, except finished with wood in office part; tile roof on wooden sheathing on light wooden trusses; single 1-in. wooden floors on joists; open trussed ceilings except office ceiled with wood; open stairway first to second; wooden platform and bins along east side of building.

"Occupancy.—Car barn, west section; three tracks running full length of barn with no stop blocks; track used to house 13 city cars and one flat car; car storage only.

"Middle Section.—Three tracks running almost full length of barn, with no stop blocks; pits under all tracks; section used for inspecting and repair work, also barn for interurban cars, where five 55-ft. cars are housed; also three city cars.

"East Section.—Boiler, forge, power hammer, two emery wheels, buffing wheel, shaper, three lathes, wheel press, drill press, hack saw, two 13½-hp, 500-volt motors, pit, armature rewinding oven, band saw, rip saw, grindstone, two tracks, storage of two to three cars while under repair, 10-hp, 500-volt motor, oil house and general offices.

"Supply House.—General electrical and traction supplies of all kinds; also offices.

"Exposures.—None.

"Hazards.—Motors operate on 500-volt trolley circuits; one in machine shop elevated almost to roof on wooden platform, not accessible. Rheostat mounted on wooden base; wiring very poor; unsafe; motor in carpenter shop open and subject to flying sawdust; rheostat not properly mounted; considered hazardous. Steam heat; boiler in basement of blacksmith shop; metal breeching to brick flue; 3-in. clearance from wooden floor; strip of asbestos on floor, but not safe. Electric incandescent lighting; current from 110-volt a.c. circuit; also some from trolley circuit; wiring as a whole poor; wires not sufficiently supported; single braided wire in iron pipe, non-standard (No. 9171) receptacles used; wires not properly insulated; pendant cords used for miscellaneous purposes, and other common defects. Trolley wires well supported; hangers supported by stranded cable fastened to brick wall. Shafting in machine shop hung on wooden beams supported by unprotected iron columns on concrete foundation and 3 x 5-in. studding at side walls; well aligned. Wooden floor in machine shop, becoming oil soaked; no metal receptacles under metal working machine; two metal waste cans; two waste cans in middle section, but oily waste found on floor, in pit, and in wooden bench in rear part. Five barrels of roof and floor paint in carpenter shop; surroundings fairly clean; border lights in paint shop not properly wired; floor in this department dirty; gas furnace in carpenter shop fairly safe. Armature rewinding, baking done in oven constructed of wood and partially lined with metal; heated with electricity by placing a number

of lamps in series; crude and unsafe; also a gas solder furnace; small amount of paint and slack and an a.c. transformer (110-1100) for testing purposes in armature department; one gas and one gasoline solder furnace in basement of blacksmith shop; fairly safe. No means for taking care of dust from buffing and woodworking machines; no stop blocks at rear end of tracks in barn; tracks incline slightly and run clear to main line; no transfer table nor switches inside. Car wiring fair to good; the cars heated both by electricity and hot water, Peter Smith system; fires banked in stoves all night; smoking prohibited in barn; an automatic cut-out switch for all trolley circuits entering risk installed on pole across the street from the barn; oils mostly kept in fireproof oil house adjoining office building. Other hazards negligible.

"Protection.—Two Knight & Thomas chemical fire extinguishers in west section; two in middle section; one in machine shop; one in armature department; one in carpenter shop; one in paint shop and one in office. City fire protection; a triple hydrant on 8-in. city main 80 ft. distant, with fire department house available; three men on duty every night, but no regular watchman service.

"Recommendations

- "1. Correct electrical defects so as to comply with requirements of the National Electric Code. (See hazards.)
- "2. Provide metal receptacles where needed in machine shop.
- "3. Instruct employees to use waste pans supplied.
- "4. Provide fireproof oven for baking rewound armatures.
- "5. Provide blower and metal pipes for buffing machine, venting outside.
- "6. Install stop blocks on tracks 4 ft. from rear wall of car barns.
- "7. Provide a standard V. P. and hose system for east section of risk.
- "8. Install 24 sand pails in repair car barn and two in each carpenter, paint and machine shop and armature room.
- "9. Increase supply of approved chemical extinguishers to four in each section of barn and two in office, with one in each shop, as at present.
- "10. Provide concrete or iron sills under each fire door.
- "11. Make doors from machine shop to repair barn double doors.
- "12. Provide five standard waste cans in repair barn and two in each paint and machine shop, and empty daily. At present open cans are used for oily waste.
- "13. Have watchman make hourly rounds all night.
- "14. Install fire alarm box.
- "15. Protect flooring in blacksmith shop in better manner above boiler than at present. As now fixed the asbestos is apt to be kicked off.
- "16. Keep papers, etc., out of basement with boiler.
- "17. Seal all clock keys."

RESULTS FROM REPORT

It will be noted that this report, made by the Ohio Inspection Bureau, covers practically every detail that may affect the judging of the risk for insurance purposes. The type of construction is described in detail, including the materials of which the walls, floors and roofs are built. Such features as the openings in division walls and the use of wooden sills under some fire doors are pointed out. Under the head of "Occupancy" the machinery and nature of the work carried on in the different divisions are set forth. A rather strict examination seems to have been made and reported under the head of hazards. The long list of shop equipment details which were classed as hazards may offer suggestions applicable to a large number of other shops and prove valuable for bringing about a reduction both in insurance premiums and in shop costs. The protection apparatus was listed in the report. Probably the most valuable part of the report, so far as the improvement of shop conditions was concerned, is given in the definite recommendations made by the insurance surveyor. Here are found 17 features in which changes are recommended. A con-

siderable number of these changes was made by the railway company, and in each instance the change brought about a reduction in the insurance rate on this risk.

what the company consistently could do from the standpoint of protection; and, second, whether it would be cheaper to make the improvement or pay the additional premium required by the hazard. In the case of the building described a number of recommendations were adopted, because they were found to

DETERMINING THE RATES

After a survey of each separate risk of the Ohio Electric

THE OHIO ELECTRIC RAILWAY COMPANY

AS OWNERS, LESSORS OR LESSEES, AS INTERESTS MAY APPEAR

This Policy covers \$.....being a pro rata of each of the following amounts:

DIVISION "A"—BUILDINGS

\$ 652,255. On buildings as shown in schedule below, the term "buildings" not to include foundations below the level of the lowest floor, but to include all additions, attachments, extensions, adjoining or communicating, whether constructed in whole or in part of brick, stone, concrete, wood or iron, all piping, shelving, plumbing work, heating apparatus, gas and electric light fixtures, partitions, stalls, tanks, awnings, signs, elevators, conveyors, cranes, automatic sprinkler apparatus, metal smoke stacks, coal hoisting, conveying and storing apparatus, bins, fence, shifting tables, tracks in buildings, turntables, platforms and water tanks in or on building, ladders attached to buildings, and all permanent fixtures and appurtenances contained therein or connected therewith, or on premises within one hundred (100) feet thereof. It is understood and agreed that this item also covers engines, boilers and machinery pertaining to the service of the building.

DIVISION "B"—CONTENTS

\$ 517,700. On contents, the term "contents" to include and cover engines, boilers, and pumps, including their settings and connections, dynamos, electric generators, regulators, switchboards and connections and appurtenances, storage batteries and their connections and appurtenances, electrical apparatus of every description (but not to cover electrical equipment in power or sub-stations, which is covered under Division "C"), motors and armatures, car bodies and parts of cars when detached, indicators, machines and machinery of all kinds, shafting, belting, gearing, pulleys, hangers, hay, straw, grain, feed, feed bags, harness, halters, blankets, whips, robes, paints, oils, varnish, horsehoes, iron, lumber, timber, ties, fuel, wheels, axles, furniture, fixtures and safes, stationery, printed books, blanks, clocks, and on horses and mules; in case of loss, no one animal to be valued in excess of \$250; wagons, sleds, trucks, carts (excluding automobiles), forges, anvils, bellows, lamps, blacksmith tools and implements, patterns and drawings (not more than 10 per cent of the amount insured under this item shall apply on patterns and drawings), hose, stable furniture, tools, implements, tents, freight, materials and supplies, and all other property of the insured, or for which they or either of them may be held liable, not otherwise specifically insured.

DIVISION "C"—CONTENTS

\$ 877,150. On electrical generating and storing apparatus and equipment and in power and sub-stations of the Assured, including dynamos, generators, storage batteries, transformers, converters, boosters, switches, switchboards, switchboard instruments, and transmission wires from generating or storage apparatus to switchboard and from switchboard to outlets from building.

DIVISION "D"—ROLLING STOCK

\$1,103,000. On motor cars, locomotives and their tenders, sub-station power cars and their electrical equipment, snow plows, sand and salt cars, sweepers, sprinklers, supply cars, ash cars, dump cars, test cars, mail cars, line cars, freight cars of all kinds, parlor cars, funeral cars, office cars, trail cars, grip cars, and other cars of every description, whether finished or unfinished and in process of construction, including all fittings, vestibules, electric heating apparatus, air brakes and whistle apparatus, equipments and safe recording apparatus entering into the construction of cars, belonging to same wherever they may be on the tracks or in any buildings or sheds, or while outside of buildings on the lines or sidetracks of the assured or on the lines or side tracks of any other electrical railroad company, whether such rolling stock is owned or leased or otherwise held by the insured, as and to the extent the interest of the insured therein or its obligation to insure the same may require.

REDUCED RATE CLAUSE

Applying on Divisions "A," "B" and "C" In consideration of the rate at and/or form under which this policy is written, it is expressly stipulated and made a condition of this contract that this company shall be held liable for no greater proportion of any loss than the amount hereby insured bears to 80 per cent. of the actual cash value of the property described herein at the time when such loss shall happen, nor for more than the proportion which this policy bears to the total insurance thereon.

REDUCED RATE CLAUSE

Applying on Division "D" In consideration of the rate at and/or form under which this policy is written, it is expressly stipulated and made a condition of this contract that this company shall be held liable for no greater proportion of any loss than the amount hereby insured bears to 100 per cent. of the actual cash value of the property described herein at the time when such loss shall happen, nor for more than the proportion which this policy bears to the total insurance thereon.

DYNAMO CLAUSE

This company shall not be liable for any loss or damage to dynamos, wiring, lamps, motors, switches or other electrical appliances or devices, resulting from any electrical injury or disturbance, whether from artificial or natural causes, unless fire ensues, and then for the loss by fire only.

LIGHTNING CLAUSE

(Excluding Damage to Electric Apparatus) This policy shall cover any direct loss or damage caused by lightning (meaning thereby the commonly accepted use of the term "lightning," and in no case to include loss or damage by cyclone, tornado or wind storm), not exceeding the sum insured nor the interest of the insured in the property and subject in all other respects to the terms and conditions of this policy. Provided, however, that if there shall be any other insurance on said property this company shall be liable only pro rata with such other insurance for any direct loss by lightning, whether such other insurance be against direct loss by lightning or not; and provided further that, if dynamos, wiring, lamps, motors, switches, or other electrical appliances or devices, are insured by this policy this company shall not be liable for any loss or damage to such property resulting from an electrical injury or disturbance, whether from artificial or natural causes, unless fire ensues, and then for the loss by fire only.

GENERAL PROVISIONS

WORK AND MATERIALS—Permission granted for the use of the premises as at present and for other purposes not any more hazardous, and to keep and use all articles and materials usual to the business conducted herein, but the use, handling or storing of benzene, kerosene, gasoline, naphtha, calcium carbide or fire-works is prohibited unless a specific permit is attached hereto. GASOLINE STORAGE PERMIT—Permission is hereby given for the use and handling of gasoline; the same to be handled, and all reservoirs and receptacles to be filled by daylight only, and when the apparatus is not lighted; warranted by assured that no artificial light be permitted in the room when the reservoirs or receptacles are being filled or gasoline is being handled. Permission is specifically granted to keep and use not to exceed five gallons of either benzene, kerosene, gasoline, or naphtha, to be kept in approved metal safety cans, in each building insured under this policy; also to handle fire-works. Permission granted to make ordinary alterations and repairs, same to be covered by this insurance under their appropriate divisions, for other insurance; to use artificial or natural gas, coal, electricity or oil for lighting, heating or mechanical purposes, or for lighting or heating cars; to remain vacant as occasion may require; to cease operations and to do such work at such hours and to employ such power, heat, light and fuel as are necessary in their business. The validity of this policy shall not be questioned because of any mortgage, lease or other incumbrance or contract that may now be in force or that shall hereafter be effected, upon or affecting the property above described whether or not endorsed hereon, nor because of any of the buildings standing on leased ground. It is understood that tracks, pits and foundations of buildings and of machinery below the under surface of the basement floor and the cost of excavations are not covered by this policy. It is understood that the word "Noon" in the commencement and expiration of this policy means, the noon of Central Standard Time.

LOSS CLAUSE

Loss, if any, payable to the trustees, mortgagees under the several mortgages or deeds of trust now existing or which may hereafter be created upon the properties owned or leased by the above assured, as their respective interests may appear thereon. It is understood and agreed that when in the following schedule an amount attaches on Division "A," "B" and "C," it attaches in accordance with form of respective division as above given, and that the amount of insurance under each item is divided so as to apply and cover as follows:

Table with columns: Item No., LOCATION, CONSTRUCTION AND OCCUPANCY, Buildings Section "A", Contents Not Electrical Section "B", Electrical Machinery Section "C", Rolling Stock Section "D".

Table with columns: Item No., LOCATION, CONSTRUCTION AND OCCUPANCY, Buildings Section "A", Contents Not Electrical Section "B", Electrical Machinery Section "C", Rolling Stock Section "D".

Summary table showing insurance amounts for Buildings "A", Contents "B", Electrical Machinery "C", Rolling Stock "D", and Insurance on liability as common carrier of freight, express and baggage in cars or buildings of company.

The amount of this policy being \$ covers a pro rata part of each of the above named amounts of insurance.

Attached to and forming part of Policy No. of Fire Insurance Co.

Countersigned MARSH AND McLENNAN, INSURANCE BROKERS, New York and Chicago. AGENTS PERMIT REQUIRED FOR SURVEY. AGENTS. April 1st, 1909.

Ohio Fire Insurance—Policy Rider Form and Schedule

Railway property had been made and the reports were available for consideration, the officials of the railway company secured careful estimates of the cost of each improvement recommended by the inspection bureau. The advisability of carrying out the individual recommendations was based on two views: First,

be advisable from the operating standpoint, and also because they would bring about a saving in premiums in excess of the interest charge for making the change or addition. The insurance carried on the risk in 1906 was more than \$5,600, which included the valuation of the buildings and

fixtures at 80 per cent, and the valuation of the cars at 100 per cent. The average rate on this risk in 1906 was \$2.10. After about \$450 had been spent in making improvements, this rate was reduced to 69 cents.

All of the recommendations of the insurance inspectors were not carried out, because some of them, in the eyes of the officials of the company, did not seem to be warranted. For example, the insurance people recommended that a water plug be installed in the car house, but the company did not follow the recommendation because a city fire station is located across the street, but 80 ft. distant from the building.

DETERMINING THE RATES

The following table will give an idea of the method of determining the rate on each of the 209 risks included in the Ohio Electric Railway insurance schedule. The figures are those for the car house, shop and office building already described:

OHIO INSPECTION BUREAU.		Item
Risk—Car barn and repair shop		
City of, Ohio.		
Owner and occupant—Ohio Electric Railway Company.		
	Inspected 10-19-09.	
Car Barn Schedule.		
Basis		\$1.00
Floors . . . . .		.10
Car heating . . . . .		.15
Barn wiring . . . . .		.25
V. P. and hose . . . . .		.10
Occupancy . . . . .		.25
		<u>\$1.85</u>
Improvements: Barn wiring	\$0.25	
V. P. and hose . . . . .	.10	
		<u>.35</u>
15 per cent for fire walls and good construction		\$1.50
		<u>.22</u>
		\$1.28
40 per cent reduction for 80 per cent clause—building . . . . .		.76
Waived—car heating . . . . .		.07
		<u>\$0.69</u>
Net rate		\$0.69

It will be noted that, according to the method of calculating the rate, a basis for the particular risk is first adopted; in this instance \$1. To this rate additions are made in accordance with the schedule of defect charges for various hazards. These additions bring the rate up to \$1.85. The fulfillment of recommendations made by the inspector reduced this rate by 35 cents, and from the resultant rate of \$1.50 a deduction of 15 per cent was made on account of the good character of the fire walls and building construction; then 40 per cent of the net rate was deducted because the property was insured for only 80 per cent of its full value. Finally, one-half of the defect charge for car heating was waived. These reductions as here shown in tabular form served to reduce the rate to a final figure of 69 cents.

AVERAGE PREMIUM RATE

All the insurance policies under this method of handling the business expire on April 1 of each year and the average premium rate is determined each year for the following year. This average is found by means of an estimate sheet made in part as shown below, this example being also for the car house and shop, already described.

AVERAGE ESTIMATE SHEET.

Form item.	Name and location.	Section.	Amount.	Rate.	Premium.
.....	Car barn and repair shop.	A	\$63,000	\$0.69	\$434.70
.....	Rolling stock in barn...	D	88,400	.69	609.96
.....	Rolling stock outside barn.	D	115,636	.50	578.16

The figures presented on this sheet show the name and location of each risk, the division or section to which it belongs, the amount, the rate as determined according to the existing condition of the risk, the occupancy and protection and the premium on each risk. From the total amount of all risks and the total premium, the average rate for the property is obtained by division and this is the rate at which each participating insurance company takes its proportion of the insurance.

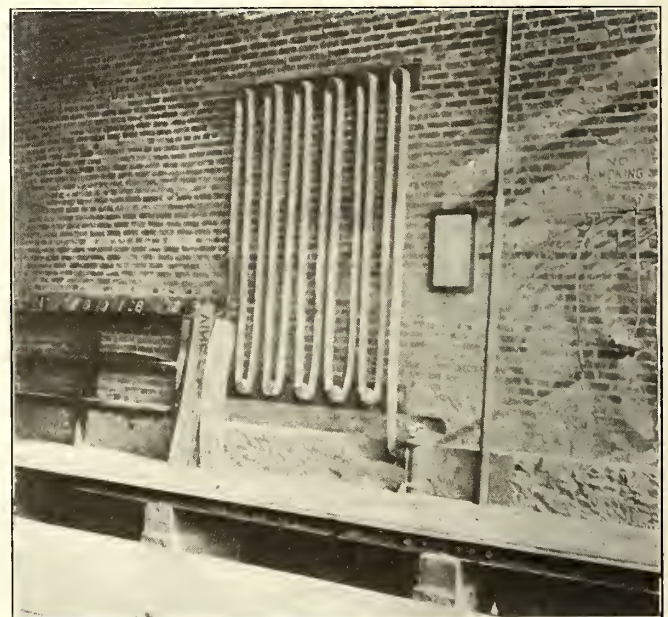
IMPROVING RISKS

As already stated, the rate sheets prepared by the Ohio Inspection Bureau show the schedule of, and charge for, every defect, and the company has secured large reductions in its

premiums each year by remedying these defects and thus obtaining a better average rate. This work has been done with particular regard to operating as well as to insurance conditions.

In compliance with the requirements of the insurance body, a fire protective department with local squads at every shop and plant has been organized and every risk on the property is inspected once a month by a general inspector. The inspector is employed constantly and by means of a continuous system of reports sent by him to the general offices the fire risks are kept up to the standard requirements of the insurance companies. Two forms of report are made by the inspector. One report shows the risks that he has inspected each day, arranged according to the item number shown on the schedule form used in connection with the policies. A second report is an itemized statement of the actual conditions of each risk as found by the inspector. Both good and bad features are included in this report.

Those reports from the inspector which require attention are taken in hand by the executive in charge of insurance matters and letters are written to the different operating officials, calling their attention to the irregularities found by the inspector. In some instances it is necessary for the division officials to instruct their subordinates to make slight changes in the arrange-



Ohio Fire Insurance—Hydrant, Hose Stand and Fire Rules in Vine Street Car House

ment of the building fixtures, and in others it is necessary for them to see that certain practices of the men, such as the careless handling of waste or other inflammable materials, are discontinued. A frequent irregularity found by the inspector is the blockading of doors with materials or supplies in course of use.

One of the duties of the general insurance inspector of the company is to instruct foremen in fire drills and insist on thorough training in this part of the work. Periodical test drills are called for from both night and day squads and the results from the fire department of the railway company have been excellent. At one time a dwelling house near a car house caught fire and the railway shop squad reached the house and put out the fire before the city fire department, located on the next lot, got under way.

The rules posted in each building follow:

GENERAL FIRE RULES.

1. Men in charge of buildings, or sections thereof, will be held responsible for the proper condition of fire apparatus and for the clean and tidy condition of premises. They must make frequent inspections thereof, repair minor defects at once and report serious ones immediately to the proper authorities.
2. Free access to fire pails, extinguishers, hose reels, standpipes, alarm boxes and all other fire equipment must be had at all times.
3. Fire pails and all other fire apparatus will be used only for fire purposes.

4. Electric circuits must not be changed nor tampered with, except by the electrician in charge.
5. Rubbish and debris of every sort must be put in the proper receptacles.
6. Ashes must be placed in metal receptacles, which must be emptied once a day. Ashes must not be allowed to accumulate under the grate bars of boilers or stoves.
7. Oily or greasy waste, greasy rags and paper, or other inflammable material must be put in the covered metal cans supplied for the purpose. Such supplies must not be mixed with clean material of like character.
8. Oils, paints, surplus supplies of oily waste and similar material must be kept in fireproof rooms provided for this purpose, except when actually being used. Benzine, gasoline, naphtha or other similar highly inflammable substances must not be allowed on the premises except where actually needed. At such places only the minimum quantities necessary will be kept on hand. These substances will be handled with the greatest care, being kept in fireproof rooms whenever possible.
9. If oil or like substances are on fire, use sand; never use water, for water spreads the burning material. Use sand when live wires, short circuits or charged rails are involved.
10. Sand only must be used on floors, spittoons, or for catching drippings.
11. Smoking is prohibited in all buildings except in club rooms.
12. All clothing must be kept in lockers provided for the purpose and only clothes actually used and needed may be kept on the premises.
13. Trolley poles must be removed from wire and left in a trailing position when cars are laid up out of service. Heat must be turned off before cars are run into barn.
14. Remember that most fires are caused by neglect and carelessness. Familiarity with these rules is required upon the part of all employees.

.....
General Manager.

Approved: _____
President.

Under this system of inspection and following the plans for improvements which have been systematically continued since January, 1907, the proportion of losses and damages to this property to the total amount of premium paid has been less than 15 per cent. In September, 1908, the firm of Marsh & McLennan, of New York and Chicago, was appointed brokers of record of this property and has entire charge of the insurance business, furnishes the inspection service, places all insurance, settles all losses and relieve the company of all worry and responsibility.

F. A. Healy, secretary and treasurer of the Ohio Electric Railway, an old steam railroad man, with wide experience in handling insurance matters, inaugurated the insurance department of his company and successfully carried out the details of the plan here described. President Shaw of the American Street & Interurban Railway Association has appointed Mr. Healy to the insurance committee for 1910.

WHAT CONSTITUTES A LEGAL TENDER FOR A FARE

BY HOWARD C. LAKE, OF THE NEW YORK CITY BAR

In the *ELECTRIC RAILWAY JOURNAL* for Aug. 14, 1909, page 256, I discussed the question, "What Constitutes a Legal Tender for a Fare," and briefly reviewed the three leading cases in the courts of Tennessee, California and Vermont, which had then been decided and reported. It was therein set forth that New York had decided that a rule of the company requiring its conductors to make change to a passenger to the amount of \$2 was a reasonable rule, while the other two States had held that a five-dollar bill or coin was a reasonable amount to tender in payment of a 5-cent fare on a street car. The California decision was prompted, it was stated, by prevailing local conditions because it was then a well-known fact that the \$5 gold piece, which, was tendered, was then practically the lowest gold coin in use in that section of the country.

Now comes a recent decision in Georgia (*Burge vs. Georgia Railway & Electric Company*, 65 *Southeastern Reporter*, 879), which follows the Barker case in New York, cited as a precedent. The facts were briefly these: Burge boarded a car in company with two companions. He tendered to the conductor a \$5 gold piece in payment of the three fares. The conductor replied that he could not change the money and that the three must leave the car. Plaintiff was thereupon forcibly ejected and he claimed that the conductor, in an "offensive manner," had ordered him to leave the car. Plaintiff's testimony at the trial was to the effect that the gold piece was the smallest amount of money that he or any of his companions had. The company proved that it had a rule requiring its conductors to

make change when the amount tendered was not above \$2, but not to furnish change for a greater amount for passengers. The question was, of course, as to the reasonableness of the amount tendered.

The views of the court are perhaps best expressed in its own language:

"It would not be right to require conductors to carry such an amount of small change as would be necessary to change any denomination of money, nor would it be proper to require passengers to tender the exact amount of fare; hence the law requires that the conductor go prepared to change an amount that is reasonable. Street railways have the right to enact a reasonable rule in regard to such matters, so as to fix an amount which conductors are required to carry and which the public may expect them to carry for the purpose of supplying change to passengers. . . .

"The public, as well as the corporation, are interested that some fixed rule should exist, and it is proper that it should be a question of law whether the rule is a reasonable one. What might appear reasonable to one jury might not so appear to another; and if it were a question of fact, to be determined by a jury, no fixed rule by which the corporation and the public should be governed could exist. To require conductors to carry an amount sufficient to change \$5 for all passengers who might tender that amount to pay the fare charged for transportation within the city would require all conductors at all times to carry a considerable amount of change. To require conductors to obtain, count out, and deliver change for \$5 for every passenger who might tender that amount would make slow the collection of fares, with the probable result of delaying the progress of cars and subjecting the traveling public to the inconvenience of frequent waits and delays, made necessary by the changing of such a denomination of currency. Such a requirement might not only result in great inconvenience to the public, but impose a heavy and unnecessary burden on the railroad company. . . .

"To require conductors to change \$5 for every passenger tendering that amount would prevent the company from performing its public duty with proper caution and with proper expedition. The rule requiring the conductors to change no amount greater than \$2 works no great hardship on the passenger, although a rule requiring the changing of larger amounts might prove very burdensome to the company.

"The fact that the plaintiff asked that the fares of his two companions be also taken out of the \$5 coin tendered does not place plaintiff in any better position than if only one fare was taken out, since the amount of change which the conductor would be required to furnish in order to collect the three fares, or the fare of the plaintiff alone, would still be greater than \$2."

The conclusion of the Georgia court that a rule requiring change to the extent of \$2 was justified by the Barker case in New York, discussed in my previous article and cited by the Georgia court. The Barker case is undoubtedly the leading authority on the subject in this country, coming as it did from the highest tribunal of our foremost State.

There was no question in the recent Georgia case as to the gold piece not being money in the nature of legal tender and so far as we have been able to learn authoritatively this question has never been squarely presented, although it was incidentally passed upon in the California case discussed in the previous article.

The *Compañía Hidroeléctrica é Irrigadora del Chapala* (Hydro-Electric & Irrigating Company of the Chapala) has been formed to execute the contracts entered into by Manuel Cuesta Gallardo with the Department of Internal Affairs for using the waters of Chapala Lake and Santiago and Lerma Rivers for irrigation and motive power purposes, and for draining the lands in the lake basin. The company has acquired the property of the *Compañía de Tranvías, Luz y Fuerza de Guadalajara, S. A.* (Guadalajara Tramway, Light & Power Company), and will continue the business of that company.

VALUATION OF PUBLIC SERVICE INDUSTRIES*

BY PROF. HENRY C. ADAMS, IN CHARGE DIVISION OF STATISTICS AND ACCOUNTS, INTERSTATE COMMERCE COMMISSION

The paper covers not only railways but municipal enterprises as well. I shall take no illustrations, however, outside of steam railways which stand for public services with perpetual charters or electric municipal railways which stand for public service industries of limited charters. The article attempts no definition of public service industry, nor does it consider the details of a physical valuation of properties or the proper methods of arriving at the value of unexpired franchises. It is, on the contrary, an argument for valuation in the broadest sense of that term.

The three points made by this paper are as follows:

First.—An authoritative valuation is essential for determining the reasonableness of the price paid by the public for services rendered.

Second.—Without an authoritative valuation it would not be possible to administer in an equitable manner laws for the control of the issue of securities by public service corporations.

Third.—The amount which a public service industry should pay over annually to the public treasury, commonly, though erroneously, called taxes, cannot be determined independently of an analysis of the value of the industry considered as a commercial concern.

In discussing the first of the above points I express my doubt as to the pertinency of the cost accounting principle in dealing with rate questions, and say that if the argument for valuation must rest on the pertinency of this principle the argument is essentially weak. In place of cost accounting I substitute the proposition that the owner of railway property exhausts his right to protest against the reduction or modification of a rate, provided it can be proved that the aggregate revenues cover aggregate expenditures, including a reasonable return upon investments. Beyond that point the rate question is a question of public interest, and the owner of railway property has no standing in court. The distribution of the total burden between various classes of commodities and service is no concern of the stockholder, except upon the assumption that the distribution threatens to depress the aggregate gross revenues below the constitutional limit.

In the development of this argument for valuation attention is called to the fact that the item, balance sheet cost, can be viewed from the point of view of either of three interests, namely, the interest of the stockholder who desires that the commercial valuation should be accepted as a measure of balance sheet assets; second, the interest of the management, whose chief interest is in establishing and maintaining the credit of the corporation in order that the corporation may easily borrow money; and, third, the interest of the public, which is chiefly concerned in arriving at a figure which can be accepted as the measure of what the corporation can legally collect as pay for services rendered. The public insists that investment is the measure of a reasonable schedule of rates. The conclusion of the analysis is that the balance sheet should furnish at all times a correct measurement of current investment. This the balance sheets do not now do, and one of the fundamental arguments in favor of valuation is that the accounting system for which Congress made provision in 1906 may be made effective.

It is also submitted in this connection that a valuation of the physical properties of municipal electric railways and a comparison of that valuation with commercial valuation is the surest method of determining whether or not a municipal railway can be profitably operated on less than a 5-cent basis.

With regard to the control of capitalization, this paper maintains the proposition that the control of capitalization of public service industries is not possible without a valuation of the property made along lines peculiarly adapted for that

purpose. It is not enough to know commercial value; the economic character of the various elements which contribute to that value must also be known and properly measured. It is not enough, in order to determine whether a corporation doing a public service business is warranted in the issuance of additional securities, to prove that the revenues of the company are adequate to support the burden of increased capitalization. The public may retain equities, or analysis of the industrial conditions upon which the commercial valuation rests may make it clear that capitalization to the full extent of the commercial valuation could not be justified.

Perhaps the chief argument in support of a formal and authoritative valuation of public service industries is found in the fact that many of the questions of public and private equity, which at the present time are more or less loosely expressed, would, as the result of a proper analysis of commercial valuation, become clearly defined and receive judicial treatment. The truth is that the public is in partnership with public service industries, and the public is vitally interested that the value which pertains to it should not be made the basis for the issue of securities.

Under the head of taxation this paper undertakes to prove that a comparison of the commercial value of a public service industry with its investment value is the only means of measuring the equitable contribution which such an industry should make to the public treasury. The fact, commonly overlooked when discussing the rate problem or the taxing problem in connection with public service industries, is that these industries, although in competition with one another, are not, and from the nature of the case cannot be, of the same grade or class. What would be a reasonable rate or a reasonable tax for a high-grade industry would bankrupt a low-grade industry; on the other hand, what would give a low-grade industry only a reasonable return upon its investment would result in a surplus revenue to its competitor, a high-grade industry. Under such circumstances the usual constitutional rule that all property should be taxed at the same basis results in discrimination of the worst sort as between these various classes of industries.

Considerations of public utility will always force railway commissions or Legislatures, in prescribing a reasonable rate or in imposing a tax, to do this in view of the necessities of the poorest railroad which should be maintained because it renders a useful public service. The first step, therefore, in arriving at an equitable adjustment of the amounts to be contributed by the railways to the State, must be the valuation of their physical properties and a comparison of this valuation with the commercial value of the corporation holding title to the property, in order that railways may be properly classified with a view to demanding from them a differential contribution which will tend to equalize investments in the different classes of properties taxed.

In general, then, the argument of this paper is that the valuation of railway property is defensible, not only because of the practical advantage which such a valuation must be to Legislatures, commissions and courts that have to do with the formulation, administration and interpretation of the policy of public control, but because the analysis necessarily incident to a satisfactory valuation will throw additional light upon conditions under which that policy is now being operated, and lead possibly to more perfect legislation, more fruitful administration and more reasonable interpretation than at present seems to be the case. Up to the present time this country seems to have proceeded on the assumption that value is a simple idea. One cannot go far in the consideration of the process of valuation, however, without being forced to recognize that value is a highly complex idea, and that the process of valuation is in a marked degree an analytical process, and, further, the necessity of formulating definitions, and of presenting the aggregate valuation arrived at under appropriate heads, will result in a new point of view, from which the problem of the relation of public service industries to the political organization may be regarded.

*Abstract of paper read before American Economic Association, Dec. 30, 1909, New York.

HEARING ON SERVICE IN THE NEW YORK SUBWAY

The hearing before William R. Willcox and John E. Eustis, of the Public Service Commission of the First District of New York, in regard to the method of operation and the equipment of the subway lines of the Interborough Rapid Transit Company was continued on Feb. 7, 1910. H. H. Whitman acted as counsel for the commission and James L. Quackenbush and Theodore L. Waugh represented the company in a similar capacity. Frank Hedley represented the company in his capacity as vice-president and general manager.

In connection with the testimony given by him at the previous hearing regarding the 250 cars ordered by the Interborough Rapid Transit Company, Mr. Hedley said that the first contract under this order was placed with the American Car & Foundry Company on June 4, 1909, for 110 cars; that the next order was placed with the Standard Steel Car Company on June 5, 1909, for 40 cars, and that the remaining order for 100 cars was placed with the Pressed Steel Car Company on June 10, 1909. The American Car & Foundry Company had promised to deliver 30 cars in September, 40 in October and 40 in November. The Interborough Rapid Transit Company had agreed to pay \$200 more a car to secure a promise of early deliveries, but the car builders would not accept any penalty clause.

The 100 cars ordered from the Pressed Steel Car Company were not needed to comply with the order of the commission of May 11, 1909, but they had been ordered in anticipation of favorable action by the Board of Estimate in authorizing the lengthening of station platforms so as to increase the number of cars in each train. At the time of the order of the commission, in May, 1909, the company had 823 cars available for service, of which 504 cars were in use in the express service and the remainder in the local service. With 64 additional cars for express service the company would be able to meet the order of the commission imposing a headway of 1 minute and 30 seconds. By Oct. 15, 1909, the company had equipped 72 cars with side doors, and by Feb. 7, 1910, it had changed 179 cars for side-door operation, thus anticipating the order of the commission, which specified that 16 cars a month should be equipped with side doors. Of these 179 cars 95 were steel cars and 84 composite cars.

Regardless of the use of the side-door cars and the lengthening of the platforms, the installation of the speed-control system at Ninety-sixth Street had increased the capacity of the subway track at Ninety-sixth Street at least 33 1/3 per cent. The speed-control system had been installed on the express tracks between Ninety-sixth Street and Brooklyn Bridge.

The company offered in evidence a table to show that the total number of seats was 94,000 and the number of passengers 69,960 during the period when, according to the testimony given by E. G. Connette, transportation engineer of the commission, at the previous hearing, 60 per cent of the trains carried standing passengers. The testimony of the company also tended to show that there were more seats than passengers during other periods about which testimony was offered on behalf of the commission. The present equipment of the company would not make it possible for the company to increase its service before and after the rush periods in accordance with the recommendations of Mr. Connette.

The hearing before the commission was continued on the afternoon of Feb. 11, 1910. Mr. Quackenbush had Mr. Hedley identify various letters from the correspondence between the car builders and the Interborough Rapid Transit Company and offered copies of them in evidence to show the efforts which had been made by the Interborough Rapid Transit Company to secure the delivery of cars as early as possible. The orders for the cars were placed early in the summer of 1909, but the contracts were not finally executed until Oct. 1, 1909. The car builders all insisted that the clause covering the infringement of patents of special devices which the Interborough Rapid Transit Company demanded should be installed be changed so as to place with the Interborough Rapid Transit Company the burden of any suit for infringement that might arise.

Mr. Hedley explained that in the case of large orders manufacturers began work as soon as they were notified that their bids were accepted and were instructed how to proceed. The formal execution of the contract was a matter of detail, and frequently contracts were not executed until many months after orders had been placed. The delay in signing the contracts did not retard work on the cars as inspectors of the company at the works of the car builders reported from time to time about the progress of the work on the cars. At the time that the orders for the cars were awarded contracts were placed for equipment, including motors, trucks, wheels, etc., and about \$400,000 worth of equipment was now in the company's shops awaiting the receipt of the car bodies. Five steel car bodies were received on the day of the hearing, and made a total of 10 bodies received up to that date. The practice with large transportation companies was to install their own equipments and wire their own cars, as it was of great advantage for a company to do this work under its own supervision and in accordance with practices which it had found best suited to its own needs.

Mr. Quackenbush explained that the omission to notify the commission of the inability of the company to secure deliveries from the car builders was chargeable to the legal department of the company. The Interborough Rapid Transit Company was a very large organization, and at the time contracts for car bodies and equipments were placed the personnel of the legal department was reorganized, and he had been derelict in this matter on account of the pressure of other work.

In answer to questions concerning service in the subway, Mr. Hedley said that 19 platform men and special officers were detailed to the Grand Central station for duty for two hours in the morning, 20 to the Fourteenth Street station, 10 to the Brooklyn Bridge station, and 17 to the Ninety-sixth Street station. Approximately the same number of men were detailed to these stations for the evening rush. A station master instructed the platform men in their duties, and the station master was in turn subject to the orders of the station inspectors and the superintendent. The company realized the value of courtesy on the part of station employees and impressed the men with the necessity of being civil and treating the public with consideration.

Sixty-three eight-car trains were in use for the express service with the present schedule of 1 minute and 48 seconds, and 71 eight-car trains, or a total of 568 cars, would be needed for the proposed schedule of 1 minute and 30 seconds, making necessary 64 more cars than were now in use. Forty-five five-car trains were now in use in the local service with the schedule of 1 minute and 45 seconds, and 53 five-car trains would be needed for the proposed schedule of 1 minute and 30 seconds for the local trains, making necessary 40 more cars than were now in use. With the lengthening of the station platforms two additional cars would be needed for each of the 71 express trains called for according to the schedule of 1 minute and 30 seconds, making 142 more cars needed for this service, or 710 cars in all. For the local service with 1 minute and 30 seconds schedule, 318 more cars would be needed in order to increase the local trains from five cars to six cars. There were on hand at present 823 cars available for service, and 250 were on order, making 1073 cars in all, or 45 more than were needed for the actual requirements of the company. It would take more than a year to lengthen the station platforms. The company had already asked when 75 more cars could be delivered.

Mr. Hedley said that according to the schedule of Jan. 1, 1905, the company was using 408 cars; according to the schedule of Jan. 1, 1906, 480 cars; according to the schedule of Jan. 1, 1907, 555 cars; according to the schedule of Jan. 1, 1908, 716 cars; according to the schedule of Jan. 1, 1909, 723, and according to the schedule of Jan. 1, 1910, 737 cars. The initial equipment of the subway consisted of 500 cars. Two hundred more cars were ordered in 1906 and 100 were ordered in 1907. The 200 cars were of steel, and were the first steel passenger cars ever placed in service, so far as Mr. Hedley knew. The deliv-

ery of cars on this order did not begin until about eight months after the order had been placed. No cars had been ordered in 1908 because the question of the type of car to be used was before the commission for settlement and the company did not feel that it would be advisable to order cars until a decision had been reached by the commission in this matter. In explanation of the record made by the company in handling 1,200,000 passengers in one day during the Hudson-Fulton celebration, Mr. Hedley said that the traffic was evenly distributed over a period of from 18 to 20 hours, but that the running time of trains was much slower.

At 5:15 an adjournment was taken until Feb. 15 in order that the officers of the company might have an opportunity to look over the transcript and submit any additional evidence that might occur to them as being important.

COMMITTEES OF THE ENGINEERING ASSOCIATION

W. J. Harvie, first vice-president and acting president of the American Street & Interurban Railway Engineering Association, has announced the following standing committees of the association for 1910:

COMMITTEE ON WAY MATTERS

E. O. Ackerman, chairman, engineer, maintenance of way, Columbus Railway & Light Company, Columbus, Ohio.

Martin Schreiber, engineer, maintenance of way, Public Service Railway Company, Newark, N. J.

M. J. French, engineer, maintenance of way, Utica & Mohawk Valley Railway Company, Utica, N. Y.

J. M. Larned, engineer, maintenance of way, Pittsburgh Railways Company, Pittsburgh, Pa.

C. L. Crabbs, engineer of way and structure, Brooklyn Rapid Transit Company, Brooklyn, N. Y.

George Weston, assistant chief engineer, Board of Supervising Engineers, Chicago Traction, Chicago, Ill.

COMMITTEE ON POWER GENERATION

W. S. Twining, chairman, chief engineer, Philadelphia Rapid Transit Company, Philadelphia, Pa.

G. H. Kelsay, superintendent of power, Indiana Union Traction Company, Anderson, Ind.

J. D. Andrew, superintendent of power stations, Boston Elevated Railway Company, Boston, Mass.

C. E. Roehl, electrical engineer, Brooklyn Rapid Transit Company, Brooklyn, N. Y.

H. G. Stott, superintendent of motive power, Interborough Rapid Transit Company, New York, N. Y.

E. D. Smith, superintendent of power stations, United Railways Company of St. Louis, St. Louis, Mo.

COMMITTEE ON POWER DISTRIBUTION

James Heywood, chairman, superintendent of lines and cables, Philadelphia Rapid Transit Company, Philadelphia, Pa.

William Roberts, master mechanic, Northern Ohio Traction & Light Company, Akron, Ohio.

S. L. Foster, chief electrician, United Railways of San Francisco, San Francisco, Cal.

E. J. Dunne, superintendent of distribution, Public Service Railway Company, Newark, N. J.

E. J. Burdick, superintendent of power, Detroit United Railway Company, Detroit, Mich.

A. F. Hovey, cable engineer, Interborough Rapid Transit Company, New York, N. Y.

COMMITTEE ON STANDARDS

Paul Winsor, chairman, chief engineer, motive power and rolling stock, Boston Elevated Railway Company, Boston, Mass.

John Lindall, superintendent of rolling stock and shops, Boston Elevated Railway Company, Boston, Mass.

E. O. Ackerman, engineer, maintenance of way, Columbus Railway & Light Company, Columbus, Ohio.

W. S. Twining, chief engineer, Philadelphia Rapid Transit Company, Philadelphia, Pa.

James Heywood, superintendent of lines and cables, Philadelphia Rapid Transit Company, Philadelphia, Pa.

H. H. Adams, superintendent of rolling stock and shops, Metropolitan Street Railway Company, New York, N. Y.

G. W. Palmer, Jr., electrical engineer, Boston & Northern Street Railway Company, Boston, Mass.

J. H. Hanna, chief engineer, Capital Traction Company, Washington, D. C.

W. S. Murray, electrical engineer, New York, New Haven & Hartford Railroad Company, New Haven, Conn.

COMMITTEE ON EQUIPMENT

John Lindall, chairman, superintendent of rolling stock and shops, Boston Elevated Railway Company, Boston, Mass.

H. A. Benedict, chief and electrical engineer, United Traction Company, Albany, N. Y.

M. V. Ayres, electrical engineer, Boston & Worcester Street Railway Company, South Framingham, Mass.

R. C. Taylor, superintendent of motive power, Indiana Union Traction Company, Anderson, Ind.

Terrance Scullin, master mechanic, the Municipal Traction Company, Warren Bicknell, receiver, Cleveland, Ohio.

A. T. Clark, superintendent of shops, United Railways & Electric Company, Baltimore, Md.

The representatives of the Engineering Association on the joint committee on shop accounts, to be composed of three members of the Engineering Association and three members of the Accountants' Association, have not yet been announced.

NOTES ON TRANSFERS

BY A CONDUCTOR

When a conductor punches the day of the month in 20 or 30 transfers at the same time the tickets are apt to sag, and he is liable to punch a day ahead on a number of them. Hence it is better to have this date punched before the transfer tickets are issued to the conductor, provided the date is not printed on the ticket. It is also desirable to allow the conductor some latitude in punching the destination in the transfers ahead of their actual use when he expects a rush, as it saves his time and helps in accuracy of punching. Some companies object to this plan, but any real objection to it can be overcome by requiring the conductor to deposit promptly in the transfer box on the car all transfers which have been punched but not issued at any point.

A saving in time and gain in accuracy can also be secured by not requiring the conductor, when he makes up his day card, to enter on the card the number of the last transfer which he has issued. A simpler and more effective way of checking up the number of transfers issued by him is to require him to deposit in the envelope with the transfers which he has received the top transfer of the last package used by him. This is an indisputable check of the number issued, and as the transfers on different routes should be of different colors, this transfer can easily be distinguished from the other transfers in the envelope.

Another point regarding transfers, seemingly small, but really important, is the use of glazed or unglazed paper. The type on unglazed paper is much more easily read, and companies should insist upon having it. It is a mistake also to use paper which is very thin, because when several transfers on thin paper are handed to a conductor at the same time he cannot easily tell by the feel the number which have been given him. Passengers should also be instructed to hand their transfers to the conductor unfolded. A notice to this effect could be printed on the transfer. When working on the running board of a crowded open car it is often very difficult for a conductor to unfold a transfer.

Except in emergencies, no car should ever be transferred from one conductor to another unless the transfer box is emptied of its contents. A record should also be kept of the time the transfer box is emptied. This can be done on a slip dropped in the box. The front of the transfer box should be of glass.

MEETING OF MASSACHUSETTS STREET RAILWAY ASSOCIATION

The regular monthly meeting of the Massachusetts Street Railway Association was held at Young's Hotel, Boston, on Feb. 9, with President R. S. Goff in the chair. The speaker of the occasion was E. G. Connette, transportation engineer of the Public Service Commission, First District, New York, his topic being "Some Impressions of New York City Street Railways." Mr. Connette reviewed the impression which the magnitude of the transportation problem in New York City had made upon him, and contrasted the different types of service now being given in the metropolis, which includes the most primitive and the most modern facilities. There are still 282 horse cars in operation in the city, while at the other end of the scale the Interborough subway provides the most modern urban transportation in the world. At present this subway has an underground length of 19 miles, with 5 miles of elevated construction. The subway carries 90,000 persons per hour in the rush period. Express cars are run in eight-car trains, the seating capacity being 50 per car and the headway 1 minute 48 seconds. Local trains of five cars each are also operated on the same headway.

Mr. Connette stated that there are now 32 operating companies in the city, covering 1600 miles of track and carrying 1,500,000,000 passengers per year, or 60 per cent more than are carried on all the steam railroads in the country. In addition to these there are 500,000,000 transfer passengers. This traffic amounts to 4,700,000 passengers per day, or practically one ride per capita every 24 hours. These lines earn about \$75,000,000 per year. The travel is growing steadily in spite of all the facilities offered, and the demand for transportation is continually greater than the supply. Two years ago the Williamsburg Bridge was opened to Brooklyn, and more lately a subway was placed in operation under the East River to the above borough. About two months ago the new Queensboro bridge to Brooklyn was opened, and still the trains are crowded beyond their capacity. The new Belmont tunnels, two in number, under the East River to Long Island City, and the four tunnels of the Pennsylvania Railroad will not be able to eliminate the congestion. A recent count of the Public Service Commission showed in one day 443,000 people going from Brooklyn to Manhattan and 439,000 persons traveling in the reverse direction, not including vehicular traffic. The Public Service Commission has laid plans for a new subway from the end of the Manhattan Bridge in Brooklyn and out Fourth Avenue toward Coney Island, with branches to Brighton Beach and the Brighton Parkway, to connect with the proposed Lexington-Broadway subway in Manhattan, giving a 20-mile trip on a 5-cent fare.

Speaking of the desire of the public for a 5-cent fare and universal transfer in the limits of New York, Mr. Connette said that he cannot see how this can be secured unless under a semi-municipal arrangement. That is what the people want ultimately, and in some way it will probably be attained. It is almost impossible to construct any more north and south surface lines in Manhattan, and elevated lines are objectionable. A subway represents practically an underground street. An important step is to secure a contractor who will operate a subway built under the supervision of the commission and pay a reasonable interest plus 1 per cent upon a sinking fund for amortizing the cost. Subway construction in New York costs from \$750 to \$1,000 per foot. The present Interborough Company is able to pay 4 per cent interest and 1 per cent toward a sinking fund to amortize the cost in 50 years, and also to pay 9 per cent dividends, earning 13 per cent over all fixed charges and having a profit and loss surplus above dividends. The density of the traffic is tremendous, and while a 17.5-mile trip can be made on a 5-cent fare, the average haul per passenger is practically 8 miles. This subway runs through a very populous district, and as a result of its construction real estate has increased a hundredfold in value in the northern part of the Bronx. In 5 or 10 years population

will be almost as dense up to 242d Street as it now is south of the Harlem River. Thousands of acres are yet to be built upon on Long Island. When a comprehensive subway system is completed it will create an exodus to Long Island and will establish people within the limits of the city instead of in New Jersey. Even at present transportation is not as good to New Jersey as to Brooklyn. The Hudson & Manhattan Railroad has two tubes under the Hudson River, and within three or four months trains will be brought into New York from Jersey by the two tubes of the Pennsylvania system. From 30 to 40 stub tracks are provided for train service in the great terminal station at Thirty-fourth Street, and the company also is building four tubes under the East River to Long Island City, where connection is made with the Long Island Railroad. Frequent trains will be run between Jamaica and Newark via the Pennsylvania tunnels, and quick transit will be provided between the center of the borough of Queens and Manhattan.

Mr. Connette then considered from a financial point of view the rehabilitation of surface lines which is now going on under the supervision of the commission, and stated that if the board had never done anything else, it would deserve praise for taking into hand the condition of the street railways and putting them on a basis where stocks and bonds issued under the reorganization represent a dollar's worth of property for every dollar put upon paper. Under the public service act, a company cannot issue stock or bonds unless it has the *quid pro quo* to back them up. The best policy in the long run is for securities to represent what has been put into the property. Mr. Connette said that he had absorbed many of his ideas regarding regulation from Massachusetts commission practice. The New York commission has greater powers than the Massachusetts board. In the former case the power to direct and order is practically equivalent to a statute. While it has been charged that the New York commission has been very severe upon the companies, it is now conceded by some companies formerly opposed to the work and methods of the commission that the board was right, and these managements are now co-operating with the board. If an inspector of the board finds that not enough cars are run, a hearing order is promulgated, and the board then issues an order requiring for predetermined periods a sufficient number of seats past a specified point for a given number of passengers. Mr. Connette said that he had taken up many of these matters informally with the companies, and has thus been able to regulate the service without a public hearing. The general manager of one large company stated recently that before the Public Service Commission's methods of inspection were adopted the superintendents of the system had really been the men who operated the property, and often without any scientific regard for the riding. The inspection charts furnished the company by the board have helped the management to know what it is doing, and has led to the institution of an independent system of checking up service by the company's own men. There are decided advantages in combining the old practical ways of doing things with scientific methods, the result being increased earnings through better service and a more satisfied public. Mr. Connette attributed whatever success he had attained in street railway operation to the plan of taking the public into his confidence. If a manager can get the people on his side it leaves little for public utility commissions to do. Better accommodations do much to increase riding. This is illustrated in the New York subway, which began operation with 400,000 passengers per day, and now handles 800,000. Mr. Connette then spoke briefly of the benefit of the center side doors on the subway cars, and of the function of speed control signals in increasing the capacity of the express tracks. These improvements are calculated to increase the capacity of the subway 25 per cent, and the extension of platforms for 10-car trains adds still more carrying power.

In conclusion, Mr. Connette described the organization of the commission, stating that there are five commissioners and three executive departments: Legal, with a general counsel in charge; construction, headed by a chief engineer, with spe-

cial supervision of subway building, and the transportation department, under the transportation engineer, supervising the operation of trolley, steam, elevated and underground railway companies, gas and electric light companies. Under the third department are a bureau of transit inspection, bureau of equipment inspection, accident bureau and appraisal bureau. Immediately in charge of the bureau of transit inspection is a general inspector, and under him is a force of 50 men in three squads under an assistant general inspector. These men are constantly observing the traffic and service in Manhattan, Brooklyn, Bronx, Queens and Staten Island. The staff of the equipment inspection bureau includes electrical engineers and other men familiar with cars, power house apparatus and other physical plant. The accident bureau is open from 8 a. m. to 11 p. m., and under the law companies are required to telephone to the commission all serious accidents or delays, and follow this by a written report within three days. A bureau chief and inspector handle this work. Closing, Mr. Connette said that the companies in New York have greatly improved their snow-fighting abilities during the present winter, and emphasized once more the value of scientific operating methods.

REPORT ON PITTSBURGH TRAFFIC CONDITIONS

A report on the Pittsburgh street railway situation, prepared by Bion J. Arnold, Frederick Law Olmsted and John R. Freeman, has been made public by the Pittsburgh Civic Commission. This is preliminary to a more comprehensive report and is intended to be a statement of the problem and not the solution. The commission engaged Messrs. Arnold, Olmsted and Freeman to make a study and recommendations concerning the transit situation, the water supply and a proposed city plan, and the report now made public is the first to be issued. Mr. Arnold is at present employed directly by the city, making a study of the surface lines and the proposed subway situation.

The preliminary report on the electric railway situation says:

"A thorough study should be made of the most rapid, convenient and economical methods for handling the passenger traffic throughout the district. This study should include the requirements for the immediate improvement and the future extension of the local street car service in each center of population, for convenient connections between these centers by means of interurban and suburban lines and for the ultimate development of a rapid transit system by means of subways, elevated roads or other methods.

"There are a number of improvements which could be made at once in connection with the local street car system, to which it may not be out of order to refer briefly at this time. Most of these immediate needs and necessary improvements have been referred to in one or all of three reports which have recently been made. One of these reports is by Stone & Webster to the State Railroad Commission, another is a report by Henry C. Wright to Mayor Magee, and the last comprises the recent recommendations by the State Railroad Commissioners.

"There are certain conclusions and recommendations in these reports which should receive the support of those officially interested in securing the best service with the present systems. The expenditure necessary to carry out these suggestions would not be large and the results would be immediate. The effectiveness of the present system as a transportation agency can be greatly increased while the careful study is being made for future possibilities."

The improvements which, the report says, should be made at once and which can probably be effected best by the city administration in co-operation with the street railway management are stated in part as follows:

"1. Regulate street traffic.—Rules patterned after the best experience of other cities should be adopted and a police traffic squad should be trained. It would seem advisable to give the street cars the right of way at certain places during the rush-hour periods.

"2. Control steam-road crossings.—Conference should be held with the steam road managers and every effort should be

made to reduce the delays due to switching at crossings. Inspectors should be placed at the more important crossings.

"3. Maintain schedules.—Inspectors should be placed at critical points to check delays and every effort made to insure that the street cars are run on time.

"4. Automatic electric switches.—Much time can be saved by switches or by the use of switch operators at certain points.

"5. More cars and larger cars.—A systematic check should be kept upon the service on each line and a comprehensive and consistent effort should be made to reduce the crowding to a minimum. More cars and longer cars during the rush hours is the greatest immediate improvement that could be made.

"6. The heating, ventilating and lighting of the cars should receive better attention.

"7. Improved rail and pavement, particularly at critical points. The tendency of vehicles to stick to the car rails can best be discouraged by installing a proper rail and a proper pavement, each upon a suitable foundation, and this improvement should be started at once in many parts of the downtown district.

"8. Increased clearances.—In many places where it is impossible to keep vehicles clear of the tracks steps should be taken to increase the clearance.

"9. Smithfield Street Bridge.—Ways of improving conditions over Smithfield Street Bridge should be studied and the delays to the movements of cars and vehicles reduced.

"10. Grade separation.—The delays at steam-road crossings to freight, trucking, street car and pedestrian traffic can best be reduced by grade separation.

"It will take time and careful study to investigate and conclude upon the possibilities in Pittsburgh of 'through routes,' 'universal transfers,' and 'one city, one fare'—principles which are in use in other American cities, and the 'zone system' as used abroad. The question of rapid transit by means of subways, elevated railroads and electrification of steam roads should be approached with caution as its development affects all the fundamental principles of city planning. To make a comprehensive study and report upon the future development of passenger transportation facilities in the Pittsburgh district it will be desirable to collect data as hereinafter set forth, in order to furnish a basis for answering the following questions:

"1. How much better service can the Pittsburgh Railways Company afford to give at once?

"2. What equipment should be provided for a service which should increase with growing demands in order to secure safety, reasonable comfort and maximum capacity?

"3. What possibilities are there for through routes?

"4. Will it be reasonable to expect universal transfers and one fare for the entire city?

"5. What density of traffic will justify the development of a subway, elevated road or other rapid transit system?

"6. What should be the financial policy in promoting rapid transit? To build with private capital or city credit? To assess the cost upon the districts benefited? To anticipate needs and influence the character of the city's growth or to await developments and build to relieve congestion?

"7. For a comprehensive rapid transit system which is better: Through routes or loops? Universal 5-cent fare or zone system of fares? Train operation or single cars? Competition or a system of transfers between surface lines and rapid transit systems?"

The following data for electric railway problems will be secured:

"1. Flow of traffic. Inward and outward bound, by the hour, day, month and year, over each route, over each bridge, through each 'throat' of the electric roads and over each suburban division of the steam roads.

"2. Rates of fares now charged to reach each district.

"3. Length of time required to reach each district from the business center.

"4. The history of the present system showing for a period of years passengers carried, transfers used, car-miles operated, miles of track, income, rides per capita, operation expenses, depreciation, fixed charges, surplus, etc.

"5. A comparison of these records with similar records of other street car systems serving cities of about the same size as Pittsburgh.

"6. An estimate of the cost to reproduce the physical plant of the street car system and an estimate of the overhead development charges which would be allowed in order to determine a fair investment upon which a reasonable return should be allowed.

"7. A study of the company's equipment as to its efficiency for present needs and its value for future development.

"8. A study of the economy and benefits and limitations of rapid transit lines in other cities, elevated, subway or private rights-of-way."

METHOD OF MEASURING AND CHARGING FOR REPLACING STREET PAVEMENT IN CHICAGO

Late last fall the street railway companies in Chicago made objections to the board of local improvements regarding the methods then used by city paving contractors in charging for the replacement of pavement under reserve which had been disturbed when reconstructing the street railway tracks. As a result of a conference in which the Board of Local Improvements, the Board of Supervising Engineers, Chicago Traction, the Chicago Railways Company and the Chicago City Railway took part, definite rules were formulated for measuring and charging for the work of relaying pavement.

The ordinances under which the surface traction lines in Chicago are being rebuilt, require that before a railway company disturbs the surface of a street it shall obtain permission for the work from the commissioner of public works of the city, and the permit secured contains a condition requiring the railway company to restore the surface of the street and maintain it for one year after restoration. The city of Chicago has certain contracts outstanding under which the contractors who constructed the paving on many of the streets occupied by the railway tracks, have guaranteed the paving and agreed to maintain it at their expense during periods of time which have not yet expired. On account of these contracts and because the railway companies found it necessary that the paving in many places be torn up outside of its right of way through the middle of the street, the contractors made claims that unless they themselves, respectively, did the work of restoring the pavement, they would be released from their obligations and guarantees to the city under the original paving contracts. The city of Chicago did not admit these claims and a difference of opinion also arose as to the amount of paving required when new track were laid on a grade established above or below that of the existing pavement. The representatives of the city, the contractors and the corporations involved finally agreed to proceed with their work if the Board of Supervising Engineers would pass a resolution which had been jointly formulated and which included the rate per yard to be paid for repaving and specified the method of determining the amount of paving to be done outside of the right of way.

Inasmuch as the points involved in this controversy, which finally was settled by the adoption of the resolution, frequently come before railways in other cities, an abstract of the resolution of Board of Supervising Engineers, Chicago Traction, settling the difficulties is of interest.

The resolution of the Traction Board stipulates that the measurements shall be made and the quantities agreed upon by the interested parties before any paving work is done by the street contractor. An arrangement is approved whereby the railway company shall employ the paving company to restore such of the streets as it originally paved and to maintain the replaced pavement for one year or for such longer period as might have been provided in the contract under which the contractor originally laid the pavement for the city. The contractor is required to execute the work so that it will meet the provisions of the rehabilitation ordinance and receive the approval of the commissioner of public works. The railway companies shall pay the paving contractors as follows:

"Where the grade of the track is changed the company will pay for repaving all pavement outside of the right of way made necessary in order to properly connect the undisturbed pavement and the pavement of the right of way at the rate of \$2.25 per sq. yd. For the first inch or fraction of an inch of elevation of the outer rail above the existing pavement the railway company will pay for the repaving of 18 in. from the outside edge of the rail; and for every additional inch of elevation beyond the first inch the railway company will pay for the repaving of one additional foot outside of the 18 in. and proportionately for fractions thereof, except that in cases where the brow paving is laid by the railway company, this portion will be deducted unless the outside edge of the brow paving is as high or higher than the rail, when the measurements shall be taken from the outer edge of the brow paving instead of from the rail.

"If the average of all the elevations taken (10 ft. apart) on the outside edge of the brow paving blocks in any 100-ft. section gives an elevation level with or higher than the average elevation of the rail in said section, then the measurements are to be made from the outside edge of the brow; but where the average elevation taken on the outside of the brow in any 100-ft. section is lower than the average elevation of the rail in said section, the measurements shall be taken from the outside edge of the outside rail."

It is stipulated that if the railway company opens the street pavement outside of its right of way and outside of the limits as provided above, the surface of such an opening shall be measured and added to the foregoing quantities. If the grade of the track is not changed the railway company shall pay the paving contractor \$2.25 per yard for repaving all openings actually made in the street outside of the right of way.

When the railway company installs additional rails or special track work and where this installation materially changes the contour of existing pavements so as to require the building of additional catchbasins or changing the drainage of the pavement, the cost for this work shall be paid by the railway company, provided that the necessity for making the change is approved by representatives of the Board of Local Improvements, Board of Supervising Engineers, the railway companies and the contractor who is to make the change. In case of a disagreement the finding of a majority of the parties at interest shall rule. The cost of such changes must first be estimated in writing by agreement of the representatives before the changes are made. In no event shall the amount paid by the railway company exceed the estimate. If these changes of street surface or structures required for drainage purposes necessitate in turn the repaving of portions of the street in addition to the work required on account of the new tracks, this paving shall be paid for at the rate earlier stated; provided that the contractor, according to his contract with the city, is obliged to do such repaving. If the contractor who has the street under reserve is not required to do work of this kind, then the price shall be that stated for repair work in the contract under which the pavement originally was laid by the contractor. Openings made by the railway company outside of the right of way for laterals and conduit are to be paid for as repair work and the railway company must turn over to the contractor all of the paving materials removed in making the openings, or substitute materials equal in quantity and quality for those removed.

The resolution concludes as follows:

"This board is of the opinion that a restoration of the pavement for the respective distances hereinbefore mentioned, and in accordance with the foregoing provisions is sufficient for a discharge of the said obligations of the said company under said ordinance; but the work to be done by the contractor shall not necessarily be to restore and maintain the actual yardage so measured, but the contractor shall in every case restore and maintain the street, including the pavement thereof, so as to comply with the obligations of the company under the said provisions of the said ordinance in such a manner as to secure the approval of said work by the said Board of Local Improvements and the said commissioner of public works

as being a compliance with said provisions and with the obligations of said contractor under his original paving contract; but the company shall not be obliged to pay for any additional paving other than that measured and determined under the foregoing provisions of this resolution."

THROUGH ROUTES AND JOINT RATES BETWEEN ELECTRIC AND STEAM LINES

Mention was made in the issue of the *ELECTRIC RAILWAY JOURNAL* for Feb. 12, 1910, page 296, of the provision in the Townsend bill as it is now pending before Congress that the Interstate Commerce Commission shall not establish any through route classification or rate between street, suburban or interurban electric passenger railways and railroads of a different character.

At hearings before the committee on interstate and foreign commerce of the House of Representatives in the last week, testimony has been given by officials of electric railways concerning the effect of this stipulation if the bill should be enacted into law as it stands. Representatives of Iowa electric lines, who have been greatly interested in the situation, appeared before the committee to testify in relation to the effect which the enactment of this clause would have on their traffic arrangements. The president of one company stated that electric railways should not be deprived of the privilege to transact commercial railroad business simply because they had an electric wire over their tracks instead of relying upon steam locomotives for motive power.

Dispatches from Washington state that conferences concerning the clause of the bill affecting electric railways have taken place recently between President Taft, Attorney-General Wickersham and Congressman Townsend, of Michigan, who introduced the bill in the House of Representatives. It is stated that when the bill was originally framed by the Attorney-General it provided that the Interstate Commerce Commission should have power to prescribe through routes and joint rates over a combined electric and steam railway route. Later, however, the clause was changed so as to prevent absolutely the exercise of authority by the Interstate Commission in cases of this character where combined steam and electric routes were involved. Congressman Townsend, it is stated, has taken the position that electric lines should not be exempt from the operation of the law, as they would be brought under the jurisdiction of the Government eventually and that a start might as well be made now as at any other time. He is said to have expressed the opinion that the commission would be able to exercise sufficient discretion to prevent any injury being done to electric lines.

CHICAGO ELEVATED LOOP SITUATION

The Union Elevated Loop continues to receive a considerable amount of publicity in the Chicago newspapers. A conference at which the managers and directors of all the elevated railways in Chicago were invited to be present and meet the local transportation committee of the Chicago City Council was announced for Feb. 15. It was planned to discuss the question of through routing as outlined in these columns last week. The city officials are stated as being ready to submit to the elevated companies evidence that through routes and transfers over all the elevated lines will benefit both the companies and the city. Even if opposition is forthcoming, a fair trial of the through-route plan is hoped for as a practical demonstration of the principles of operation as set forth by the city's engineering experts.

At a meeting of the Chicago City Council on Feb. 14 the local transportation committee was instructed to consider a plan for having side-door entrances for the elevated cars. Alderman W. F. Lipps, who proposed this feature, stated that two-thirds of the delay on the Elevated Union Loop was caused by loss of time in loading and unloading the cars. He thought a simple solution of the problem would be had by

compelling the elevated railroads to remodel their cars and install center side entrances. The problem of the best way to relieve congestion has precipitated an acrimonious controversy between the Loop Protective Association and the elevated transportation committee of the Chicago Association of Commerce over the question of lengthening the platforms at the Union Loop stations. A third element has appeared demanding that through routes be established as the only means of overcoming the loop congestion. The type of car which Alderman Lipps had in mind at the time the matter was presented to the Council and the instructions made to the local transportation committee of the Chicago City Council was that adopted by the Illinois Central Railroad for its local service. This car has cross seats with an aisle along either side wall and an entrance door opposite each pair of seats. The doors are all controlled from the ends of the cars and automatically lock when the last door is in place.

The elevated railroad managers have suggested stopping the trains at every other station on the Union Loop.

QUARTERLY MEETING OF NEW YORK ASSOCIATION

J. H. Pardee, secretary of the Street Railway Association of the State of New York, has just announced the program of the eleventh quarterly meeting of the association, which will be held in Rochester, N. Y., on the evening of Tuesday, March 1, and on Wednesday, March 2, 1910.

The Tuesday evening session will be opened with an informal dinner at 8 o'clock at the Hotel Seneca, after which the remainder of the evening will be given to a general discussion of one of the subjects on the program as given below. There will be a morning and afternoon session on Wednesday, March 2, at the Rochester Club, on East Avenue, at which the rest of the program will be followed.

Arrangements have been made with the Hotel Seneca for accommodations for those who apply directly to the hotel management prior to the date of the meeting.

PROGRAM

Reports of Committees:

Committee on remuneration for handling United States mail. J. K. Choate, chairman, E. S. Fassett and C. L. Allen.

Committee appointed to confer with the executive committee of the A. S. I. R. A. and representatives of Street Railway Associations from other States. E. F. Peck, C. Loomis Allen, J. W. Hinkley and J. H. Pardee.

Papers:

"Block Signaling on Electric Railways," to be presented by Charles R. Barnes, railway expert of Public Service Commission, Second District.

"Near-Stop Operation," to be presented by W. R. W. Griffin, general superintendent transportation, New York State Railways.

"Educational Methods Used in Placing New Systems of Transfers in Operation," to be presented by W. C. Callaghan, superintendent of transportation, New York State Railways.

"Changes in Transfer Systems," to be presented by E. J. Cook, vice-president and general manager, New York State Railways.

"Methods of Checking Tickets and Other Passenger Revenue," to be presented by J. C. Collins, secretary, New York State Railways.

Questions for Discussion:

To be presented by John E. Duffy, superintendent Syracuse Rapid Transit Company: (a) "Selection of Platform Employees"; (b) "Fare Collection and Registration"; (c) "Inter-department Relations."

To be presented by Charles H. Smith, superintendent United Traction Company, Albany: (a) "Should the Inspectors' System of the Operating Department Include Special Traveling Motormen?" (b) "Should Waiting Shelters be Provided at Transfer Points on City Lines Where Cars are Operated at Frequent Intervals?" (c) "What is the Best Method of Handling Conductors' Receipts?"

NEW SYSTEM OF FARE COLLECTION IN NEW BEDFORD

On Feb. 6 the Union Street Railway of New Bedford put in service on all divisions of its lines the Rooke system of fare collection, which has been in use for several years in Providence. Concurrently it placed advertisements in the local papers and posted bulletins explaining the new system. Emphasis was laid in these notices to the public upon the advantage to passengers of having their nickels ready and thus facilitating the collection of fares. At the same time, the company announced that aluminum tickets the size of a nickel and sold 21 for \$1 could be secured at the main office of the company. The introduction of the system was attended with no troublesome features. The public was prepared for the change and the daily papers complimented the company on the success which attended its inauguration.

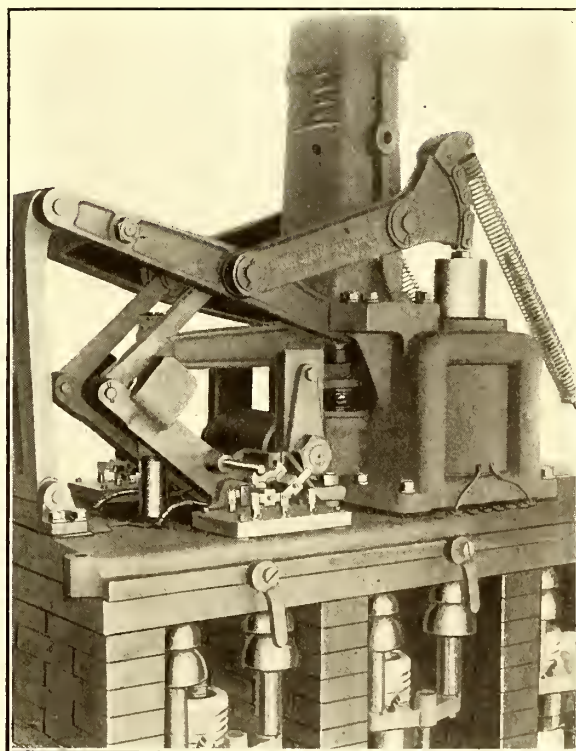
Equal care was given to instructing the conductors in the use of the apparatus. The following summary of a letter, signed by General Superintendent Elton S. Wilde and approved by President H. H. Crapo, was sent to each conductor before the system was placed in operation to explain its object and the advantages which it possessed from the conductor's standpoint:

"It can hardly be necessary to tell you that our decision to change our fare-collecting system has not been reached without painstaking investigation. Constant improvements in business methods are desired by all progressive business men. The street railway business is especially one where the best modern methods are desirable since it is a business singularly open to the observation and supervision of the public. We believe this new system to be a distinct improvement over the old from the standpoint of the conductor, the company and the public. You have, of course, always had a device for registering and accounting for fare collections. This has been intended distinctly for your protection as well as the company's. This new system must necessarily operate in a manner to insure greater accuracy and, therefore, greater protection. * * * As you well know, the failure of conductors properly to register fares, owing to mistakes, lapse of memory or otherwise, has caused a considerable portion of the unthinking public to hold your honesty rather lightly and to indulge in many undeserved slurs against conductors as a class. * * * This new system of registration relieves you of these unwarranted imputations and in doing so becomes as great a boon to you as can well be imagined. Something more is involved in this change than the substitution of a new type of registering device for an old one. Under the old system you were made responsible not only for the collection, but for the registration of every fare. You had these two distinct duties to perform in order properly to conclude each separate money transaction on your car. * * * Under this new system you have but one duty, i. e., the collection of fares. You are relieved of personal responsibility of registering them. The fact of proper payment insures proper fare registration. This means accuracy in accounting. This constitutes your protection. You surely would not prefer being employed under a lax method of accounting and at the same time be held responsible for mistakes. * * * If you obey your simple rules, there can be no possible question raised of accuracy in registration of fares. A failure to obey your rules, on the other hand, leaves no possibility of doubt that your offense is deliberate. * * * Doubtless at first when this new system is introduced, you will be met by annoying remarks from fresh individuals who are none the less conscious of the insult contained in such words as: 'How can you beat it?' and similar slurs. It will be hard to ignore the insult of such remarks, but you can well afford to ignore them in the consciousness that the failure to 'ring up' can no longer be charged against you, and that passengers who have a grudge against you will hereafter find it difficult to make plausible reports to the general office based on mere suspicion and accusation. * * * There are other objections which some of you will very likely make to this new system, some few with substantial justification, since no system can be ideal in all its

aspects, but the greater number of objections which may occur to you will be due simply to the few days' inconvenience of changing from the old to the new. We ask and expect your earnest co-operation in introducing the new system as smoothly as possible. No good railway man, or any other kind of a man, 'loses his head,' 'goes lame' or 'plays dead' simply because something new or different takes a place in his routine day's work. Reserve your own judgment as to the system until you are competent, by the experience of an earnest trial, to pass one."

NO-VOLTAGE RELEASE TYPE "C" OIL CIRCUIT BREAKERS

For instantaneously opening its standard type "C" circuit breakers, the Westinghouse Electric & Manufacturing Company, Pittsburgh, makes the no-voltage release device shown in the accompanying engraving. This release has been applied to eight large 6600-volt, type "HF," three-phase, induction motors, ranging over capacities of 3200, 2500, 2000 and 650 hp, in the new merchant mills of the Indiana Steel Company at Gary, but it is, of course, equally well adapted to the high-tension side of transformers, since it opens the gravity-operated contacts when the control voltage is interrupted. As shown,



No-Voltage Release for Circuit Breakers

one of the toggle-joint members of the standard switch-gear is fitted with an armature which engages and is held by the pole pieces of the no-voltage coil just before the toggle passes its central position. In the ordinary type "C" breaker furnished without this no-voltage release the contacts are held closed by carrying this toggle over its dead center, a position where it locks.

In the no-voltage type the toggle is detained by the attraction of the pole pieces for the armature while still on the operating side of its center, so that in case of any interruption to the control voltage the breaker immediately opens and cannot be closed except in the usual manner. Full protection is thus afforded to the motors connected through their circuit breakers, and in the case of overload on the rolls or failure of the power house their circuits are immediately opened, so that the machines must be gradually accelerated in the usual way.

ELECTRIC RAILWAY LEGAL DECISIONS

CHARTERS, ORDINANCES AND FRANCHISES

New York.—Eminent Domain—Taking Property—Use of Streets—Additional Burden—Trespass—Damages—Right of Recovery—Injunction—Relief—Damages Additional to Injunction—Rights of Property Owner—Damages to Property Not Taken—Elements.

A street surface railroad is an additional burden to the land of adjoining proprietors who own to the center of the street, and a street railway company cannot impose the added burden without making compensation, and, when it commences to lay its tracks without agreeing with the adjoining proprietors or instituting condemnation proceedings, it is a trespasser.

The right to damages for a trespass depends on legal, and not equitable, rules.

Damages for trespass are allowed as an incident to injunctive relief, since equity, having jurisdiction of the cause, will grant legal as well as equitable relief for the purpose of settling all matters of difference in one suit.

One suing for a trespass committed by a street railway company constructing and operating a street surface railroad is entitled to such damages as he has suffered from the trespass, and is entitled to an injunction unless the company as an alternative will pay him such sum as would be awarded in condemnation proceedings.

In condemnation proceedings the owner is allowed not only the value of the property taken, but compensation for the effect of the taking on the residue, considered with reference to the use which the property taken is to be put.

A street railway company built a surface street railroad track without condemnation proceedings. Some years thereafter it began to operate cars thereon. Held, that an adjoining landowner could not recover as damages for the trespass in laying the track the loss in rental value resulting from the fear that some time cars would be operated on the track, because damages for such trespass would only occur when the trespass actually occurred.

A street railway company constructing, maintaining, and operating a street surface railroad is answerable for the damages caused thereby to abutting property, but not for a shrinkage in fictitious value resulting from other causes, and it is not liable for depreciation in the market value of abutting property, due to the character of the street, which had become fixed before the track was constructed.—(Duncan v. Nassau Electric R. Co. et al., 111 N. Y. Sup., 210.)

New York.—Statutes—Construction—Legislative Intent—Street Railroads—Municipal Corporations—Powers—Construction of Subway—Nature of Power—Eminent Domain—Compensation—Appropriation to Additional Use—Streets—Railroad Rights of Way—Presumptions—Nature—Rights of Abutters—Legislative Power—Constitutional Law—Determination of Constitutional Questions—Underground Railroad—Rights of Landowners—Measure of Damages—General Rules—Measure of Damages to Fee—Purpose of Condemnation—Materiality—Elements of Damage—Jurisdiction of Commissioners—Judicial Notice—Population—Condemnation Proceedings—Extra Allowances—Counsel Fees—"Just Compensation."

A thing within the intention of a statute is within the statute, though literal construction excludes it.

Laws 1894, p. 1873, c. 752, amending the rapid transit act of 1891 (Laws 1891, p. 3, c. 4), authorizing New York City to construct a subway, did not enlarge the city's governmental functions but merely invested it with the powers and franchises it unsuccessfully attempted to sell under the act of 1891, and made it a railroad corporation for the purposes of constructing a subway, with no more rights in the highways and public places of the city than would belong to any other corporation, and with no other or higher right to take private property than would belong to an ordinary railroad corporation.

Railroads, surface or general, constitute an added burden upon the streets of a municipality, which the owners of the fee can prevent by injunction until compensated for the taking of their property.

In construing Rapid Transit Act 1894 (Laws 1894, p. 1886, c. 752), § 39, as amended by Laws 1901, p. 1423, c. 587, § 1, to determine whether New York City is liable to abut-

ters for damages through the construction of subways under streets, where the fee is not in the city, the Legislature is to be presumed to have known the law and the right of the owners of the fee to compensation for extra burdens placed upon it.

Streets are part of the highway system of the State, kept open for the benefit of the State and not the municipality; the municipality being an agent of the State respecting them.

As to matters which abutters have reasonable opportunity to foresee will be done in legitimate use of streets for public purposes, no liability for consequential damages, not due to negligence, is incurred by a municipality acting within statutory authority; but the rule is otherwise as to unforeseen burdens upon the street, which the courts have held not involved in the original taking.

The Legislature cannot constitutionally authorize a municipality, in conducting a business enterprise, to appropriate private property rights in streets without payment of just compensation.

Statutes are presumed to be constitutional, it being assumed that the Legislature intended to act within its limitations; and where one of two constructions, each equally reasonable, will render an act valid, it should be adopted.

Rapid Transit Act 1894 (Laws 1894, p. 1886, c. 752) § 39, as amended by Laws 1901, p. 1423, c. 587, § 1, authorizing New York City to condemn "real estate and any rights, terms and interest therein, any and all rights, privileges, franchises and easements, whether of owners or abutters or others to interfere with the construction or operation of" an underground railroad, authorizes compensation for all property taken for purposes of the road, and contemplates the taking of the property rights remaining in the owners of the fee of a street, as well as those abutting upon the same, where the fee is in third persons.

Under Rapid Transit Act 1894 (Laws 1894, p. 1886, c. 752) § 39, as amended by Laws 1901, p. 1423, c. 587, § 1, authorizing New York City to condemn property for underground railroad purposes, and section 47, amended by Laws 1895, p. 912, c. 519, § 20, providing that title to condemned property shall vest upon the filing of the oaths of the commissioners of appraisal, title does not vest, so as to defeat the city's liability for damages accruing to property after that date.

The rules as to the measure of damages for taking of or injury to land is the same, whether arising in equitable actions or in condemnation proceedings.

Under the Rapid Transit Act of 1891 (Laws 1891, p. 3, c. 4), as amended by Laws 1894, p. 1873, c. 752, and 1901, p. 1423, c. 587, authorizing New York City to condemn property for underground railroad purposes, the measure of damages to the owner of the fee of a street in which the road is constructed is the full value of the property actually taken, without deduction, and just compensation for injury to the remainder, considering the market value of the property before and after the taking.

Where the fee in a New York City street is in a third person, an abutter must be deemed to have had an easement or right of subjacent support for his premises, which the city could not take away without just compensation in constructing an underground railroad under the rapid transit act of 1891 (Laws 1891, p. 3, c. 4), as amended by Laws 1894, p. 1873, c. 752.

In condemnation proceedings, the purposes for which the property is to be used may be considered in determining whether property not taken is damaged by the taking.

In a proceeding under the rapid transit act of 1891 (Laws 1891, p. 3, c. 4), as amended by Laws 1894, p. 1873, c. 752, to condemn property for underground railroad purposes, the commissioners of appraisal were bound to consider everything that, if known to a proposed purchaser when title vested in the city, would tend to increase or diminish the market value of premises remaining after the taking.

In a proceeding under the rapid transit act of 1891 (Laws 1891, p. 3, c. 4), as amended by Laws 1894, p. 1873, c. 752, to condemn property for underground railroad purposes, abutters evicted from their homes by undermining of foundations, etc., are entitled to have the fact that the premises were rendered untenable for a long time considered in an assessment of their damages, the measure not being the cost of restoring the buildings.

While damages inflicted upon abutters in the performance of a public work, reasonably and properly conducted, are *damnum absque injuria*, where a railroad corporation enters a street and sinks great shafts in carrying on the construction work, the fact may be considered in determining what the market value of abutting premises would be if the condition were known to be involved in the taking of the property of the owners of the fee.

In a proceeding under the rapid transit act of 1891 (Laws 1891, p. 3, c. 4), as amended by Laws 1894, p. 1873, c. 752, to condemn property for underground railroad purposes, the commissioners of appraisal have jurisdiction of every fact growing out of the construction and operation of the road without negligence, so far as such facts affect the market value of the property.

The Appellate Division takes judicial notice that New York City is the only city in the State having more than 1,000,000 population.

The rapid transit act of 1891 (Laws 1891, p. 3, c. 4), as amended by Laws 1894, p. 1873, c. 752, authorizing cities of more than 1,000,000 inhabitants to take property for public purposes, etc., is an act authorizing the acquisition of property for any public purpose in New York City, within three Laws 1901, p. 425, c. 466, § 998, as amended by Laws 1904, p. 1885, c. 736, § 1, permitting additional allowances in proceedings under such acts.

Rapid Transit Act 1894 (Laws 1894, p. 1896, c. 752) § 62, expressly authorizes the allowance of counsel fees in proceedings to condemn land under the act.

The term "just compensation," as used in connection with the taking of property for public use, involves placing the property owner in the same position financially that he would have been if his property had not been taken on a given date.—(In *re* Low et al., 112 N. Y. Sup., 619.)

New York.—Equity—Bill—Reasoning—Monopolies—“Monopoly”—Railroads—Operation—“Business”—Street Railroads—Consolidation—Corporations—Corporation Law—Construction—Courts—Rules of Decision—Intermediate Courts of Appeal—Federal Courts—“Comity”—Suit by Stockholder—Ninety-Fourth Equity Rule—Action Against Corporation—Pleading—“Shareholder”—“Share”—“Stock”—Parties—Receivers—Illegal Combination.

On demurrer to a bill to avoid an alleged conspiracy in restraint of trade, consisting of a monopoly created by a consolidation of street railway lines, the court could not adopt the reasoning of the bill and its deductions from the facts stated in order to find a conspiracy or monopoly, but must find its existence from the facts alleged.

Stock Corp. Law N. Y. (Laws 1890, p. 1060, c. 564) § 7, as amended by Laws 1892, p. 1828, c. 688, declares that no domestic stock corporation shall combine with any other corporation or person to create a “monopoly” or the unlawful restraint of trade, or to prevent competition in any necessary of life. Held, that the word “monopoly” was not used in such section in its strict sense as requiring a control of all present existing means of carrying on a business, or doing a particular thing generally or in a particular place or locality, and the right to possess, own, or control all means of doing that thing in that place in the future, but was satisfied by an exclusive privilege to carry on a traffic or the possession or assumption of anything to the exclusion of other possessors, as where a man has acquired complete control of a business, and therefore embraces any combination or contract the tendency of which is to prevent competition in its broad and general sense.

The operation and management of railroads in carrying passengers is a “business,” and part of trade and commerce.

Several street railroad companies, including all the railway lines between the points mentioned, operated lines of railway from various points in the Bronx to the Battery in New York City under legislative franchises giving to each an exclusive right to its line and territory. A combination of all of such corporations was effected by means of a transfer of stock to a business corporation created for that purpose by which the real ownership, control, and management of the previous competing parallel lines between substantially the same points or localities was merged. Held to constitute an illegal monopoly in violation of Stock Corp. Law N. Y. (Laws 1890, p. 1060, c. 564) § 7, as amended by Laws 1892, p. 1828, c. 688, providing that no

domestic stock corporation shall combine with any other corporation or person to create a monopoly or the unlawful restraint of trade or to prevent competition in any necessary of life, and this though the consolidated road is still subject to such control as the New York Public Service Commission may see fit to exercise over it.

Stock Corp. Law N. Y. (Laws 1890, p. 1073, c. 564) § 40, authorizing corporations other than moneyed corporations to purchase, hold, and dispose of stocks, bonds, and other evidences of indebtedness of any other corporation, etc., engaged in a similar business, if authorized to do so by a certificate of incorporation, or if a corporation with which it is authorized to consolidate, is limited by section 7, prohibiting the combination of corporations to create a monopoly, or the unlawful restraint of trade, or the prevention of competition in any necessary of life.

A federal court sitting in New York is not required to follow decisions of the different Appellate Divisions on the construction of a state statute merely because they refused appeals to the Court of Appeals, or in the exercise of discretion refused leave to prosecute actions.

The lower federal courts are bound by decisions of the highest court of the state in which they are sitting, construing the Constitution or statutes of the state, except when the United States Supreme Court has decided otherwise, but are not bound by state decisions on questions of general commercial law.

Lower federal courts are bound by the decisions of the Supreme Court of the United States and by those of the Circuit Court of Appeals in their own circuit, but are not bound by decisions of a federal court of co-ordinate jurisdiction, or even the decisions of a federal Circuit Court of Appeals in another circuit.

A bill by a stockholder to avoid an alleged illegal consolidation of street railroad companies was verified by the president of complainant company, the president giving the grounds and sources of his information and belief. The bill alleged that complainant was, at and prior to the time of the unlawful plan, combination, and conspiracy objected to, and then was the bona fide and lawful owner “of record” of 300 shares of the stock of one of the defendants, which was one of the companies alleged to have entered into the combination and alleged conspiracy. The bill then charged that the suit was not collusive to confer jurisdiction on a court of the United States, and that plaintiff had made demand on a specified date on the corporation and its then president and on its board of directors to take steps to dissolve the consolidation, a copy of which written demand was attached. The bill also alleged that the demand was subsequently repeated, and recited in detail the reasons why action was not secured. Held, that the bill sufficiently complied with the ninety-fourth equity rule providing that every bill by one or more stockholders of a corporation against the corporation and others founded on rights which might be asserted by the corporation must be verified by oath and must contain an allegation that plaintiff was a shareholder at the time of the transaction of which he complained; that the suit was not collusive to confer federal jurisdiction; and should allege particularly plaintiff’s efforts to secure action by the directors of trustees, and, if necessary, by the shareholders and the cause of his failure.

In an action by a stockholder against a corporation and others, an allegation that complainant is the bona fide and lawful owner “of record” of certain shares of the corporation’s stock constituted a sufficient allegation that complainant was a bona fide and lawful stockholder, as the words “of record” did not detract from the force of the statement nor render it evasive.

A shareholder is one who holds or owns a share or shares in a joint-stock or incorporated company in a common-fund or in some property, as a shareholder in a railway, mining, or banking company.

“Share” specifically is one of the whole number of equal parts into which the capital stock of a trading company or corporation is or may be divided, as shares in a bank or shares in a railway.

“Stock” is the share capital of a corporation or commercial company; the fund employed in carrying on of some business or enterprise divided into shares of equal amount, and owned by individuals who jointly form a corporation.

In a stockholder’s bill to avoid a consolidation of several street railroads as creating a monopoly, receivers of cer-

tain of the roads appointed prior to the commencement of the suit were proper but not necessary parties.

Where certain street railroad corporations entered into an illegal combination and consolidation, the appointment of receivers for two of the constituent companies was ineffective to remove them from the illegal combination.—(Continental Securities Co. v. Interborough Rapid Transit Co. et al., 165 Federal Rep., 945.)

Pennsylvania.—Street Railroads—Use of Street—Rights of Abutting Owners—Rights Under Charter.

Where a street railway company used a street already occupied by an existing railway, and did not intend to construct a branch of its own on the street, an abutting property owner had no ground to complain.

Where a street railway under its charter has a right to build branches and extensions, it has the right to use the tracks of another company for a short distance under a contract with such company to connect its main line and the proposed extension.—(Hannum v. Media, M., A. & C. Electric Ry. Co. et al., 70 Att. Rep., 847.)

LIABILITY FOR NEGLIGENCE

Illinois.—Street Railroads—Action for Injury to Driver of Vehicle—Pleading and Proof—Variance—Trial—Instructions—Collision with Vehicle—Action—Evidence—Contributory Negligence—Speed of Car.

Under an allegation in a declaration for injuries to the driver of a vehicle that he was driving on a street "at or near the tracks" of defendant's railway, evidence that he was driving longitudinally on the track is not a variance.

In an action for injuries to the driver of a vehicle from collision with a street car, no witness except plaintiff saw the wagon immediately before the collision. The conductor was in the back part of the car, and did not see the wagon until after the crash, and after he got off the rear end. He testified that he then saw it about 50 ft. or more from him "going kind of across the street like, toward the north side of the street." Held, that this evidence did not tend to prove that plaintiff drove in the way of the car suddenly, and an instruction based on such an assumption was properly refused.

In an action for injuries to the driver of a vehicle from collision with a street car, evidence that the street outside the track was unpaved, rough, uneven and could not be driven over is competent to show the condition of the roadway outside of the tracks, as affecting his care in driving on the street and track.

In an action for injuries to the driver of a vehicle from collision with a street car, a witness for plaintiff testified that he got on the car five blocks west of where the accident occurred, and the car started fast; that it stopped two or three blocks west of the place of the accident, and then started again, and continued at fast speed until the collision occurred. Held, not subject to an objection that the speed several blocks from the accident did not tend to prove what it was at and shortly before the time of the accident, as the testimony, while showing an intervening stop, also showed that the fast rate of speed continued up to the time of the accident.—(Murphy v. Evanston Electric Ry. Co. et al., 85 N. E. Rep., 334.)

Illinois.—Damages—Evidence—Personal Injuries—Carriers—Injury to Passenger—Contributory Negligence—Question for Jury.

In an action for damages for dislocating plaintiff's shoulder, where it appears that the shoulder was twice subsequently dislocated, it may be shown by medical testimony that a dislocation of the shoulder would create a predisposition to subsequent dislocation.

The question whether undertaking to board a street car while in motion is or is not negligence is a question of fact for the jury.—(Donnelly v. Chicago City Ry. Co., 85 N. E. Rep., 233.)

Missouri.—Carriers—Personal Injuries of Passenger—Negligence in Starting Car—Appeal and Error—Harmless Error—Error Cured by Instructions—Argument of Counsel—Action of Court—Appeal—Harmless Error—Objections to Evidence—Objections in Trial Court—Instructions—Effect of Failure to Request—Carriers—Carriage of Passengers—Personal Injuries—Action—Variance—Trial—Instructions—Propositions of Law—Pleading—Amendment of Complaint.

Although a passenger on a street car is attempting to

alight before the car has come to a stop, yet it is culpable negligence in the conductor, knowing what the passenger is doing, to cause the car to be suddenly started forward with such suddenness and force as to throw the passenger to the ground.

Plaintiff, while attempting to alight from a street car, was injured by the sudden starting of the car, which threw her to the ground. In an action to recover for her injuries, plaintiff testified that she asked the conductor, when he came to her assistance, "Why did you start the car up?" and that he replied, "That frisky motorman is so frisky he won't stand still long enough." The court withdrew the testimony from the consideration of the jury. Held, that the withdrawal cured the error in admitting it, as the evidence was not of such a character as to make it reasonably probable that its effect would survive a warning not to consider it, and there was nothing to suggest a design to influence the mind of the jury by getting in improper evidence of a prejudicial nature.

In an action against a street railway company to recover for injuries received by a passenger, thrown from the car from which she was attempting to alight, plaintiff testified that after the injury she sat upon the street where she had been thrown; that she became blind, and sat there in the street until she was nearly over her blindness, and then walked down to the subway and sat on a rock. On cross-examination she was asked if she had not testified on a former occasion that she had stopped two or three times on the road going to her sister's. An objection by plaintiff's counsel to the question as immaterial was sustained. Held, that the exclusion would not justify a reversal, as plaintiff had just testified in chief that she sat and rested a while, and then walked some more and rested again until she got to her sister's, and the question objected to did not suggest a variance in her testimony as to her blindness.

Where a court, in an action against a street car company to recover for injuries sustained by a passenger, gives an instruction requiring an exercise of the highest degree of care on the part of the defendant's servants, defendant cannot object to the court's failure to further explain that instruction, where no request was made for such explanation.

The petition, in an action to recover for injuries received from being thrown from a street car by the sudden starting of the car while plaintiff was attempting to alight, alleged that plaintiff was riding on the trailer, but there was evidence introduced at the trial that she was riding on the front car. Held, that the variance was not important.

The petition of a passenger, in an action against a street railway company to recover for injuries, alleged that the acts of defendant's servants were "carelessly, negligently, wilfully and maliciously" done. Held, that it was not error to permit an amendment striking out the words "wilfully and maliciously."—(Peck v. Springfield Traction Co., 110 S. W. Rep., 659.)

Missouri.—Street Railroads—Collision with Vehicle—Actions—Discovered Peril—Negligence—Operation in Nighttime—Care Required—Question for Jury—Appeal and Error—Review—Harmless Error—Admission of Testimony—Worry.

If those in charge of a street car discovered, or should by the exercise of ordinary care have discovered, plaintiff's peril while driving a wagon on the track in time to have avoided a collision, and did not do so, plaintiff's negligence in failing to look back for an approaching car would not preclude his recovery.

A motorman operating a street car in the nighttime in a populous part of a city must look out for the safety of persons who may be on the track, and have his car under control in anticipation of any danger that may arise.

Whether defendant's motorman in charge of a street car which collided with plaintiff's vehicle made proper efforts to avoid the collision after he saw, or by the exercise of ordinary care could have seen, plaintiff's peril, held, under the facts, to be for the jury.

In a personal injury action, the admission of testimony of plaintiff that he worried because of his belief that he would not be able to work again, if error, because making worry a ground for damages, was so insignificant as not to be ground for reversal. (Funck vs. Metropolitan St. Ry. Co., 113 S. W. Rep., 694.)

Missouri.—Street Railroads—Injuries—Collisions—Evidence—Ownership of Car.

In an action against a street railway company for the death of a child in a collision with a car, the ownership of the car may be shown by reasonable inferences from the facts of the case.

In an action against a street railway company for injuries in a collision with a car, evidence held not to establish defendant's ownership of the car, essential to a recovery, in view of the fact that other companies operated street railroads at the place of the accident.

In an action against a street railway company for injuries in a street car collision, the evidence must support the allegations of ownership and operation of the car at the time of the injury, and where it does not appear that the car was in use by defendant, and where it is not shown that the car was running on defendant's road and the connection between defendant and those in charge of the car is not shown, there can be no recovery. (*Frisby et ux. vs. St. Louis Transit Co.*, 113 S. W. Rep., 1059.)

Missouri.—Death—Last Chance Doctrine—Nature—Negligence—"Ordinary Care"—Definition—Trial—Instructions—Applicability of Evidence—Appeal and Error—Harmless Error—Prejudicial Effect—"Accident"—Contributory Negligence—Concurrent Negligence—Comparative Negligence—Street Railroads—Injuries to Person on Track—Rights in Streets—Question for Jury.

Where plaintiff in an action for death bases his right to recover on the humanitarian doctrine, he admits decedent's negligence, and places his reliance on defendant's negligence in failing to discover decedent's peril in time to avoid striking him.

The usual definition of "ordinary care," as the care which an ordinarily careful and prudent person would exercise under the same or similar circumstances, has become a "maxim" in the law.

"Negligence" is the failure to use that care which an ordinarily careful and prudent person would exercise under the same or similar circumstances.

Where either the company's or decedent's negligence caused the latter's death by being struck by a street car, and there was no evidence whatever that the accident was caused by the street lamps being put out by a third person before the collision, it was error to instruct that plaintiff could not recover if the injury was caused by a mere "accident."

Though an instruction that plaintiff could not recover if decedent's death was caused by an accident was inapplicable under the evidence, it was not prejudicial, in connection with the instruction, to define "accident" as a casualty occurring without any one's fault, and without assignable cause.

Mutually concurrent negligence by both parties defeats recovery.

The doctrine of comparative negligence is not recognized in Missouri.

One driving on a street car track need not look constantly in front and to the rear, but must exercise due care to prevent injury.

A motorman must exercise due care to prevent injury to persons on the track, after he sees their peril, regardless of their negligence in getting on the track.

A street car company has not an exclusive right to the use of the street, its rights and the rights of the public being at most mutual.

In an action for decedent's death by being struck by a street car while driving on the track, whether the motorman could have seen plaintiff on the track in time to have stopped the car, by exercising due care, held a jury question. (*Felver vs. Central Electric Ry. Co.*, 115 S. W. Rep., 980.)

New York.—Carriers—Carriage of Passengers—Injuries—Questions for Jury—Words and Phrases—"Couple of Minutes."

In an action against a carrier for injuries to a passenger by the sudden starting of the car, held, that the question of defendant's negligence in starting the car was for the jury under the evidence.

The expression, a "couple of minutes," used by a plaintiff in an action against a carrier in her testimony that, after

getting on the car she waited a "couple of minutes" before attempting to reach her seat, is not necessarily a statement that she desisted for 120 seconds in the act of seeking a seat, but it should be construed to mean a brief space of time, as a second or a few seconds, and the *Century Dictionary* is authority for the statement that a minute is loosely speaking but a "short space of time."

It is a question for the jury whether it is want of ordinary care to start a street car before a woman passenger has obtained a seat. (*McGlynn vs. Nassau Electric R. Co.*, 113 N. Y. Sup., 119.)

New York.—Street Railroads—Collision with Vehicles—Evidence—Sufficiency.

Where, on the first trial of an action against a street railway for damages from a collision with plaintiff's wagon, plaintiff testified that as he was turning on the track he looked back once before he was run into, but on a second trial testified that he looked back four times to determine whether any car was approaching, and no satisfactory explanation of such change in evidence was given, a judgment in his favor was unauthorized. (*Bang v. New York & Queens County Ry. Co.*, 112 N. Y. Sup., 530.)

New York.—Street Railroads—Collisions with Animals—Questions for Jury.

Whether a motorman exercised due care in running his car without taking any precautions to avoid a collision with a cow at the side of the track held for the jury. (*Craft v. Peekskill Lighting & R. Co.*, 113 N. Y. Sup., 235.)

New York.—Railroads—Crossing Accident—Negligence—Interlocking Switch and Signal Devices—Master and Servant—Injury—Fellow Servants—Evidence.

Plaintiff, in an action against a railroad company and a street railway company for death of her intestate from collision of a railroad train with a street car, may not give evidence of the existence, at other railroad intersections at grade, of interlocking switch and signal devices, by the proper operation of which a crossing collision is impossible; the crossing, though on a highway, being within the yards of the railroad company, only one of its five tracks there being used by through trains, and only seven or eight trains passing over it daily, while the other tracks were constantly being used for switching, and the evidence being that it is impracticable to use such devices in railroad yards, because they would congest traffic and seriously interfere with the usefulness of the yards for switching purposes, and, while the interlocking device might have been installed between the main track and the street railroad, the only effect which it would have had would be to protect against a small fraction of the danger, and thereby possibly increase the danger of collision on the other tracks, and it not being probable that the board of railroad commissioners, had their attention been called to the situation, would have directed the erection of such devices under section 36 of the railroad law (Laws 1890, p. 1095, c. 565, as amended by Laws 1898, p. 1174, c. 466).

One stationed by a street railway company at a railroad crossing to make observations and signal the motorman when the railroad tracks were clear, the rules of the street railway company requiring its cars to wait for such signals, on receiving which they might proceed, is not a vice principal, but the fellow servant of motormen and conductors of the street cars.

A railroad company, in an action against it for collision of its trains at a crossing with a street car, killing the street car conductor, may show, as bearing on the question of its freedom from alleged negligence in approaching the crossing at a high speed without ample warning, an agreement made under section 12 of the railroad law (Laws 1890, p. 1087, c. 565, as amended by Laws 1892, p. 1382, c. 676) between it and the street railway company for intersection of the roads, providing that it should be under no obligation to guard, warn and protect at the crossing the cars and employees thereon of the street railway company, and this, though it be shown that the street railway company in fact employed a signal man at the crossing; the railroad company being entitled to show that it was not relying on a mere gratuitous precaution, but on an agreement whereby the street railway company was obliged to take such precaution. (*Cox vs. Delaware & Hudson Co. et al.*, 112 N. Y. Sup., 443.)

News of Electric Railways

Transit Affairs in New York

William R. Willcox, chairman of the Public Service Commission, gave a dinner at his home on Feb. 10, 1910, to Mayor Gaynor at which the members of the Board of Estimate and the other members of the Public Service Commission were present. Mr. Willcox was the authority for the statement that there was nothing formal about the discussion of the rapid transit situation, but that the general question of the need of subways and the Interborough Rapid Transit Company connection via the East River bridges received considerable attention. It was arranged to hold the first official conference between the board and the commission on Feb. 16, 1910. It is understood that both Mr. Gaynor and John Purroy Mitchel, president of the Board of Aldermen, laid emphasis on the necessity for starting subway construction just as soon as possible, mentioning April 1, 1910, as a suitable time for advertising for bids for the first section. The special committee of the board which is to confer with the commission formally is composed of Mayor Gaynor, President Mitchel and Comptroller Prendergast.

The Brooklyn Rapid Transit Company and the Coney Island & Brooklyn Railroad Company informed the Public Service Commission on Feb. 14, 1910, at a hearing on the application for a franchise by the Manhattan Bridge Three Cent Line to carry passengers from the Hudson River to the business part of Brooklyn, that they had applied to the Board of Estimate for permission to operate a service across the Manhattan Bridge on a 3-cent fare basis.

The Brooklyn Rapid Transit Company has paid \$604,000 in franchise taxes levied against the constituent companies of that corporation and the Coney Island & Brooklyn Railroad has paid \$139,000 in franchise taxes. The payments close the accounts of the companies in connection with franchise assessments, except for a few claims which are in dispute.

The Public Service Commission has formally approved a report by Commissioner McCarroll, favoring a plan for the construction of an extension to the proposed subway under Eastern Parkway, Brooklyn, the cost to be assessed upon the property benefited. This is the first formal approval of the construction of a rapid transit railroad by the assessment plan, which is provided for by the Travis-Robinson bill passed by the last Legislature.

The Chamber of Commerce has informed the Public Service Commission that it favors the principle of subway construction by local assessment and that for the purpose of general equity in the various boroughs the principle should be applied to all further developments of subway extensions in outlying districts. The special committee on rapid transit conditions has submitted a report covering the "Livonia Avenue route" in Brooklyn, along which more than half the property owners signified their intention to pay by local assessment as permitted through the passing of a recent law. In recommending this procedure the Chamber of Commerce states that it considers it unfair to property owners in districts which are to be so served, if other districts are given new transportation facilities without sharing in the cost and the expenditures placed on the city.

Cleveland Traction Situation

The referendum on the Tayler grant to the Cleveland Railway was to take place on Feb. 17, 1910. On Feb. 12, former Mayor Johnson issued a statement opposing the grant, principally on the plea that the maximum fare fixed in the franchise is too high. Early in the week Mayor Baehr stated that he had not decided whether to issue a statement. He had hoped that the people might be permitted to decide for themselves, without any campaigning. The grant has the approval of the Chamber of Commerce and the committee of one hundred which was organized to fight the low-fare franchise passed under the Johnson administration.

Judge Tayler has issued a statement in reply to the claim that the company, by an alliance with the Cleveland Electric Illuminating Company, could evade the limitation for cost of operation. He said that no arrangement would enable the company to change the ordinance, although there could be no objection to securing power from the lighting company if it is found desirable to do so. Placards were put in all the cars on Feb. 14, stating that the fare on all lines will be 3 cents with 1 cent for a transfer within the city, if the grant was approved.

The report of Receiver Bicknell for January, 1910, follows:

Gross receipts.....	\$521,205
Operating expenses:	
Maintenance	\$103,297
Transportation	195,147
General	35,184
Total	333,628
Net	\$187,577
Deductions:	
Neutral street railway rental.....	\$937
Taxes	26,462
Interest rental.....	38,399
Dividend rental.....	73,378
Total	139,176
Surplus	\$48,401

A sufficient number of names has been obtained to the petitions for a referendum vote on the grants made to the Cleveland Underground Rapid Transit Company by the Johnson administration to assure an election. The City Council has already repealed the act granting the company rights in the city.

New Mayor of Boston on Transit Matters

In his inaugural address on Feb 7, 1910, John F. Fitzgerald, Mayor of Boston, made the following references to rapid transit affairs in that city and problems confronting the public service corporations:

"I have strongly favored the improvement and extension of transit facilities within the city, particularly the construction of subway or tunnel connections to the South Station, South Boston and Dorchester. The report which the joint board consisting of the Massachusetts Railroad Commission and the Boston Transit Commission has recently made to the Legislature distinctly favors a subway connection between the Park Street station and the South Station and recommends preliminary action looking toward its construction, and this or some like project I shall heartily support. In spite of the unfavorable report of this joint board upon proposed subway extensions to South Boston and Dorchester, I believe that the need of such extensions is so great, and that they will have such an effect in increasing the taxable value of property in those districts, that some way should be found to secure their construction. The people of these sections are entitled to as good facilities of rapid transit as the people of Cambridge, who have secured both a subway and an elevated line.

"The elevated structure along Washington Street and through Charlestown is admitted to be an injury to property in those important districts. The development of underground transportation should render it unnecessary to resort to this form of construction in the future and opens up the question whether it may not prove possible, upon terms fair to all interests involved, to remove the present unsightly structures.

"I believe it should be feasible to do in Boston what has been done in other cities. The elevated structures, at least along Washington Street, should be removed and the subways extended. Equitable assessments, adjusted to the consequent rise in values, should be levied upon the adjoining property; many of the owners, I am assured, would be glad to contribute their share to the cost of this great improvement.

"I have suggested the desirability of adopting in this State the plan introduced in New York, on the recommendation of Gov. Hughes, in respect to the supervision and

regulation of public service corporations. Under this plan all such corporations come under the jurisdiction of a single tribunal within a given territory, and the State is divided into two districts, one of which includes the metropolitan area and the other the rest of the State."

Bonds Voted for San Francisco Municipal Line.—The supervisors of San Francisco, at a meeting on Feb. 7, 1910, passed the ordinance providing for the issuance of the \$2,020,000 of municipal bonds voted at the election on Dec. 30, 1909, to cover the cost of reconstructing the Geary Street, Park & Ocean Railroad as a municipal railway.

Chicago Subway Plans.—Bion J. Arnold, recently appointed engineer to formulate plans for the system of subways in Chicago, is organizing an office force for the work. Draftsmen already have started making maps of the subway district which Mr. Arnold will submit to the local transportation committee of the City Council, and later to the City Council of Chicago.

Ball of Brooklyn Rapid Transit Employees.—The annual ball of the employees of the Brooklyn (N. Y.) Rapid Transit Company was held at Prospect Hall on Feb. 10, 1910. Music was furnished by the band composed of employees of the company. The affair was under the direction of the officers of the Brooklyn Rapid Transit Employees' Benefit Association, of which George W. Edwards is secretary.

Association News.—The American Street & Interurban Railway Association has published during the week Vol. I of its Proceedings, which includes the reports of the Engineering Association and of the Transportation & Traffic Association at the Denver meeting. It has also issued in pamphlet form the revised codes of rules for city operation and for interurban operation with the amendments adopted at Denver.

Hearing Continued on Boston & Providence Electric Railroad.—The hearing upon the plans of the Boston & Providence Electric Railroad for a high-speed interurban railway between Boston and Providence was continued before the Railroad Commission of Massachusetts on Feb. 9, 1910. The company has already been granted a certificate of exigency by the commission and the locations of the tracks and roadbed through the intervening municipalities are now being considered in detail. At the above hearing interest centered upon the plans of Town Engineer Norris of Hyde Park, for a subway through Hyde Park in place of the line proposed by the company.

Electric Railway Exhibit at Philadelphia.—The Philadelphia (Pa.) Rapid Transit Company exhibited its new gasoline emergency wagon at the Philadelphia Electric Show, held in the First Regiment Armory, Broad and Callowhill Streets, Philadelphia, Pa., Feb. 14-26. The vehicle is fitted with a tower equipped with a raising mechanism operated by a worm gear driven from the engine shaft. The company also exhibited a miniature elevated railroad structure on a scale of 1 ft. to 20 ft. with a model car, which was operated back and forth, and a full-sized semaphore signal such as is used on the Market Street elevated road, which was set by the car as it passed in and out of the various blocks. Sections of various sized cables used by the company in feeding its network of power distribution were also exhibited.

Stevens Alumni Dinner.—The ninth annual dinner of the Alumni of Stevens Institute was held at the Hotel Astor on Feb. 12, 1910. Nearly 300 were present. The speakers included President Humphreys, Dr. H. S. Pritchett, president of the Carnegie Foundation; Col. E. A. Stevens, Hosea Webster, H. M. Brinckerhoff and E. H. Peabody. President Humphreys announced that he had recently received \$63,500 of the \$1,250,000 which he expects to raise for the purchase of the Castle Point estate, for the erection of several buildings, including a dormitory, a mechanical laboratory and an electrical laboratory, and to provide an adequate endowment fund. The alumni is now raising \$400,000 for paying off the debt remaining on the athletic field and for other real estate necessary to meet the growing needs of the institute.

Southern Pacific Electric Suburban Lines.—It has been announced by officials of the Southern Pacific Company

that electric trains will be running on the Alameda (Cal.) main local lines to the Alameda Mole, by April 1, 1910. The power house, which will supply power for all the electric lines on the east side of the bay, will not be finished until Aug. 1, 1910, but the company has a contract with the Great Western Power Company to supply current for the electric trains until the power house can be put into operation. Seven new stations on the local lines are under course of construction. As soon as the Alameda lines are electrified work will commence on the extension across the estuary to the Franklin street station. It is also stated that about March 1, 1910, the Southern Pacific Company will start the construction of its California Street line in Berkeley. The company is now building its North Street line through West Berkeley. This is to be a part of the enlarged electric suburban system in Berkeley, which is opposite San Francisco.

LEGISLATION AFFECTING ELECTRIC RAILWAYS

Maryland.—Attorney-General Straus appeared before the judiciary committee of the Legislature on Feb. 11, 1910, to explain the provisions of the public utilities bill. The principal public service corporations have been asked by the committee to agree on a date for a hearing on the bill.

Massachusetts.—The following bills have been introduced: To amend the street car heating law by specifying that cars shall be heated under the direction of the Railroad Commission; to require that electric railways granted a certificate of exigency shall do no construction and take no property until the amount of capital stock named in the agreement of association has been subscribed and 10 per cent of the par value of each share has been paid in in cash, and unless these matters are arranged to the satisfaction of the Railroad Commission within six months after the certificate is granted the certificate shall become void; to require street railways to equip all their cars with a lifting jack and other emergency tools to be specified by the Railroad Commission; to require the Boston Elevated Railway to establish a free transfer station at the intersection of Huntington Avenue and Massachusetts Avenue, Boston; to provide that the construction of any electric railway shall be commenced and at least 10 per cent of the capital stock authorized shall be expended within one year from the date of fixing the entire original route and location, and that operation shall be begun within two years from the date of fixing the entire original route; to prohibit street railways from allowing passengers to ride on the running boards of open cars; to give aldermen or selectmen the right to direct street railways to establish waiting stations for the convenience of the public; to "compel the reasonable interchange of passenger, freight, property, traffic and cars between street railways, including through routes and fares, subject to the supervision of the Railroad Commission."

Mississippi.—A bill has been introduced in the lower house to require all street railways in Mississippi to operate cars equipped with vestibules between Nov. 15 and March 15.

New Jersey.—The committee on municipal corporations of the Assembly will give a hearing on Feb. 21, 1910, on the public utilities bills introduced by Assemblymen Sullivan, Pierce and Scharff. A bill has been introduced in the House which confers upon the highway board or board having charge of roads the right to grant a franchise for connecting links in sections of a city street railway without requiring the consent of property owners, unless the link is more than half a mile in length. It limits the term of any such franchise to 50 years and provides that it shall be granted only after a public hearing.

New York.—Assemblyman Filley has introduced a substitute bill for his so-called "full-crew" bill which amends the Public Service Commissions law by extending the power of the commission for each district, upon its own motion or complaint, to determine the just, reasonable, safe, adequate and proper regulations, practices, equipment, appliances and service to be enforced, to be observed and to be used, and to fix and prescribe the same by order directed to common carriers. The present provisions are made to apply to the number of employees composing the crews engaged in the operation of trains.

Financial and Corporate

New York Stock and Money Market

February 15, 1910.

For the past week the tendency of the market has been upward, and from the very low prices of Feb. 8 there has been a recovery of from 3 to 8 points. The feature of the market is the seeming disappearance of the nervous uncertainty that marked the previous week.

The money market continues to be satisfactory. Rates are low and the banks are liberal. Quotations to-day were: Call, 3/4 to 3 per cent; 90 days, 3/4 per cent.

Other Markets

Rapid Transit stock displayed considerable more activity in the Philadelphia market last week. The offerings were quite liberal, but there fortunately appeared to be even more buyers than sellers, so that at the end of the week the price was fractionally higher than at the beginning. Other tractions were moderately active at prices that were practically unchanged.

In Boston, Massachusetts Electric and Boston Elevated were the traction features of the market. There was considerable activity in each of these issues, and Massachusetts Electric, both preferred and common, advanced several points.

There was practically no trading in traction shares in the Chicago market. With the exception of a few odd lots of Chicago Railways Series 2 and Kansas City Railway & Light preferred there was nothing doing.

In Baltimore, the bonds of the United Railways Company continued to be active at former prices. Some of the stock of the same company was sold during the week, the prevailing price being 13 1/2.

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

	Feb. 8.	Feb. 15.
American Railways Company.....	a47	*46 3/4
Aurora, Elgin & Chicago Railroad (common).....	a57 3/4	a57 1/2
Aurora, Elgin & Chicago Railroad (preferred).....	*91	a92
Boston Elevated Railway.....	129 1/2	129 1/4
Boston & Suburban Electric Companies.....	15	15
Boston & Suburban Electric Companies (preferred).....	73	72
Boston & Worcester Electric Companies (common).....	a11 1/2	8
Boston & Worcester Electric Companies (preferred).....	42	a45
Brooklyn Rapid Transit Company.....	68 7/8	72 5/8
Brooklyn Rapid Transit Company, 1st pref. conv. 4s.....	82 1/2	83 3/4
Capital Traction Company, Washington.....	a133 1/2	a134
Chicago City Railway.....	a195	a195
Chicago & Oak Park Elevated Railroad (common).....	*2	*2
Chicago & Oak Park Elevated Railroad (preferred).....	*10	*10
Chicago Railways, pteptg., ctf. 1.....	a106 1/4	a108
Chicago Railways, pteptg., ctf. 2.....	a30	a29
Chicago Railways, pteptg., ctf. 3.....	a14	a14
Chicago Railways, pteptg., ctf. 4s.....	a9	a9
Cleveland Railways.....	*91 1/2	*91 1/2
Consolidated Traction of New Jersey.....	a76	a76
Consolidated Traction of New Jersey, 5 per cent bonds.....	a105 1/2	a105 1/2
Detroit United Railway.....	*63	*63
General Electric Company.....	148 1/2	153 3/8
Georgia Railway & Electric Company (common).....	a107	107 1/2
Georgia Railway & Electric Company (preferred).....	a88	a88
Interborough-Metropolitan Company (common).....	18 1/2	20 3/4
Interborough-Metropolitan Company (preferred).....	46	53 1/2
Interborough-Metropolitan Company (4 1/2s).....	79	81 3/4
Kansas City Railway & Light Company (common).....	a30	a30
Kansas City Railway & Light Company (preferred).....	a70 1/2	a72 1/4
Manhattan Railway.....	*136 3/4	*136 3/4
Massachusetts Electric Companies (common).....	a16	a18 1/4
Massachusetts Electric Companies (preferred).....	a80 1/2	a84
Metropolitan West Side, Chicago (common).....	a17	a17
Metropolitan West Side, Chicago (preferred).....	a53 1/2	a52
Metropolitan Street Railway.....	18	*18
Milwaukee Electric Railway & Light (preferred).....	*110	*110
North American Company.....	76	79 1/2
Northwestern Elevated Railroad (common).....	a17 1/2	a17 1/2
Northwestern Elevated Railroad (preferred).....	a70	a70
Philadelphia Company, Pittsburg (common).....	a49	*50 1/2
Philadelphia Company, Pittsburg (preferred).....	a45	*43 3/4
Philadelphia Rapid Transit Company.....	a25 3/4	*26 3/4
Philadelphia Traction Company.....	*89	*89
Public Service Corporation, 5 per cent col. notes.....	*100 1/8	*100 1/8
Public Service Corporation, cts.....	a105	a105
Seattle Electric Company (common).....	a115	a115
Seattle Electric Company (preferred).....	a106	a106
South Side Elevated Railroad (Chicago).....	a51	a53
Third Avenue Railroad, New York.....	11	10
Toledo Railways & Light Company.....	10 1/4	11 3/4
Twin City Rapid Transit, Minneapolis (common).....	111	112
Union Traction Company, Philadelphia.....	a51	*51 1/2
United Rys. & Electric Company, Baltimore.....	a13	a13 3/4
United Rys. Inv. Co. (common).....	*33	*33
United Rys. Inv. Co. (preferred).....	60	67
Washington Ry. & Electric Company (common).....	37	37
Washington Ry. & Electric Company (preferred).....	a88	a87 1/8
West End Street Railway, Boston (common).....	a93	a95
West End Street Railway, Boston (preferred).....	a108	a109
Westinghouse Elec. & Mfg. Company.....	63	68
Westinghouse Elec. & Mfg. Company (1st pref.).....	*120	120

a Asked.

* Last Sale.

Report of the Metropolitan West Side Elevated Railway

Gross earnings of the Metropolitan West Side Elevated Railway, of Chicago, in the year ended Dec. 31, 1909, were \$2,818,430, an increase of \$71,590, or 2.6 per cent, over the record of the previous year. Of the total gross revenue \$2,695,230 was received from passenger earnings. The expenditures for operating expenses aggregated \$1,418,076, or 50.31 per cent of gross earnings as compared with \$1,410,801, or 51.36 per cent, in the preceding year. The expenditures for maintenance of way and structure and car equipment amounted to \$299,522 in the last year, as compared with \$289,784 in the preceding year. The division of the maintenance expenditures as between way and structure and car equipment was somewhat different in the two years. Last year less was expended on maintenance of way and structure than in 1908, but more was applied to the maintenance of car equipment. For the first five months of 1909 traffic averaged 2 per cent less than for the same months for 1908, but beginning with June there was a steady increase over 1908, reaching 7.06 per cent for December. The total number of passengers carried was 52,519,609, a daily average of 143,899, as compared with the daily average of 140,950 for 1908. As announced in the ELECTRIC RAILWAY JOURNAL of Feb. 12, 1910, Britton I. Budd, who has been general manager of the company since 1907, was elected president of the company, to succeed Howard G. Hetzler, who resigned to become president of the Chicago & Great Western Railroad, and a director to succeed Fred W. Smith. Mr. Hetzler will continue with the company as a director and vice-president. The earnings, expenses and income account for the years ended Dec. 31, 1909, and Dec. 31, 1908, follow:

	1909.	1908.
OPERATING EARNINGS.		
Passenger earnings.....	\$2,695,230	\$2,643,634
Other operating earnings.....	123,200	103,205
Gross earnings.....	\$2,818,430	\$2,746,840
OPERATING EXPENSES.		
Maintenance of way and structure.....	\$134,350	\$155,625
Maintenance of car equipment.....	165,172	134,159
Maintenance and operation of power plant.....	312,706	329,637
Conducting transportation.....	605,095	585,514
General expenses.....	103,348	101,301
Loop operation and maintenance.....	97,405	104,565
Total.....	\$1,418,076	\$1,410,801
Net earnings.....	\$1,400,354	\$1,336,039
Income from operation.....	\$1,400,354	\$1,336,039
Other income.....	11,160	10,126
Gross income.....	\$1,411,514	\$1,346,165
Interest first mortgage bonds.....	\$399,960	\$399,960
Interest extension mortgage bonds.....	161,216	151,304
Interest collateral loan.....	20,252	27,960
Interest equipment notes.....	.....	8,643
Other interest.....	601	4,152
Miscellaneous rentals.....	37,048	37,048
Loop rentals.....	262,626	257,947
Taxes, car licenses and special assessments....	180,893	197,736
Total charges.....	\$1,062,596	\$1,084,750
Available for dividends.....	\$348,918	\$261,415
Dividends declared.....	.....	.....
Balance carried to surplus.....	\$348,918	\$261,415
Per cent of surplus to outstanding preferred stock.....	4.07	3.00
The statement of surplus for the fiscal year ended Dec. 31, 1909, follows:		
Balance as of Jan. 1, 1909.....	\$1,281,706	
Surplus for year ending Dec. 31, 1909, as per income account..	348,918	
Total.....	\$1,630,624	
Charged off for depreciation and losses.....	\$50,000	
Surplus as of Dec. 31, 1909.....	1,580,624	
Total.....	\$1,630,624	
The comparative balance sheet of the company as of Dec. 31, 1909 and 1908, follows:		
ASSETS.		
Cost of road equipment and property.....	1909.	1908.
Capital stock in treasury, preferred.....	\$32,331,208	\$32,265,153
Capital stock in treasury, common.....	292,100	292,100
Extension mortgage bonds in treasury.....	35,900	35,900
Union Consolidated Elevated bonds owned.....	967,000	983,000
Cash on hand and in banks.....	41,400	.....
Material and supplies.....	249,283	156,190
Accounts receivable.....	75,220	52,321
Prepaid insurance.....	96,922	62,020
Advances, Union Consolidated Elevated Railroad.....	11,826	21,389
Unadjusted accounts.....	27,385	53,720
	20,076	15,233
Total.....	\$34,148,320	\$33,937,026

LIABILITIES.	1909.	1908.
Capital stock, preferred.....	\$9,000,000	\$9,000,000
Capital stock, common.....	7,500,000	7,500,000
First mortgage bonds (4 per cent).....	10,000,000	10,000,000
Extension mortgage bonds (4 per cent)....	5,000,000	5,000,000
Collateral loan.....	300,000	400,000
Equipment Notes.....	.....	.....
Notes payable.....	.....	.....
Unpaid vouchers, payrolls and accounts....	134,990	110,618
Interest coupons due, not presented.....	6,880	6,620
Interest on extension mortgage bonds due		
Jan. 1.....	80,660	80,320
Dividend checks out.....	.....	241
Interest accrued, not due.....	170,479	171,650
Rentals accrued, not due.....	8,750	8,750
Taxes accrued, not due.....	101,873	101,873
Depreciation reserved.....	264,065	275,248
Balance surplus.....	1,580,624	1,281,706
	\$34,148,320	\$33,937,026

Mr. Hetzler, in presenting the report, said in part: "That part of Chicago served by the company continues to improve rapidly. The West Side of Chicago is spoken of as the industrial territory of the city, due to the number and variety of its industries, many of which are located adjacent to the lines of the company, especially in the outlying territory. The employees of these establishments are using the trains moving in the reverse direction of travel during the rush hours, and also producing considerable traffic in both directions during the middle of the day. These conditions when fully developed will eliminate largely the empty mileage which has existed in the past. The traffic has increased materially during the year.

"The mileage operated during the year has not been increased, being at this time 50.5 miles, exclusive of sidetrack. Four passenger coaches have been converted into control coaches, otherwise no changes or additions have been made to the equipment. The equipment has been well maintained and consists of 225 motor cars, 179 coaches, 83 control coaches and 17 miscellaneous cars. The power house, tracks and structure have been well maintained. Twelve thousand track ties and 3,000 guard-rails were used during the year and 6½ miles of structure were painted.

"The company's property at Paulina Street beneath the elevated structure has been leased, necessitating the removal of the superintendent's office and shop building of the road department. Additional property was purchased at 421-423 Marshfield Avenue and remodeled to serve the purpose of an office building, and the buildings and shops for the road department reconstructed on the company's property opposite Laflin Street station. This change has resulted in a better office and shop arrangement and when completed will add to the receipts of the company."

Report of The J. G. Brill Company

On Feb. 9, 1910, James Rawle, president of The J. G. Brill Company, presented his annual report to the stockholders of that company. An abstract of the report follows:

"The output from the five plants owned and operated by The J. G. Brill Company for the 12 months ended Dec. 31, 1909, amounted to \$4,261,204.90. For comparison the amounts of the combined sales of the five companies for the four years last past are here given: 1906, \$6,908,346.22; 1907, \$9,211,825.72; 1908, \$3,845,173.91; 1909, \$4,261,204.90.

"The result of the operation of the Brill plant for the year 1909, in spite of an output far below normal, and in spite of the very low prices at which work necessarily had to be taken in the latter part of 1908 and during most of 1909, showed a substantial profit. The net result of the operation of the subsidiary companies showed a loss. Of the four subsidiary companies, one, the Stephenson plant, was closed during almost the entire year; the others were operated at only a small part of their capacity. As shown by my report of Feb. 10, 1909, your company had a surplus or reserve from which the regular quarterly dividends on the preferred stock were declared by your directors during the year. At the directors' meeting held on Jan. 26, 1910, the regular dividend of 1¼ per cent on the outstanding preferred stock, amounting to \$80,150, was declared, which was paid Feb. 1, 1910. In the operations of your company and its subsidiary companies during the year, no change was made in the liberal policy of keeping the properties in good physical condition, and large amounts for this purpose have been expended and charged to operating expenses. The physical condition of the plants is excellent, and they

are all well equipped in organization to handle the increased business which they now have on their books.

"The great depression which prevailed during 1908 continued, so far as the general business of your company was concerned, almost entirely throughout the year 1909, and this is indicated by a combined output greatly below an average normal output. As stated in my report of Feb. 10, 1909, the general fixed overhead charges, such as insurance, depreciation and taxes, are practically unchangeable, and the necessity for keeping up an effective organization, always ready to obtain and execute work, made it impossible to decrease materially the overhead expenses during the year. It is obvious that in times of depression, when competition is increased, the selling expense is increased somewhat in proportion to the difficulties attending the obtaining of orders. I am glad to say the outlook for profitable work is much improved. On Dec. 31, 1908, the combined work on hand amounted to \$1,717,338. On Feb. 1, 1910, the combined companies had orders on the books and in process of completion amounting to \$2,755,776, an increase of \$1,038,438.

"I submit the following combined balance sheet and a statement of sales and expenses of the Brill plant, the latter showing also the combined surplus of all your companies:

THE J. G. BRILL COMPANY AND SUBSIDIARY COMPANIES.	
COMBINED BALANCE SHEET, DEC. 31, 1909.	
ASSETS.	
Cost of properties.....	\$8,468,673
Materials, raw and in process.....	1,980,841
Bills and accounts receivable.....	1,319,480
Investments.....	90,431
Cash.....	193,092
	\$12,052,517
LIABILITIES.	
Preferred stock.....	\$4,580,000
Common stock.....	5,000,000
Bonds (John Stephenson Company).....	400,000
Bills and accounts payable.....	987,513
Surplus.....	1,085,004
	\$12,052,517

SALES AND EXPENDITURES OF BRILL PLANT, AND COMBINED SURPLUS FOR YEAR 1909.	
Total sales (Brill plant).....	\$2,868,396
Less operating, selling and administration expense.....	2,630,417
Operating profit.....	\$237,979
Profit from other sources (exclusive of dividends from subsidiary companies).....	52,909
Total profit.....	\$290,888
Less reserve set aside for depreciation.....	56,302
Net profit (Brill plant).....	\$234,586
Loss of subsidiary companies.....	\$52,753
Add their reserve for depreciation (taken from surplus).....	51,049
Net loss of subsidiary companies.....	103,802
Net profit to surplus.....	\$130,784
Surplus from previous year.....	\$1,339,149
Less adjustments.....	64,629
Add profit (Brill plant).....	\$1,274,820
Less loss of subsidiary companies.....	\$1,509,406
Less dividends paid during year on preferred stock of The J. G. Brill Company.....	320,600
Surplus Jan. 1, 1910.....	\$1,085,004

Distribution of Each Five-Cent Fare in Boston

The Boston News Bureau has prepared from the annual reports of the Boston (Mass.) Elevated Railway for Sept. 30, 1909, and Sept. 30, 1908, the following comparative summary of the distribution of each 5-cent fare:

	1909, cents.	1908, cents.
General expenses, including insurance, pensions, etc.	0.223	0.208
Cost of power.....	0.422	0.583
Wages and conducting transportation.....	1.340	1.439
Other transportation expenses.....	0.128	0.133
Maintenance way.....	0.488	0.278
Maintenance equipment.....	0.360	0.407
Depreciation.....	0.069	0.070
Damages and legal expenses.....	0.291	0.290
Taxes.....	0.367	0.350
Rental subways and tunnels.....	0.171	0.090
Interest.....	0.365	0.360
Rentals surface lines.....	0.486	0.493
Dividends.....	0.277	0.284
Surplus.....	0.013	0.015
Total.....	5.000	5.000

Ocean Shore Railway

Judge Van Fleet in the United States Circuit Court in San Francisco, Cal., on Jan. 26, 1909, appointed Virgil Bogue, formerly vice-president and chief engineer of the Western Pacific Railway; Col. Wm. Heuer, U. S. A., F. C., retired, formerly in charge of rivers and harbors in California, and A. W. Foster, formerly president of the Northwestern Railway, as a committee of three to furnish the court with the following information in the interest of the Ocean Shore Railway, now in the hands of F. S. Stratton as receiver:

"1. Cost of completing the road with a single track and laying of rails thereon, to connect the completed section between the terminus of the line south from San Francisco and northerly from Santa Cruz; 2, cost of acquiring terminal facilities for the necessary purpose of operating the completed road; 3, cost of ballasting the entire road, and whether such ballasting is necessary; 4, cost for fully equipping the road with rolling stock and other necessary appurtenances; 5, annual cost of operating and maintaining the present road until the completion of the entire road. The commission shall place separate estimates as to the operation of the road southerly from San Francisco and northerly from Santa Cruz; 6, estimate of revenue derivable from the road when completed; 7, cost of maintenance and operation of road when completed between San Francisco and Santa Cruz; 8, present value of that portion of the road operated from San Francisco including terminal facilities; 9, present value of road from Santa Cruz, including terminals; 10, value of all other work done on the right-of-way; 11, estimate of values of all properties now owned by the road, not covered by sections 8, 9 and 10."

American Railways, Philadelphia, Pa.—The Scranton, Dunmore & Moosic Lake Railroad, which, as stated in the issue of the *ELECTRIC RAILWAY JOURNAL* for Feb. 12, 1910, page 294, has been taken over by the American Railways, has filed a certificate of increase in its capital stock from \$100,000 to \$250,000.

Brunswick Terminal & Railway Securities Company, Brunswick, Ga.—At the annual meeting of the Brunswick Terminal & Railway Securities Company the board of directors was increased from 8 to 11, and the following new directors were elected to fill two vacancies in the board and to provide the three additional members: E. H. Mason, F. D. M. Strachan, F. D. Aiken, T. D. Rhodes and Willard B. King.

Camden & Trenton Railway, Camden, N. J.—The United States Court of Trenton has issued an order for the sale of the property of the Camden & Trenton Railway under foreclosure.

Citizens' Electric Company, Eureka Springs, Ark.—The property of the Citizens' Electric Company will be offered for sale on Feb. 26, 1910, at the court house in Eureka Springs in accordance with a decree of the Carrol Chancery Court entered on Jan. 19, 1910. The sale is to satisfy a judgment for \$208,000 rendered in favor of the Fidelity Trust Company.

Macon Railway & Light Company, Macon, Ga.—A. L. Dasher was elected as an additional member of the board of directors of the Macon Railway & Light Company at the recent annual meeting of the company.

Manila Electric Railroad & Lighting Corporation, Manila, P. I.—The Manila Electric Railroad & Lighting Corporation has filed at Hartford, Conn., a certificate of the increase of its authorized capital stock from \$6,000,000 to \$8,000,000. The Manila Suburban Railways, which is controlled by the Manila Electric Railroad & Lighting Corporation, has also filed notice of an increase of its authorized capital stock from \$500,000 to \$1,000,000.

New York, New Haven & Hartford Railroad, New Haven, Conn.—In his report for the year ended Jan. 19, 1910, Attorney-General Malone of Massachusetts says that since the ownership and control of the stock of the Boston & Maine Railroad by the New York, New Haven & Hartford Railroad have been sanctioned by the Legislature of Massachusetts the bills in equity against the Worcester & Webster

Street Railway and the Webster & Dudley Street Railway to prevent their control by the New York, New Haven & Hartford Railroad may properly be dismissed.

North American Company, New York, N. Y.—The North American Company has voted to prepay \$1,000,000 of its 5 per cent gold notes which mature in 1912 and is offering to redeem them at par and interest.

Ontario & San Antonio Heights Railroad, Ontario, Cal.—The Ontario & San Antonio Heights Railroad has applied to the Secretary of State of California for permission to increase its capital stock from \$50,000 to \$1,000,000, to provide funds for improvements and for the construction of an extension to connect with the lines of the Pacific Electric Railway, at Pomona.

Pittsburgh, Harmony, Butler & New Castle Railway, Pittsburgh, Pa.—The Pittsburgh, Harmony, Butler & New Castle Railway has applied to the Secretary of State for authority to increase its capital stock from \$3,000,000 to \$3,500,000 for the purpose of extending its line and purchasing new equipment.

Providence & Danielson Railway, Providence, R. I.—The introduction of a bill in the Rhode Island Legislature to form the Southern New England Railway with authority to issue \$3,000,000 of stock and \$6,000,000 of bonds to build a railroad from Palmer, Mass., to Providence, has given rise to the rumor that the Grand Trunk Railway of Canada has acquired control of the Providence & Danielson Electric Railway, the president of which, together with officers of the Grand Trunk Railroad, is among the incorporators mentioned for the Southern New England Railway.

Stark Electric Railroad, Alliance, Ohio.—The directors of the Stark Electric Railroad have declared the usual quarterly dividend of $\frac{3}{4}$ of 1 per cent and a stock dividend of 25 per cent payable April 1, 1910, on stock of record on March 25, 1910. The capital stock of the company is \$1,000,000, and the stockholders will be asked to authorize an increase in stock to \$1,500,000.

Toledo & Indiana Traction Company, Toledo, Ohio.—Articles of incorporation for the Toledo & Indiana Traction Company have been filed in Ohio by Charles F. Chapman, Jr., George D. Welles, Frank W. Caughling, Eugene H. Winkworth and Frank E. Miller. The company has a preliminary capital of \$10,000 and will succeed the Toledo & Indiana Railway, the property of which was sold under foreclosure recently to C. S. Schenck representing the bondholders.

Twenty-eighth & Twenty-ninth Streets Crosstown Railroad, New York, N. Y.—Newell Martin, who was appointed referee in proceedings brought by the Central Trust Company to foreclose a mortgage of \$1,500,000 on the Twenty-eighth & Twenty-ninth Street Crosstown Railroad and to determine whether the mortgaged property should be sold entire or in parcels, reported on Feb. 10, 1910, that the property should be sold entire. According to Mr. Martin the amount due under the mortgage is \$1,639,167. He directed that the property be sold on the default of interest in October, 1908, and April, 1909. The mortgage, which was made in 1896, was guaranteed by the Metropolitan Street Railway.

West Penn Railways, Connellsville, Pa.—The stockholders of the West Penn Railways will vote on Feb. 23, 1910, on substantially the following proposal from the American Water Works & Guarantee Company: "To take over the common stock of the railways and issue therefor 5 per cent cumulative preferred stock of a new company to the amount of 50 per cent of the face value of the common stock of the West Penn Railways, the new preferred stock to be guaranteed by the American Water Works & Guarantee Company as to dividends for a period of 21 years and also to give the holder of common stock of the company an amount of the common stock of the new company equal to the face value of his holdings in the West Penn Railways. The American Water Works & Guarantee Company would also take over the bonds that may be issued for improvements during the next two years at a price satisfactory to the West Penn Railways."

Traffic and Transportation

Conclusions of New York Commission in Case Upholding Collection of Excess Fare

In the *ELECTRIC RAILWAY JOURNAL* of Feb. 5, 1910, the conditions were given under which the Public Service Commission of the Second District of New York, in the case of James Morris, Albion, N. Y., against the Buffalo, Lockport & Rochester Railway, held that an interurban electric railway was justified in charging an excess fare to passengers boarding a car at a station who had failed to secure tickets. The conclusions of the commission on which the conditions were prescribed follow:

"Although the arguments in this case are partly based upon provisions in the Railroad Law fixing maximum fares for railways and permitting steam railroads to charge an excess fare when a ticket has not been purchased by the passenger, the real question presented is whether, under all the circumstances, the charging by respondent of an excess above its regular ticket fare is reasonable and just.

"If respondent had a ticket office at each of the points where its cars stop to take on and let off passengers and every such ticket office were kept open at all times when the cars are running, the complainant's contention that respondent's practice of charging an excess above the ticket fare when no ticket is presented on the car to the conductor should be dismissed with little consideration. An interurban railroad is entitled to make proper regulations for the collection of its fares, and requiring a passenger at a ticket station to purchase a ticket for delivery to the conductor with provision in case of failure for collection of an excess charge of 5 cents to be refunded at any ticket office upon demand seems to be entirely reasonable.

"The facts show, however, that the respondent has 12 ticket stations on its line of 54 miles. The other stops made by its cars, outside of incorporated villages, are 47 in number and these include every highway crossing. Apparently, therefore, at every point where respondent's line may be reached by street or road its cars will stop to take on and let off passengers. Upon such showing the general convenience of the public in using the road seems to be fully served.

"In the very nature of the situation it is impracticable for the respondent to maintain a ticket office at every point where a passenger may board its cars.

"The tables do not show that the respondent is reaping an excessive revenue from unredeemed excess fares. These tables show an aggregate of 81,097 duplex tickets issued in a period of three months, and 76,200 redeemed in the same period, leaving 4,897 receipts unredeemed. During that period the redemption value of duplex receipts issued was \$4,054.85, and the value of those redeemed was \$3,810, leaving a balance of \$244.85 in the hands of the company as excess revenue. This balance would probably have been somewhat reduced if the company had not in practice limited the time for redemption to 30 days. The great number of redemptions tends strongly to indicate that the travel is very largely to and from ticket selling points where duplicate receipts may be redeemed. In June, as the tables show, there were nearly as many duplex receipts redeemed as were issued, the excess of issue above redemption being only 233.

"Most interurban railways covering a considerable distance have adopted methods whereby a check may be obtained upon cash fares. Of those used from time to time none has proved so effective in the judgment of the railway managers as the duplex excess fare receipt, which is in fact a redemption certificate. The system operates to furnish the interurban railway with a check upon all but a few of its cash fares. When a passenger gets on a steam train at a non-ticket station the law forbids collection of the excess fare of 10 cents, and this prohibition applies to any ticket station where tickets may not be purchased during half an hour previous to the schedule time of the train. The steam railroad train stops at regular stations as a rule. The interurban railway stops its cars at numerous convenient points along its line, and in cities and most villages a passenger may board the car at any street corner.

The conditions differ so greatly that comparison for the purpose of applying a like rule to both is inadmissible. The right of the interurban railway to insist upon the use of tickets at ticket stations, the impracticability of maintaining ticket offices at all points where passengers—for the convenience of the public—are and should be received for transportation, and the importance to the company of having a check or tally upon its cash fares which corresponds as nearly as may be to the check or tally afforded by a ticket, are controlling considerations.

"In our view, where the interurban railway has provided a sufficient number of ticket stations properly distributed along its line, with numerous stops at non-ticket points to take on and discharge passengers, and where the percentage of unredeemed duplex receipts for required excess cash fares is small, showing that convenient opportunities for redemption of duplex receipts exist and are actually used by passengers paying the excess fare, a complaint that the exacting of a 5-cent excess fare with redeemable duplex receipt issued thereon is unreasonable or unjust should not be sustained. In so holding we, of course, express no opinion that respondent is now maintaining a sufficient number of ticket stations for all purposes, but it does appear, so far as indicated by the evidence in this case, that the number of ticket stations and their location are sufficient to afford convenient opportunities for redemption of these duplex receipts.

"The complainant challenges only the legality of the excess fare practice. He does not contend that any fare is unreasonable in amount. Therefore, the question whether the cash fare as collected by respondent for very short distances is unreasonable or is in contravention of any provision of the Railroad Law when by addition of the 5-cent excess charge it exceeds 3 cents per mile is not distinctly presented and no opinion thereon is expressed. We say now merely that the matter should be given careful consideration by the respondent company.

"In our opinion, the time limit of 30 days in respondent's tariff of passenger fares for redemption of the duplex receipts is too short. The time limitation should be sufficiently long to cover inadvertent omissions to promptly present the duplex receipts for redemption. We see no reason why a limitation period of three months may not be specified in the tariffs as a reasonable regulation, in case a time limitation upon the redemption of these excess fare receipts is considered necessary by the company. The duplex receipt as issued by the company does not specify the 30 days' limitation for redemption. The company should amend its tariff, either by striking out the time limit for redemption altogether or by inserting a time limit of not less than three months, and in case a time limitation for redemption is continued by the respondent such limitation should appear upon the duplex receipt itself.

"The complaint so far as it challenges the legality of the collection by respondent of an excess cash fare of 5 cents and the issuance of redeemable duplex receipts therefor should be held not sustained, but the respondent should be required to redeem such duplex receipts for excess cash fares at any time within three months after issue or such longer time as it may elect and amend its tariff by providing such time limitation of not less than three months or by striking from the tariff any limitation clause whatsoever; and it should also, in case it continues the time limitation, plainly show such limitation of not less than three months upon its duplex receipts."

Wheel Guard Order Modified

As a result of rehearings held before Milo Roy Maltbie, of the Public Service Commission of the First District of New York, on Jan. 15, Jan. 17, Jan. 19, Jan. 26 and Feb. 1, Feb. 4 and Feb. 8, 1910, the commission has entered the following order respecting wheel guards, abrogating the order of Dec. 24, 1909:

"Ordered, that said order of Dec. 24, 1909, as respects said Brooklyn Heights Railroad, said Brooklyn, Queens County & Suburban Railroad, said Coney Island & Gravesend Railway, said Nassau Electric Railroad, said South Brooklyn Railway and said Sea Beach Railway, be and the same hereby is in all respects abrogated; and it is further

"Ordered: 1. That on or before Oct. 15, 1910, said last-

mentioned companies equip all passenger cars operated by them except what are generally known as elevated cars, with wheel guards of a type or types to be approved by the commission and shall not thereafter operate any cars unless equipped with such wheel guards in a good operating condition.

"2. That until Oct. 15, 1910, said last-mentioned companies make a report in writing to the commission on or before the fifteenth day of each and every month stating how many of their cars have been equipped with wheel guards during the preceding month, giving the numbers thereof.

"3. That as soon as any of said last-mentioned companies shall have equipped with such wheel guards any of its cars operated over the Brooklyn Bridge, over the Williamsburg Bridge, on what is known as the Broadway Shuttle line, on what is known as the Montague Street Line, on Fulton Street (from Greene Avenue to Tillary Street), on Flatbush Avenue (from Fifth Avenue to Fulton Street); on Broadway (west of Ralph Avenue), on Livingston Street (from Flatbush Avenue to Court Street), on Lafayette Avenue (from Fulton Street to Flatbush Avenue), on Washington Street and on Adams Street, then such company shall have the right to fold up fenders on cars so equipped when passing over said bridges, lines and streets, within said limits, and be relieved from maintaining fenders on cars so equipped, operated exclusively over said bridges, lines and streets, within said limits.

"4. That all of said last-mentioned companies on or before March 15, 1910, submit to the commission for its approval complete drawings and specifications showing, among other things, all measurements and the method of attachment to the car of the type or types of wheel guards desired to be used by them in compliance with this order; and it is further

"Ordered, that this order shall take effect on Feb. 11, 1910, and shall remain in force until modified or abrogated; and it is further

"Ordered, that within five days after service of a copy of this order said last-mentioned companies notify the Public Service Commission for the First District whether this order is accepted and will be obeyed."

Statement of Trips by Interurban Cars Into Indianapolis for Year

The following comparative statement of the number of round trips made in Indianapolis by the cars of the interurban railways operating into that city has been made public from the records of the controller of Indianapolis:

	1909.	1908.
Indiana Union Traction Company:		
Muncie division.....	9,636	9,088½
Logansport division.....	8,882	8,401
Broad Ripple division.....	11,840	11,381
Army Post division.....	6,917	3,518½
Indianapolis & Cincinnati Traction Company....	14,524	13,724
Indianapolis, Columbus & Southern Traction Company	12,699	9,517
Indianapolis, Crawfordsville & Western Traction Company	6,935	6,738
Terre Haute, Indianapolis & Eastern Traction Company:		
Northwestern division.....	6,913	7,830
Eastern division.....	8,203½	8,088½
Martinsville division.....	7,077½	7,249
Brazil division.....	7,308	6,966½
Danville division.....	5,373	6,182
Grand totals.....	106,308	98,686

During 1909 5,156,875 passengers arrived and departed from the interurban terminal station at Indianapolis.

Decision of Massachusetts Commission in Hamilton Fare Case

The Railroad Commission of Massachusetts has issued a decision sustaining the Boston & Northern Street Railway in regard to its through fares on the Gloucester division, acting upon the petition of citizens of Hamilton for a reduction in fares between Hamilton and adjacent towns. The decision of the commission follows:

"The petitioners request a readjustment of fares on the Gloucester division of the Boston & Northern Street Railway, viz.: Hamilton to Essex, 5 cents; Hamilton to Ipswich,

5 cents; Hamilton to transfer station on Cabot Street, Beverly, 5 cents, and within the limits of Hamilton, 5 cents.

"A careful study of the amount of riding to and from Hamilton on the Gloucester division of the Boston & Northern Street Railway, taken in connection with the established fares, fare limits and territory served in Hamilton, discloses no sufficient reason, in our opinion, for a reduction in the fares between Hamilton and the towns and cities named in the petition.

"The distance between the Ipswich and Wenham boundary lines in Hamilton is about 16,000 ft., and while there are few houses near the railway tracks in this distance, we are of the opinion that the citizens of Hamilton are entitled to a 5-cent fare upon this line within the township.

"We therefore dismiss so much of the petition as relates to fares between Hamilton and points outside, but recommend a reduction of the fare within Hamilton."

Freight Service on Pennsylvania Line.—The Southern Cambria Railway, Johnstown, Pa., announced that beginning on Feb. 15, 1910, it would operate a package express service between Johnstown, South Park and intermediate stations.

Service Between Warsaw and Peru.—C. O. Johnson, vice-president and general manager of the Winona Interurban Railway, Warsaw, Ind., announced that beginning on Feb. 14, 1910, the company would inaugurate service between Warsaw and Peru on its new line. The first service was to consist of a car operated to Akron from Warsaw and another from Akron to Peru, making Akron the transfer point. The freight service will consist of one car, making a round trip daily between Warsaw and Peru.

Shelters on Staten Island.—The Public Service Commission of the First District of New York held a hearing recently to determine whether the Staten Island Rapid Transit Company and the Staten Island Railway should be required to construct additional shelter and waiting rooms at St. George terminal. The companies hold that the city is obliged to provide waiting rooms. The Dock Department maintains that the city has provided adequate rooms for ferry passengers and is under no obligation to provide waiting rooms for the railroads.

Increase in Wages in Columbus, Ga.—The Columbus (Ga.) Railroad announced at a smoker tendered recently to its employees that the company had decided to increase the wages of its motormen and conductors, the increase to date from Jan. 1, 1910. The new scale follows: First 6 months, 14 cents an hour; next 18 months, 15 cents an hour; next 24 months, 16 cents an hour; thereafter, 17 cents an hour. Under the old scale the men received 13 cents an hour the first year; 14 cents an hour the second year, and 15 cents an hour the third year and thereafter. A bonus of 10 per cent is added for efficiency.

Ticket Inspectors in Columbus, Ohio.—The Columbus Railway & Light Company, Columbus, Ohio, has arranged to employ inspectors to look over the tickets, transfers and other property in the possession of conductors at any time, and conductors have been notified to exhibit such property to the inspectors on demand. The conductors have also been directed to punch tickets and transfers as soon as received under penalty of discharge for infractions of the rule. This action has been taken by the company to prevent a repetition of the theft of used tickets by conductors which was discovered some time ago.

Five-Cent Fare Sought to Points Now Part of Birmingham.—In a special message addressed recently to the Aldermen of Birmingham, Mayor O'Brien of that city said: "In view of the fact that Greater Birmingham is united and knit together with one street railway system and we all enjoy a 5-cent fare to and from any point on its line with the exception of Ensley, Pratt City and contiguous territory, I recommend to your honorable body that you instruct the city attorney to investigate all franchises and contracts with the Birmingham Railway, Light & Power Company thoroughly, to the end that if it is possible all sections of Birmingham be in the 5-cent fare limit and that this be accomplished at once if possible."

Change from Near-Side to Far-Side Stops.—The Ft. Wayne & Wabash Valley Traction Company, Ft. Wayne,

Ind., changed on Feb. 1, 1910, the method of stopping its cars from the near side to the far side of the street. The following notice was addressed to the public: "Beginning on Feb. 1, 1910, the practice of stopping cars on the near side of the street will be discontinued and on and after that date cars will stop at the far cross-walk, as formerly, such stopping points being indicated on nearest trolley or telephone pole by newly painted white band. This change is being made primarily because of request of the public, and we must ask the pedestrian and vehicle driver to use utmost caution in crossing tracks because of this change of stopping point."

Service Recommendations in Kansas City.—The recommendations of the Utilities Commission of Kansas City regarding service over the lines of the Kansas City Railway & Light Company, Kansas City, Mo., which were mentioned in the *ELECTRIC RAILWAY JOURNAL* of Feb. 5, 1910, page 262, as having been referred by the City Council to the committee on streets, alleys and grades, prescribe a schedule of from 2 minutes to 8½ minutes on 27 lines between 6 a. m. and 8.30 a. m., from 3 minutes to 10 minutes through the day and from 2 minutes to 8½ minutes from 5 p. m. to 7 p. m. The commission also recommends that the company operate trailers from 6 a. m. to 8.30 a. m. on 33 1/3 per cent of its cars and from 5 p. m. to 7 p. m. on 50 per cent of the cars on all lines where curves or grades do not make the operation of trailers dangerous.

Bulletin on Courtesy.—The Evansville & Southern Indiana Traction Company, Evansville, Ind., has recently addressed the following bulletin on courtesy to its employees over the signature of F. M. Durbin, general manager: "The public judges a railroad corporation very largely by the attitude of the representatives with whom they come in immediate contact. Kindly courtesy upon the part of subordinate officials and employees costs nothing to the employee, but to the railroad it is an asset of great value. The good-will and friendship of the communities served by this company are greatly desired, and the strongest recommendation for promotion an employee in any department can have is the fact that by uniform courtesy and accommodation of patrons he has secured for himself and for the road the good-will and friendship of the community in which he is located. For this reason the employees of the Southern Indiana lines are earnestly urged to extend to patrons of the road every courtesy, and to bear in mind the fact that the whole purpose of the road is to furnish the public the highest class of service possible and that the character of the service—its acceptability to the public—depends in a great measure upon the spirit in which it is rendered."

New York Central Advertises Electrified Suburban Service.—The New York Central & Hudson River Railroad is calling attention to its electrified suburban service out of New York in the daily papers in an advertisement 6 inches wide by 8½ in height, entitled "New York's New Uptown," the places referred to being North White Plains, White Plains, Hartsdale, Scarsdale, Crestwood, Tuckahoe, Bronxville and Mt. Vernon. At the bottom of the advertisement there is a line engraving of an electric train of the company, with the caption "New York Central Electric Suburban Train—Steel Cars—Insuring Safety, Speed and Cleanliness." The statements made in the advertisement follow: "About March 15 the New York Central & Hudson River Railroad completes electrification to White Plains, doubling the territory reached by electric service. This virtually brings into Greater New York, and within night and day reach, two smaller cities, two small towns, two large towns, two villages. Homes to suit all tastes and purses. This solves the problem of living both in the city and out of it. It is only a matter of a few more minutes in the cars to secure lower rents—or your own home or farm—with sure and easy access to the life of the great city when desired. You keep the city income and make only the country expenditures. 'Suburban Homes on the New York Central Lines,' which tells all about available homes, gives complete list of real estate dealers in this territory, as well as the territory served by the Hudson River and Putnam Division, and the West Shore Railroad. Address Advertising Dept., Room 701, Grand Central Station, New York."

Personal Mention

Mr. A. S. Balsdon has resigned as general manager and electrical engineer of the St. Thomas (Ont.) Street Railway.

Mr. Frank Dabney has been appointed controller of the Seattle (Wash.) Electric Company and subsidiary companies.

Mr. L. F. Vosburgh has been appointed assistant general passenger agent of the New York Central & Hudson River Railroad.

Mr. T. M. Childs has been appointed electrical engineer of the Chicago, Lake Shore & South Bend Railway, Michigan City, Ind., to succeed Mr. Fred Hume.

Mr. Fred Hume has resigned as electrical engineer of the Chicago, Lake Shore & South Bend Railway, Michigan City, Ind., to engage in the electrical contracting business in Nashville, Tenn.

Mr. A. H. Ford, president and general manager of the Birmingham Railway, Light & Power Company, Birmingham, Ala., has been elected president of the Chamber of Commerce of Birmingham.

Mr. J. B. Copeland has been appointed general manager of the Covington & Oxford Street Railway, Covington, Ga., to succeed Mr. R. C. Guinn, who will continue with the company as secretary and treasurer.

Mr. Geo. H. Earle, Jr., president of the Real Estate Trust Company, Philadelphia, Pa., and a director of the Philadelphia Rapid Transit Company, is the subject of a character sketch in *The Munsey* for February, 1910.

Mr. Joseph Jordan, general manager of the Cleveland, Painesville & Eastern Railroad, Willoughby, Ohio, has been elected second vice-president and a director of the company. Mr. Jordan will also continue as general manager.

Mr. A. W. Q. Birtwell, assistant treasurer of the Tacoma Railway & Power Company, and the Puget Sound Electric Railway, Tacoma, Wash., has been appointed assistant treasurer of the Seattle (Wash.) Electric Company.

Mr. George G. Rose has been appointed passenger agent of the Mahoning & Shenango Railway & Light Company, New Castle, Pa. Mr. Rose was formerly excursion agent of the company in charge of the parks and excursion traffic.

Mr. R. H. Tillman has been appointed industrial engineer with the Consolidated Gas, Electric Light & Power Company, Baltimore, Md. Mr. Tillman was formerly associate engineer of the Rochester Railway & Light Company, Rochester, N. Y.

Mr. George C. Graham resigned as master mechanic of the United Traction Company, Albany, N. Y., on Jan. 15, 1910, to become superintendent of car equipment and shops of the Los Angeles Pacific Company, Los Angeles, Cal., on Feb. 1, 1910.

Mr. Thomas A. Leach, superintendent of Division 1 of the Worcester (Mass.) Consolidated Street Railway, has been appointed superintendent of employment and inspection of the company and will have charge of the school of instruction maintained by the company.

Mr. C. H. Allen, formerly in the auditing department of Stone & Webster, Boston, Mass., has been appointed auditor of the Seattle (Wash.) Electric Company, to succeed Mr. W. E. Wilmot, who has been appointed assistant treasurer of the Puget Sound Electric Railway and the Tacoma Railway & Power Company, Tacoma, Wash.

Mr. W. E. Wilmot, formerly auditor of the Seattle (Wash.) Electric Company, has been appointed assistant treasurer of the Puget Sound Electric Railway and the Tacoma Railway & Power Company, Tacoma, Wash., to succeed Mr. A. Q. W. Birtwell, who has been appointed assistant treasurer of the Seattle (Wash.) Electric Company.

Mr. Fred G. Buffe, in charge of the publicity department of the Illinois Traction System, Peoria, Ill., has contributed an article entitled "W. B. McKinley and His Interurban and Public Utility Work" to *Public Service* for February, 1910. Portraits of Mr. McKinley and Mr. H. E. Chubbuck, general manager of the Illinois Traction System and executive vice-president of the McKinley properties, are reproduced.

Mr. Cyrus A. Whipple has been appointed assistant electrical engineer of the British Columbia Electric Railway, Ltd., Vancouver, B. C., in charge of the company's Fraser Valley extension, which will be more than 60 miles long. Mr. Whipple has recently been engaged in developing the power system of the United States Navy Yard at Bremerton, Wash.

Mr. J. B. McClary, whose resignation as general manager of the Sheffield (Ala.) Company to devote his entire attention to the interest of J. B. McClary & Company, Birmingham, Ala., was noted in the *ELECTRIC RAILWAY JOURNAL* of Feb. 12, 1910, was presented a silver service by the employees of the Sheffield Company on Feb. 7, 1910, as a token of esteem.

Mr. J. B. Gorman, superintendent of Division 2 of the Worcester (Mass.) Consolidated Street Railway, has had his authority extended to Division 1 of the company, Mr. T. A. Leach, the superintendent of that division, having been made superintendent of employment of the company. Mr. Gorman has been given the title of superintendent of transportation of the company.

Mr. Samuel Whinery, a member of the commission appointed by Governor Fort of New Jersey to revalue railroad and canal property in New Jersey, has been retained by Mr. Charles E. Bird, city counsel of Trenton, N. J., to investigate street railway conditions in Trenton and make recommendations to the Council for changes in the operation of the lines in Trenton which he thinks will result in improving the service in that city.

Mr. H. T. Edgar, vice-president and resident manager of the Northern Texas Traction Company, Ft. Worth, Tex., tendered a dinner to the heads of the departments of the company at the Hotel Seibold, Ft. Worth, Tex., recently. Among the officers of the company who attended were: Mr. J. H. Du Fresno, assistant treasurer; Mr. W. C. Forbes, general passenger and claim agent; Mr. G. H. Clifford, general superintendent; Mr. W. L. Weston, assistant to the general superintendent; Mr. M. F. Mills, purchasing agent; Mr. E. E. Nelson, electrical engineer; Mr. E. L. White, engineer of the power station; Mr. Theodore Taylor, and Mr. J. E. Gallagher, master mechanics, and Mr. W. L. Hunter, roadmaster.

Mr. William H. Evans, whose appointment to the newly created position of industrial agent of the Illinois Traction System, Peoria, Ill., was noted in the *Electric Railway Journal* of Feb. 12, 1910, page 297, will devote his attention to stimulating the grain business along the lines of the company, and to installing elevators at regular intervals from which grain will be shipped over the lines of the Illinois Traction system by way of the Chicago & Eastern Illinois Railroad, connecting at Gloyer to Chicago. Mr. Evans is a prominent farmer of Logan county and a large shipper of grain and is well known among the farmers of the corn belt of Illinois. The Illinois Traction System has built a number of grain elevators along its line and is preparing to handle large quantities of grain.

Mr. E. C. Foster, whose resignation as second vice-president of the New Orleans Railway & Light Company, New Orleans, La., was announced in the *ELECTRIC RAILWAY JOURNAL* of Jan. 22, 1910, has become associated with Sanderson & Porter, New York, N. Y., and is prepared to examine street railway, electric light and gas properties and to advise concerning their value and operation. Mr. Foster became connected with the public utility companies in New Orleans in May, 1903, when he resigned as vice-president and general manager of the Boston & Northern Street Railway, Boston, Mass., to accept the position of president and manager of the New Orleans (La.) Railways Company. Subsequently, the New Orleans Railway & Light Company was organized and Mr. Foster was elected president of the company and continued in that capacity until about a year ago, when he was elected to the position of second vice-president of the company. Mr. Foster has always taken an active interest in the work of the American Street Railway Association and of the American Street & Interurban Railway Association, and on several occasions has contributed valuable discussions to their proceedings and to the technical press. He was the author of an article on "Early Railroad in New England," which appeared in the his-

torical number of the *STREET RAILWAY JOURNAL* in October, 1904.

Mr. H. E. Chubbuck, general manager of the McKinley Syndicate properties, has also been elected executive vice-president of the properties. Mr. Chubbuck is next in authority to Mr. William B. McKinley, president, in the 39 public service companies owned by the Illinois Traction System and the Western Railways & Light Company, which have a combined trackage of 700 miles and serve the principal cities of Central Illinois. Mr. Chubbuck was appointed general manager of these properties in October, 1908, and his election as vice-president is in recognition of the work which he has done in cementing the personnel of the many McKinley properties into a harmonious organization. Mr. Chubbuck has been associated with Mr. McKinley for 12 years, first as



H. E. Chubbuck

general manager of the Quincy property and later as general manager of the Illinois Valley Railway. In early life Mr. Chubbuck gained a knowledge of electrical matters from his association with the Telegraph Manufacturing Company, of which his father, Mr. A. S. Chubbuck, was one of the organizers. This company built the first telegraph instruments used in commercial service. Subsequently Mr. Chubbuck served with the Thomson-Houston Company and the General Electric Company for a number of years. During his connection with the General Electric Company Mr. Chubbuck installed and managed plants at Auburn, N. Y.; Springfield, Ohio; Omaha, Neb.; Pueblo, Col.; Quincy, Galesburg and La Salle, Ill. He is secretary of the Illinois State Electric Association.

Changes in the Organization of the McGraw Publishing Company

James M. Wakeman, for the past 11 years vice-president of the McGraw Publishing Company, resigned this office at the recent annual meeting of the company. While not in serious ill-health, Mr. Wakeman feels it desirable to be relieved from business cares in order to recover his former physical condition, and his future plans include a visit of a year or more to Europe for a complete rest. After a successful connection of some years with the *American Machinist* and *Locomotive Engineering*, Mr. Wakeman joined the McGraw Publishing Company at its formation in 1899 and was one of its incorporators. As the chief assistant in the management of the company he has been a strong factor in the success which it has achieved, and has guided its business career along the broadest lines and with rare ability. The departure of Mr. Wakeman will be a source of the keenest regret to his associates, and without doubt also to the host of friends he has made in the electric railway field. Mr. Wakeman will not retire immediately, but will continue for several months as a director of the company and in active work.

Hugh M. Wilson will occupy the office of vice-president of the McGraw Publishing Company made vacant by the resignation of J. M. Wakeman. Mr. Wilson needs no introduction to the readers of the *ELECTRIC RAILWAY JOURNAL*. The greater part of his active business of 23 years since graduation from college has been passed in technical journalism, and as publisher of *The Railway Age* and the *ELECTRIC RAILWAY REVIEW* he gained an enviable reputation as an enterprising, successful and constructive manager of newspaper properties. He sold his interest in these publications early in 1908 and later became vice-president of the Barney & Smith Car Company, an office which he has just resigned to take up his present work. A biographical sketch of Mr. Wilson was published in the personal column of this paper on July 17, 1909.

Construction News

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

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

RECENT INCORPORATIONS

Decatur Southern Traction Railway, Decatur, Ill.—To cover some legal technicalities this company has been re-incorporated under the same name and with the same officers. [E. R. J., Feb. 12, '10.]

Davenport-Muscatine Railway, Davenport, Ia.—Chartered in Iowa for the purpose of building an electric railway between Davenport and Muscatine. Capital stock, \$100,000. Officers: J. F. Porter, president; J. R. Lane, vice-president, and H. E. Weeks, secretary and treasurer. Directors: John G. Huntoon and R. R. Lane. [E. R. J., Dec. 11, '09.]

***Minster & Loramie Railway, Minster, Ohio.**—Incorporated in Ohio for the purpose of building an electric railway from Loramie to Minster. It will connect with the Minster branch of the Western Ohio Railway at Minster and, it is said, will be operated as part of that system. Capital stock, \$100,000. Incorporators: F. D. Carpenter, E. C. Riddie, C. C. Collins and E. L. Herr, Minster.

Toledo & Indiana Traction Company, Toledo, Ohio.—Articles of incorporation have been filed in Ohio by this company which will succeed the Toledo & Indiana Railway, the property of which was sold under foreclosure recently to C. S. Schenck representing the bondholders. Initial capital stock, \$10,000. Incorporators: Charles F. Chapman, Jr., George D. Welles, Frank W. Caughling, Eugene H. Winkworth and Frank E. Miller.

Chickasha (Okla.) Street Railway.—Incorporated in Oklahoma to construct a 6-mile electric railway in Chickasha and into parts of Grady County. Capital stock, \$150,000. Directors: Charles F. Woodward and W. Raymond Emerson, Wakefield, Mass.; Lawrence Martin, R. D. Welborne and W. P. Weston, Chickasha. [E. R. J., June 12, '09.]

***Albany (Ore.) Interurban Railway.**—Chartered in Oregon for the purpose of building an electric railway from Albany to Sweet Home via Lebanon, Brownsville and Holley. Capital stock, \$25,000. Incorporators: P. A. Young, C. E. Sax and J. F. Hawkins.

***Spartanburg & Greenville Railway, Greenville, S. C.**—Chartered in South Carolina to build a 31-mile electric railway from Greenville to Butler, Chick Springs and Spartanburg. Headquarters, Greenville. The railway will haul both passengers and freight. Capital stock, \$400,000. Officers: Charles W. Ellis, president; H. H. Price, vice-president, and C. H. Yates, secretary and treasurer.

FRANCHISES

Albany, Cal.—M. R. Jones, representing the East Shore & Suburban Railway Company, Richmond, has applied to the Albany trustees for an electric railway franchise. This is part of a plan to connect Richmond, Stege, San Pablo, Rust, Albany, and Point Richmond with the Southern Pacific Company's electrified lines.

Los Angeles, Cal.—The City Council has sold a franchise to the Los Angeles Railway for an extension of its line on Thirty-ninth Street from Agricultural Park, 1 mile west.

Pomona, Cal.—The Pacific Electric Railway, Los Angeles, has been granted a 30-day extension on its franchise for the construction of its railway in Pomona.

San Bernardino, Cal.—The Board of Supervisors has granted a 49-year franchise to W. W. Pool to operate a railway over certain streets in San Bernardino County. [E. R. J., Jan. 1, '10.]

Jacksonville, Ill.—The Morgan County Commissioners have granted a franchise to the Springfield & Jacksonville Electric Railway to build a railway through Morgan County. It is the intention of this company to have the interurban railway between Springfield and Jacksonville in operation by July 1. [E. R. J., Jan. 15, '10.]

Ottawa, Ill.—The Northern Illinois Light & Traction Company has been granted a 20-year franchise by the City

Council to operate its railway throughout the city and also to furnish power for lighting purposes. The ordinance also empowers the company to operate its cars over the new Illinois River bridge.

Fremont, Neb.—The Nebraska Transportation Company, Omaha, has applied to the City Council for a franchise to build an electric railway through Fremont. The proposed railway will connect Omaha and Fremont. C. W. Baker, president. [E. R. J., Nov. 20, '09.]

Englewood, N. J.—The Hudson River Traction Company, Hackensack, has applied to the Common Council for a franchise to continue to extend its railway to Highwood.

Altoona, Pa.—The committee on public works has made a favorable report permitting the Johnstown & Altoona Railway to enter Altoona using the tracks of the Altoona & Logan Valley Electric Railway for a period of 65 years. The Council of Cresson has granted the company a franchise to use some of its principal streets for its projected railway. Wallace Sherbine, Wilmore, president.

Butler, Pa.—The Pittsburgh, Harmony, Butler & New Castle Railway, Pittsburgh, has applied for a franchise to build a single-track railway over a number of highways.

Dunmore, Pa.—The City Councils have granted a franchise to the Scranton & Lake Shore Railway for a street railway over East Drinker Street, it being the plan of the company to build a line from Scranton to Lake Ariel. Among those interested are: William F. McGee, Walter Haslan, Scranton; J. J. Reagan, Dunmore, and Richard Foote, Archbald. [E. R. J., Jan. 29, '10.]

***Provo, Utah.**—It is stated that A. J. Evans, S. L. Chipman, Geo. C. Whitmore and Geo. W. Craig, Provo, have applied to the County Board for a franchise to construct an electric railway through Utah County. Application has also been made to the Council of American Forks for a franchise.

Kent, Wash.—The Valley Railroad & Power Company has applied to the City Council for a 35-year franchise to operate an electric railway in Kent. The proposed railway will connect Kent and Renton. A. T. West, Seattle, general manager. [E. R. J., Feb. 12, '10.]

TRACK AND ROADWAY

Northern Electric Railway, Chico, Cal.—This company has secured rights-of-way across Los Molinos colony, 12 miles below Red Bluff. The deeds were granted free on condition that the railway be extended from Chico to Los Molinos by the end of the year and on to Red Bluff before the close of 1911. The company expects to soon build from Yuba City to Hamilton City via Meridan and Colusa. As soon as the company secures permission of Sacramento and Yolo Counties and the Government to erect a bridge across the Sacramento River the extension of the line to Woodland will be undertaken.

Peninsular Railway, San José, Cal.—F. E. Chapin, vice-president and general manager of this company, announces that the electric railway between Palo Alto and San José has been completed and will be ready for operation about March 1.

Georgia Railway & Electric Company, Atlanta, Ga.—Improvements contemplated by the Georgia Railway & Electric Company call for the expenditure of approximately \$700,000. The work to be done includes the construction of 8 miles of new track practically as additional or double track along parts of the present system.

Griffin, Ga.—B. R. Blakely, Griffin, confirms the report that he is interested in a plan to construct an electric railway in Griffin, and states that a charter will be applied for within the next few days. [E. R. J., Feb. 12, '10.]

Chicago, Ottawa & Peoria Railway, La Salle, Ill.—The eastern extension of the Illinois Valley division of the Chicago, Ottawa & Peoria Railway between Seneca and Morris, Ill., 10.5 miles, was put into operation on Feb. 2, with cars on 90-minute headway. This extended service gives the McKinley Syndicate properties a line to within 20 miles of Joliet. Current is distributed to the cars over a No. 000 trolley wire supported from a 7/16-in. messenger by five-point suspension on private right-of-way and nine-point suspension in towns. The Electric Railway Equip-

ment Company, Cincinnati, Ohio, furnished the catenary material.

***Sterling & Northern Railway, Sterling, Ill.**—This company is said to have been organized by William Osborne and others of Sterling for the purpose of constructing an electric railway from Sterling to Savanna and Freeport. Application will soon be made for a charter for the line. Capital stock, \$300,000. Headquarters, Sterling.

Dixon, Rock Falls & Southwestern Electric Railway, Tampico, Ill.—This company advises that as soon as the weather permits, work on the extensions will be begun to complete the line from Tampico into Rock Falls and Dixon, and from Hooppole to Geneseo, Ill. The general contract of construction work on this railway has been given to Burns & Company, which purchases all supplies and awards all sub-contracts. An order has been placed with the Illinois Steel Company for 40 miles of steel rails. A portion of this order is for the Dixon, Rock Falls & Southwestern Railway.

Bluffton, Geneva & Celina Traction Company, Bluffton, Ind.—This company, which proposes to build a 40-mile electric railway from Bluffton to Celina, Ohio, advises that it expects to resume work on the line in the spring. It will also pass through Vera Cruz, Linn Grove, Geneva, New Corydon, Ind., Sheels and Dublin, Ohio. Surveys have been completed from Bluffton to Geneva, 18½ miles, and the remainder of the route from Bluffton to Geneva, 21½ miles, is now being surveyed. Grading and overhead work have been completed from Bluffton to Geneva. Eleven bridges will be built, including one across the Wabash River. It is intended to distribute power to the cars at 600 volts d.c. Headquarters: Bluffton. L. C. Justus, Bluffton, president; Fred Davenport, Bluffton, chief engineer. [E. R. J., Dec. 4, '09.]

Louisville & Northern Railway & Light Company, New Albany, Ind.—This company is considering plans for building a new bridge to replace the Indiana & Kentucky bridge which now controls the route into Louisville from the north.

Hannibal Railway & Electric Company, Hannibal, Mo.—This company states it intends to build 3 miles of new track this year. J. S. Mainland, purchasing agent.

Kansas City, Ozarks & Southern Railway, Kansas City, Mo.—This company which is now operating between Mansfield and Ava will extend the line this year from Ava to Gainsville, a distance of 35 miles.

Whitefish & Polson Electric Railway, Kalispell, Mont.—This company has begun the preliminary surveys for its projected electric railway from Kalispell northward to Whitefish and southward through Somers to Polson on the west shore of Flathead Lake. G. H. Adams, J. H. Stevens and Peter Nilson are interested. [E. R. J., Jan. 8, '10.]

***Fredericton (N. B.) Street Railway.**—This company is said to be considering a plan to construct an electric railway which will connect St. Mary's, Gibson, Marysville and Nashwaaskis on one side of the river and Springhill and Victoria Mills on the other side. The company will soon apply for a charter. H. H. Hanson, Fredericton, solicitor.

***Hicksville, N. Y.**—Raymond Smith, Oyster Bay, and other prominent business men of Oyster Bay and Hicksville are considering plans to build an electric railway from Oyster Bay to Hicksville, Central Park and Farmingdale, connecting with the cross-island line at Amityville.

Columbus, Marion, Upper Sandusky & Toledo Traction, Marion, Ohio.—Surveyors are at work on this projected railway between Toledo and Columbus via Upper Sandusky, Carey and Fostoria. Frank M. Ohl, Toledo, is interested. [E. R. J., Aug. 1, '08.]

Oklahoma (Okla.) Railway.—This company advises that it is building 3 miles of track using 100-lb. rails and steel ties in a concrete base. W. A. Haller, engineer.

Shawnee (Okla.) Electric Railway.—This company states that work will be begun within a few days on its projected 40-mile electric railway to connect Shawnee, Dale, McLoud, Harrah, Choctaw City, Spencer and Oklahoma City. Contracts for the construction of the railway have been let to the Shawnee Railway Construction Company. Power will be purchased. It is planned to build repair shops at Mc-

Loud and nine cars will be operated. Franchises have been obtained in the towns of McLoud, Harrah and Choctaw, and arrangements have been made for entrance into Oklahoma City over the Oklahoma Railway Company's tracks and into Shawnee over the local city railway tracks. Two surveys have been made and parties are now in the field making permanent location. Most of the right of way over the entire route has been secured. Capital stock authorized and issued, \$1,300,000, of which \$1,000,000 is common and \$300,000 preferred. Bonds, authorized, \$1,000,000. Standard Trust Company, New York, will act as trustee under mortgage. Officers: C. T. Edwards, Shawnee, president; J. W. Ruby, Shawnee, first vice-president; J. C. Chrisney, second vice-president; R. E. Pugh, Shawnee, secretary, and A. Hardgrave, Shawnee, general manager and purchasing agent. [E. R. J., Jan. 29, '10.]

Pittsburgh, Harmony, Butler & New Castle Railway, Pittsburgh, Pa.—This company has applied for permission to increase its capitalization from \$3,000,000 to \$3,500,000 to provide for contemplated extensions in the Butler district. The company will extend its tracks to Lawrence Avenue, Ellwood. It is said that an extension to Beaver via Koppel is also probable. This line would be about 6½ miles in length and would connect with the Pittsburgh Railways.

Montreal & Southern Counties Railway, Montreal, Que.—This company, which recently placed part of its line in operation, announces that it will construct 10 miles of new track and will electrify a section of steam railroad track, 15 miles long.

South Dakota Interurban Railway, Centerville, S. D.—This company announces that most of the right-of-way from Bijou Hills to Sioux City has been secured and that work will be started as soon as the weather permits. Steps are being taken to have Chamberlain made the western terminus. The projected electric railway will extend from Chamberlain to Bijou Hills, Parkston and Sioux City. Officers: W. E. Miller, president, and F. E. Graves, secretary and treasurer. [E. R. J., Nov. 13, '09.]

Dallas (Tex.) Traction Company.—This company announces that it will begin construction within two months on its proposed street railway from Mount Auburn addition to a point where connection will be made with the consolidated lines of the city. Power to operate the line will be leased. The company has not yet been incorporated. Capital stock, \$25,000. Main office, 334-336 Commerce Street. E. L. Lancaster, general manager. [E. R. J., Jan. 29, '10.]

Fort Worth, Mineral Wells & Western Railroad, Fort Worth, Tex.—This company is closing up all preliminary matters preparatory to awarding the contracts for the construction of its proposed 54-mile electric railway from Fort Worth to Mineral Wells via Weatherford, and later on to Roswell, N. M. About \$80,000 have been subscribed. J. S. Hanford, Beaumont, president. [E. R. J., Oct. 23, '09.]

Valley Railway & Power Company, Kent, Wash.—This company advises that it has not yet definitely decided when it will begin work on its proposed 7-mile railway between Kent and Renton. It is probable that work will be started about Aug. 1. The project is being financed entirely by local capital. The motive power has not as yet been determined upon. Capital stock, \$300,000. Officers: H. B. Madison, Kent, president; Robert Bridges, Orillia, vice-president; Isaac P. Calhoun, Kent, secretary; Thomas Chipman, O'Brien, treasurer; A. T. West, Seattle, general manager; A. S. Leeper, Kent, chief engineer. [E. R. J., Jan. 29, '10.]

Spokane & Inland Empire Railroad, Spokane, Wash.—This company proposes to double track 12 miles of its Cœur D'Alene division, and will relocate 1 mile of track on the same section.

Vancouver (Wash.) Traction Company.—This company has nearly completed its 6-mile extension from Vancouver to Orchards. It is expected to have this new line in operation by March 1. A. Welch, purchasing agent.

SHOPS AND BUILDINGS

Phoenix (Ariz.) Railway.—This company's car house in Phoenix was recently destroyed by fire. Four cars and 3000 ties which were stored in the building were burned. The total loss is said to have been \$22,000.

Georgia Railway & Electric Railway, Atlanta, Ga.—This company will build machine shops in Atlanta to be 100 ft. x 150 ft. in size.

Chicago, South Bend & Northern Railway, South Bend, Ind.—This company has leased the Albright Building in Goshen and will remodel it into an interurban station to be used by the Northern Indiana Railway, South Bend, and the Winona Interurban Railway, Winona Lake.

Indianapolis & Louisville Traction Company, Louisville, Ky.—This company has awarded a contract for building a new freight and passenger station at Scottsburg, Ind., to John T. Wiley & Son, Louisville, Ky. The Cincinnati, Madison & Western Traction Company, Indianapolis, when completed, will also use the new station with offices on the second floor. A special siding will be built to facilitate the handling of freight.

Interborough Rapid Transit Company, New York, N. Y.—This company has filed plans for the building of a new car house at the northeast corner of Spuyten Duyvil road and 242d Street. The building will be two stories high, 530 ft. x 89 ft. and is to cost \$100,000.

People's Railway, Dayton, Ohio.—This company has begun work on its new car house in Dayton, to be 115 ft. x 245 ft. in size. The Hall-Cronan Company has the contract. [E. R. J., Jan. 22, '10.]

Pittsburgh (Pa.) Railways.—This company has purchased property 400 ft. x 400 ft. at Forbes Street and Croft Avenue, in the Oakland district, on which it will erect a car house to have a storage capacity of 250 cars. Plans for the building have not yet been completed.

POWER HOUSES AND SUBSTATIONS

Nelson (B. C.) Electric Tramway.—This company has awarded a contract to the Allis-Chalmers-Bullock Company, Montreal, for a 250-kw motor generator set. [E. R. J., Jan. 1, '10.]

Athens (Ga.) Electric Railway.—This company advises that it has contracted with the Amburson Hydraulic Construction Company, Boston, to build a reinforced concrete dam of the gravity type at the site of its power plant at Barnett Shoals. [E. R. J., Nov. 20, '10.]

Georgia Railway & Electric Company, Atlanta, Ga.—The appropriation of \$700,000 by the Georgia Railway & Electric Company for improvements to be made during 1910, includes the setting aside of \$200,000 for improvements to the light and power plants of the company. Out of this sum \$85,000 is for additional machinery for the steam-electric plant and the balance, \$115,000, is for the extension of the distribution system for the light, power and steam heat to care for new business of the company.

Terre Haute, Indianapolis & Eastern Traction Company, Terre Haute, Ind.—This company will install a new substation on its Dunreith-Newcastle division. D. F. Roach, Terre Haute, purchasing agent.

Sioux City & Spirit Lake Railway, Sioux City, Ia.—This company is reported to be contemplating the construction of a new power house and substations and will require equipment for same, including steam turbines and generators with a rating of 4000 hp, tubular boilers, condensers, pumps, heater, transformers, rotary converters, switchboards, etc. J. D. Browning, Sioux City, general manager. [E. R. J., Nov. 6, '09.]

Boston & Northern Street Railway, Boston, Mass.—This company will reconstruct its power plant on Merrimack Street. Among the improvements to be made are the installation of two high-pressure boilers and a 1200-kw generator. A 150-ft. chimney with a 19-ft. base will also be erected. G. W. Palmer, Jr., Boston, electrical engineer.

Durham (N. C.) Traction Company.—This company is considering the purchase of 2 250-hp water-tube boilers of 175-lb. steam pressure. An order has been placed recently for 1 1000-hp Hamilton-Corliss engine, direct connected to a General Electric 600-kva, 2300-volt, 3-phase, 60-cycle generator.

West Penn Railways, Pittsburgh, Pa.—This company has placed an order with the Westinghouse Electric Manufacturing Company for 2 12,000-hp steam turbines and 2 200-hp turbines. [E. R. J., Feb. 5, '10.]

Manufactures & Supplies

ROLLING STOCK

American Railways, Philadelphia, Pa., is in the market for a pair of electric motor trucks.

Pittsfield (Mass.) Electric Street Railway will buy a number of new motor cars soon.

Buffalo & Lake Erie Traction Company, Buffalo, N. Y., is considering the purchase of five suburban cars.

Ocean Electric Railway, Far Rockaway, N. Y., has ordered six cars from The J. G. Brill Company.

Interborough Rapid Transit Company, New York, N. Y., is contemplating the purchase of 75 additional cars equipped with side doors.

Emigration Canyon Railroad, Salt Lake City, Utah, has ordered an electric locomotive from the Westinghouse Electric & Manufacturing Company.

Pittsburgh, Harmony, Butler & New Castle Railway, Pittsburgh, Pa., has ordered two steel cars from the Standard Steel Car Company, it is reported.

Fonda, Johnstown & Gloversville Railroad, Gloversville, N. Y., is in the market for two cars, to be equipped in the company's shops. The cars may be bought second-hand.

Brooklyn Heights Railroad, Brooklyn, N. Y., has ordered an electric locomotive from the General Electric Company. The company expects to build a car in its shops for the collection of rubbish.

Gustave Testart, Domaine des Deux Frances, Chemins Gouin, Quebec, Can., is making inquiries regarding three locomotives weighing not more than 6000 lb., six passenger cars, six box cars, six gondolas and six flat cars.

Grand Valley Railway, Brantford, Ont., will buy 10 50-ft. passenger and four 36-ft. motor freight cars within the next three months. Report of the contemplated purchase of some cars was made in the *ELECTRIC RAILWAY JOURNAL* of June 5, 1909.

Winona Interurban Railway, Warsaw, Ind., mentioned in the *ELECTRIC RAILWAY JOURNAL* of Nov. 27, 1909, as expecting to buy a number of cars, has ordered five interurban passenger cars, eight city cars, one line car, one baggage car and eight freight cars.

Chicago, Aurora & De Kalb Railroad, Aurora, Ill., mentioned in the *ELECTRIC RAILWAY JOURNAL* of Jan. 8, 1910, as being in the market for interurban cars, has placed an order with the Danville Car Company for four interurban cars. The rolling stock will be equipped with Peter Smith Heater Company's No. 2-C heaters.

Los Angeles-Pacific Railroad, Los Angeles, Cal., reported in the *ELECTRIC RAILWAY JOURNAL* of Feb. 5, to have ordered 125 cars from the American Car & Foundry Company, will have 65 cars equipped with motors and 65 trailer cars. The 130 motor trucks and 120 trailer trucks are being built by Baldwin Locomotive Works.

British Columbia Electric Railway, Vancouver, B. C., mentioned in the *ELECTRIC RAILWAY JOURNAL* of Jan. 20, 1910, as expecting to build 100 freight cars, 200 passenger cars and five electric locomotives in its shops, will build 12 city passenger cars, six suburban cars, one express car, three box cars and three cabooses in its shops. Seventy-five flat cars, one locomotive and two electric locomotives will be purchased. The company is completing 22 city cars and four large box cars.

TRADE NOTES

Griffin Wheel Company, Chicago, Ill., is planning to enlarge its plant at Tacoma, Wash.

American Car & Foundry Company, St. Louis, Mo., contemplates building an addition, 120 feet wide and 1,800 feet long, to its steel coach plant at St. Charles, Mo.

Buda Company, Chicago, Ill., has elected L. M. Viles, vice-president and treasurer in charge of manufacturing, and Wm. P. Hunt, Jr., vice-president and secretary in charge of sales.

American Automatic Brake Company, Baker City, Ore., has been incorporated with a capital stock of \$500,000, by

F. W. Eppinger, H. A. Mitchell and E. B. McDaniels, to manufacture an automatic air brake.

Peter Smith Heater Company, Detroit, Mich., has received an order from the Indiana Union Traction Company for 20 heaters to replace other makes. This company has adopted the Smith heaters as standard on all its lines.

Standard Coupler Company, New York, N. Y., has elected Edmund H. Walker vice-president. Prior to Mr. Walker taking a position with this company in 1905 as assistant to the president, he had 16 years' experience in various departments of a number of railroads.

Covington Machine Company, Covington, Va., has arranged with the Wiener Machinery Company, New York, N. Y., to manage its Eastern sales office. A large stock of machines will be carried in Jersey City, N. J., so that the company can make prompt deliveries.

Wonham, Magor & Sanger, New York, N. Y., have arranged with the Franklin Steel Company, Franklin, Pa., which manufactures, and controls the patents of, the Improved Tripartite steel pole, to act as New York agents and as export agents of the Franklin Steel Company.

Adreon Manufacturing Company, St. Louis, Mo., has received an order from the United Railways of St. Louis for 1300 dozen hickory pick, sledge and tool handles. The Gideon Handle Company, Gideon, Mo., which has a complete plant for manufacturing this class of material, will make the goods.

Ackley Brake Company, New York, N. Y., has received an order from the Havana (Cuba) Electric Railway, through F. Steinhart, general manager, for 500 Ackley adjustable brakes, 14 to 34 gear ratio, and 12 Ackley adjustable brakes with 12 x 36 small winding drum with chain complete, following a trial of two months with the Ackley brake.

Whipple Supply Company, New York, N. Y., incorporated recently with a capital stock of \$50,000, and elected the following officers: A. L. Whipple, president and general manager; J. L. McDuffie, vice-president; H. E. Oesterreich, secretary and treasurer. Among various electric railway and steam specialties which this company handles is the Hedley anti-climber.

Columbia Machine Works & Malleable Iron Company, Brooklyn, N. Y., reports that the Charlotte (N. C.) Consolidated Construction Company was so pleased with the four Millen illuminated reversible car signs which it ordered for trial that the company has placed an order with the Columbia Machine Works & Malleable Iron Company for 30 more Millen signs.

P. D. Wagoner has been elected president of the General Vehicle Company, Long Island City, to succeed J. Howard Hanson, who has withdrawn from the company. Mr. Wagoner brings to his new work a wide experience in engineering and commercial affairs and under his administration the outlook for the future of the General Vehicle Company appears very bright.

St. Louis Surfer & Paint Company, St. Louis, Mo., has elected A. D. McAdam vice-president, with headquarters at 1101 Fisher Building, Chicago, Ill. Mr. McAdam was formerly vice-president of the Damascus Brake-Beam Company, Cleveland, Ohio, and was connected with the American Car & Foundry Company and the Michigan Malleable Iron Company, Detroit, Mich., for several years.

Titan Steel Castings Company, Newark, N. J., has taken over the business of Benjamin Atha & Company, but will continue to operate the plant as in the past, manufacturing cast-steel bolsters, manganese steel railway motor gears and pinions and other castings. The officers of the Titan Steel Castings Company are: Benjamin Atha, president; Louis A. Shepard, vice-president and general manager; Henry G. Atha, treasurer, and C. W. Owston, Jr., secretary.

Leroy M. Harvey, sales manager of the Milwaukee district office of Allis-Chalmers Company, died on Jan. 19, 1910, at Augusta, Ga. Mr. Harvey was about 37 years old and was born in Oak Park, Ill. He was graduated from the University of Michigan in 1898, and was connected with the Westinghouse Electric & Manufacturing Company, Siemens & Halske and the Northern Electric Manufacturing Company, before becoming associated with the Allis-Chalmers Company.

Ohmer Fare Register Company, Dayton, Ohio, has closed a contract for a term of years with the Southern Pacific Company for registers to be used on the lines of that corporation, now and hereafter owned or controlled by it. The contract is a blanket one covering the entire system, which includes its electric cars, gasoline motor cars, and accommodation steam trains, and provides for the installation of Ohmer's two-fare, four-fare, six-fare, twelve-fare, thirty-fare and sixty-fare registers. This contract was obtained after the Southern Pacific Company had operated Ohmer registers on several of its lines for a considerable period of time. The Ohmer register system, which was originally designed for city and interurban railway service, has thus proved to be equally adapted to steam railroad service.

ADVERTISING LITERATURE

Frank Ridlon Company, Boston, Mass., has issued its list of second-hand electric machinery for February, 1910.

Walter A. Zelnicker Supply Company, St. Louis, Mo., has issued two circulars, one containing a price list of the various sizes of gong whistles; the other describing the double clutch car mover.

Electric Storage Battery Company, Philadelphia, Pa., has described the installation of chloride accumulators on the Otsego & Herkimer Railroad, Hartwick, N. Y., for a.c.-d.c. regulation in Bulletin No. 118, dated December, 1909.

Franklin Filter Company, St. Louis, Mo., is distributing two folders in which the company's oil refiner and purifier are described and illustrated. A list of the users of this apparatus throughout the country is given in one of the folders.

Joseph Dixon Crucible Company, Jersey City, N. J., has published Graphite for February, 1910, which contains the second installment of an article by W. H. Wakeman on the "Prevention of Corrosion of Steam Machinery." On the back cover are presented several illustrations showing structures of the Rochester, Syracuse & Eastern Electric Railroad protected with silica-graphite paint.

General Vehicle Company, Long Island City, N. Y., has published the first issue of "Elec-Tricks," a 24-page booklet in which the merits of the company's vehicles are described and illustrated, and testimonials, published in an appropriate article entitled "When It Snows." Several snap-shots which are reproduced show the doubling up of teams made necessary everywhere to prevent a total tie-up of horse transportation.

Franklin Steel Company, Franklin, Pa., has issued an attractive 16-page catalog which has for its subject Tripartite steel poles and rolled steel specialties. The method of constructing these poles is briefly described. Illustrations are presented showing various styles of fittings manufactured by the company, also several types of poles adapted to some of the more common installations. The publication also contains a list of some of the prominent users of Tripartite poles, among which are the Pennsylvania Railroad, Santa Barbara (Cal.) Consolidated Railway and J. G. White & Company, New York, N. Y.

General Electric Company, Schenectady, N. Y., has issued a pamphlet on the subject of building lighting which contains references to a number of important installations of tantalum and tungsten filament lamps. Some of the installations to which reference is made in this pamphlet are those of the old-style tungsten lamp. In place of these lamps there are now being supplied the G. E. Mazda lamp, which is described in Pamphlet No. 3907, just issued by the company. Bulletin No. 4689, recently issued by the company, is devoted to the subject of ornamental street lighting, and contains views of street lighting and ornamental posts in various large cities. This bulletin is enclosed in a very artistic cover. Another bulletin, No. 4714, contains a description of the railway signal volt-ammeter, type S, which has recently been designed by the company. To the practical railway man, Bulletin No. 4715, recently issued by the company and describing its GE-210 railway motor, should be of considerable interest. The bulletin enters into a detailed description of this motor and contains a speed table, characteristic curves and dimension diagrams.