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### The Syracuse Conference

The conference of interurban officers in New York State which is to be held Jan. 19, in Syracuse, at the suggestion of the Public Service Commission, Second District, constitutes quite a departure from any meeting which has previously been held in the State. It is not a hearing in the sense in which that term has been used previously by the commission. It is more in the nature of a joint convention of the commission and of the operating officials of the State to study the question of safety of interurban railway operation. The program includes papers on interurban railway dispatching, block signals and cognate subjects by three well-known railway men and an expert signal engineer, and the commission urges a full and free discussion by all present upon the points brought out in these papers. In calling the conference the commission has evinced a desire to learn whether the operating officials of the State consider that any changes are necessary in their present operating methods, and, if so, what they are. After the conference and in the light of the evidence there obtained the commission may be prepared to make recommendations of its own, but at present the burden of criticising existing methods and of making suggestions for improvement has been delegated to those operators who have been invited to prepare the papers and to discuss them. The railway companies in no sense are being placed in a defensive position, and frank and free expressions of opinion should result. The benefits which the companies of the State will derive from the conference are in direct proportion to the amount of fair criticism evoked, and to its open-minded reception on the part of those against whose methods it is directed.

### Other Coming Conventions

The next two weeks will be very important so far as railway conventions are concerned. Several others besides that at Syracuse are scheduled for Jan. 19. One of these is the annual convention of the Central Electric Railway Association, which is to be held at Indianapolis and will be of especial importance this year because a number of important reports are to be presented, as well as papers on three interesting subjects. The convention of the Wisconsin Electrical Association, which includes in its membership a number of electric railway companies, will be held in Milwaukee Jan. 18 and 19, and the organization meeting of the Interstate Railway Association will be held in Chicago on the latter date. During the following week there comes the mid-year meeting of the American Electric Railway Association, which is to be held in New York on Jan. 27. This meeting is to be preceded by meetings on Jan. 25 and 26 of various committees of the association and its affiliated organizations. These committees will report to the several organizations of which they are parts and any important subjects which require special attention can be submitted to the main association.

### Using Pits for Storage

One of the objections raised against open pits in car houses is the temptation offered to workmen to leave or store oily waste and miscellaneous junk in the free spaces under the floors and between the tracks. The force of this objection is weakened by the fact that walled pits are subject to exactly the same abuse, and even in greater degree. In one recently visited shop where closed pits are used one-half of them were out of commission because they were filled to the brims with discarded gears and pinions, worn brake shoes, smashed fenders and the like. Yet the master mechanic at this location complained bitterly that lack of pit room hampered his truck repairs! A thorough house-cleaning from time to time in a shop like this would do wonders in enlarging the facilities and decreasing the danger from fire. It cannot be gainsaid that open-pit construction offers a great convenience in allowing brake shoes and other truck fittings to be stored under the devil strips, where they are readily accessible for application. Otherwise it would be necessary for the workmen requiring material to make many wearisome and time-wasting trips to the storeroom or at best to some inconveniently located portion of the car house. There can be no reasonable objection to taking advantage of this increase in storage capacity provided the sub-floor areas are not used for inflammable or discarded material. At any rate this practice is preferable to leaving these same articles to clutter up the car-house floor.

### The Maintenance of Car Circuit Breakers

No device used on modern rolling stock is of more importance in relation to the maintenance of schedule time than the circuit-breaker equipment, with the single exception of the motors themselves. Under the pressure of heavy traffic the time required to replace a fuse is too great to permit the exclusive use of that device as the electrical safety valve of the system. A thorough inspection of the adjustment and finish of the fittings of the circuit-breaker before it is placed on the car well repays the time required. In some cases the omission of periodical examinations of the apparatus leads to the sticking of the breaker armature through the rusting of the pins or to improper operation of the tripping device. The wear of brass stops set into the armature to prevent binding against the magnet coils on account of residual magnetism may lead to a "freeze" unless the stops are renewed at the proper time. The cleanliness of the arc chute is often neglected, with resulting danger of a heavy short-circuit on account of the arc deflectors having been badly burned and carbonized. An important point in the operation and maintenance of circuit breakers is the insurance of plenty of interchangeable parts at the repair shop, and the instruction of inspectors and car house employees to avoid attempts to make poorly fitting parts go into place by filing or bending. The usefulness of the equipment is easily destroyed by attempting to obtain forced fits of movable parts. In following up the inspection of car circuit breakers it is an excellent plan to go over them with an ammeter for the purpose of checking the adjustment. Whenever a car is frequently reported for fuse blowing it is a good idea to make a thorough examination of the condition and setting of the circuit breaker before concluding that the motor or control equipment is at fault. The breakers are so accessible and readily examined for defects that time will often be saved by looking first into their condition.

### NEED FOR TRAINING TRAINMEN

The hearings which have been conducted by the authorities of several of the Central States during the past few weeks on the subject of the safety of interurban service have been directed principally to the discussion of three subjects: the desirability of the use of block signals, the training of transportation employees, and the adoption of certain rules for the government of the men. The conference at Indianapolis last week was given up largely to the latter two subjects.

At certain of these hearings a great deal of stress has been laid by the authorities upon the shortness of the time taken by some companies for breaking in a new man as compared with that taken in steam railroad work before a man is appointed to the position of engineer or conductor. No one will deny that the instruction of a new employee during the breaking-in period should be thorough, and also that a great deal of care should be exercised in selecting new employees. Nevertheless, the larger number of serious accidents on interurban electric railways have been caused by men who had been in the service more than one year's time. It might be said that this situation arises because the number of new men is small compared with the number of older men. But many managers have also found that a new man is apt to give a great deal more serious attention to the road than the man who has been running over the same track for three or four years. It is human nature for one who has exercised caution day after day and met with no occurrences requiring such caution to relax his vigilance sooner or later. This tendency emphasizes the need for the operators of a road repeatedly to take steps to instil a feeling of the need for vigilance into the minds of the train crews. On steam roads with block signals this is sometimes done by "surprise" checking, effected by purposely setting signals in positions contrary to those that might be expected. On interurban roads without signals, and, in fact, on any road, the most valuable aid to safety and perfect train operation is a series of examinations on rules. Too little attention is sometimes given to this subject on small properties. The superintendents of smaller roads feel that they know their men so well as to be able to judge whether or not a trainman is fully conversant with the rules. This may be true in certain cases, but as a general proposition there is no way by which the men's knowledge of the rules and of what they should do in emergencies can be so well gaged as by oral and written examinations at frequent intervals.

Interurban trainmen have also been criticised quite severely at times for not looking at their timetables and watches more frequently. This criticism brings to mind the arguments, pro and con, on operating trains out of terminals on the even hour. When a man runs a train day after day, always leaving terminals on the even hour and arriving at meeting points at a certain fraction of the hour, it is claimed that he can easily, and very often does, get into the habit of "memory running." Then, when a train is off time and a minute or more has to be added to the schedule time because of the lateness of the train, the practice of "memory running" is apt to be dangerous. Such mental calculations require the attention of the brain and may bring about forgetfulness with regard to train orders, or miscalculations may be made and accepted as correct with complete confidence. For these reasons the practice of operating trains at irregular intervals is held by some to introduce a factor of safety because it requires every man to be on the

alert at all times, and it is a well-known fact that practically all the serious accidents in recent years have come about from the lack of alertness rather than from wrong orders or wilful disobedience of orders.

In this connection the discussion of the qualifications of trainmen in interurban service written by an interurban railway manager and published elsewhere in this issue is pertinent. This article describes the duties of the employees in giving good service and also the duties of the company. The men should have certain natural qualifications, both mental and physical, without which they cannot do their work properly. The railway company should establish a thorough course of instruction and should see that discipline and an interest in their work are maintained by the men.

### THE METROPOLITAN PLAN OF REORGANIZATION

Under the proposed plan for reorganization of the Metropolitan Street Railway of New York, which is now before the Public Service Commission of the First District, a total of \$66,305,500 securities would be issued upon a property whose cost is placed by the joint committee of bondholders at more than \$120,000,000. The plan of financing is a radical departure from the involved scheme upon which the old system was developed. It is simple and understandable, whereas the old plan was a criticisable complication of railway and holding company control which obscured the real operations of the property.

As the commission which is to pass upon these securities had indicated so strongly its belief that the law permits it to compel substantial equality between value and capitalization in a reorganization, the margin upon which the committee bases its petition is of particular interest. The published plan did not analyze the elements which compose the cost of \$120,000,000 stated. The committee states, however, that it has been advised by expert engineers and accountants that this sum "has been expended in construction, reconstruction, extension, improvement, betterment and equipment" of the system. It is understood that the valuation that developed this investment was made on behalf of the company, while in the Third Avenue case, previously decided by the commission, the valuation was made primarily by the commission. In each case the figures placed upon the present elements of value were determined after the preparation of inventories of the physical property. Of course, the leading questions involved are not so much those of the inventory of present physical property as those of the reasonable investment in the non-existing physical property which disappeared with the progress of the system from one form of motive power to another and of the fair allowances and reasonable outlay for intangible elements which absorb capital and leave little or nothing to show for it. These matters will be brought out during the hearings to be held by the commission.

The most prominent feature of the plan for the readjustment of securities is the elimination of the equities, if any, of the New York City Railway Company and the Metropolitan Securities Company. The former company had at last reports \$1,761,000 notes and \$13,000,000 outstanding stock. This stock was owned by the Securities company, which in turn had outstanding \$30,000,000 of capital stock on which \$75 per share

was paid in. Of the stock of the Securities company \$29,392,000 was owned by the Interborough-Metropolitan Company. The reorganization plan disposes of over \$40,000,000 of capitalization of the Metropolitan Securities Company and New York City Railway, partly duplicated, and of nearly \$40,000,000 additional securities, or a total of \$80,000,000. Provision is made in the plan whereby, in the readjustment, certain special items shall be met. These include \$4,000,000 improvement notes made by the Metropolitan Street Railway to the Metropolitan Securities Company (which may participate on payment of an assessment) and a possible claim of an additional \$4,000,000 notes; \$1,875,000 allowances to tort claimants; \$10,000,000 cash requirements to meet the outstanding \$6,500,000 receivers' certificates and receivership expenses, reorganization expenses, etc.; and accrued and defaulted interest as of Oct. 1, 1910, \$4,383,250.78. An abstract of the plan of reorganization giving the principal details presented, was published in the issue of the ELECTRIC RAILWAY JOURNAL of Jan. 7, 1911, page 48.

As the plan now drafted provides for the present issue of \$64,851,500 new securities, the net amount of securities held by the public which will remain undisturbed is \$31,454,000. Of the total proposed new securities, plus the undisturbed securities, \$72,647,500 will be of bonds and \$23,658,000 will be stock. That is to say, the proportion of bonds to stock would be about three to one. However, nearly \$40,000,000 of the new bonds would be income securities, bearing interest up to 5 per cent, only when earned, so that the fixed charges would not be mandatory in so large a proportion as this ratio indicates.

For the year ended June 30, 1910, the receivers of the Metropolitan Street Railway reported 159.48 miles of track and total street railway operating revenue of \$13,217,117, of which nearly \$13,000,000 was derived from passenger traffic. In that year the operating ratio was 70 per cent. There was devoted to maintenance, including \$72,000 equipment depreciation reserve, 24 per cent of the total street railway operating revenue. To the other operating expense accounts the following percentages of gross were applied: Power, 6 per cent; injuries and damages, 9.9 per cent; operation of cars, 26.1 per cent; traffic and other general expenses, 4 per cent. The allowances for maintenance are probably greater than those that would be made directly after a period of receivership and upbuilding of the physical property. The report of the receivers showed the following deductions from gross income: Operating rents, \$202,449; miscellaneous contractual deductions, \$5,009; interest, \$590,000, and lease of other roads, \$1,810,661; total, \$2,608,119. The items of interest and lease of other roads show the general bond and dividend payments on securities of underlying companies which have been met during the receiverships. Some of the payments made by the Metropolitan receivers under lease agreements have been withheld by underlying companies in order that their treasuries might be provided with cash surpluses.

With the readjustment suggested under the reorganization it has been estimated by Guy E. Tripp, chairman of the joint committee of bondholders, that the initial earnings will be equal under the plan to between 2½ per cent and 3 per cent on the proposed new adjustment mortgage income bonds.

The financial rehabilitation of the property is an end that is greatly to be desired, and it is to be hoped that the reorganization will be completed without undue delay.

### THE ELECTRICAL EQUIPMENT OF THE DETROIT RIVER TUNNEL—I.

The tunnel which has been constructed under the Detroit River to connect the tracks of the Michigan Central Railroad in the United States with those in Canada has now been in continuous operation for some months for the use of both passenger and freight trains. The electrical equipment of this

capacity of each boat was 18 freight cars, so that three and often four ferry boats were required for many of the trains. This involved many delays. Again, in winter a very considerable amount of time was lost owing to the presence of heavy ice in the river. Under the new conditions a train of any practical length and weight can be hauled through the tunnel in less than 6 minutes.

The scheme of improvements at Detroit comprises the construction of two new depots for the Michigan Central Railway,

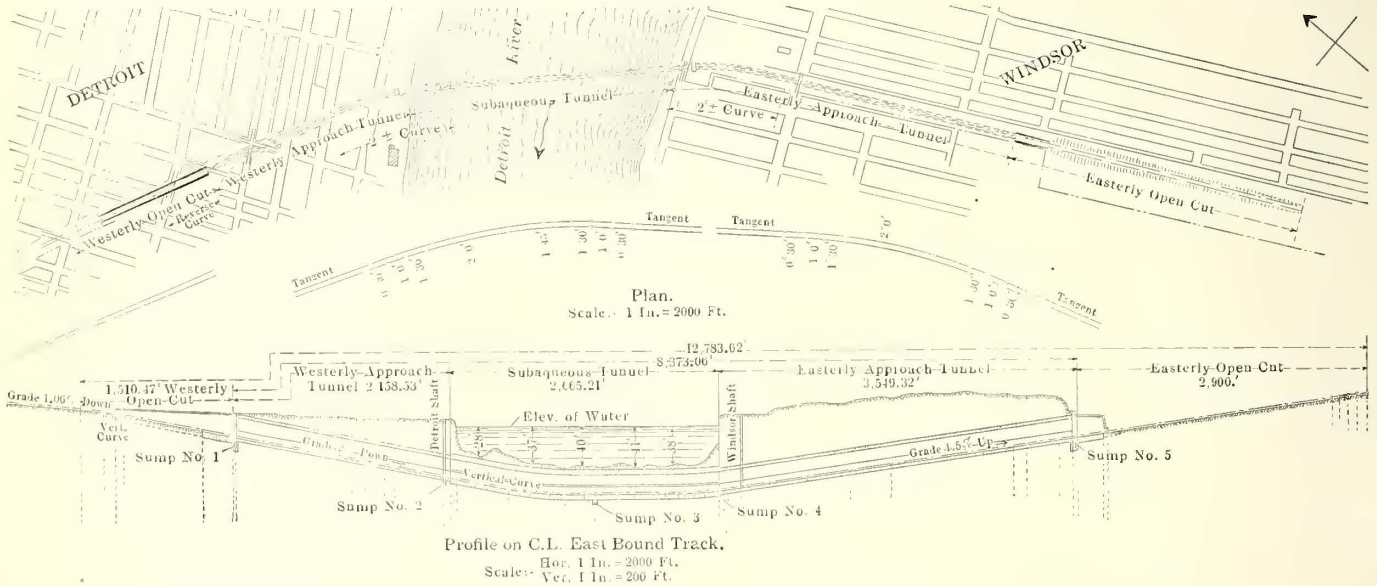


Fig. 1—Detroit Tunnel—Plan of Tunnel and Approaches, with Profile of Eastbound Track

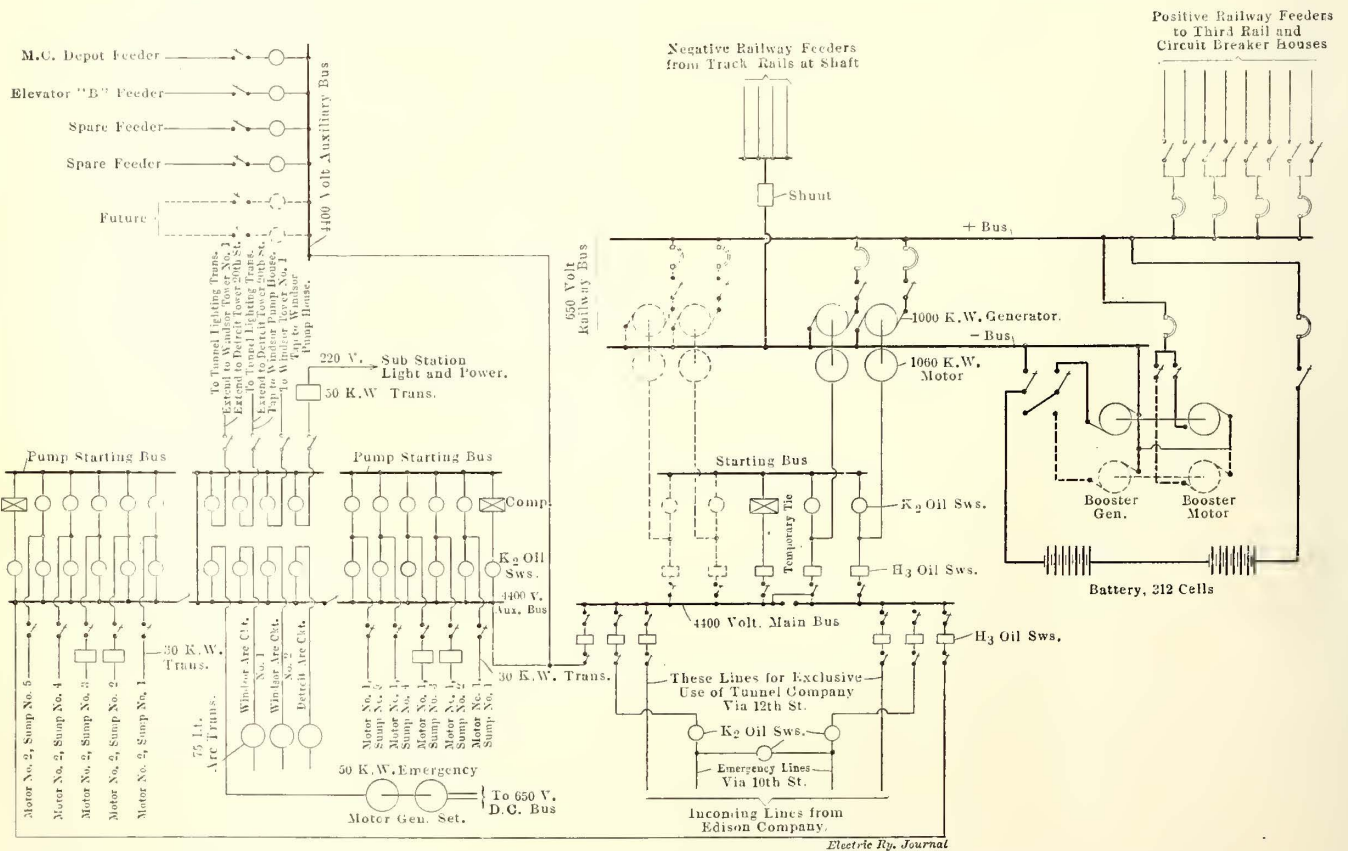


Fig. 2—Detroit Tunnel—Substation Wiring Diagram, Showing Principal Connections

tunnel forms a part of a very comprehensive scheme for improving the railroad facilities in and around Detroit, Mich. The most striking advantage secured is the elimination of the ferries that were formerly depended upon to transfer all passenger and freight trains between Windsor and Detroit.

Under the old conditions each ferry boat took about 30 minutes to load, unload and make the crossing. The average

one at Windsor and the other at Detroit, both conveniently located. The extensive yards on both sides of the river have been reconstructed and electrified, the third-rail layout being of a most extensive nature. These improvements provide for the direct passage of passenger trains between Canada and the United States, with none of the switching which was formerly necessary.

The entire scheme involved the building of a double-track tunnel, the two new depots referred to, a substation, two inspection sheds for the electric locomotives, five signal towers (also used as circuit breaker houses for the third-rail feeders), the reconstruction of the yards on both sides of the river and the electrification of the whole.

It is probable that this electrification will not affect the

the above into consideration, it is of great interest to note the estimated capacity of the tunnel.

The present schedule is for Michigan Central trains only. The average freight car movement per day is about 1100 cars and there are 16 passenger trains. If the foreign roads should desire to use the tunnel and have all their business that is now floated across the river taken through the tunnel it will approxi-



Fig. 3—Detroit Tunnel—View of the Converter Station

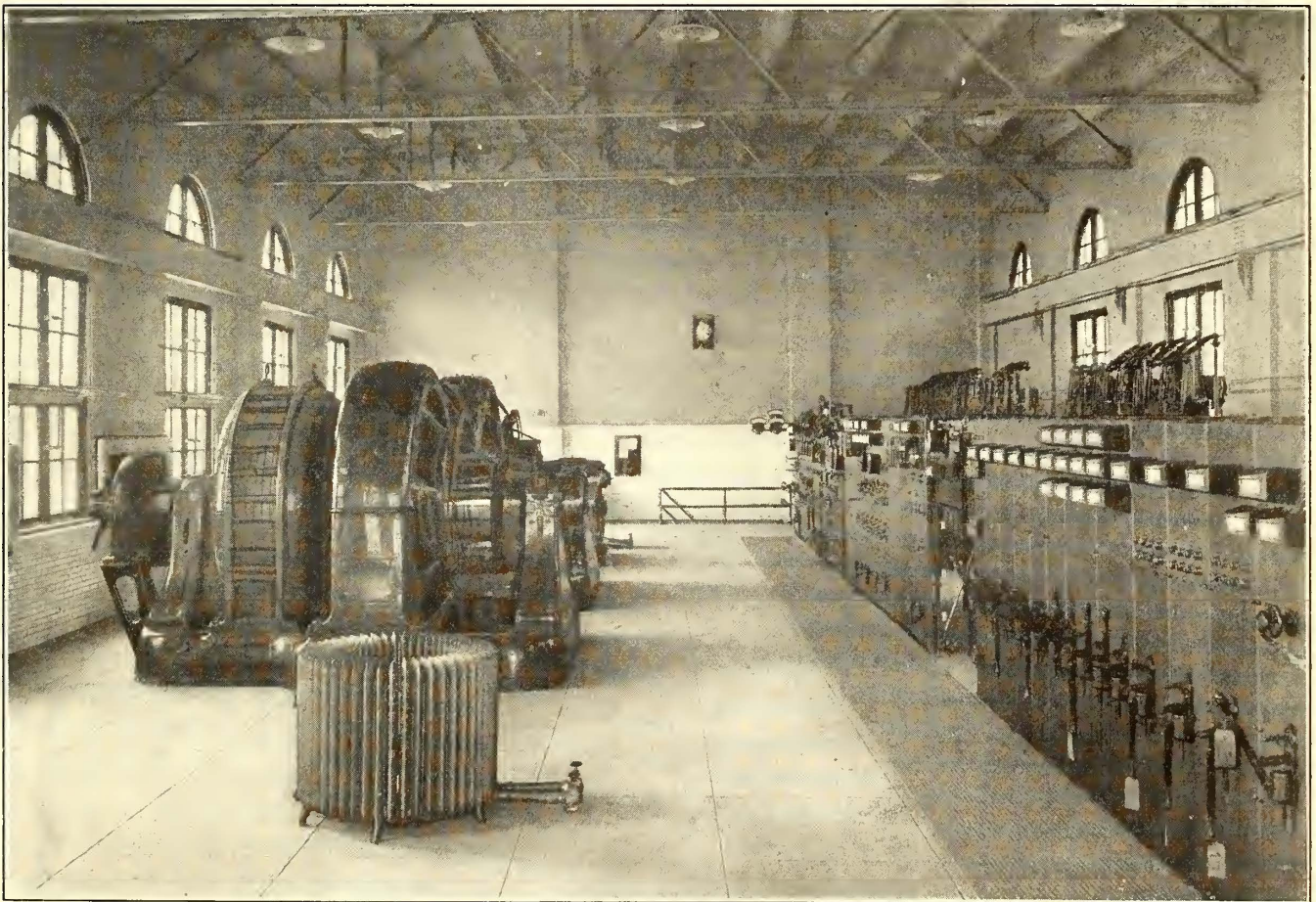


Fig. 4—Detroit Tunnel—Interior of Converter Station, Showing the Motor-Generator Sets

Michigan Central Railway alone, as it seems likely that the other roads entering the United States from Canada and vice versa at this point, including the Canadian Pacific, Grand Trunk, Wabash and Père Marquette, will ultimately make use of the tunnel to expedite the handling of the traffic at this point and to eliminate the serious delays incident to ferrying. Taking

mately double the present schedule in number of trains and tonnage. The total estimated capacity of both tunnels taken together amounts to the enormous figure of 247,200 tons per 24 hours. The tunnel portion is shown in Fig. 1, which gives the principal lengths and grades as well as the localities of the approaches, portals, sumps, etc. The magnitude of the general

layout can best be appreciated by a study of Fig. 2, in which only the more important electric circuits are given.

The broader features of the electrical scheme considered above are of a very simple nature, there being only the one substation. This substation is supplied with three-phase, 60-cycle

installed all of the electrical apparatus in the substation, yards and tunnels, with the exception of the storage battery and the apparatus for regulating the battery.

SUBSTATION

The substation is a very substantial building of concrete and steel faced with red brick. Fig. 3 gives a good idea of its external appearance. It is located close to the Detroit shaft and is only 125 ft. from the center line of the tunnel. It is built on made ground and for this reason is supported on wooden piles. The interior view (Fig. 4), the three sectional elevations (Figs. 5, 6 and 8), the plan of the first floor (Fig. 7) and the longitudinal section (Fig. 9) show very clearly the general arrangement of the building.

The more important items of apparatus installed for traction purposes only are: Two horizontal 1000-kw, 514-r.p.m. synchronous-motor motor-generator sets; one 50-kw motor-generator set, and a storage battery of 312 cells Gould type "U" 1543 and type "U" 1559 L L tanks, with a present capacity of 630 amp for eight hours.

The railway switchboard consists of the following:

- 1 swinging bracket for voltmeters and ammeter.
- 1 control battery panel.
- 1 substation light and power panel.
- 2 blank panels for future railway feeders.
- 4 d.c. railway feeder panels with a capacity 1000 amp at 650 volts each.
- 3 battery panels for switching main battery and booster leads together with necessary switching of battery regulating devices.
- 2 d.c. railway generator panels each with a capacity of 1000 kw at 650 volts.
- 2 combination exciter and 3-phase synchronous-motor panels with a capacity of 1000 kw at 440 volts and 15 kw at 125 volts.
- 1 starting compensator and 2 circuit feeder panels for auxiliary buses with a capacity of 400 kw at 4400 volts for each tie switch circuit.
- 2 blank panels for future synchronous motors.
- 1 swinging bracket for synchronizing instruments.

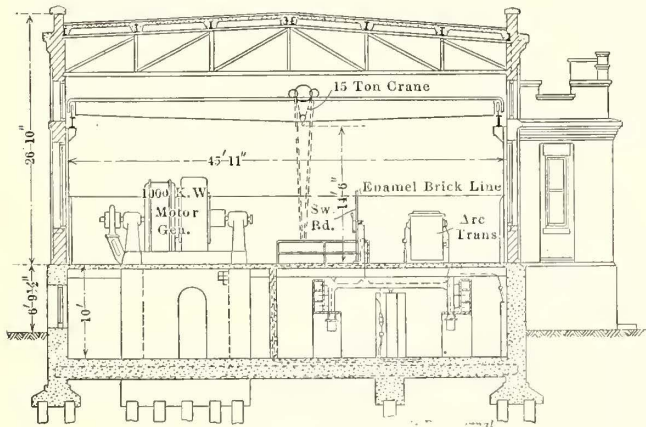


Fig. 5—Detroit Tunnel—Cross-Section of Substation Along Line E-E Shown on Plan

energy at 4400 volts from the Detroit Edison Company. Two feeders are installed between the Delray power house and the substation for the exclusive use of the tunnel company. In addition a third feeder from the Delray power house supplies

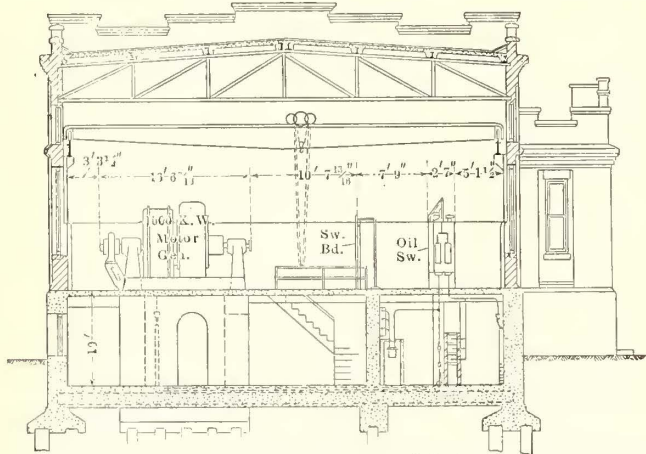


Fig. 6—Detroit Tunnel—Cross-Section of Substation Along Line F-F Shown on Plan

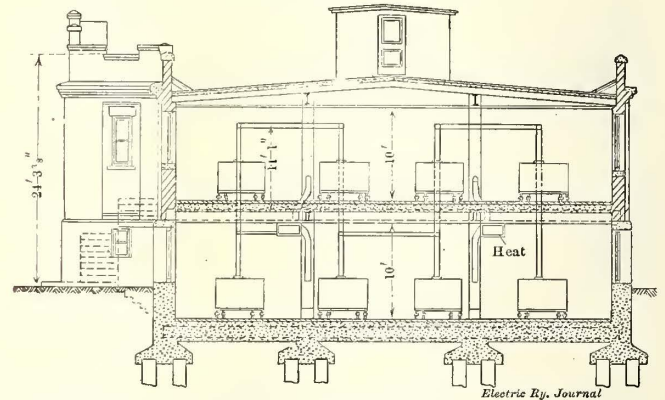


Fig. 8—Detroit Tunnel—Cross-Section of Substation Along Line G-G Shown on Plan

the Washington Street substation of the Edison Company through oil switches in the tunnel substation, so that in case of trouble on the two lines for the exclusive use of the tunnel

Fig. 10 is an illustration of the railway switchboard and the lighting and auxiliary board can be seen to the right of the same illustration, while Figs. 11 and 12 show the back of the board.

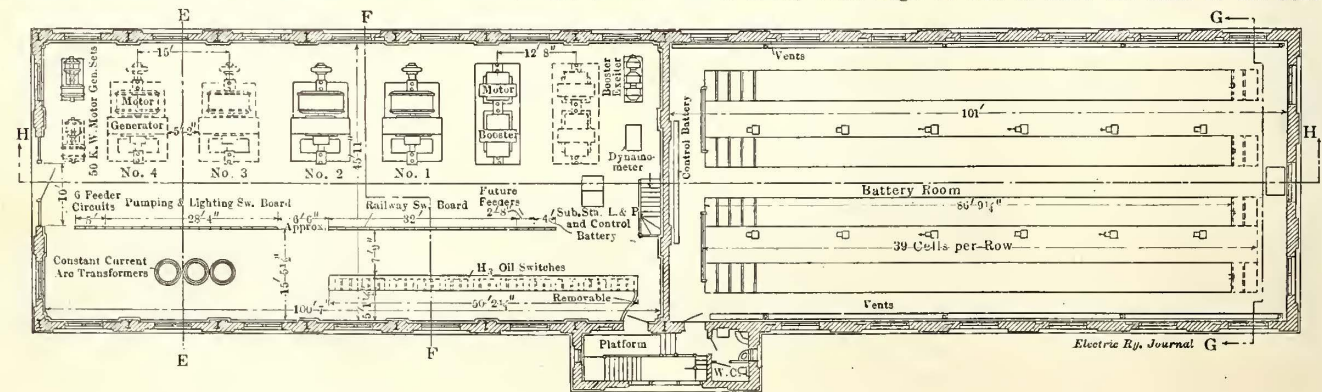


Fig. 7—Detroit Tunnel—Plan of First Floor of Substation

company either or both of the other lines can be switched so as to give the tunnel company a direct feeder from Delray and a back feed from the Washington Street substation. These feeders are run in separate ducts.

The General Electric Company designed, manufactured and

The constant-current transformers used for the arc lighting of the yards are shown in the latter view.

The motor-generator sets each consist of a General Electric alternating-current, three-phase, 14-pole, 1060-kw, 4400-pole synchronous motor, direct-connected to a 1000-kw, 8-pole, 650-volt

direct-current generator. The pair of machines forming a two-bearing set, are mounted on a common base and run at a speed of 514 r.p.m. The shaft is extended at the motor end to accom-

modate a direct-connected exciter. Tests show that the synchronous motors of these sets will come up to synchronism in about 45 seconds on the 35 per cent tap of the compensator. The guarantees provide that these machines shall operate continuously with a temperature rise not exceeding 35 deg. C. at unity power-factor and that they shall carry an overload of 50 per cent for two hours with a temperature rise not exceeding 55 deg. C. The efficiencies are as follows:



Fig. 9—Detroit Tunnel—Longitudinal Section Along the Line H-H on the Plan of Substation

modate a direct-connected exciter. Tests show that the synchronous motors of these sets will come up to synchronism in about 45 seconds on the 35 per cent tap of the compensator. The guarantees provide that these machines shall operate continuously with a temperature rise not exceeding 35 deg. C. at unity power-factor and that they shall carry an overload of 50 per cent for two hours with a temperature rise not exceeding 55 deg. C. The efficiencies are as follows:

	Half Load.	Three-quarter Load.	Full Load.
Guaranteed .....	91	93	94
Test .....	92	94.1	95.3

The direct-current machines are shunt-wound units designed to operate in parallel with the storage battery. They have commutating poles and also auxiliary shunt fields which are separately excited from the storage battery booster and play an important part in the scheme for regulating the load. The auxiliary winding is of such strength that when the generator is operating under normal load at 650 volts the voltage can be raised to 700 or reduced to 575, so that it can be used for either charging or discharging the battery. The regulating devices will be considered in fuller detail in the latter part of the present article. These motor-generator sets are seen

driving the set from the main storage battery in case of total shut-down of the Edison lines. In this manner one-half of the tunnel lighting, a small amount of pumping, signal lights and

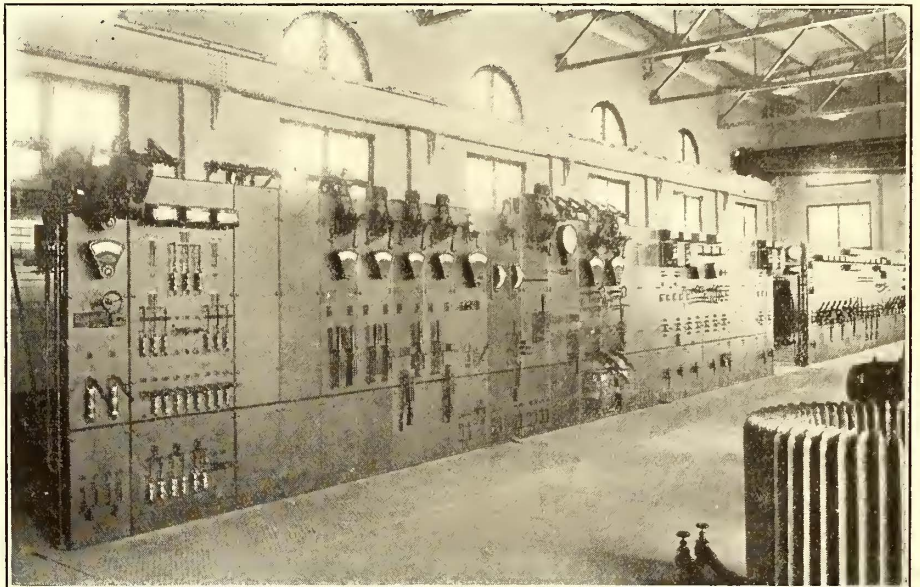


Fig. 10—Detroit Tunnel—Main Switchboard

signal track transformers can be operated, while the railway load would be carried on the main battery.

The main items of interest in the auxiliary apparatus are:

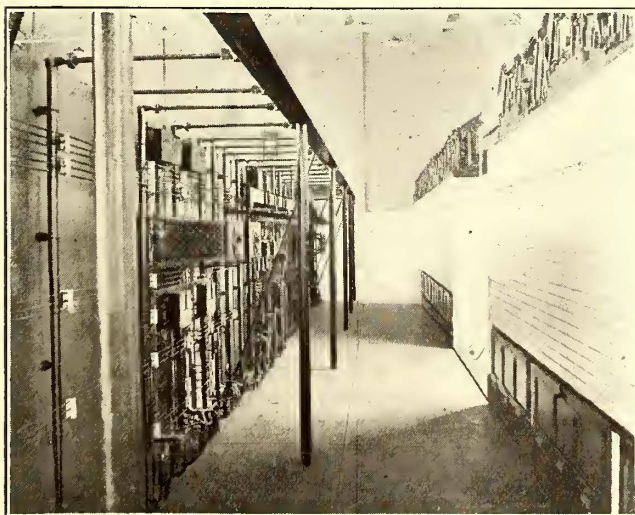


Fig. 11—Detroit Tunnel—Rear of the Main Switchboard in Substation

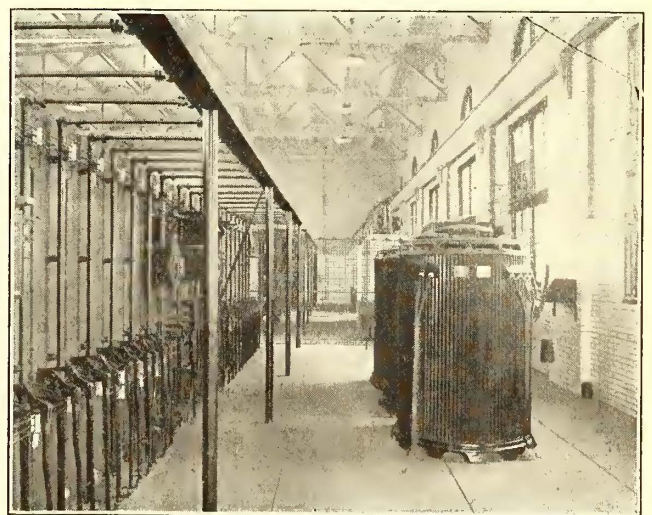


Fig. 12—Detroit Tunnel—Constant-Current Transformers Back of Main Switchboard

in the general view of the interior of the station (Fig. 4).

The 50-kw motor-generator set consists of a 75-hp, 650-volt shunt-wound d.c. motor direct connected to a 50-kw, 4400-volt,

Three 75-light constant-current transformers for yard lighting, one substation lighting transformer and the switchboard for controlling the auxiliaries in the substation yards and tunnel.

Each of the four three-phase incoming lines is of 200,000 circ. mil capacity, and delivers the energy to the substation at 4400 volts, 60 cycles, each lead passing through an H-3 oil switch to the 4400-volt main substation bus, which is sectionalized so that either half can be made dead when necessary for inspection or repairs.

It should be noted that the starting bus is fed from the main bus through an H-3 oil switch and a compensator, thus giving a lower voltage for starting. The leads from the main bus to the starting bus pass through both H-3 and K-2 oil switches,

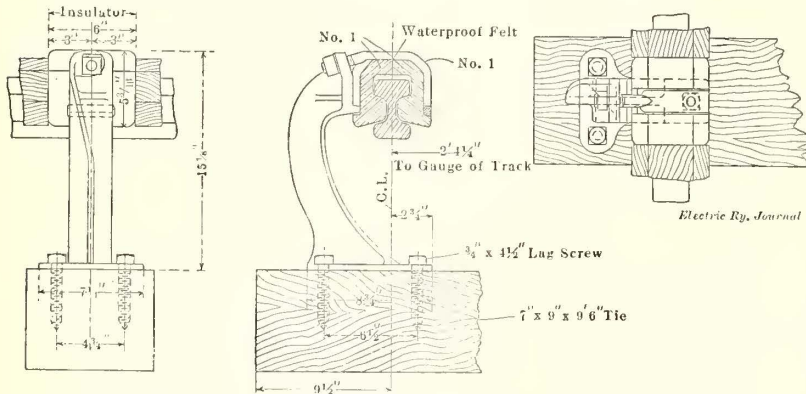


Fig. 13—Detroit Tunnel—Under-running Third Rail

while the leads to the machines are taken from a point between these two switches. Hence, in starting when the K-2 switch is closed a lower voltage is impressed on the machines, and when speed is attained the K-2 switch is opened and the H-3 switch closed, giving full voltage at the machine. These switches are inter-connected to eliminate improper operation.

From the d.c. end of the machines the energy is fed directly through circuit breakers to the 650-volt d.c. bus, passing through recording wattmeters en route. The negative feeders from the track rails to the negative bus and the different third-rail feeders pass through circuit breakers and switches to the respective feeding points. The most essential details of the booster and battery connections will be dealt with in greater detail in the second article.

There are four auxiliary buses, two for the sump pump equipment, one for lighting and the fourth auxiliary bus for miscellaneous purposes. The two sump pump buses are duplicates, the second being installed to insure continuous operation under

station and in all other cases high-tension feeders are taken from the substation to the sump chambers.

The lighting bus is of a simple nature, each lighting feeder simply passing through a K-2 oil switch to its respective field of duty. In the case of the yard lighting the 75-light constant current transformers are located in the substation, while the feeders for the incandescent lighting of the tunnel, etc., are taken to transformers located at convenient points. A 50-kw transformer located in the substation reduces the potential to 220 volts for the substation lighting and power. The 50-kw emergency motor generator set already described feeds into this lighting bus.

The auxiliary bus for miscellaneous purposes provides for the lighting of the Michigan Central Depot, grain elevators in the railway yards, the necessary light and power for both the Detroit and Windsor yards, as well as providing for future requirements.

The substation is equipped with an overhead travelling crane built by the Northern Engineering Works.

THIRD RAIL

The entire third-rail layout has a very neat appearance and is complete in every detail. The length of the third rail installed in the tunnel approaches and yards when reduced to a single track basis exceeds 19 miles. The third rail employed is of the bullhead form and weighs 70 lb. a yard.

It was supplied by the Lackawanna Steel Company and its chemical composition is as follows:

Carbon .....	0.10
Manganese .....	0.40
Silicon .....	0.05 or less
Phosphorus .....	Not to exceed 0.10 and as much less as possible.
Sulphur .....	Not to exceed 0.08 and as much less as possible.

It is rolled in lengths of 30 ft. and 33 feet. It is of the under-running type, and in this and in other details it is similar to the third rail of the New York Central Terminal electrification. The wood protection is of Georgia and Carolina long-leaf yellow pine, made in lengths of 10 ft. and 12 ft.. The form and dimensions for both straight work and special work, such as inclines, etc., will be seen in Figs. 13 and 14. The brackets for supporting the third rail are of malleable iron.

The third-rail insulators are of the vitrified and glazed porcelain. The specifications call for an insulation resistance of

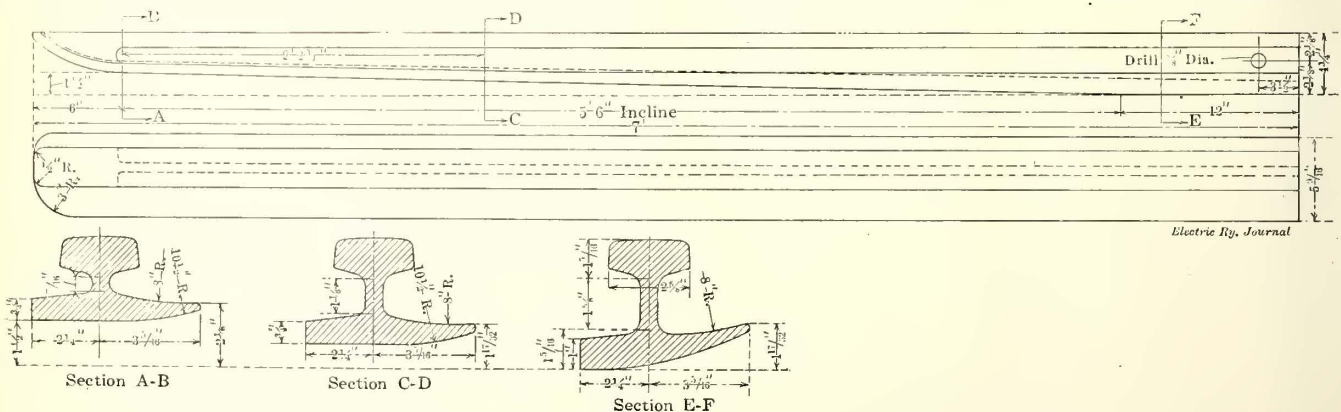


Fig. 14—Detroit Tunnel—Plan and Section of Third-Rail Incline

all circumstances. These two pumping buses and the lighting bus are at a potential of 4400 volts and are provided with connecting switches. They are fed from the main substation bus through H-3 oil switches. The starting bus for the pump motors is fed through a K-2 oil switch and compensator and the arrangements are so similar to those already described for the main machine buses that further description is unnecessary, the only exception being that in this case both of the oil switches in each lead between the bus and the starting bus are of the K-2 type. It should be noted that in the case of Sump No. 2 and Sump No. 3 the transformers are located in the sub-

station and in all other cases high-tension feeders are taken from the substation to the sump chambers. The lighting bus is of a simple nature, each lighting feeder simply passing through a K-2 oil switch to its respective field of duty. In the case of the yard lighting the 75-light constant current transformers are located in the substation, while the feeders for the incandescent lighting of the tunnel, etc., are taken to transformers located at convenient points. A 50-kw transformer located in the substation reduces the potential to 220 volts for the substation lighting and power. The 50-kw emergency motor generator set already described feeds into this lighting bus. The auxiliary bus for miscellaneous purposes provides for the lighting of the Michigan Central Depot, grain elevators in the railway yards, the necessary light and power for both the Detroit and Windsor yards, as well as providing for future requirements. The substation is equipped with an overhead travelling crane built by the Northern Engineering Works. The entire third-rail layout has a very neat appearance and is complete in every detail. The length of the third rail installed in the tunnel approaches and yards when reduced to a single track basis exceeds 19 miles. The third rail employed is of the bullhead form and weighs 70 lb. a yard. It was supplied by the Lackawanna Steel Company and its chemical composition is as follows: Carbon 0.10, Manganese 0.40, Silicon 0.05 or less, Phosphorus Not to exceed 0.10 and as much less as possible, Sulphur Not to exceed 0.08 and as much less as possible. It is rolled in lengths of 30 ft. and 33 feet. It is of the under-running type, and in this and in other details it is similar to the third rail of the New York Central Terminal electrification. The wood protection is of Georgia and Carolina long-leaf yellow pine, made in lengths of 10 ft. and 12 ft.. The form and dimensions for both straight work and special work, such as inclines, etc., will be seen in Figs. 13 and 14. The brackets for supporting the third rail are of malleable iron. The third-rail insulators are of the vitrified and glazed porcelain. The specifications call for an insulation resistance of 10 megohms from hook-bolt slot to rail slot after immersion in water for 72 hours, and an insulation resistance of not less than 0.20 megohms when subjected to a precipitation of 3/8 in. of water per minute. A compression test of 85,000 lb. and a tensile strength of 1400 lb. are also called for, in addition to an impact test. The latter consists of dropping a 3/4-lb. steel ball from a height of 30 in. The insulator standing 100 such blows is rated as 100, and others according to the number of blows withstood. Test insulators are taken from each delivery, and none are accepted that show fracture after less than 40 blows. The insulators are of Ohio Brass manufacture.



The third-rail jumpers are inclosed in lengths of iron pipes buried in the ground with the ends brought above the surface by a curvature which will permit of drawing the cables with ease. This pipe is held in position against wooden anchor posts by means of U-bolts. A cast-iron flange screwed to the end of the pipe furnishes a steady and level support for the lower half of the semi-porcelain cover. The end of the cable is insulated and held in position and moisture is excluded by a split bushing made of hard maple and by filling the annular space between the cable and porcelain with an insulating compound. Finally this compound is retained and the cable held in a central position by a metal flange screwed to the copper terminals soldered to the end of the cable. The whole is protected from mechanical damage and weather by the upper half of the semi-porcelain cap. All these details will be seen by reference to Fig. 15, part of which also shows the cable terminal details between the jumpers and third rail.

The clearances of the third rail are as follows: On tangents and curves of over 800 ft. radius the distance between the center line of the third rail to the inner edge of the nearest track rail is 2 ft. 4 1/4 in., while on curves of 800-ft. radius and less it is 2 ft. 6 1/4 in., while the distance between the under surface of the third rail and the upper surface of the track rails is 2 3/4 in.

June 19, 1909, page 1125. The specifications call for units capable of handling an 1800-ton trailing load from one yard to the other and negotiating a 2 per cent grade when two locomotives are operated in multiple unit, and of performing this service continuously with a 15-minute lay-over at each end. It is of interest to note that the locomotives are performing this service in a most satisfactory manner. The actual grades on which they are operating are 2 per cent on the Detroit side, extending

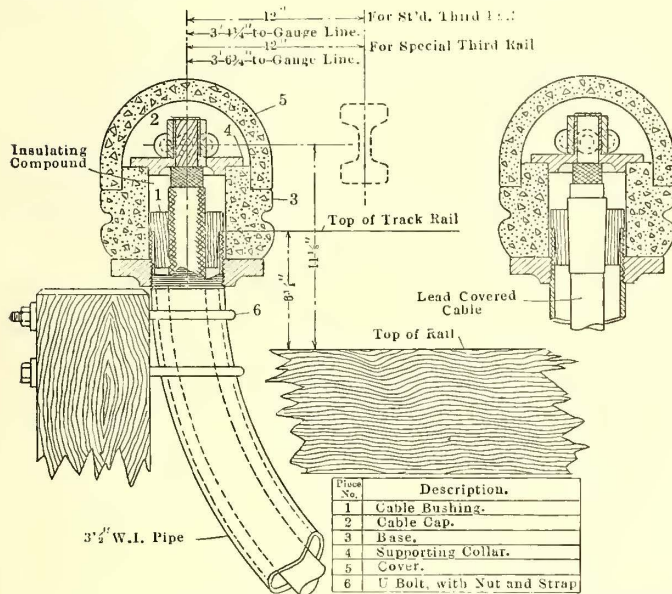
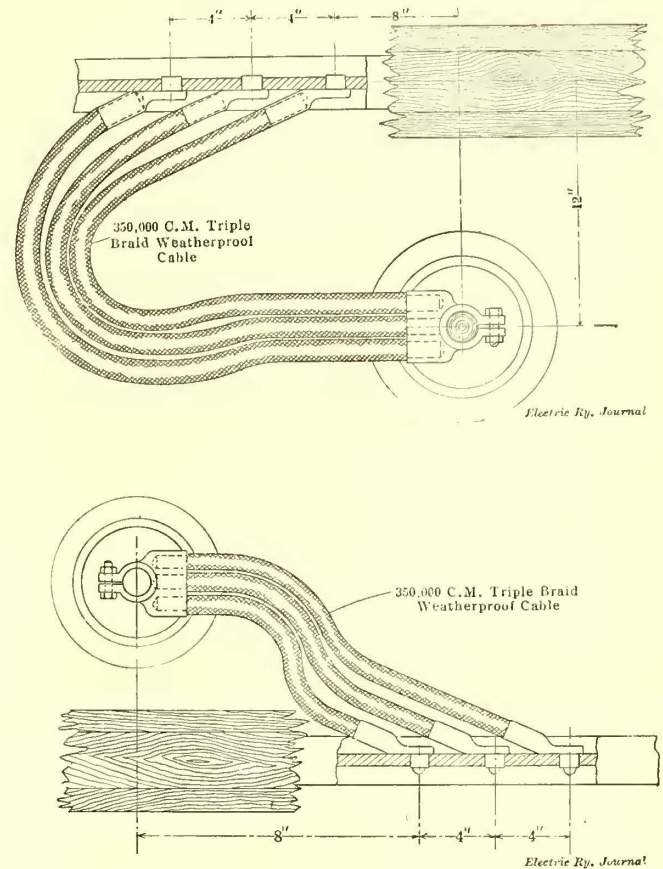


Fig. 15—Detroit Tunnel—Terminal Insulation and Other Details of Third-Rail Cables

LOCOMOTIVES

At present there are six electric locomotives in service. They were designed and manufactured by the General Electric Company, and the Schenectady Works of the American Locomotive Company built the mechanical equipment. These locomotives have attracted general attention owing to the fact that they



for a distance of 4000 ft.; 1 1/2 per cent on the Windsor side for a distance of 7500 ft., and an approximately level extension into the yards. Fig. 17 shows the appearance of these locomotives, and Fig. 19 shows the principal dimensions.

The GE-209 motors are standard box frame commutating pole units rated at approximately 300 hp each. Single reduction

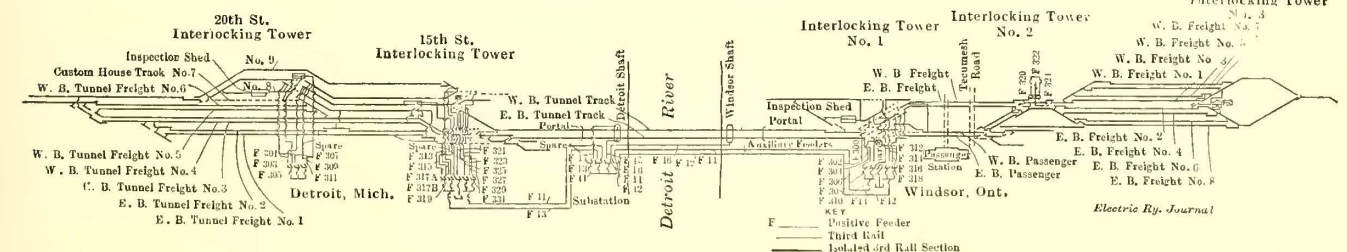


Fig. 16—Detroit Tunnel—Layout of Third-Rail Feed and Jumper Connections

are the most powerful direct-current machines ever constructed, so far as tractive effort is concerned. They were designed for hauling both freight and passenger trains through the tunnel, and also for switching service in the yards. They are of an articulated design of the 0-4-4-0 type, weigh 200,000 lb., and are equipped with four GE-209 motors. Full particulars of them were published in the ELECTRIC RAILWAY JOURNAL for

gearing is used, the gear ratio being 4.37 and the driving wheels 48 in. in diameter. This type of motor is illustrated in Fig. 20. When working at a maximum capacity the motors are capable of slipping the driving wheels and at the slipping point of the wheels the locomotive develops an instantaneous tractive effort of from 50,000 to 60,000 lb. When developing a tractive effort of 50,000 lb. the locomotive develops 1450 hp,

and its speed is 11 m.p.h. The maximum speed of the locomotive when running light on level track is about 35 m.p.h.

A point of interest in these locomotives is that they are provided with two gears and pinions per motor, one at each end

cab and the motor contractors in the auxiliary cab. The master controllers are of the General Electric Company's new design, especially developed for handling four GE-239 commutating pole motors. Each controller has 24 points, 9 for use when the motors are all in series, 8 when the motors are two in series (the pairs in parallel) and 7 when all four motors are in parallel. The ninth, seventeenth and twenty-fourth points are running points. A diagram of the motor connections is given in Fig. 21.

This large number of steps and the fine subdivision of the rheostat enable the torque on the first running point to be reduced to a low value, which is a very desirable factor in handling long, heavy freight trains, where it is necessary first to take up the slack in the drawbars. It also gives a smooth acceleration over the bridging points on the control; further, it reduces the increase of torque between each successive step to such a low value as to enable the locomotive to work up to a high tractive effort while accelerating a train under adverse conditions without exceeding the slipping point of the wheels in the transition from point to point.

A centrifugal governor brake makes it impossible to throw the controller from the "off position" to the full "on position" in less than a predetermined time.

The braking equipment is mechanically independent on each

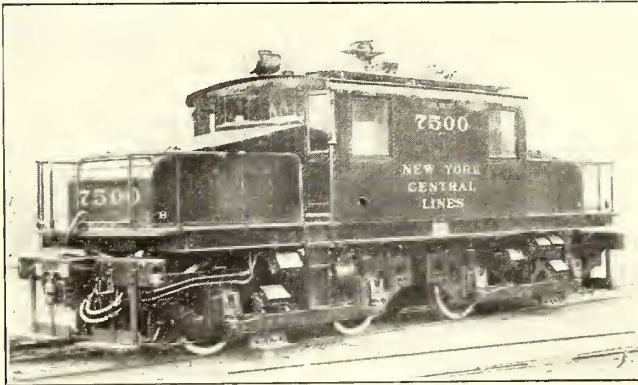


Fig. 17—Detroit Tunnel—Standard Locomotive of the shaft. This construction was adopted owing to the unusually heavy overloads that the motors will be called upon to carry. This form of construction maintains the armature

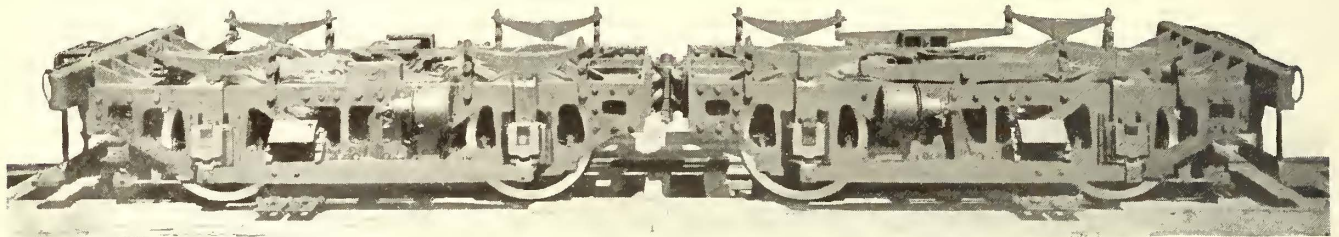


Fig. 18—Detroit Tunnel—Assembly of Locomotive Trucks and Motors

shafts and axles absolutely parallel with one another and to a very great extent eliminates the wear and breakage of pinions.

The motors are operated under forced ventilation, air being delivered to the motor frame at the end remote from the com-

mutator. The air passes between the field coils and armature, and then escapes through suitable discharge openings over the commutator. The blower employed has a capacity of 2000 cu. ft. of air per minute, at a pressure of 2½ in. of water. It is driven by a direct-current, series-wound motor.

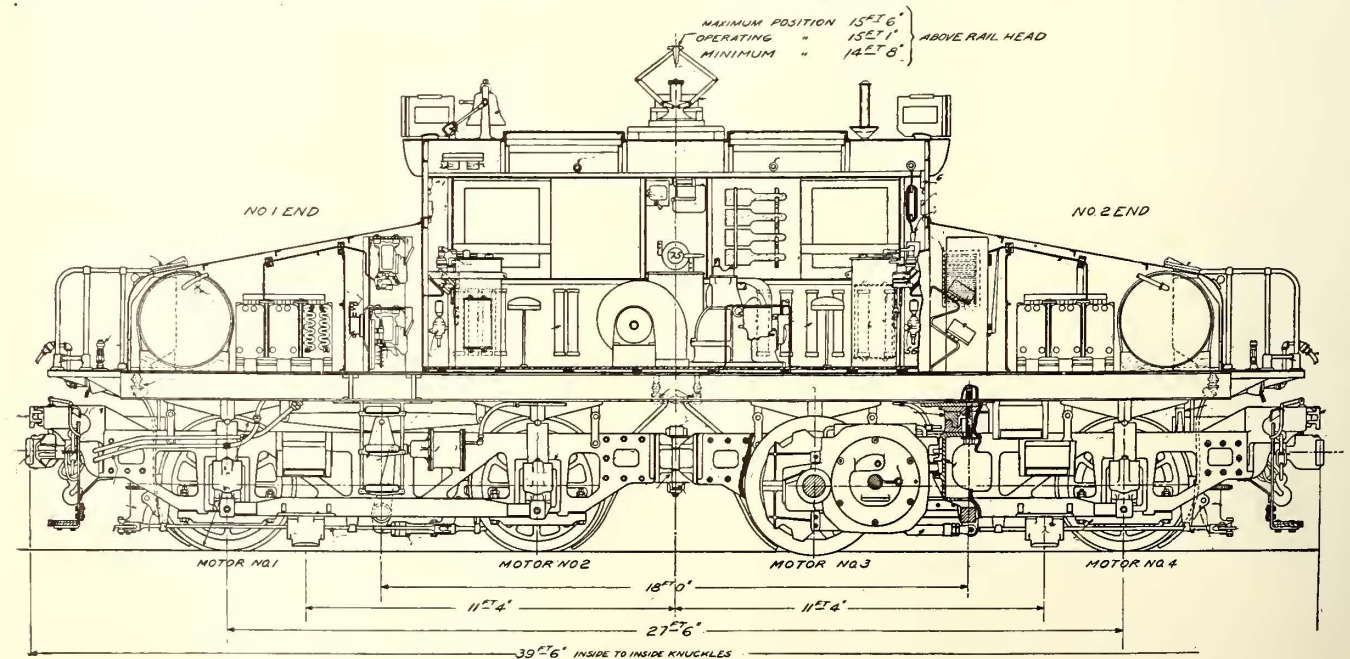


Fig. 19—Detroit Tunnel—Location of Apparatus on Locomotive

mutator. The air passes between the field coils and armature, and then escapes through suitable discharge openings over the commutator. The blower employed has a capacity of 2000 cu. ft. of air per minute, at a pressure of 2½ in. of water. It is driven by a direct-current, series-wound motor.

The control is of the well-known Sprague-General-Electric multiple unit type with the two master controllers in the main

center of the main cab. It is a two-stage, four-cylinder compressor geared direct to a 600 volt d.c. series motor, and has two low and two high pressure cylinders arranged in such a manner as to divide the work of compression into four equally distributed impulses per revolution. The capacity is 100 cu. ft. piston displacement per minute when pumping against a back pressure of 135 lb. per sq. in.

The general design of the superstructure of the locomotive will be seen by reference to the illustrations. The main cab houses the master controller, auxiliary controlling apparatus, blower and air compressor, etc., while the auxiliary cab contains the motor, control, contactors, rheostats, air tanks, etc. The design is such that an excellent view of the track is obtained from the engineer's seat. The main cab covers a floor area of 15 ft. 6 in. x 10 ft., while each of the auxiliary cabs

Maximum height, trolley retracted.....14 ft. 8 in.  
 Maximum width.....10 ft. 2 5/8 in.  
 Width of cab.....10 ft. 1 5/16 in.  
 Total weight.....199,000 lb.

At the present time only four locomotives are in service at a time, the other two being in reserve. The locomotives start the train from rest in the yards and on the down grade in the tunnel the train attains full speed and is running free when the level subaqueous section is reached. The controller is here put to the full-on position and the load is automatically taken on the up grade at the other end of the tunnel.

NOTE.

The second article on the electrification of the Detroit River tunnel will contain descriptions of different auxiliary features, such as the pumping equipment, the lighting system, tunnel construction details and the method of regulating the load by means of booster sets, storage batteries, permutator, etc

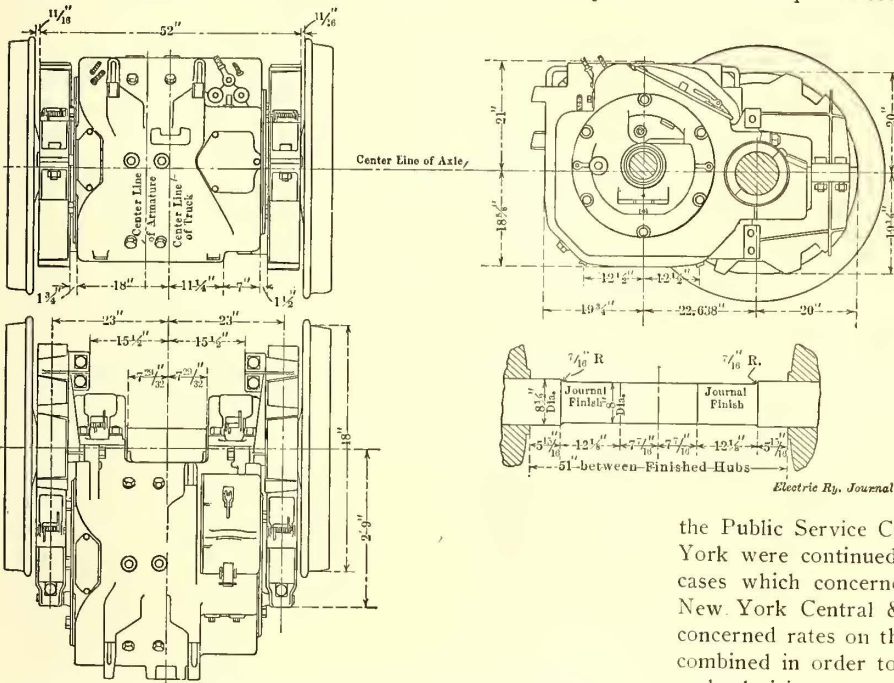


Fig. 20—Detroit Tunnel—GE-209-A Railway Motor

occupies a space of 9 ft. x 6 ft. The running gear is illustrated in Fig. 18. It will be seen that it consists of what may be termed two trucks of the locomotive type coupled together by a massive hinge. This coupling is so designed as to enable the rear truck to resist any tilting tendency of the forward truck. In this manner the articulated running gear has lateral flexibility and at the same time possesses vertical rigidity.

In addition to the third-rail shoes these locomotives are equipped with an overhead current collector which is raised or

lowered at will by a foot-operated valve in front of the motor-man.

NEW YORK RATE HEARING

The hearings in regard to commutation rates on the railroads operating out of New York which are being held by

the Public Service Commission of the Second District of New York were continued before that body on Jan. 4, 1911. Two cases which concerned rates on the Hudson Division of the New York Central & Hudson River Railroad and two which concerned rates on the Harlem Division of that company were combined in order to expedite the investigation and permit an early decision.

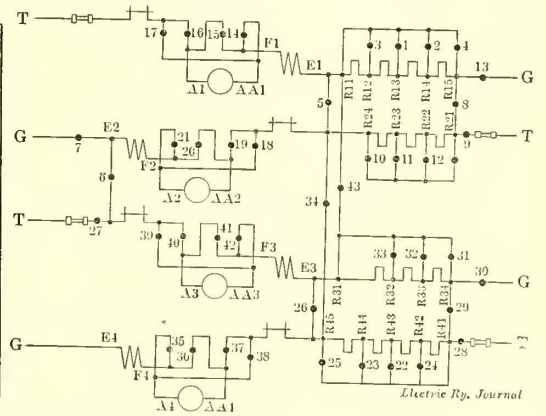
Only those who were directly interested in the case were in attendance. The testimony presented was practically a repetition of evidence introduced at previous hearings. The most important evidence offered at the session on Jan. 4, 1911, was presented by Howard Ingersoll, assistant general manager of the New York Central & Hudson River Railroad. He stated that the cost per car mile in the commutation zone of the Harlem and Hudson divisions was 18.586 cents in the last fiscal year. Earnings per mile were 22.6 cents. Electrification on both divisions north of Mott Haven Junction had cost the company \$9,050,000. This amount did not include elimination of

Contactors Closed on Each Step

Steps	Contactors																																																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43						
Series 1A																																																	
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F = Forward R = Reverse

Fig. 21—Detroit Tunnel—Diagram of Controller Connections



lowered at will by a foot-operated valve in front of the motor-man.

The following table gives the principal details concerning these locomotives:

Number of motors.....	4
Gear ratio.....	4.37
Number of driving wheels.....	8
Diameter of driving wheels.....	48 in.
Total wheel base.....	27 ft. 6 in.
Rigid wheel base.....	9 ft. 6 in.
Length, inside knuckles.....	39 ft. 6 in.
Length of main cab.....	15 ft. 6 in.
Height of cab.....	12 ft. 6 in.
Maximum height, trolley up.....	15 ft. 6 in.

grade crossings nor of other work not directly associated with the change of motive power. The total cost of electrification to Croton on the Hudson and to North White Plains on the Harlem division would be \$23,550,000. This would be actual outlay of cash for labor and material. The train revenue in the suburban service was 118 per cent of the operating expense. The increases in wages on the electric division last April represented an annual outlay of \$110,000.

At the conclusion of the examination of Mr. Ingersoll the hearing was adjourned.

## PROPOSED STANDARDS DISCUSSED BY CENTRAL ELECTRIC RAILWAY COMMITTEE

The standardization committee of the Central Electric Railway Association held two sessions at Indianapolis on Jan. 6, at which the following members of the committee were present: H. H. Buckman, chairman; R. M. Hemming, W. H. Evans, L. W. Jacques and W. P. Graydon. The sessions were attended also by representatives of manufacturing concerns.

### STANDARD AIR BRAKES

Mr. Buckman announced the desire of the committee and the association for the adoption of one type (single or automatic) of air brake. Mr. Graydon favored the use of automatic air-brake equipments for single units as well as train operation. It was easier to teach a man how to make proper stops with straight air brakes, but automatic brakes gave several additional benefits and might be operated just as smoothly on single cars when the motorman became accustomed to handling them. Mr. Jacques said that automatic air brakes had been used on some of the Fort Wayne & Wabash Valley cars for three or four years. At first, and when these equipments were operated singly, there was some trouble from jerky stops, but now little criticism could be made, except when the cars were handled by new men. These automatic brakes would interoperate with those on steam roads. S. D. Hutchins, Westinghouse Traction Brake Company, stated, on request, that the standard sizes for brake pipes on steam railroad passenger cars were 1 in. and on freight cars were 1¼ in. One member of the committee said that a steam road had refused to accept one of his freight cars because it had 1-in. air hose.

On invitation of the chairman Mr. Hutchins outlined some of the features controlling the choice of automatic air brakes for electric cars. Probably the most important reason leading to their adoption, other than that of safety, was the desire and need for interchange of equipment with other interurban railways or steam railroads. The word "automatic" designated the brake as self-acting, and thus meant increased safety of operation, even though the cars were handled by new men. It was impossible with automatic air to render the brakes inoperative by the loss of the supply pressure. The triple valve now used in electric car service was a refinement of that used on steam roads to permit the comfortable handling of single-car service. When Mr. Hutchins first took up work in the electric field he installed on some electric cars automatic air brakes which had proved satisfactory for steam railroad service. Service showed, however, that these brakes lacked the flexibility so necessary for interurban conditions, hence they had to be replaced by straight air-brake equipment, pending the development of the later type of triple valves. Mr. Hutchins said that about 70 per cent of the interurban roads in Ohio had equipped or were equipping cars with automatic air brakes.

A. L. Neereamer pointed out the trend of public sentiment toward greater safety in railway operation. He read the following sections from House Bill No. 145, passed on May 10, 1910, by the General Assembly of the State of Ohio:

"Be it enacted by the General Assembly of the State of Ohio:

"Section 1. That from and after Jan. 1, 1913, it shall be unlawful in the State of Ohio for any corporation, company, person or persons owning or controlling the same, to operate, use or run, or permit to be run, used or operated for carrying passengers or freight on an urban or interurban railroad or street car line any car propelled by electricity not equipped, in addition to the hand brake in use on such car, with an air or electric power brake or apparatus capable of applying to all the brake shoes or wheels of such car a maximum permissible braking pressure and of automatically reducing such braking pressure as the speed of the car decreases. Fifty per cent of such cars to be equipped prior to Jan. 1, 1911, and 75 per cent prior to Jan. 1, 1912. It shall be the duty of the Railroad Commission of Ohio to enforce this act.

"Section 2. Any corporation, company, person or persons operating, using or running any car, or permitting any car to

be operated, used or run, in violation of any of the provisions of this act shall be liable to a penalty of \$100 for each such violation, to be recovered in a suit or suits which it shall be the duty of the prosecuting attorney of any county where such violations shall have been committed to prosecute, such suit or suits to be brought by such prosecuting attorney upon verified information being lodged with him of such violation having occurred."

H. S. Ransom, General Electric Company, stated that only one or two electric roads in New York State regularly operated single cars with automatic air brakes. There it was the practice to use straight air equipments with the emergency features for trains up to three cars. This practice had been brought about, no doubt, because the automatic equipments were more complicated and cost somewhat more to maintain. Certain features, also, like release, were slow. With the straight air a motorman could handle a train more easily and the emergency feature gave assurance of safety. Such brakes, however, were not interchangeable with those on steam trains.

Mr. Hutchins pointed out that the steam railroads have found it advisable to install straight air brakes on all heavy locomotives so that they may be handled easily when switching and so that the driver brakes may be released to prevent skidding.

Mr. Buckman spoke of air-brake troubles caused by freezing. Last winter such troubles had at times caused interference with the operation of about 20 cars. The probability of freezing troubles seemed to have been removed by the installation of a 36-ft. coil of 1-in. pipe placed between the two reservoirs. Mr. Jacques said that his automatic brakes had the feed valves installed inside the cars. He recalled but one failure of automatic brakes on his road and that, while not serious, was caused by the knocking off of an auxiliary valve while the car was in operation.

Mr. Hemming summed up the discussion on straight and automatic air-brake equipment and expressed his views on the need for adopting braking equipments which would provide for full interchange between electric and steam roads. He thought that automatic air brakes should be recommended for adoption. The committee then discussed the proper form of recommendation that it should make to the association. The following wording, proposed by Mr. Evans, met with the approval of the committee:

"The committee recommends the adoption of the automatic system of air-brake equipment for electric interurban railway service. In all essential features of detail this system should conform so far as possible to the standards and operating practices of the steam railroad equipments."

The discussion leading up to this recommendation showed that the consensus of opinion was that all interurban cars conforming to M. C. B. standards should have 1¼-in. train pipes and hose on freight cars and 1-in. on passenger and baggage cars; also that the passenger and baggage cars should be equipped with conductors' emergency valves with operating cords extending the full length of each car.

### CONDUCTOR'S EMERGENCY VALVE

Mr. Buckman described the conductors' emergency valves which were used on all cars on the Louisville & Northern. The valves were installed in an out-of-the-way place and were operated by a cord extending from end to end of each car. This cord was installed close to the deck rail so that it might not be pulled accidentally. Only once in three years had he known of a car having been stopped by a passenger with the conductor's emergency valve and, in contrast, the valve and cord had saved a considerable number of minor accidents. The valve was used by the conductors in some instances when they were in the middle of a car and observed that some excited or incompetent passenger was about to jump from the rear platform. The use of the emergency valve also had saved the splitting of several switches because the conductor riding on the rear step could quickly set the brakes by pulling the cord and thus prevent a car from splitting a switch.

Mr. Hutchins did not think that the possibility of passengers mistaking the conductor's emergency cord for the bell cord should outweigh the many advantages which the conductor's valve offered. Mr. Buckman thought that the committee should recommend the more general use of these valves, and he favored the type which locked itself open and required the attention of the crew before it could be closed.

#### SAFETY CUT-OUT COCK

Some members favored the addition of a cut-out cock back of the flexible hose in the train line, this cock to be provided with means for operating from the side of the car. It would be an addition to the angle cock. Mr. Evans argued against cut-out cocks from the standpoint of decreased safety. Mr. Hutchins told of the former practice on one steam road of placing cut-out cocks for the front hose back of the cylinder saddle. If a locomotive did not happen to get into double-header service for six months the unions between the cut-out cock and the hose might become loose and cause trouble when two locomotives were coupled. This experience resulted in an order for the installation of cut-out cocks at the front end. Mr. Hutchins spoke of the reasons calling for the design of the present form of angle cock which hardly could be closed when accidentally struck by flying stones, as had been the experience with the older forms of valves having handles in the vertical position.

Mr. Jacques said that the addition of cut-out cocks back of the flexible hose might be advisable because with them it still would be possible to use the brakes on a motor car even though the hose had burst.

#### PLANS FOR COMMITTEE WORK ON AIR BRAKES

Mr. Evans thought that the committee should lay down the principal requirements of an air-brake system rather than spend time on details that might be governed largely by local conditions. The committee also should endeavor to induce the manufacturing companies to standardize individual parts in so far as possible, and should take up the standardization of location and supports, with due regard to the experience of the steam roads. Mr. Evans also suggested that the chairman communicate with all the air-brake manufacturers outlining to them what the committee was desirous of accomplishing and suggesting their co-operation. After a general discussion on the need for closer attention to the engineering principles of air brakes by those who install and operate them, Mr. Evans moved that the committee take up with all air-brake manufacturers the question of submitting recommendations for details of electric railway air-brake equipment later to be recommended for adoption by the association. Preferably, the information to be obtained from the manufacturers would include discussions and prints on the subject of leverages, brake arrangements, location of piping, sizes of cylinders, etc.

#### DESTINATION SIGNS

Mr. Hemming said he had been prompted to introduce the subject of destination signs on account of the dissimilar practices throughout the country. Furthermore, many of the signs used could not be read clearly at night and they frequently caused confusion. Mr. Evans described the illuminated destination and train-number signs used by the Indiana Union Traction Company. These signs were also illustrated and described in the *ELECTRIC RAILWAY JOURNAL* for April 30, 1910, page 788. The committee as a whole favored illuminated signs. Mr. Evans stated that the Indiana Union Traction Company largely had got rid of interference with reading signs by installing the headlight in the roof of the car, rather than on the dash. In the elevated position better track illumination was provided and the eyes of pedestrians and automobile drivers were not blinded by the arc.

#### CONDUCTOR'S CONTROL PIPE

A general discussion was held over the best methods available for signaling the motorman when more than one car was operated in a train. The customary bell signals were objected to because frequently they could not be heard unless the vestibule windows were left open. Similarly an air signal would require the addition of another connection from car to car.

Mr. Ransom mentioned an electro-pneumatic signal manufactured by the General Electric Company. Mr. Evans stated that the Indiana Union Traction Company was planning to try that signal. It would avoid the addition of another set of connectors from car to car by using a two-wire connector with one conductor for the electro-pneumatic signal and the other conductor for the light circuit to the trailer. On motion, the subject of conductor's control pipe and other car-to-car signal systems was tabled.

#### ANTI-CLIMBING DEVICES

Mr. Buckman spoke of the need for devices to prevent one car passing over another in collisions. Whatever device might be installed for this purpose should be connected to a strong platform or underframe structure. At the invitation of the committee A. L. Whipple, of the Whipple Supply Company, New York, presented a paper on the subject of prevention of over-riding cars. This device was described and illustrated on page 425 in the *ELECTRIC RAILWAY JOURNAL* for March 14, 1908, and its value in a collision was illustrated in an article on page 1523 of the *ELECTRIC RAILWAY JOURNAL* for Dec. 5, 1908. An abstract of Mr. Whipple's paper follows:

"It can be safely stated from experience that the only maximum safety device to employ in accidental collisions is one designed to interlock the car sills, thus at once employing the most formidable and strongest portion of the car structure to resist colliding forces. Since most electric car equipments have no adequate vertical structures to assist in preventing telescoping, an external device can be applied to interlock the car sills and prevent car platforms from climbing in collision. This device is commercially known as the Hedley "Anti-climber." It consists of sections of rolled steel having corrugations which form grooves or recesses. When applied to the ends of car platforms these anti-climbers interlock to prevent one car structure from climbing over the other. Thus they eliminate telescoping. The rolled-steel sections are now made in two sizes, namely, 2 in. x 5½ in., weighing 16½ lb. per foot, and 1 in. x 7 in., weighing approximately 10½ lb. per foot. The device is also made as a steel casting in the form of an anti-climbing draw head for emergency service. The latter design gives the car platform the interlocking feature, but it is not so effective as the anti-climber.

"While an anti-climbing device is of unquestionable value in train service the benefit obtained from its use on singly operated cars should also appeal to all railroad men because it reduces accidents and damage claims. Of course, it is impracticable to build an urban or interurban car of sufficient strength to withstand the force of collisions because the construction requirements of car platforms often prevent the continuation of the car sills to the platform buffer timber. In such cases a drop type or underhung design must be adopted—a construction which is very frail from the collision-resisting standpoint.

"If the car sills could be continued to a platform buffer timber of equal height and supplied with an interlocking feature, both damage to cars and injury to passengers would be greatly decreased. However, many of the car platform buffer timber structures now employed are not strong enough to resist even the slightest colliding shocks. In the case of the drop platform additional stiffening should be introduced by increasing the number of bolts or by auxiliary structures, such as angle-iron connections or sections designed of cast iron. In either instance, the next most desirable construction to employ is to introduce some platform interlocking device.

"There are several ways in which the 'anti-climber' can be installed to effect the desired protection with cars of different lengths. Thus, as shown in the illustration on page 72, the car with the lower platform has the anti-climber bolted to the front of the buffer, while the car with the higher platform has it attached to the lower end of a properly braced plate.

"When building new equipment the standard 2-in. x 5½-in. anti-climber rolled-steel section can be used in place of the usual angle-iron or channel buffer. In that case it should extend from side to side of the platform and be securely connected to the platform members. The standard section, 1 in. x

7 in., can be employed on new equipment in place of the steel plate commonly used on the face of wooden buffers. In equipment now in service a short length of either of these rolled-steel sections can be bolted to the face of the standard buffer installed."

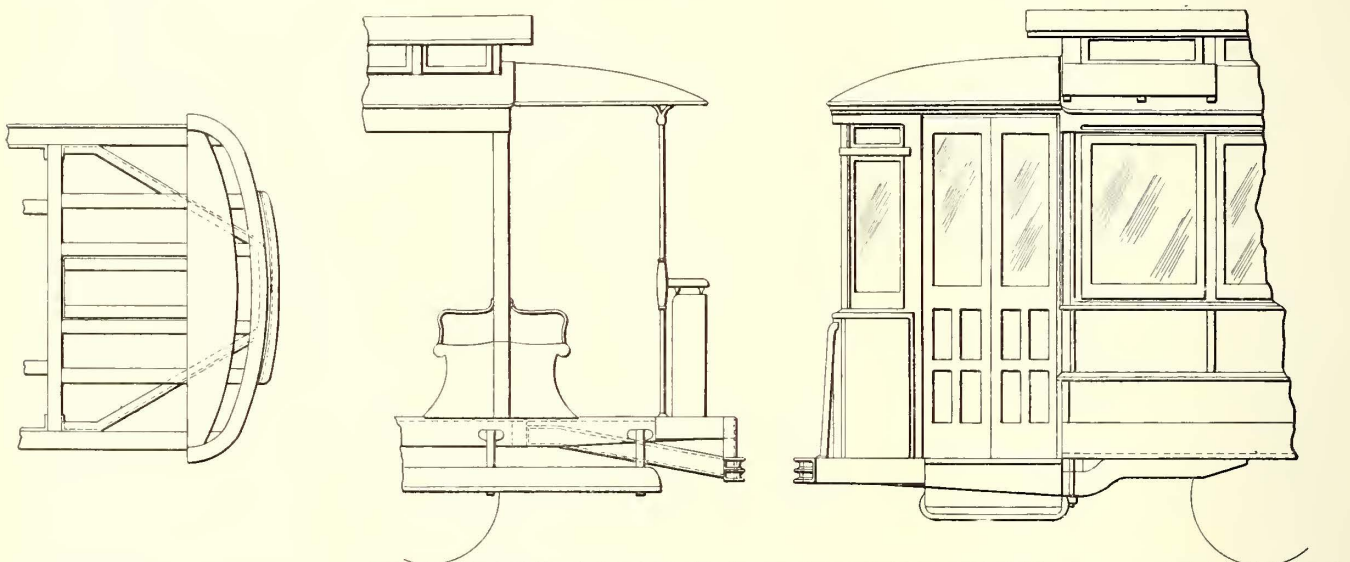
In answering questions regarding the Hedley anti-climber Mr. Whipple said that this device was now used on more than 5000 cars. Some companies installed the anti-climber in 28-in. lengths on old cars, and usually in lengths of 4 ft. on new cars. The interurban equipments required a heavier section than city equipments. The material of which the anti-climbers were manufactured was open-hearth steel rolled by the Lackawanna Steel Company and furnished in mill lengths or cut and shaped to size. Mr. Whipple also said that his company shortly would place on the market an anti-climber suitable for steam railroad cars with spring-buffer platforms. The ridges or corrugations now exposed on the present anti-climbers would be covered with rubbing plates.

Discussions followed on the need for the installation of strong supports for buffer beams and anti-climbing devices. Mr. Evans spoke a word of caution, however, against de-

## CIRCULAR ON ASSOCIATE MEMBERSHIP IN THE MAIN AND AFFILIATED ASSOCIATIONS

The secretary of the American Electric Railway Association has just issued a circular to all associate members explaining the new plan of associate membership. Under the old plan associate members were permitted to attend the open meetings of the American Association and the meetings of the Engineering Association and the Transportation & Traffic Association, and received bound volumes of the proceedings of each of the latter associations. Recently those associates who have especially allied themselves with the Engineering Association have also been provided with copies of the advance convention papers and committee reports of that association.

Under the new plan an associate member may ally himself either directly with the American or with one of three affiliated organizations (Engineering, Claim Agents' or Transportation & Traffic Association). Only those eligible to attend the executive sessions of the American Association conventions, as determined by its executive committee, may be allied directly with the American Association; and claim agents or persons



Anti-Climbers as Applied to Interlock with One Another on Open and Closed Cars Having Platforms of Different Heights and Designs

signing the car platforms so that in event of collision there might be liability of so transferring the stresses as to cause breakage of the sills in the center of the car. The following motion, as submitted by Mr. Evans, was approved by the committee:

"The standardization committee respectfully urges that all electric railway companies in the Central Electric Railway territory adopt the policy of arranging all electric railway cars with bumpers of the standard heights as adopted by the American Electric Railway Association as rapidly as possible. We would further recommend the application on the face of the bumper of a corrugated channel section for the purpose of preventing as far as possible the bumpers from passing over."

The meeting was then adjourned.

Johannes H. Cuntz, formerly professor at Stevens Institute, Hoboken, N. J., has recently taken out a patent for an electric cable in which electrostatic capacity on an alternating-current system is counteracted by means of inductance. The invention is particularly applicable to long-distance telephone and submarine telegraph circuits. Professor Cuntz secures this result by winding the conductor in the form of a long helix around a supporting core which in most cases would be made of thin iron wires. The length and therefore the resistance of the conductor is somewhat increased by thus winding it, but this disadvantage is far outweighed by the greatly increased inductance.

connected with the claim departments of operating companies are the only ones eligible to associate membership in the Claim Agents' Association. There is no restriction on associate membership in either the Engineering or the Transportation association.

A member allying with the American Association will receive a cloth-bound copy of the proceedings of that association, will be permitted to attend all its convention meetings whether in open or executive session, and will receive copies of all convention papers and committee reports distributed by that association in advance of the annual meeting, as well as such other communications of a general nature as may be distributed from time to time throughout the year. Those allying with the other associations named will receive from the respective association benefits similar to those outlined for members of the American Association. The Accountants' Association has no associate membership.

The association has also sent to each associate member a blank on which he can indicate the alliance which he wishes to make. The blank also contains a brief classification of the subjects discussed by each association and the class of men to which these subjects would presumably be of most interest. Those desiring to ally themselves with more than one association may do so on payment of additional dues, provided no question of eligibility arises, in accordance with the conditions outlined in the second paragraph.

**REPORT OF NEW YORK PUBLIC SERVICE COMMISSION,  
FIRST DISTRICT**

A preliminary chapter of the report to the Legislature by the New York Public Service Commission of the First District, covering the year ended Dec. 31, 1910, has been made public. About one-half of the chapter is devoted to a statement reviewing the progress in rapid transit matters. An abstract of the report follows:

"The commission has held 134 meetings for the formal consideration of matters. The commission has continued the practice of holding informal meetings for the preliminary consideration of matters requiring formal action by the commission, as well as to pass on many matters of detail. There have been 185 such informal meetings.

"Other than those relating to rapid transit, the commission has during the year considered 2711 matters. Of these 194 were formal cases and 2517 informal cases. Of the formal cases 53 remained undetermined at the end of the year. In the formal cases there were during the year 527 hearings, generally held before one commissioner, as provided by law.

"The commission has increased the handling of complaints as informal cases. Such cases relate chiefly to minor questions of service, the conduct of employees and minor defects in equipment and track. Questions involving such matters as that of the service on an entire division or route continue to be handled as formal cases. During the year 1910 informal cases relating to railroads and street railroads have been handled, of which 148 were not determined at the end of the year.

"In the matter of arbitration under Contract No. 1, where claims amounting to more than \$6,000,000 were presented by the Interborough Rapid Transit Company and counterclaims amounting to more than \$2,000,000 were presented by the commission, it was agreed that the company should receive \$1,684,109. Under the terms of the protocol under which the conferences were held it was understood that whatever may be paid to the Interborough company will be expended by it for additional facilities.

"In all 386 street railroad companies, of which 36 are now operating, have been organized for the purpose of carrying on public service within the city. The total gross capitalization of street railways subject to the jurisdiction of the commission is \$733,635,000 and for all companies it is \$1,125,858,000. Owing to intercompany holdings in the street railway properties, certain securities are virtually duplicated, but these figures purport to give only the amount of securities issued and not formally retired. The following table shows the results of operations of street and electric railways:

**OPERATIONS OF STREET AND ELECTRIC RAILWAYS IN NEW YORK CITY.**

Year ending June 30	1908	1909	1910*
Operating companies	29	33	34
Miles of track	1,543	1,501	1,504
Passenger car miles	271,924,024	270,394,605	280,153,150
Passengers (paid fares)	1,358,000,407	1,402,417,642	1,529,421,244
Daily average	3,710,384	3,842,240	4,190,195
Transfers	359,827,602	314,340,221	327,410,218
Transportation revenue	\$67,579,182	\$69,979,963	\$76,360,952
Total st. ry. operating revenue	\$69,026,613	\$72,282,014	\$79,420,911
Total st. ry. operating exp.	\$42,348,236	\$42,778,270	\$43,451,147
Net revenue	\$26,678,377	\$29,503,744	\$35,969,764
Taxes	\$4,340,228	\$4,992,677	\$5,254,037
Operating income	\$22,479,524	\$25,216,280	\$30,715,727
Non-operating income	\$1,573,225	\$1,246,220	\$2,036,694
Gross income applicable to corporate and leased properties	\$24,052,749	\$26,462,580	\$32,752,421
Operating ratio	61.35	59.18	54.71
Per car mile:			
Operating revenue	25.31 cts.	26.67 cts.	27.88 cts.
Operating expenses	15.52 cts.	15.78 cts.	15.25 cts.
Net revenue	9.79 cts.	10.89 cts.	12.63 cts.

\*Provisional figures, subject to correction.

"The total amount of securities for which approval was asked from July 1, 1907, to Dec. 31, 1910, was \$361,138,940, of which \$208,829,300 were disapproved, \$82,458,400 approved, \$390,000 withdrawn and \$69,461,240 remained pending at the close of the last year.

"Although there are over 400 grade crossings in New York City, up to 1910 only \$9,000 of State appropriation had been

used in the city on elimination of grade crossings. In 1910 the Legislature appropriated \$250,000 and for 1911 this commission has requested \$600,000. This amount is not for administrative expenses, but to help pay the cost of a substantial start in elimination in New York City of the grade crossings of steam railroads, at which in three years 60 were killed and 108 injured.

"The commission has continued to require the companies to keep their equipment in good sanitary and operating condition. The proper condition of equipment has a close relation to the number of accidents of certain classes. At the end of the year all of the cars operated on the surface lines in the City of New York were equipped with fenders and wheel guards, of types approved by the commission. Investigations by the inspectors of the commission show that these improved safety devices have aided in the substantial reduction of fatal accidents. The following table shows a comparison of accidents during three years:

	1908	1909	*1910
Total number of accidents on street, "L" and subway	56,481	52,808	59,515
Number of persons killed	444	329	379
Number of persons and vehicles struck by cars	11,405	11,447	14,484

\*Estimated in part for December, 1910.

†This figure includes 12 killed in New York Central explosion at substation.

Note.—The figures on the Metropolitan Street Railway show nearly 400 per month increase for the last four months due to including vehicles struck in which no injuries were claimed. Other companies have reported in this manner for the past two years, but not the Metropolitan Street Railway.

"The question of service remains a serious one, for it is not possible to secure adequate service, particularly during the rush periods, with the present facilities. The following table shows the magnitude of the problem confronting the public authorities in the furnishing of proper facilities for the travel that presents itself in New York City:

**GROWTH OF STREET RAILWAY TRAVEL IN NEW YORK CITY SINCE 1898.**

Year	Population.	Fare Passengers.	Rides per Capita.
1898	3,251,244	741,329,885	228.0
1899	3,344,223	773,351,232	231.2
1900	3,437,202	846,353,058	246.2
1901	3,549,843	881,344,801	248.2
1902	3,662,483	938,989,964	256.3
1903	3,775,123	1,000,767,483	265.0
1904	3,887,763	1,065,984,910	274.1
1905	4,000,403	1,130,982,696	282.7
1906	4,153,699	1,251,841,175	301.3
1907	4,306,995	1,315,381,388	305.4
1908	4,460,291	1,358,000,407	304.4
1909	4,613,587	1,402,417,642	303.9
1910	4,766,883	1,530,000,000	320.9

"There has been a constant increase in the number of rides per capita ever since the introduction of street railway transportation in New York City. Statistics prepared by Frank R. Ford (see STREET RAILWAY JOURNAL, Oct. 5, 1901) show that in the territory now occupied by the Boroughs of Manhattan, Brooklyn, Bronx and Queens there were 45 rides per capita per year in 1860, 104 in 1870 and 155 in 1880. These statistics are based on number of passengers, including transfers, while the statistics given in the comparative table are based on fare passengers only. The number of transfers was, however, small in early years and the statistics indicate clearly the enormous development of street railway travel and its increasing importance to each individual. If children under five years of age are excluded from our population figures, as they are not included in the travel statistics since fares are not charged for them, the number of rides per capita is now approximately equal to one ride each day in the year for each person. It should be noted that the above statistics do not include travel upon the ferries over the North and East Rivers and to Richmond, nor the large suburban traffic of the Long Island, New York Central and New Haven railroads.

"Owing to the consolidation of companies and changes in population and conditions, a considerable amount of car tracks has for many years been unused by the operating street railroads. In the Borough of Manhattan there are about 25 miles of such unused track.

"The commission has been actively engaged in collecting

evidence for presentation in these suits and in others proposed, and to that end has caused a thorough inspection to be made of the whole abandoned trackage in the city and has taken some 800 photographs, showing in graphic form the exact situation upon the streets involved.

"The abandoned track situation is well in hand and the speedy removal of all abandoned tracks is confidently expected. This is particularly important for the unused tracks present unnecessary obstructions and causes of damage to vehicular traffic."

### ANNUAL REPORT OF NEW JERSEY COMMISSION

The first annual report of the State Board of Public Utility Commissioners of New Jersey relates to the business transacted under the law of 1910 and to recommendations for changes in the law. An abstract of the parts of the report which are of interest to the electric railway companies follows:

"The experience of the board has been that most of the things accomplished are done through negotiations with the companies and in compliance with recommendations rather than by the issuance of orders. The recommendations of this board have been generally adopted by the companies in interest, and in no case where the board has issued an order has it been necessary for it to institute proceedings for the collection of a penalty for wilful default of compliance.

"A law giving the board power to order the abolishment of dangerous grade crossings and providing for an equitable division of the cost between the companies, the State and the municipality should be enacted.

"The provision of the law requiring the approval by the board of grants to public utilities has been criticised as an unwarranted interference with the principle of 'home rule,' in that it may prevent a municipality making such terms as it chooses with a public utility corporation in return for a privilege granted. Such criticisms are not well founded. Valuable franchises have been granted by local governing bodies without proper protection of the public interest and the result of this has given force to the demand for State regulation. With perhaps a few exceptions, these franchises have been granted by municipal officials in good faith with the belief that the terms of the grant were reasonable, and that the exercise of the privilege, as granted, would be in the public interest. The occasion is, however, exceptional when members of township committees, common councils or other governing bodies, particularly of the less populous municipalities, are called upon to consider franchise grants to public utility corporations. When these occasions arise the local governing body seldom employs expert advisers competent to pass upon technical problems which should be considered. If the franchise is to be submitted to a State board for its approval, greater care is naturally exercised by those seeking it to have the terms of the grant of such a nature that they will pass the scrutiny, without adverse criticism, of an impartial tribunal. The legitimate interests of both the public and the corporations are better protected by the policy of requiring local grants of privileges to public utility corporations to be approved by a commission having at its command the services of expert advisers, with special knowledge of the subject of franchise grants to such corporations.

"With the aim of having established uniform systems of accounting, conferences have been called with representatives of street railway, gas, electric light, telephone and water companies. Numerous suggestions have been made to the board and this matter is now under consideration. The limited amount of the board's appropriation has restricted it in the employment of accountants, whose advice would be of material assistance, and the problem of uniform accounting has not been solved as expeditiously as is desirable. It is hoped that the progress the board is making with the means at its command will enable it to settle this matter at an early date.

"In the administration of the additional powers conferred by the law of 1910, serious questions have been raised which put the jurisdiction of the board, and the extent thereof, in doubt.

These doubts should be promptly set at rest by further legislation.

"The statute of 1910 does not in terms confer on the board power to require notice of an accident. If such power exists it must be derived by implication. This consideration may lead to a denial by the courts of implied power in the board to require the companies to which the act of 1910 extends to give such notice, and so leaves the power of the board in this respect in grave doubt.

"It has been suggested that the provision relating to the issue of securities limits the function of the board to ascertaining the facts essential to determining the legality of the proposed issue; that it may consider whether the proposed issue is authorized as to amount, character and terms and other facts bearing upon the legality or illegality thereof, but that if in these particulars it finds no lack of authority for, or illegality in, the proposed issue, it must grant its certificate of approval and cannot impose limitations nor determine the purposes for or terms or conditions upon which the securities are to be issued. The suggestion raises a grave question as to the power of the board under this section.

"In 1909 a provision was inserted in the law imposing a 'penalty not exceeding \$100 per day' to be recovered in an action of debt at the suit of the board upon failure to comply with an order of the board. This provision has been criticised upon two grounds: (1) that the words 'not exceeding' rendered the action of debt unavailable, and (2) that it precluded the possibility of enforcement of the orders of the board by mandamus. Because of these criticisms it may be well to excise from the provision the words 'not exceeding' and to supplement the statute by a further enactment clearly declaring that it was not the legislative purpose to preclude the enforcement of the orders of the board by resort to the appropriate processes of the courts.

"It would be advisable to give the board the right to adopt and fix by general orders standards of service supplied by electric lighting, street railway, water, telephone and other public utility corporations.

"The questions which enter into the operation of public utilities frequently give rise to problems that cannot be solved without the exercise of a high degree of technical training, combined with knowledge gained from practical experience. It is the theory of regulation by the State that such technical training and practical experience can, under the control of a commission, be employed directly in the service of the public.

"It is intended that the work of the commission shall be performed so as to bring fair treatment to the public without injustice to the corporations. To do this intelligently and to determine what may be considered fair with respect to rates, the standards of service which may be reasonably insisted upon, or the conditions that may be properly imposed in municipal grants, and to decide the many other problems which must confront the commission, necessarily requires the employment of engineers and other expert assistants, who should be fully equal in technical training and practical experience to those employed by the utility corporations. Such engineers and experts command good salaries in the employ of the corporations, and the State must pay salaries large enough to make employment in the service of the State attractive. For this reason the board strongly urges that, in the consideration of any changes in the law, and particularly such changes as will tend to place additional duties involving a consideration of technical problems upon the board, a sufficient appropriation be allowed to provide for the employment of such assistance as will be required to make the law effective."

Progress is being made with the Lancashire & Yorkshire Railway's electric "belt" scheme from Liverpool to Southport, via Ormskirk, work having been started recently on the section between Maghull and Town Green. It is hoped to complete this route by February, 1911. The extension to Maghull, opened at the beginning of 1910, has resulted in extensive building operations in that rural district.



### THIRD CONFERENCE ON INTERURBAN OPERATING METHODS IN INDIANA

On Jan. 5 the Railroad Commission of Indiana held a conference at Indianapolis with the committees of interurban operators which were appointed on Dec. 23 to study and report upon three subjects connected with interurban electric railway operation. The committees were as follows:

Committee on conditions of employment and service: C. L. Henry, president Indianapolis & Cincinnati Traction Company; W. G. Irwin, vice-president Indianapolis, Columbus & Southern Traction Company; H. A. Nicholl, general manager Indiana Union Traction Company; C. E. Morgan, general manager Indianapolis, Crawfordsville & Western Traction Company.

Committee on block signals: Arthur W. Brady, president Indiana Union Traction Company; C. N. Wilcoxon, general manager Chicago, Lake Shore & South Bend Railway; R. I. Todd, general manager Terre Haute, Indianapolis & Eastern Traction Company; C. D. Emmons, general manager Fort Wayne & Wabash Valley Traction Company.

Committee on delivery of train orders: A. Shane, general manager Indianapolis, Columbus & Southern Traction Company; George S. Henry, traffic manager Indianapolis & Cincinnati Traction Company; G. K. Jeffries, superintendent Terre Haute, Indianapolis & Eastern Traction Company.

The sessions, like those of Dec. 23, were not open to the public.

At the meeting on Jan. 5 the commission considered the reports of the committees separately. The report of the committee on conditions of employment and service was taken up first and is said to have been devoted largely to a discussion of the suggestions of the commission that all interurban motormen should have had one year's steam or electric service before being appointed and that motormen should be prohibited from handling baggage and express matter. It is understood that no conclusions were reached on these two subjects between the committee and the commission.

The committee on signals asked for more time. It stated that so far it had not been able to obtain sufficient information on which to base definite statements, and that it desired to make a complete investigation of the different kinds of block signals in use on electric roads outside of the State. The commission granted a postponement of this committee's report until Jan. 24.

The committee on methods of delivering orders presented a rule which it had prepared prescribing the manner of obtaining orders. This rule was approved by the commission. It is as follows:

To obtain orders the motorman or conductor, whichever is more convenient, will call the dispatcher and give his serial order blank number, which will be requested by the dispatcher, who will then give such orders as are necessary. The one taking the order will write the same plainly, without abbreviating, with carbon copy on the blank provided for the purpose. When he has finished writing the order he will repeat it to the dispatcher. If correct the dispatcher will O. K. the same. The one taking the order will then give his name to the dispatcher and at the same time sign the order. The one who has not taken the order will repeat the order without abbreviation to the dispatcher and give his name and at the same time sign the order. If correct, the dispatcher will then give the initials of the superintendent or other designated authority and the train order number, which must be repeated back to the dispatcher by the one then at the phone. If correct, the dispatcher will say "Complete at" (giving the time), which completes the order and places it in full force and effect. If for any reason the dispatcher does not complete the order, it is of no effect and must be treated as if it had not been given. After the order is completed the motorman and conductor each will take a copy of the same.

Where it is not practicable for both members of the crew to leave the car at the same time, at important places designated by bulletins, or in emergencies at other places, after authority has been given by the train dispatcher on duty at the time, one member of the crew may receive and complete the order, the second member being required to read the order aloud to the one who has taken and repeated it, before the train is started, the dispatcher making a full record of the facts and reasons on his record book for every order completed by his instructions in this manner.

Subsequent to the conference, it was stated, the committee on length of employment reached an agreement with the commission. The basis of this agreement was that the companies would accept one year's qualification for motormen provided they should be permitted to employ men having less than one year's experience in cases of urgent necessity. Where this was done the reason or necessity of each case would be filed with the commission. The commission, it is stated, has notified the committee that this provision is reasonable and will be agreed to.

### MESSAGES OF THE GOVERNORS

The Legislatures of nearly all of the States are scheduled to meet in 1911, and a number of legislative sessions have already been entered upon. The following abstracts have been made of the messages of the Governors which have already been presented so far as they relate to public utility enterprises and other matters of interest to the railroad and allied industries:

GOVERNOR EUGENE N. FOSS OF MASSACHUSETTS

I see nothing inimical in the mere size of a corporation, provided, of course, it is suitably regulated. On the other hand, a holding company is in theory wholly at variance with the common law and with the statutes of the State. It is therefore indefensible. I would also call attention to the voluntary associations which issue shares evidencing a participating ownership, but which, under existing laws, are subject to none of the regulations as to publicity and taxation that apply to both business and public-service corporations. I do not recommend the appointment of a special commission to consider this subject, but I believe that the tax commissioner may well be directed to investigate the further regulation by the Commonwealth of such voluntary associations, and to report thereon to the next General Court, with specific recommendations.

I also think there should be a change of method on the part of the public service corporations in seeking legislation from the General Court. The corporation before coming to the Legislature should put its case before the people themselves, through the press and by public meetings, if necessary, and in this way enlighten the people fully and frankly as to just what it wants and what it proposes to give in return. My own experience in corporate management is that when the people thoroughly understand a proposition they act with intelligence and fairness. These methods will command the confidence and enlist the capital of the people for these enterprises. This procedure on the part of the corporations will forever end the lobby and its attendant train, and it will inevitably give the corporation all that it is entitled to.

I am not in favor of commissions as a means of transacting public business, unless they are appointed subject to recall, for I believe their tendency is not in accord with popular or representative government. Therefore, I shall doubtless recommend the elimination of some and the consolidation of other commissions. I advise the abolition of the following commissions which relate to quasi-public corporations, namely, the Railroad Commission, the Gas and Electric Light Commission, the Boston Transit Commission, and the Highway Commission, which includes the supervision of the telephone and telegraph companies. And in their place I recommend the creation of a Public Utilities Board, which should consolidate the functions of these commissions, with the stipulation that the tax-collecting function of the Highway Commission shall revert to the State Treasurer's department. This board should be composed of five members, whose terms should be for 10 years, subject to the recall of any member at any State election. The chairman should be a lawyer. This board should have the right to employ and hear counsel; its decisions should be in writing, with the vote of each member recorded, and it should have the power of initiative.

Our first duty, as I see it, is to create a greater Boston by the confederation of all the towns and cities within a radius of at least 10 miles, and possibly more. I maintain that our suburban

citizens, whose business interests bring them to Boston daily, who enjoy the protection of her police and the use of her highways, and who are included within her 5-cent fare limit, have no right to stamp the dust from their feet at 5 o'clock and assume that they have no further responsibility for the good government of the very city in which they earn their livelihood and where their commercial and financial interests are centered. For example, the rapid transit system that Boston maintains is far more in the interest of these suburban communities than in the interest of the City of Boston. I contend that it is the duty of these suburban towns and cities which are already part of the metropolitan district to unite with the city itself in the creation of a great metropolis. This union should be not merely a commercial but also a political one.

GOVERNOR JOHN A. DIX OF NEW YORK

During the last fiscal year the new public-service commissions cost the State \$897,372.66. For the ensuing year the public-service commissions ask the State to appropriate \$1,984,537.50. These sums are in addition to the very large sums charged by the Public Service Commission of the First District to the City of New York. I refer to these facts to show the abnormal rate of increase in the expenditures for these purposes, and to point out the absolute necessity of the most drastic retrenchment. If this is not done a direct tax must be imposed upon the people for the reason that although our predecessors exhausted every reasonable source of indirect taxation, nevertheless the expenditures during each of the last three years exceeded the revenues, thereby very greatly depleting the treasury. We believe that such retrenchment can be made without impairing the efficiency of the State service. Unnecessary boards and commissions should be abolished, useless employees removed and every demand for appropriation carefully scrutinized to the end that the expenditures of the State be brought within our income, and that the total amount of appropriations be limited to the estimated amount of revenues from which they are to be paid. I am giving careful and special attention to these public service commissions and hope in the near future to address to you some recommendations on this subject.

GOVERNOR ARAM J. POTHIER OF RHODE ISLAND

The public utilities are owned and operated in this State by private corporations, except that most water-works systems are under city or town control. These corporations are doing business under the protection of the State by legislative permission. They have rights both under the law and under the Constitution, which must be respected as fully as the rights of any individual. But they also are charged with responsibilities to the public and to the government under whose protection and laws they exist which must be fulfilled. I believe there should be created in this State a board of commissioners of public utilities to act as referee in the adjustment of all differences between such corporations and the public as to the character, quality and quantity of the service rendered and the rate or fee exacted in return therefor. Its recommendations for the improvement or extension of the service rendered should carry the power of enforcement, subject only to reversal by the courts. It should have the right to investigate every cause of complaint, either by the corporations or by the people, to examine and inspect equipment, determine the method used in fixing rates of compensation, and whether the patron or consumer is receiving that to which he is entitled and for which he is paying. I recommend that this General Assembly enter upon a thorough and serious consideration of this matter, looking to the enactment of a law creating a State board of public utilities with proper powers of supervision over the activities of all railroad, steamboat and other transportation companies, pipe line, gas, electric light and power companies, telephone and telegraph companies, water distributing companies, and other public service corporations operated by private interests. I recommend also that the section of the law under which the sum required annually for the salary and office expenses of the railroad commissioner and his deputy is contributed to the State by the railroad companies operating here be repealed forthwith, and that an

annual appropriation out of the public funds sufficient for this purpose be authorized.

I recommend that the committee on labor legislation confer with the Rhode Island board of commissioners for the promotion of uniformity of legislation, for the purpose of considering the advisability of proposing a workmen's compensation law for this State.

GOVERNOR SIMEON E. BALDWIN OF CONNECTICUT

In 1907 a special commission was appointed by the General Assembly to consider the laws with respect to public service corporations and to recommend any legislation regarding them which it might think expedient. This commission agreed unanimously in reporting to the General Assembly in 1909 in favor of certain legislation creating a public utilities commission, in which the present Board of Railroad Commissioners should be merged. A draft of a bill for such legislation accompanied this report. I recommend the enactment of a bill in general conformity to the scheme thus reported. A few, however, of the provisions of the bill so reported seem to me objectionable. I will mention at this time but three.

1. Section 1 is open to the interpretation that it would apply to municipal corporations owning water-works for the supply of the municipality. If so construed, it would be an unnecessary invasion of the privilege of local self-government.

2. Section 98 might be construed to require the commission to make investigations as to certain matters which would involve a cost that could hardly be warranted by the results.

3. Section 7 makes the annual salary of each commissioner \$7,500.

In my judgment this is too large a sum. It is greater than that paid to any State official, except the justices of the Supreme Court of Errors and the judges of the Superior Court. When they retire from office their former clientage will have disappeared. The members of the public utilities commission, on the other hand, under the bill as reported, serve for terms comparatively short, and need no special form or course of training to qualify them for their position.

I should regard it as likely that the time of the commissioners would by no means be fully occupied by their official duties, and that to some extent each would pursue what had been his former occupation in life. An annual salary of \$5,000 would seem quite sufficient. I understand that a bill will be presented for your consideration which varies from that recommended by the special commission in 1909 in enlarging the number of the members of the public utilities commission from three to five. In my opinion three are enough to secure the proper performance of the work intrusted to it. The bill reported by the special commission gives an appeal to the Superior Court, such as is now afforded from orders of the railroad commissioners. I think this is a proper safeguard against possible injustice. It might, however, be sufficient were it given only when the decision appealed from was not a unanimous one.

It is generally agreed that our present employers' liability statute is too favorable to the employer. If so, it ought to be amended, whatever other legislation may be had in different directions.

GOVERNOR CHASE S. OSBORN OF MICHIGAN

Employers of labor, as a general thing, carry casualty liability insurance. The fees they pay are made to cover the expense of the agent of the company who solicits the policy, to pay the overhead expenses of the insurance company, to pay the dividends of the insurance company, to make a surplus fund for the insurance company, to pay the attorneys for both the insurance companies and the injured person and finally to pay the injured person if he gets any pay. It all makes for injustice, friction, bad feeling and encouragement of ambulance chasers and illegitimate litigation. The right laws for the proper system could insure more to the injured person and at a less cost to the employer. The saving in court expenses alone would be great. In the circuit court of large cities fully a quarter of the time is taken up by the trial of personal injury and kindred cases. The present laws are an abomination and must sooner or later be improved. I hope that this Legislature will start

the good work. New York recently passed a workingmen's compensation act, framed by a special commission appointed by the Legislature to advise it. The rights of both employer and employee should be respected. You, gentlemen, will know best how to handle this matter and I am confident you will address yourselves to it.

A consistent and persistent policy of grade separation of steam railroads, electric railways and street crossings, if inaugurated under wise laws, would result in a great saving of life and property. Such a policy, reasonably pursued, would not inflict impossible hardships upon either the railroad companies or the public. In my opinion, legislation in this direction should take more definite and compulsory form.

Great good could be accomplished by a reasonable law defining the nature and strength of railroad carriages. As fast as flimsy rolling stock now in use is worn out and condemned it should be replaced by steel carriages complying with a safety standard fixed by the State.

GOVERNOR T. R. MARSHALL OF INDIANA

I recommend that you revise the corporation laws of Indiana so that no corporation can issue a dollar's worth of stock without a dollar in money or a dollar's worth of property going into the corporation to the satisfaction and approval of the State Board of Tax Commissioners. And I recommend that all transportation lines be prevented from issuing bonds without the consent of the State Railroad Commission first being obtained by showing that the funds raised from the issue are to be actually used for corporate purposes, and that the sale of such bonds for less than 95 cents on the dollar be forbidden. I recommend that no bonds be issued by any other public utility without like consent being obtained from the State Board of Tax Commissioners so that public utilities may not only be controlled, but ratably and reasonably taxed by this board, which should have exclusive powers of taxation over all public utilities.

The right of eminent domain should be given interurban railroads, however, without purchasing the real estate, for the removal of obstructions at curves which prevent approaching cars from sighting each other, and such railroads should be compelled to exercise that right.

Should loss of life occur because of the failure of a corporation to comply with an order of any constituted authority in Indiana to repair and safeguard its equipment, prior to determination by the courts that the order is reasonable, and should a board of directors declare a dividend during the time that the order is being considered by the courts, each director voting for the dividend should, if the order is subsequently held by the courts to be reasonable, be punished as for involuntary manslaughter, and the State should not be compelled to prove intent. The violation of an order or rule of any corporation in Indiana whereby death occurs should likewise render an offending employee liable for punishment as for involuntary manslaughter and the State again should not be required to prove intent.

GOVERNOR CHARLES S. DENEEN OF ILLINOIS

In my judgment authority should be given to the Railroad and Warehouse Commission, or to a commission created for this specific purpose, to gather and publish all facts regarding the cost of construction, maintenance and operation of public utility corporations, with power to require service adequate for the public needs and to fix rates which will be fair to the public, will assure to investors a reasonable return upon their investment and will offer inducements for the investment of private capital in public-service corporations to stimulate their growth as the public needs may require. If comprehensive legislation of the character suggested were provided the subject of corporate control would be removed to a greater extent than at present from the field of politics in which it has often exercised a disturbing influence.

I call your attention to the fact that the National Civic Federation, which has given the subject of employers' liability and workmen's compensation thorough investigation and discussion, has framed a bill upon these subjects which is now in print and

available for use in your deliberations. The bill has been recommended for submission to all State legislatures.

GOVERNOR A. O. EBERHART OF MINNESOTA

In regard to taxation of railroads whenever it is ascertained that railroad property, under the present tax rate, is not carrying its just and full share of the State tax burden, the tax should be increased to a basis of equality with other property. With the approval of the auditor and treasurer, I therefore recommend semi-annual payment of railroad taxes as a means of avoiding revenue deficits and the resulting loans and interest charges.

The building of suburban electric lines opens up another field of regulation. These electric railways will soon become active factors in the transportation business, and their operation should, therefore, be subject to the Railroad and Warehouse Commission, similarly with the railroads.

The last Legislature authorized the appointment of a commission to report to this Legislature a workmen's compensation act. This commission has labored diligently and will unquestionably make a thorough and comprehensive report. In accordance therewith, I recommend the enactment of such a law, believing it to be for the best interests of both employes and employers, as well as the State at large.

GOVERNOR R. S. VESSEY OF SOUTH DAKOTA

Your attention is called to the report of the Railroad Commission, from which it is apparent that many complaints from time to time have been adjudicated, and it is evident that the commission, in its wisdom, has accomplished much good. I would recommend that the commission be given more power and believe that through this medium we shall be more quickly relieved from the evils of unjust discrimination which now abound within the State.

GOVERNOR ROBERT P. BASS OF NEW HAMPSHIRE

The platforms of both parties call for the abolition of the present Railroad Commission. The functions of the commission as now constituted are limited in scope. There is a lack of precision in the statutes by which the powers of the board are granted and an absence of proper means to enforce its findings. I recommend that you create a public service commission to take the place of the present Railroad Commission. It should have authority fully to regulate rates, service and capitalization of all public service companies. For this most important and difficult service the highest grade of men should be granted. Appointments should also be made for terms of substantial length, to the end that the commissioners may be removed as far as possible from political influences.

A well-adjusted and equitable workmen's compensation law would, on the one hand, relieve the employer of the expense of fighting all his accident cases and, on the other hand, insure to the employee prompt and reasonable payment without litigation, without delay and without expense. The drafting and enactment of such a law, although difficult, is to my mind of paramount importance to a large percentage of the people of our State. The change which it would bring about would be in line with the progress and the betterment of conditions for which we are all striving.

GOVERNOR PLAISTED OF MAINE

Many of the contests between new companies desiring to do business and old companies occupying in whole or in part the field which attracts the newcomer might be settled outside of the Legislature if we had in Maine a public utilities commission, and I suggest that you consider the advisability of establishing one. The present Railroad Commission could be abolished and its powers conferred upon the new board in addition to such other powers as would be granted it.

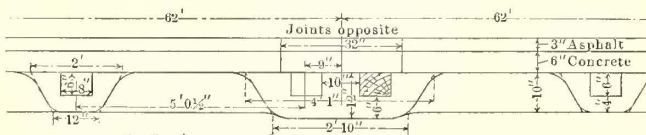
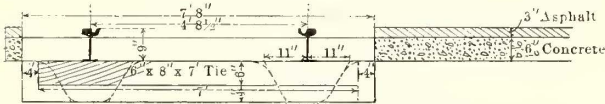
The United Electric Tramway Company, of Montevideo, which was formed and registered as a British company in 1904, now operates 82 miles of lines in Montevideo, with 195 motor passenger cars and 68 trailers. The system adopted is the overhead single trolley, and by the terms of the franchise at least two-thirds of the employees must be citizens of the country.

## TRACK CONSTRUCTION STANDARDS IN ATLANTA, GA.

The Georgia Railway & Electric Company operates about 177 miles of track in and about the City of Atlanta. This property is a consolidation of several railways, each of which had different types of track construction. In recent years, however, most of the mileage has been changed over for some one of the four types of standard track construction described in the following paragraphs.

### CONSTRUCTION ON PRIVATE RIGHT OF WAY

For construction on private right of way the standard is the A. S. C. E. 70-lb. rail in 33-ft. lengths. The joints are the 26-in. Continuous type drilled 2 in., 4 in. and 5 in. with  $\frac{7}{8}$ -in.



13 - 6" x 8" x 7" Ties per 62' Rail  
0.255 Yds. of Concrete per Ft. of Track.  
0.29 Bbls. of Portland Cement  
0.117 Cu. Yds. of Sand  
0.23 Cu. Yds. of Stone } per Ft. of Track 1-2½-5 Mixture.

### Atlanta Track Construction for Asphalt Pavement

Harvey grip bolts. The 12-in. No. 0000 bonds are carried under each joint plate. The rails are laid on 8-ft. white oak ties in 10 in. to 12 in. of broken stone balast. The standard width of fills is 16 ft. and of cuts 28 ft. at the bottom. The passing tracks and turnouts are made with split switches and spring frogs. All curves over 6 deg. have rail braces every fourth tie and are spiraled. All culverts and waterways are of concrete and all bridges are of steel.

### CONSTRUCTION ON HIGHWAYS WITH CHERT, MACADAM OR SIMILAR PAVING

The standard construction for highways where the paving is of chert (rock flint), macadam or similar material calls for a T-rail weighing 80 lb. per yard. This rail is 7 in. deep, 2½ in. wide at the head, 6 in. wide at the base and has a web 7/16 in. thick. The rails are 60 ft. long and are laid on creosoted ties 6 in. x 8 in. x 7½ ft., spaced 2 ft. center to center and tamped up on 6 in. of broken stone. To maintain the gage and laterally brace this high rail a 2-in. x ¾-in. tie rod is installed every 7½ ft. The center of the tie rod is 3¾ in. from the base of the rail. The rod is secured on each side of the web by a jamb nut. The joint plates are 27 in. long and 5/8 in. thick and put on with eight 1-in. bolts. These joints are bonded with two No. 0000 bonds and a No. 0000 cross bond every sixth joint, counting on one side. In 1907 this class of construction cost per mile as follows:

Rails, \$5,304.60; ties, \$1,848; spikes, \$150; bonds, \$135; tie rods, \$245; stone, \$800; joint plates, \$230; labor, \$3,168; a total of \$11,880.60. It will be seen from the foregoing that the cost of construction was \$2.25 per running foot. The labor item does not include any grading except 19 in. of trenching or sub-grading on highways the surface of which had already been graded.

Although the rail for this class of construction is specifically designed for chert and macadam streets, it has been found so nearly ideal that the company endeavors to use it wherever it is possible and expedient to do so. It cannot be used in streets with deep granite blocks or asphalt, but it is used in streets paved with vitrified brick. To secure a passageway for the wheel flanges in vitrified brick construction, the company uses a special brick. This brick has one upper corner beveled off with a reverse curve so that the brick will fit in the head of the rail. The beveled construction forms a flangeway, while the top of the brick comes flush with the top of the rail. These bricks are made in halves and wholes so as to break the joints in the paving, and as they are placed under the head of the

rail it is impossible for them to work up. The bricks are laid on concrete with a sand cushion in accordance with the usual construction for this class of work.

### CONSTRUCTION IN STREETS PAVED WITH GRANITE BLOCKS

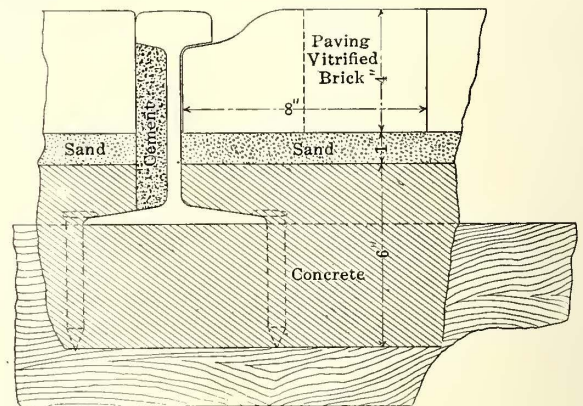
The construction in streets paved with granite blocks differs from that for chert and macadam paving only in the type of rail. By using a rail 9 in. deep there is secured a sand cushion of 2 in. to 3 in. between the ties and the blocks. The rail, which is of the semi-grooved type, weighs 89 lb. per yard. The joint plates are 32 in. long and are put on with 12 in. diameter bolts.

The cost of this type of construction per mile is as follows: Rails, \$5,894; ties, \$1,848; spikes, \$150; tie rods, \$245; joint plates, \$352; bonds, \$140.80; stone, \$800; labor, \$3,696; total, \$13,125.80. This makes the cost \$2.48 per linear foot.

### STANDARD CONSTRUCTION IN ASPHALT PAVING

The standard construction in asphalt paving includes the use of 9-in. Trilby rail weighing 109 lb. per yard. The concrete base used under the 3 in. of asphalt is 6 in. deep, making a total depth of 9 in. from the finished surface of the street to the bottom of the concrete, which is just the depth of the rail. The bed is graded for this depth and then treated with a 10-ton roller. A trench 24 in. wide x 10 in. deep is then dug immediately under the position of the rails and running the entire length of the rails. At intervals of 5 ft. cross trenches 22 in. wide x 10 in. deep are dug for the ties. These trenches are 4 in. under the tie when it is in position. An additional excavation of 2 in. is made under the joint ties. These cross trenches are 7 ft. 8 in. long, or 8 in. longer than the tie.

When the trench is completed a 6-in. x 8-in. x 7-ft. creosoted tie is placed under each cross trench and two ties in the joint trench which occurs every 60 ft. The rails are 60 ft. long and are laid on the ties with opposite joints. The rails are bonded with two No. 0000 bonds 8 in. long and then the joint plates are put on. These joints are of the Continuous type 32 in. long and are held by 12 1/8-in. bolts. The tie rods, 2 in. x 3/8 in., are installed every 5 ft. half way between each tie. The track is then jacked up and blocked to the proper line and graded by means of oak wedges. Portland cement concrete proportioned 1:2½:5 is then placed in and rammed so that its finished sur-



Atlanta City Railway Construction with 7-in. T-Rail and Vitrified Paving Block

face is 3 in. below the top of the rail. This gives a continuous stringer of concrete under the rail 10 in. deep x 24 in. wide and under the ties 4 in. deep x 22 in. wide, all tied into one mass which comes 6 in. over the top of the ties. It will be seen from this that the construction is of such monolithic character that the ties are used more as a matter of convenience in surfacing the line than for anything else. This rigid and durable construction costs about \$3.88 per linear foot of single track or \$7.76 per foot of street. These figures do not include the cost of replacing the asphalt, which in one instance amounted to \$1.53 per linear foot of street.

### MISCELLANEOUS TRACK FEATURES

All curves installed in Atlanta, some of which have a center radius of 35 ft., are spiraled on each end. All frogs and cross-

ings are made with hardened steel centers. The standard rail for curves weighs 117 lb. per yard and the guard is rolled solid with the rail.

One of the most interesting features of the company's track work is the extensive use of creosoted ties. The first ties creosoted by the company were laid down in 1895. Original ties which have been taken up on account of changes to heavier track construction have been found to be apparently as sound as the day they were put in. The great saving is not so much in the cost of the ties themselves but in not having to tear up the streets for tie renewals. In Atlanta the best oak tie would not give more than seven years' life, while 21 years' life can be expected from creosoted ties. A comparison of cost would work out something like the following: Initial cost of treated ties, 80 cents; untreated ties at 40 cents each, renewed every seven years, \$1.20, plus 50 cents per foot of track for labor to tear out the paving and renew the ties every seven years. This, with ties placed 2 ft. centers, would make each tie cost, at \$1 for labor, \$2 for the two renewals in 21 years. The added cost of the ties themselves makes a total of \$3.20 per tie for untreated oak for 21 years against 80 cents for the creosoted ties. Of course, the initial capital invested in the creosoted tie is twice that for the oak tie, but even if this is taken into account, with interest at 6 per cent compounded for seven years, the creosoted ties would not cost more than \$1 for 21 years' use. A great deal of the Atlanta tracks is cast-welded, but in the last eight years the company has done very little work along this line.

Acknowledgments are due to W. H. Glenn, secretary and manager of railways, of the Georgia Railway & Electric Company, for the material upon which this article is based.

## THE MEN TO EMPLOY FOR INTERURBAN SERVICE AND THEIR TRAINING

BY A MANAGER

I find it a difficult task to comply with your request to write you on the subject of what men to employ and how to train them. Personally, I do not believe it to be a matter where any hard and fast rules would apply. If it were possible always to secure competent, reliable, experienced and tried men of good record, it would not be necessary to discuss the question. Such men are always preferable, especially if they have been employed in interurban service, but such men are seldom out of employment. If men are taken from any other system, a very careful investigation must be made, for other systems may not exercise the care that should be taken in employing men for this work. They must be especially fitted for it, if they are to make desirable men. If they had been compelled to leave the service of another company, there must be some objection to them; they must have some faults that would render them wholly unfit. Men will seldom leave the service of a company after having been in its employ for any considerable length of time, since the standing they have is a valuable asset; so I conclude that an experienced man seeking employment is out of a position for cause, and when such is the case the facts are hard to obtain. There are exceptions, but I hold that this will be the case as a rule and the exceptions will not be material; and since it is impossible to secure the experienced man, I shall consider only the employment of the inexperienced man.

This work should be done in a thorough, systematic manner by one person on each system, and he should be a good judge of human nature. He should be experienced in train operation and conversant with all the duties that the employee selected will have to perform.

The applicant should have a clean record, whatever his vocation may have been. He must be honest, since he will possibly have to handle the company's money, honest in his intentions in executing every duty; truthful—that all his statements may be relied upon; temperate—that he may be de-

pendent upon to have a clear head at all times and to operate his train properly and understand all the instructions given him; intelligent—that he may be able to exercise his best judgment under all circumstances and in case of doubt to take the safe side. If he does not have a full appreciation of the duties that rest upon him he can hardly be expected to discharge them fully, and, failing to realize the importance of literal compliance with all of his instructions, he will not only be lax as to details, but negligent in some cases in important matters. He must be in good physical condition; if he is not he will fail at inopportune times and be unreliable, causing many changes on short notice, which will often place his superiors in an embarrassing position and possibly cause him to be suddenly incapacitated. He must be gentlemanly in his deportment, for, coming continually in contact as he does with the public and those representing the company, it is important that he be courteous and civil always. It is needless for me to add that his eyesight must be good, but I want to emphasize the importance of having acute hearing, since all instructions, particularly in relation to train movement, are given over the telephone. It is necessary that he understand correctly and, since at times the telephones do not work in the most satisfactory manner, it is important that his hearing be good.

Having secured such a man, we must assume that he has no knowledge of the work before him, and, as men are creatures of habit, care must be exercised that he is not spoiled in his training. In order to avoid this he should be placed with the most reliable men in the employ of the company.

Having served his apprenticeship satisfactorily, the employee should be required to pass a creditable examination on the rules and be instructed in regard to the time card. He must be impressed with the fact that he must consult the time card in regard to meeting points and that he is not expected to commit it to memory, but must refer to it often enough to be assured that he is running on the correct time and particularly not ahead of time. He must be instructed properly in regard to his acts in case of accident and his duty toward the public. In addition to any printed rules or instructions, lessons on these subjects should be given, as they will make a stronger impression if given by the proper person and in the right manner. If the applicant is to be a motorman, he should serve a time in the shop under a competent instructor; if a conductor, in addition to such instruction as he receives while substituting, he should be instructed in regard to accident reports by the claim agent and as to tickets and other reports by the auditor or an assistant, and if reports indicate that the man does not quite understand his work lessons should be given from time to time until the results are satisfactory.

We will assume that the employee is now fully equipped for the position he is to fill, except as to experience, and we have reached a period that is of still greater importance, since he is now subject to discipline. To exercise discipline properly one must be very careful, using his best judgment, remembering that the man is yet a novice and that there are various degrees and kinds of offenses, and that there are errors voluntary and involuntary; also wilful disobedience and various degrees of punishment; and, while we are considering these matters with a view to securing safety, the commercial side must not be overlooked. Nor must we forget that heretofore the employee, having been a student, has always been directed and possibly never asserted himself. His characteristics will now begin to appear, and, as they present themselves from time to time, you will be better enabled to judge the man. He should now be observed closely for the next three to six months, for by such observation serious faults may be discovered that should be corrected, if possible, and it may be that up to this time one has been mistaken in the man.

Human nature is peculiar and shows itself in many ways; sometimes it is indifference caused by lack of energy, possibly a vicious vein that has been latent. After a sufficient period and a thorough schooling, careful watching, competent coaching and sufficient time given and experience had, faults may be corrected, and yet you have but a human being subject to

all the faults and shortcomings that men are heir to, and mistakes will be made and wrongs done. All this time we must watch for voluntary breaches of discipline, and after you are satisfied that there is no danger of that, there will yet be the ability of the man and the interest he takes in the work.

Thus far we have considered the employee. Now let us take up the side of the employer and consider his duties. Rules for the government of the men may be exacting, but they must be consistent and practical. Nothing should be required that is not essential to good service and safe operation, and everything should be provided that is necessary for a literal compliance. The man should be accompanied frequently in his work by an official who is thoroughly conversant with all the duties pertaining to the position, fully alive to the importance of the work of training inexperienced men and with sufficient force of character to impress the student. Special attention should be given to the care of details, for by neglect of them a good man may be spoiled. No official should see an employee—whether new or old in the service, more especially a new man—slight a duty without calling his attention to it and having him correct it at the time, if practical; if not, just as soon after as possible.

It must not be taken for granted that an employee knows his duties and will discharge them to the letter; an official should know that the man understands and see that he performs the duties properly. This is a hard place to fill. One must be not only capable, firm and energetic, but have the faculty of instructing, and enforcing obedience, and yet not be abusive, never losing his temper. He must be ever mindful of the fact that he has the supervision of men whose acts may cost the loss of life or damage to property, all of which his company is answerable for. He must never become lax, but ever alert and on guard. He must be thoroughly in earnest and believe himself that every rule is right, or he will not be successful in securing obedience by his subordinates. He must be a disciplinarian at heart, firmly believing in discipline and willing to subject himself to it. He must be loyal, feeling that he owes a duty to the public and to the man subordinate to him and to his company. Requiring obedience of men, he must himself be obedient. If he would have men truthful and honest, he must not be unmindful of truth and honesty himself. If he is gentlemanly in his deportment to the public and his subordinates, he can consistently require it of his men. The characteristics of a superior officer are reflected in the acts of his subordinates.

After all of these safeguards have been thrown around the men, there will be mistakes and violation of rules, acts of insubordination, and accidents in consequence. It is then that one's best judgment must be brought to bear that justice may be done to all and injustice to none, bearing in mind that the purpose of discipline is to improve the service. An error committed here may impair rather than better it. One should consider carefully the man, his record and general deportment up to this time, and all the incidents that may have contributed to or have been the immediate cause of the error. Causes remote must be considered, though they may include officials and even implicate the company, for in all cases facts must be obtained, that faults and errors may be corrected and a repetition may be avoided. In considering a case do not act hastily. Analyze carefully every feature, for a decision in all such cases is important, and when you determine that a man is responsible, that he has undoubtedly committed an error or violated a rule or disregarded an order, consider well before you act. Perhaps the man came to you but a few months before, untutored and inexperienced, not yet fully impressed with the importance of his work and the responsibility that rests upon him; perhaps never in his life before subjected to discipline. If you find it is a case of wilful disobedience, that the man's record is poor and that he has displayed a spirit of insubordination, was careless and indifferent as to the welfare of the public or the company or proved himself incapable, untruthful, uncivil or dishonest, dismiss him. Having done so,

you must then proceed to employ another and pursue the same course, giving the new man the same coaching, bearing all the expenses incident, taking all the chances of a mistake and the result, and possibly with no better success than before. And, after all, let us not forget that men will be just what we let them. If they violate rules and no exceptions are taken; if they neglect details and are not corrected; if they disobey instructions and are not reprimanded; if all errors and shortcomings are suffered to pass without notice, and officials are cognizant thereof and have failed in their duty, they are indirectly responsible should an accident result, although the man is the immediate cause for the disregard of his instructions.

### JOINT RATE TICKETS IN NEW YORK BETWEEN METROPOLITAN AND TWO OTHER LINES

Special forms of transfers are used by the Metropolitan Street Railway and the Central Park, North & East River Railroad in connection with the joint rate for which transfers are issued by these companies. An illustration of one of the forms used by a line of the Metropolitan system is published herewith. An illustration is also shown of the only form of ticket used by the Fifty-ninth Street cross-town line, the line of the Central Park company which participates in the through route and joint rate arrangement.

Joint rate tickets are issued by the various north and south lines of the Metropolitan system which cross Fifty-ninth Street.

<b>Lexington Ave. Line—NORTH</b>		<b>Joint Rate Ticket—COUPON 2</b>		DAYS					JAN.	A. M.
06000	Lexington Ave. Line—North	06000		1	9	17	25	JAN.	1	2
				2	10	18	26	FEB.	3	4
				3	11	18	27	MAR.	5	6
				4	12	20	28	APR.	7	8
				5	18	21	29	MAY	9	10
				6	14	22	30	JUNE	11	12
				7	15	23	31			
				8	16	24				
				9	17	25				
				10	18	26				
				11	19	27				
				12	20	28				
				MID-NIGHT						
				8	16	24		JUNE	11	12
				7	19	23	31	MAY	9	10
				6	14	22	30	APR.	7	8
				6	13	21	29	MAR.	5	6
				4	12	20	28	APR.	7	8
				3	11	19	27	MAR.	3	4
				2	10	19	26	FEB.	3	4
				1	9	17	25	JAN.	1	2
				DAYS					JAN.	A. M.
				1	9	17	25	JAN.	1	2
				2	10	18	26	FEB.	3	4
				3	11	18	27	MAR.	5	6
				4	12	20	28	APR.	7	8
				6	14	22	30	MAY	9	10
				7	15	23	31	JUNE	11	12
				8	16	24				
				MID-NIGHT						
				8	16	24		JUNE	11	12

<b>Lexington Ave. Line—NORTH</b>		<b>Joint Rate Ticket—COUPON 1</b>		DAYS					JAN.	A. M.				
06000	Lexington Ave. Line—North	06000		8	16	24		JUNE	11	12				
				7	19	23	31	MAY	9	10				
				6	14	22	30	APR.	7	8				
				6	13	21	29	MAR.	5	6				
				4	12	20	28	APR.	7	8				
				3	11	19	27	MAR.	3	4				
				2	10	19	26	FEB.	3	4				
				1	9	17	25	JAN.	1	2				
								DAYS					JAN.	A. M.
								1	9	17	25	JAN.	1	2
								2	10	18	26	FEB.	3	4
								3	11	18	27	MAR.	5	6
				4	12	20	28	APR.	7	8				
				6	14	22	30	MAY	9	10				
				7	15	23	31	JUNE	11	12				
				8	16	24								
				MID-NIGHT										
				8	16	24		JUNE	11	12				

<b>Lexington Ave. Line—NORTH</b>		<b>Joint Rate Ticket—COUPON 3</b>		DAYS					JAN.	A. M.
06000	Lexington Ave. Line—North	06000		1	9	17	25	JAN.	1	2
				2	10	18	26	FEB.	3	4
				3	11	18	27	MAR.	5	6
				4	12	20	28	APR.	7	8
				6	13	21	29	MAY	9	10
				6	14	22	30	JUNE	11	12
				7	15	23	31			
				8	16	24				
				9	17	25				
				10	18	26				
				11	19	27				
				12	20	28				
				MID-NIGHT						
				8	16	24		JUNE	11	12

Joint Rate Transfer Ticket Issued by the Metropolitan Street Railway

As shown in the illustration, the coupons are numbered 1, 2 and 3 and are detachable. Upon issue of a joint rate ticket for 10 cents the conductor retains coupon No. 3 and returns it with his receipts. If the ticket is used only for passage on the Fifty-ninth Street line the passenger surrenders coupons Nos. 1 and 2 and receives 2 cents from the conductor. If the passenger uses the Fifty-ninth Street crosstown line in order to transfer from one Metropolitan north or south line to another Metropolitan north or south line he retains coupons Nos. 1 and 2 through the trip on the Fifty-ninth Street line and surrenders them for passage on the second Metropolitan line.

The full text of the conditions set forth on coupon No. 2 of the Fourth & Madison Avenue line, southbound, is in accordance with the paragraphs on the next page:



## INTERBOROUGH RAILS FOR TANGENTS AND CURVES

The Interborough Rapid Transit Company, New York, has recently modified its specifications for open-hearth steel rails for service on tangents, by raising the minimum carbon content from 0.70 per cent to 0.75 per cent and the maximum carbon content from 0.85 per cent to 0.90 per cent. It also has been determined to use a manganese steel rail for curves. The following paragraphs cover the principal points of both specifications drawn up by George H. Pegram, chief engineer Interborough Rapid Transit Company.

### SPECIFICATIONS FOR STEEL RAILS FOR CURVES

1. The steel for the rails shall have the following chemical composition, to be determined by chemical tests of each melt:

Carbon.....	Not less than 1.00 per cent
Manganese.....	11 to 14 per cent
Phosphorus.....	Not over 0.10 per cent

2. Sufficient metal shall be sheared from the tops of ingots to insure sound steel in the finished rails.

3. The number of the melt and the place and year of manufacture shall be marked in plain raised letters on the side of the web of each rail.

4. The rails shall be of the 100-lb. Interborough Rapid Transit Company's section, shown on drawing No. 9702 (not reproduced).

The section of rails rolled shall correspond as closely as possible with the standard drawings furnished by the Interborough Rapid Transit Company, and any excess of weight, due to variation from the standard section, shall not exceed 1 per cent.

5. An allowance in height of  $1/64$  in. under and  $1/32$  in. over, and in width  $1/16$  in., is permitted and perfect fit of the splice bars shall be maintained.

6. The circular holes,  $1 1/16$  in. diameter, shall be punched through the web of the rails at each end for the splice bar connections, and, in addition thereto, one-half of the total number of rails shall have circular holes  $1 1/16$  in. in diameter punched through the web beginning 1 ft. 6 in. from the end of the rail and spaced 3 ft. apart for use in bolting the check rail on the inner side of curves.

In addition thereto, four circular holes,  $9/32$  in. in diameter and  $1 1/2$  in. apart and  $1 3/4$  in. from the end of the rail to the first hole, shall be drilled through the web at each end of all rails. The punching and drilling above explained is shown on drawing No. 9702 (not reproduced).

7. The rails shall be sawed off square to their longitudinal axes, and the lengths of the rails at 60 deg. Fahr. shall be kept within  $1/4$  in. of the standard lengths of 33 ft. Ten per cent of the entire order will be accepted in shorter lengths varying by even feet down to 24 ft.

8. The rails are to be straightened cold, to be smooth on the head, sawed square at the ends, and shall have the burrs occasioned by cutting and punching removed before shipment, and the rail shall be free from all injurious defects. The ends of short-length rails to be painted green before shipment.

9. An inspector will be detailed by the company to examine the material and workmanship. The contractor will supply him with facilities free of charge for testing the material and examining the workmanship as per these specifications.

### SPECIFICATIONS FOR STEEL RAILS

1. The steel used for the rails shall be made by the open-hearth process, and have the following chemical composition, to be determined by chemical tests of each melt:

Carbon, 0.75 to 0.90 per cent; average not less than 0.80 per cent.

Manganese, 0.60 to 0.90 per cent.

Silicon, not over 0.20 per cent.

Phosphorus, not over 0.04 per cent.

Paragraphs 2 and 3 are similar to those for curved rails.

4. From each melt of steel a test specimen taken from the top end of top rail rolled from ingot shall be tested under a drop weight of 2000 lb. falling 16 ft. upon the center of test

piece resting on supports 3 ft. apart. The permanent set after the blow shall be noted, and together with the chemical test shall form the record of each melt to be kept by the inspector.

5. If the test piece breaks under the first blow of the drop test, the melt shall be rejected unless two additional specimens of metal from the top of the ingot are tested and both withstand the test, in which case the melt may be accepted.

6. After the test specimen has been given one blow under the drop test, it shall be nicked and broken, and if the fracture indicates piping, the top rail from each ingot of the melt represented by the test shall be rejected, unless two additional specimens from the tops of the ingots withstand the test, in which case the top rails shall be accepted.

7. If during the process of straightening a rail shall crack, it shall be taken as a sign that the steel is too hard, and the whole melt shall be rejected unless repeated tests of crop ends of the heat establish the fact that the cracking was accidental.

8. The sections of the rails rolled shall correspond as closely as practicable with the standard drawings furnished by the Interborough Rapid Transit Company, and any excess of weight due to variations from the standard section shall not exceed 1 per cent.

9. An allowance in height of  $1/64$  in. under and  $1/32$  in. over, and in width  $1/16$  in. shall be permitted, and perfect fit of the splice bars shall be maintained.

10. Six circular holes of  $1 1/16$  in. diameter shall be drilled through the web of the 90-lb. section, as shown on drawing No. 4797 (not reproduced).

11. The rails of 90-lb. section shall be sawed off square to their longitudinal axes, and the lengths of the rails at 60 deg. Fahr. shall be kept within  $3/8$  in. of the standard lengths, which shall be 30 ft., 27 ft. and 24 ft., and not more than 10 per cent of the rails of the two shorter lengths shall be received.

12. The end of all short-length rails shall be painted green.

13. Four circular holes of  $1 1/16$  in. diameter shall be drilled through the web of the 90-lb. section, as shown on drawing No. 8761 (not reproduced).

14. The rails of 100-lb. section shall be sawed off square to their longitudinal axes, and the lengths of the rails at 60 deg. Fahr. shall be kept within  $3/8$  in. of the standard lengths, which shall be 33 ft., 32 ft., 31 ft., 30 ft., 29 ft., 28 ft., 27 ft., 26 ft., 25 ft. and 24 ft., and not more than 10 per cent of the rails of the nine shorter lengths will be received.

15. The rough edges produced by the saw at the rail ends shall be well trimmed off and filed.

16. The rails shall be perfectly straightened, and the skin or surface smooth and free from flaws or cracks.

17. Inspection clause as in curved rail specification.

## MEETING OF THE INTERURBAN RULES COMMITTEE

The first meeting of the interurban rules committee of the Transportation & Traffic Association will be held in New York, Wednesday, Jan. 25, at the headquarters of the American Electric Railway Association, 29 West Thirty-ninth Street.

The committee is now complete and consists of the following gentlemen:

J. W. Brown, superintendent of transportation Aurora, Elgin & Chicago Railroad, Wheaton, Ill., chairman.

F. A. Boutelle, superintendent Tacoma Railway, Tacoma, Wash.

W. R. W. Griffin, general manager Steubenville & East Liverpool Traction & Light Company, East Liverpool, Ohio.

C. F. Handshy, general superintendent Illinois Traction System, Springfield, Ill.

A. S. Shane, general manager Indianapolis, Columbus & Southern Traction Company, Indianapolis, Ind.

W. H. Collins, general manager Fonda, Johnstown & Gloversville Railroad, Gloversville, N. Y.

F. M. Durbin, assistant operating manager J. G. White & Company, New York.



**INTEGRAL OIL CUPS IN BROOKLYN**

The Brooklyn Rapid Transit Company still uses a large number of motors which originally were made for grease lubrication. The attempt to use oil cups in these motors has not been entirely successful, as the grease cavities in the frames

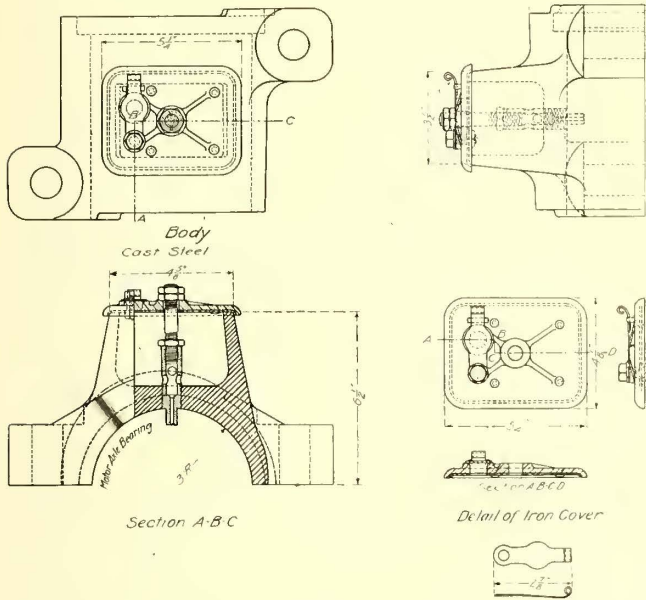


Fig. 1—Oil Cup for Axle Cap, Commutator End, Westinghouse No. 81 Motor

were too irregular to allow a tight fit. Hence many cups were lost by being thrown out of the frame when the trucks passed over special work or rough spots in the line. Another difficulty

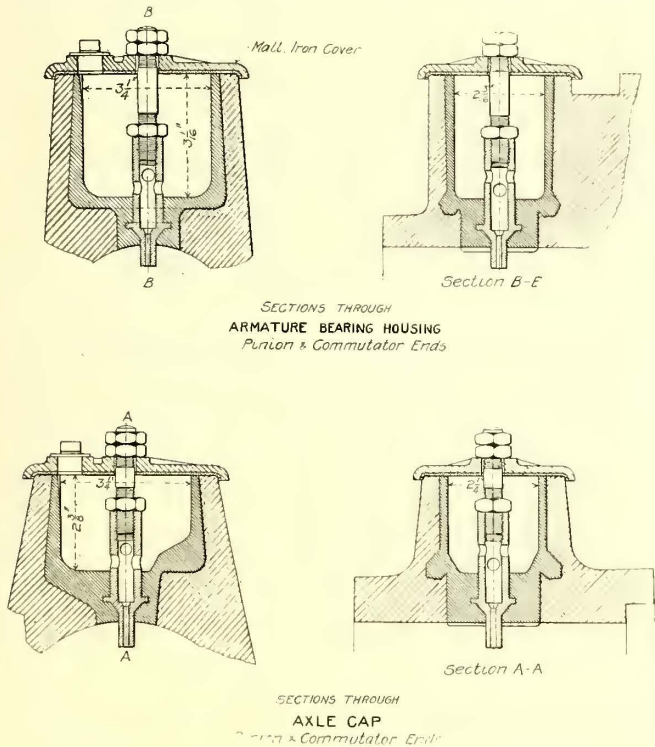


Fig. 2—Babbitted Oil Cups for No. 81 Motor

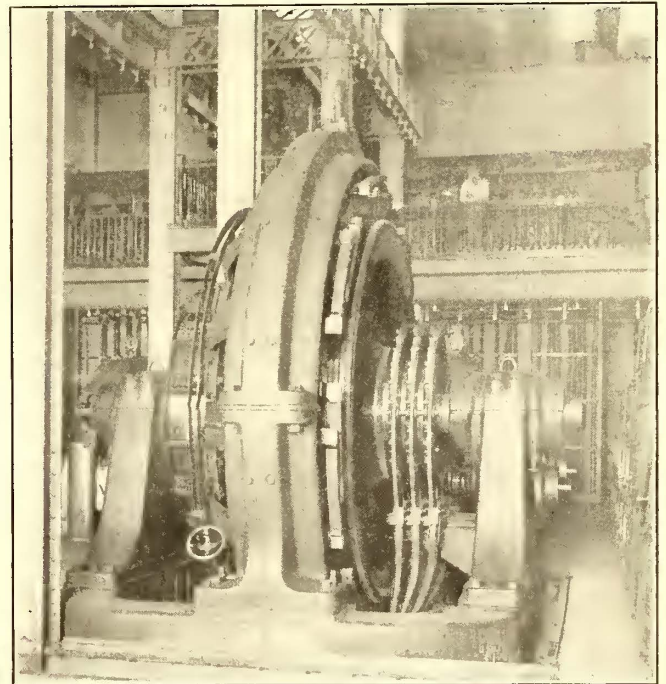
with the cups was the fact that they had a needle valve to control the feed. Frequently these valves would stick and thereby cause the loss of armatures. To overcome these troubles the mechanical department of this company has adopted an oil receptacle which is a part of the motor frame. It is made in two forms as shown in the accompanying drawings. Fig. 1

shows the construction when the oiling method is embodied in a new axle cap casting, while Fig. 2 shows how armature bearing and axle castings can be turned into oiling cups by babbitting. In both patterns the oil is fed through a wick-filled spindle. The covers of all boxes are also similar, being made of malleable iron with a leather gasket to insure the exclusion of dust when the jam nut is tightened. The receptacles are filled with oil after raising a 1-in. flat spring in the cover. These oil boxes will replace the independent oil cups in use on the G. E. 57, G. E. 64, Westinghouse 68 and Westinghouse 81 motors operated under the surface passenger cars.

**A 3000-KW ROTARY CONVERTER**

Late in 1909 the Interborough Rapid Transit Company, New York, found that the load on its system was rapidly outgrowing the capacity of its substation equipment. Excessive overhead charges made it imperative that the maximum possible output per square foot of floor space be obtained from the substations already erected. It was finally decided to secure bids, on the basis of maximum output per unit of floor area, on two rotary converters to replace two 1500-kw machines in substation No. 14, the load having increased beyond their capacity for economic operation. The 1500-kw machines were subsequently transferred to other substations which were in need of additional capacity.

The contract for two 3000-kw rotary converters was awarded to the Westinghouse Electric & Manufacturing Company. With the same available floor space the normal capacity of the old substations was doubled. It is interesting to note that the horizontal construction was chosen in preference to the ver-



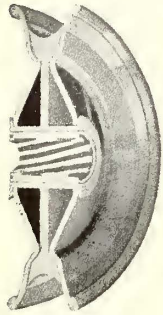
3000-kw Rotary Converter in New York

tical. The result of competitive design clearly showed that no material saving could be effected by the vertical arrangement; in fact, on the basis of kilowatts per square foot of floor space occupied, the capacity of the horizontal units selected exceeded by more than 20 per cent the capacity of machines of the vertical type.

The new rotaries, which have by far the largest capacity of any built up to the present time, are designed for six-phase operation on a 25-cycle a.c., 600-volt d.c. system, and are rated 3000 kw each at 187½ r.p.m. The first was installed in November, 1909, and the second one month later. Both have been in continuous service ever since. The weight of each of these rotary converters is 150,000 lb.

### "IDEAL" TROLLEY WHEEL

A new type of the "Ideal" trolley wheel has recently been put on the market by the Lumen Bearing Company, Buffalo, N. Y. It is made in the 4½-in. size for city service and the 6-in. for high-speed interurban service. The construction of the wheel, as will be noticed by the cut, tends to keep it perfectly balanced. The side flanges are of stamped soft steel and the contact ring and hub are in one piece. In this way, it is claimed, the electrical resistance and the weight of the wheel are kept low, while the life of the wheel is increased.



"Ideal" Wheel

The wheel is fitted with a graphite bushing in which the slots for the graphite are wedge shaped. This gives a more secure seat for the graphite and reduces the chances of sand or grit getting into the bearing.

The R. D. Nuttall Company, Pittsburgh, is the exclusive agent of the Lumen Bearing Company for the sale of this wheel.

### SELECTOR SIGNALS FOR THE INDIANAPOLIS & CINCINNATI TRACTION COMPANY

The Indianapolis & Cincinnati Traction Company, C. L. Henry, president, has arranged with the United States Electric Company and the Hall Signal Company to make a trial installation of selector signals on the Indianapolis & Cincinnati Traction Company's single-phase road. The lines of this company extend from Indianapolis east through Rushville to Connersville and southeast through Shelbyville to Greensburg. The new installation will include four agents' call bells and two semaphores, all arranged for direct control by the dispatcher through the medium of Gill selectors connected to the present telephone circuit. The dispatcher for both divisions of this road is located at the junction of the two lines just east of Indianapolis. Semaphore installations will be made at Greensburg and Connersville, the eastern extremities of the two branches. The ringing sets will be installed in the depots at these two termini and at Shelbyville and Rushville.

The railroad company has two telephone circuits, one for train operation and one for business use. The selector sets will be connected to the business circuit. As stated, selectors in the four most important offices on this road will be arranged to operate bells for calling the agent to the telephones. Two other selectors will serve to operate the electric slots of semaphores, furnished by the Hall Signal Company. These will be placed at sidings and serve to block trains when the dispatcher wishes to have the crews call him on the telephone. The purpose of the present limited installation is to determine the applicability of the apparatus to conditions surrounding high-voltage single-phase train operation.

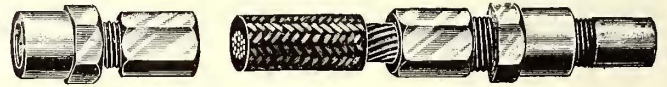
The official tramway traffic returns of 64 of the principal undertakings of the United Kingdom for the week ending Dec. 17, 1910, amounted to £200,220, or £16,510 more than for the corresponding week of 1909, while the track mileage was 2505, or 191 more than for the corresponding week. The receipts were at the rate of £79 18s. 7d. per track mile, an increase of 10s. 9d. per mile as compared with the year 1909. The receipts from the London County Council and Liverpool Corporation tramways, which are included in the above statistics, are for a preceding week, as these two corporations issue their returns later than the others.

### TAP COVER AND STUD

The insulated tap cover shown in the accompanying cut is manufactured by Dossert & Company, New York, for use in place of the taped joint commonly employed. It can be put on or taken off in less than a minute, and may be used on cables ranging in size from No. 6 to 300,000 circ. mil. It is said to be especially adapted to switchboard work, as it makes a better insulated joint than tape. It is smoother and offers less opportunity for collection of dust and dirt. The upper cut, showing the stud connector, Style F, is used to connect a wire or a cable to a stud



Stud



Tap Cover

or threaded rod. It consists of a nipple, one end of which is equipped with a regular tapered nut and compression sleeve to take a certain size wire, while the other end is tapped and threaded to receive the stud.

### SINGLE-TRUCK PREPAYMENT CARS FOR NEW ORLEANS

The St. Louis Car Company has just completed 50 single-truck cars for the New Orleans Railway & Light Company. These cars have round-end vestibules, monitor deck roof with detachable hoods, straight side paneling, and are arranged for double-end operation and prepayment fare collection.

The car body is 22 ft. 1 in. over the corner posts, and 32 ft. 8 in. over the buffers. It is 8 ft. 4 in. wide over all and 8 ft. 2½ in. wide over the side posts.

The bottom construction is the car builder's Robertson steel channel design. The side sills consist of two 6-in. channels placed back to back with wrought-iron spaces between to receive the posts. The subsills consist of angle iron riveted



Single-Truck Cars for New Orleans

together and bolted to all cross and end sills. The end sills and cross timbers are all of white oak. The cross timbers are securely fastened to the channel sills with ⅝-in. corner irons bolted through to the outside channels. The draft timbers are of white oak. The outside draft timbers are reinforced with 6-in. x ½-in. iron plate. The flooring is of 13-16-in. yellow pine. Maple strip floor mats are used.

The body framing is of the straight panel type for 10 windows on each side and two at each end. The doors in the bulkheads are of the double sliding type. The interior finish, including all doors, end and side linings, is of mahogany. The cars are equipped with the car builder's latest walk-over seats with corner grip handle. The trimmings throughout are nickel plated and are of the car builder's patterns.

The cars are further equipped with the St. Louis Car Company's standard 14-in. brake handle and drawbars.

## ELECTRIC RAILWAY LEGAL DECISIONS

## CHARTERS, ORDINANCES AND FRANCHISES

**Missouri.—Eminent Domain—Condemnation for Railroads—Prerequisites to Right—Right to Question.**

A railway company organized under Rev. St. 1899, chap. 12, art. 2 (Ann. St. 1906, p. 804), derives from the State authority to condemn lands for railroad purposes, and not from a city or other municipality in which it may desire to enter, and it need not first procure consent of a municipality to use its streets as a prerequisite to its legal right to condemn private property for such purposes.

The power of a regularly organized and chartered railroad company chartered to construct and operate a railroad for public use in the conveyance of persons or property to run freight trains over its track cannot be questioned in a condemnation proceeding. (State ex rel. Greffet et al. v. Williams, Judge, et al., 127 S. W. Rep., 52.)

**Missouri.—Eminent Domain—Taking of Property—Easements—Instructions.**

The owner of real estate abutting on a public street has an easement therein of light, air and access, which is property, of which he cannot be deprived without compensation.

When an elevated street railroad, constructed and operated on permanent structures along a public street pursuant to permission from the city, deprived an abutting owner of his easement in the street of light, air and access, he could recover the damages sustained.

In an action for damages caused by the construction and operation of an elevated street railroad, an instruction that the measure of damages was the difference between the market value of the property immediately before the "construction, maintenance and operation" of the road and immediately after was not in conflict with an instruction that if the market value of the property immediately after the "building and operation" of the road was equal to or greater than it was immediately before there could be no recovery, and that the burden rested on the abutting owner to prove that he had been damaged by reason of the "construction" of the road, since they fixed the measure of damages at the difference, if any, between the market value of the property immediately before and immediately after the construction and operation of the road, as the omission of the word "maintenance" in the second instructions could not have misled the jury. (Rourke et al. v. Holmes St. Ry. Co. et al., 119 S. W. Rep., 1094.)

**New York.—Eminent Domain—Action for Compensation—Judgment—Award of Damages.**

In an action by an abutting owner for damages caused by the construction and operation of a street railroad, defendants are entitled to have the judgment against them distinguish between the rental and fee damages, and it was reversible error to render a judgment awarding a single sum for both. (Duncan v. Nassau Electric R. Co., 91 N. E. Rep., 787.)

**New York.—Eminent Domain—Compensation—Additional Servitude.**

Where an abutter does not own the fee in the street, damages from the construction of a street railroad may be restricted to injury to light, air and access, his only easements; but if he owns the fee subject to the public easement he may recover additional damages which proper operation of the road entails. (Rasch v. Nassau Electric R. Co. et al., 91 N. E. Rep., 785.)

**New York.—Judgment—Conclusiveness—Parties.**

That a village intervened after judgment in foreclosure proceedings against a street railroad company as a creditor at the foot of the judgment to establish claims against the property in the hands of the railroad company's receiver did not render the judgment conclusive as against the village in so far as it authorized the purchaser to reject any contracts, franchises, rights, etc., purchased at the sale which it did not desire to assume on its assigning the same to the receiver. (Knickerbocker Trust Co. v. Tarrytown, W. P. & M. Ry. Co. et al., 123 N. Y. Sup., 954.)

**New York.—Foreclosure of Mortgages—Debts Entitled to Priority.**

The surety on an appeal bond given by a street railroad

company on appeal from a judgment recovered by the city of New York for car license fees, which has paid the judgment and taken an assignment thereof, is subrogated only to the rights given by the judgment; and, there being no statute giving such judgment any lien or preference, it is not entitled to priority of payment over a prior mortgage on a sale of the company's property in foreclosure proceedings. (Central Trust Co. of New York v. Third Ave. R. Co. et al., 180 Federal Rep., 710.)

**New York.—Foreclosure of Mortgages—Receivership—Improvement of Property.**

A court of equity which through its receivers is operating an extensive system of street railroads pending the foreclosure of mortgages and liens on its various parts has power in its discretion to authorize the expenditure of money by the receivers in the completion of car houses, which are being rebuilt or enlarged on certain of the lines, where in its judgment such expenditure is necessary to meet the requirements of the system and render adequate service to the public, leaving the question of the distribution of the expense as between the different mortgagees to be determined on a final accounting. (Pennsylvania Steel Co. et al. v. New York City Ry. Co. et al., 180 Federal Rep., 704.)

**New York.—Rights in Streets.**

The rights of an electric railway company in a highway are subject to the right of the public authorities to improve the highway as the public interest requires, and to the liability of being required to change its location, grade, etc., to conform to the requirements of such public improvements, at its own expense, without recourse against those lawfully engaged in improving the highway for any damage that might be done to the railroad property, when no reckless or negligent act causes any damage; and where proceedings authorizing the improvement of a highway as a state road were regularly had, an electric railway company occupying the highway could not recover for damages resulting from the careful construction of the road. (Malone, Ft. C. & H. P. Ry. Co. v. Spuyten Duyvil Const. Co. et al., 121 N. Y. Sup., 656.)

**New York.—Nuisance—Injunction—Partial Defense.**

Where there is a technical nuisance, if plaintiff's damage is small, or only occasional, or easily compensated for in money, and injunctive interference with defendant would work great public mischief and inconvenience, equity will seek to protect plaintiff's right by other means.

In a suit to restrain a nuisance, consisting of defendant's maintenance of an electric power plant in the vicinity of plaintiff's residence, a partial separate defense, alleging that defendant's business was maintained to supply electricity to operate the various trolley and elevated railroads in the borough of Brooklyn, that defendant had complied with all the municipal ordinances, used the best appliances and materials, and exercised great care, and could not carry on its business in any other manner, was not demurrable. (Raymond v. Transit Development Co., 119 N. Y. Sup., 655.)

**Oklahoma.—Municipal Corporations—Grant of Right to Use Street—Exclusive Grant.**

An ordinance of a municipal corporation granting to a corporation authority to use the streets, alleys and public grounds of a city for the purpose of constructing and operating an electric light and power plant to furnish light and power to a city and its inhabitants confers privileges which are exclusive in their nature against all persons upon whom similar rights have not been conferred; and any person or corporation attempting to exercise such right, without legislative authority or sanction, invades the private property rights of the corporation to whom such franchise has been granted, and may be restrained at the instance of the owner of the franchise. (Bartlesville Electric Light & Power Co. v. Bartlesville Interurban Ry. Co., 109 Pac. Rep., 228.)

**Pennsylvania.—Rights in Streets—Right to Cross—Corporations—Implied Powers.**

That a city does not properly maintain a street for public use does not affect its right to prevent a railroad company from occupying the street.

A railroad company to cross a city street without municipal consent must possess such charter power, though it owns the land on both sides of the street.

That a lessee railroad company under its charter has power to cross city streets without municipal consent would not authorize it to extend a leased road over a street without such consent where the charter of the leased road requires such consent.

The doctrine of implied power of corporations will not be extended to permit that to be done by a corporation which the Legislature has previously said shall not be done, even if without such implied power the grant of some particular franchise would be valueless. (*Pittsburgh Rys. Co. v. City of Pittsburg*, 75 *Atl. Rep.*, 681.)

**Pennsylvania.**—Municipal Corporations—Taxation—Liability of Property—Public or Quasi Public Corporations.

The real estate of a public or quasi public corporation essential to the exercise of its corporate franchises is not subject to taxation for local purposes, in the absence of legislative authority imposing such taxes. (*Federal St. & P. V. Pass. Ry. Co. et al. v. City of Pittsburgh et al.*, 75 *Atl. Rep.*, 662.)

**South Carolina.**—Baggage—Refusal to Transport.

If a street car company waived its rule prohibiting passengers from bringing large and unwieldy articles into the car by permitting a passenger to bring a graphophone horn into the car with him, it will be liable to punitive damages for afterward refusing to allow plaintiff to become a passenger with a graphophone horn. (*Vlasservitch v. Augusta & A. Ry. Co.*, 67 *S. E. Rep.*, 306.)

**Texas.**—Stopping of Cars to Permit Passengers to Alight—Ordinances.

Under an ordinance requiring a street railroad to stop at street crossings where passengers request it, where the conductor received the fare and was then informed that the passenger wanted to alight at a particular street, he must stop the car there to permit the passenger to alight. (*Texas Traction Co. v. Hanson*, 124 *S. W. Rep.*, 494.)

**Vermont.**—Carriers—Rebates—Intrastate Shipment.

A contract between the receiver of a railroad company and a shipper for payment of a rebate on an intrastate shipment is not illegal. (*Bibber-White Co. v. White River Valley Electric Ry. Co.*, 175 *Federal Rep.*, 470.)

**West Virginia.**—Crossing with Other Roads—Suit to Determine—Parties.

In a suit pursuant to Code 1906, c. 52, sect. 11, for decree fixing the crossing of one railroad by another, the holders of the mortgage bonds of the defendant railroad are not necessary parties when the trustees in the mortgage are made parties.

An electric railroad may be decreed the right to cross a steam railroad. The physical character of the railroad seeking the crossing, or that of the railroad proposed to be crossed, has nothing to do with the applicability of the statute.

Grade crossings are not prohibited but are authorized by the law of this State. Where the facts warrant a crossing at grade, its construction and operation may be decreed. (*Tri-State Traction Co. v. Pittsburgh, W. & K. R. Co. et al.*, 68 *S. E. Rep.*, 25.)

**Wisconsin.**—Right to Street—Injunction—Alternative Legal Relief.

The operation of interurban cars being unlawful, both as against the adjoining landowners, being an additional burden on the public easement in the street, and as against the public, the company's charter not authorizing such operation, a court of equity could not, in consideration of money paid to the adjoining owners in satisfaction of their private wrongs, refuse to enjoin the company's unlawful act, though the adjoining owners' property be of insignificant value to them as compared with the advantages that would accrue to the company from the use of the street. (*Schuster et al. v. Milwaukee Electric Ry. & Light Co. et al.*, 126 *N. W. Rep.*, 26.)

#### LIABILITY FOR NEGLIGENCE

**Delaware.**—Street Railroads—Collision of Car and Team—Due Care—Concurrent Negligence.

The proper care required to be exercised both by the motorman of a street car and the driver of a team in approaching a crossing, to avoid a collision, depends on the facts and circumstances of each case.

Where, in case of the collision of a street car and team, both the motorman and the driver were negligent, there can be no recovery for injury to the team and driver, unless, after the driver got in the place of danger, the motorman saw, or by the exercise of reasonable care could have seen, him in time to avoid the accident. (*Clay v. People's Ry. Co.*, 76 *Atl. Rep.*, 319.)

**Illinois.**—Injury to Person on Track—Care Required.

Where decedent was killed after alighting from a car, by a car passing in the opposite direction as he was going around the end of the car from which he alighted, he was only bound to the exercise of reasonable care under all the circumstances, and was not bound "to ascertain" whether there was a car approaching on the other track from the opposite direction. (*Stack v. East St. Louis & S. Ry. Co.*, 92 *N. E. Rep.*, 241.)

**Indiana.**—Street Railroads—Crossing Accident—Care Required.

The driver of an interurban electric car over a city street crossing is bound to have his car under control to avoid collision with other travelers on the streets, so that, while the operation of a train on a steam railroad over a country crossing at from 30 to 60 miles an hour may not be negligent, the operation of an electric car over a street crossing at anything like such rate of speed would constitute gross negligence. (*Union Traction Co. v. Howard* (No. 6324), 86 *N. E. Rep.*, 967.)

**Indiana.**—Street Railroads—Injuries to Travelers—Frightening Horses—Negligence—Imputed Negligence.

Where plaintiff when she was injured was riding with her son, 20 years of age, able to manage horses under any ordinary circumstances, and, when the team was frightened by the approach of defendant's car, he did what he could to avert the accident, instructions that the son's negligence could not be imputed to plaintiff if she was free from fault, and the passive guest of the son, without any authority to direct or control his movements in managing the team, were proper. (*Cincinnati, L. & A. Electric St. R. Co. v. Cook* (No. 6695), 88 *N. E. Rep.*, 76.)

**Kentucky.**—Master and Servant—Injuries to Servant—Fellow Servants—Motorman.

A street railway motorman is not the fellow servant of the motorman of another car running on the same line and employed by the same company. (*Louisville Ry. Co. v. Hibbit*, 129 *S. W. Rep.*, 319.)

**Louisiana.**—Care Required—Noises.

Where a street railroad company had created a confusion of noises and car tracks at a crossing, it was bound to use extraordinary care in handling its cars there to prevent injuries to pedestrians. (*Hanna v. New Orleans Ry. & Light Co.* (No. 17,571), 52 *S. Rep.*, 856.)

**Louisiana.**—Street Railroads—Operation—Duty—Rate of Speed—Street Car.

The necessity of being careful about the speed of a street car is not as urgent at 12 o'clock at night as it is during the active business hours of the day, when there are many persons and vehicles on the street. (*Dubose v. New Orleans Ry. & Light Co.*, 49 *S. Rep.*, 696.)

**Louisiana.**—Collisions—Negligence—Evidence.

A child about six years old suddenly started from the sidewalk to run across a street on which street cars were operated, when a car was approaching. The car according to some witnesses was near, and according to others 10 ft. or 15 ft. away. The motorman saw the child start across the street and endeavored to stop the car, which was running at half speed; but he failed to do so, and the car struck the child. The car was stopped within 46 ft. Experienced men testified that a stop of the car within 30 or 50 ft. was a good stop. Held, as a matter of law, that the accident did not result from the negligence of the motorman. (*Litoff v. New Orleans Ry. & Light Co.*, 50 *S. Rep.*, 105.)

**Massachusetts.**—Street Railroads—Injuries to Travelers—Instructions.

In an action for injuries in a collision with a street car, a request for rulings on the question of liability, excluding the question of plaintiff's due care, was properly refused.

In an action for injuries to a traveler in a street car

collision, a request for a ruling, excluding the distinction between negligence and a mere error of judgment on the part of the motorman, was properly refused. *Blackburn vs. Boston & N. St. Ry. Co.*; *Knowlton vs. same*, 87 N. E. Rep., 579.)

**New Jersey.—Death—Excessive Damages.**

Where, in an action for wrongful death, it appeared: That decedent was 50 years old; that he was earning \$10 a week; that, though at one time when running a farm with the aid of his family he earned a much larger income, he had quit farming and was working as a farm laborer; that in three months' time he had contributed only \$40 to the support of his family; that all but four of his children were married; and that the unmarried children were aged 14, 20, 22 and 24 years of age, respectively—a verdict for \$6,000 was excessive. (*Settlemyer vs. Public Service Ry. Co.*, 73 Atl. Rep., 50.)

**New York.—Street Railroads—Actions—Instructions—Standard of Care.**

An instruction that when a pedestrian attempts to cross a street car track at such a distance from an approaching car that he has reasonable ground to suppose that he will be able to cross it is the driver's duty to give him a reasonable opportunity to cross made the pedestrian's reasonable ground for belief, and not his supposition, the standard of his care. (*Sperry v. Union Ry. Co. of New York City*, 114 N. Y. Sup., 286.)

**New York.—Master and Servant—Electricity—Death of Employee—Employer's Failure to Report Defect.**

In an action against an employer for the death of an employee claimed to have been caused by electricity passing through a rubber glove furnished him, it was improper to submit to the jury the question of the employer's negligence in furnishing improper gloves, where the employee had the better opportunity to ascertain whether the gloves were defective.

As to an employee, an employer is not chargeable with notice of a defect which it is the employee's duty to report, but which he fails to do. (*Gardner v. Schenectady Ry. Co.*, 112 N. Y. Sup., 369.)

**New York.—Negligence—"Res Ipsa Loquitur"—Burden of Proof—Carriers—Street Railroads—Injuries to Passengers—Negligence—Nominal Damages.**

While the doctrine of "res ipsa loquitur" does not permit a recovery without some proof of negligence, yet, if proof of the occurrence shows that the accident could not have happened without negligence according to the ordinary experience of mankind, the doctrine is applicable, though the precise omission or act of negligence is not specified.

Where a street car passenger was thrown to the floor in a collision, the cause of which was not shown, and there was no suggestion that plaintiff was negligent, he was at least entitled to recover nominal damages, regardless of the extent of his injuries. (*Levine v. Brooklyn, Q. C. & S. R. Co.*, 119 N. Y. Sup., 315.)

**Pennsylvania.—Carriers—Setting Down Passengers—Negligence.**

Passengers on a street railway could alight on either side of the car, and in alighting step down on a level macadam road on one side, or on a receding gutter on the other side. A passenger in an open summer car with a running board on each side stepped off on the gutter side, and in so doing, the step being a little high, she lost her balance and fell and was injured. The accident occurred in the twilight. The gutter was made by grading the highway under municipal regulation, and was of the general character of gutters alongside country roads. Held, that such passenger was not entitled to recover for the injuries sustained. (*Sligo et al. v. Philadelphia Rapid Transit Co.*, 73 Atl. Rep., 211.)

**Pennsylvania.—Carriers—Street Railways—Collisions at Steam Railroad Crossing—Accident to Passenger.**

The trolley wheel of a car left the wire when the car was passing over a steam railroad crossing without negligence on the part of the street railway company, and the car was run into by a locomotive. There was nothing to show that the parting of the trolley was due to any defect in the construction or to lack of care. Held, that the passenger could not recover. (*Gaines et al. v. Chester Traction Co.*, 73 Atl. Rep., 7.)

**Texas.—Railroads—Killing Persons on Track—Negligence—Burden of Proof—Use of Track—Licenses.**

Trainmen discovering an object on the track in front of the train must at least exercise ordinary care to ascertain what it is, and where, by failure to do so, a person lying on the track is killed the company is liable.

One suing for the death of a person struck by a train because of the failure of the trainmen to exercise ordinary care, after discovering decedent's peril, has the burden of proving that the discovery of the peril of decedent was made in time to enable the trainmen by the exercise of proper care to avoid the collision.

A license to use a railroad track for a footpath does not include the right to use it as a place whereon to lie or sit. (*Caldwell et al. v. Houston & T. C. Ry. Co.*, 117 S. W. Rep., 488.)

**Texas.—Carriers—Injuries to Passengers—Care Required.**

In an action for injuries sustained by falling from a street car step while alighting, because the steps were worn and slanting, and were slippery from mud, and because of the conductor's failure to warn plaintiff of their condition and assist her to alight, the court, after instructing that it was the company's duty to use such means to enable passengers to alight safely as persons of the greatest care and prudence would use, which was the care a very prudent, careful and competent person would use under similar circumstances, instructed that it was the conductor's duty to be prudent and skilful to see that passengers were not injured in alighting, and he was negligent if he failed to use the greatest degree of care as defined, and that it was the company's duty to exercise the greatest degree of care as defined to construct and maintain proper steps for its cars so as not to injure passengers, and, in the next instruction, left it to the jury whether the conductor's failure to assist and the slippery condition of the steps, etc., was negligence, and also gave a proper charge on contributory negligence. Held, that the charge as a whole fairly and fully presented the issues, and was not misleading, as instructing that it was the conductor's duty to use care in aiding plaintiff to alight. (*Northern Texas Traction Co. v. Danforth*, 116 S. W. Rep., 147.)

**Virginia.—Street Railroads—Injuries to Travelers—Liability—Instructions.**

A traveler on a street on which a street car is operated may go on or near the track in passing a wagon standing near the curb, and the motorman must warn her of the approach of the car, where there is danger of running her down, and must slow down his car so as to avoid injuring her, if he can do so in the exercise of reasonable care after he ought to have seen her peril.

Where, in an action for injuries to a bicycle rider struck by a street car, the evidence showed that the rider went on or near the track in passing a wagon standing near the curb, and the proof was conflicting whether the accident occurred before or after the car had passed the wagon, an instruction that the car had the right of way at the point at which the accident occurred, and that if the motorman was proceeding at a lawful rate of speed, and plaintiff was not approaching a place of obvious danger, the motorman owed no duty to slow down his car, covered both phases of the case and left the jury to determine at what point plaintiff was injured, rendering it proper to refuse instructions assuming that the accident did not occur until after the car had passed the wagon. (*Norfolk & P. Traction Co. v. O'Neill*, 64 S. E. Rep., 948.)

**Washington.—Death—Damages—Excessiveness.**

Decedent, a stone mason by trade, 47 years old and in good health, with ability to earn wages at from \$6 to \$6.50 per day, was killed while attempting to alight from defendant's moving electric car. He was a kind, affectionate father and devoted most of his earnings to the support of his family. There was no evidence as to his habits of industry or sobriety, except that on the day he was killed there was evidence that he had spent the afternoon with a companion in a saloon playing cards and pool, and that, after they boarded the train, they were seen by fellow passengers drinking from a bottle. Held, that a verdict for \$10,000 was excessive and should be reduced to \$6,000. (*Felt et al. v. Puget Sound Electric Ry.*, 175 Federal Rep., 477.)

# News of Electric Railways

## Program of Mid-Year Meeting

The last week of this month will be an active one for the American Electric Railway Association and its affiliated organizations.

On Wednesday, Jan. 25, a meeting will be held in New York of the executive committee of the American Electric Railway Claim Agents' Association. On the same day meetings will be held by a number of committees of the Transportation & Traffic Association. Several of these will be held in New York, including that of the committee on interurban rules. Others will be held elsewhere when, in the opinion of the chairman of the committee, a larger attendance of the members of the committee will be secured than if New York was selected as the place of meeting. On Wednesday and Thursday the classification committee of the Accountants' Association will meet in New York.

On Thursday, Jan. 26, beginning at 10 a. m., a great many committee meetings are scheduled to be held in New York City. These include meetings of the executive committees of the Accountants' Association and of the Transportation & Traffic Association and of the following committees of the American Association: Public relations, compensation for carrying United States mail, rates and fares, taxation, insurance and public relations. In the afternoon of the same day a meeting will be held of the executive committee of the American Electric Railway Association.

As already announced in this paper, the annual mid-year meeting of the American Electric Railway Association will be held on Friday, Jan. 27, and will consist of two sessions, one in the morning beginning at 10 o'clock, and the other in the afternoon beginning at 2 o'clock. The program of this convention, so far as it is now determined, is as follows:

Address on "Return on Investment," by Thomas N. McCarter, president Public Service Railway, Newark, N. J.

Address on "The Adjustment of American Street Railway Rates to the Expansion of City Areas," by George H. Davis, Ford, Bacon & Davis, New Orleans, La.

Address on "Discount on Securities," by Bentley W. Warren, general counsel Boston & Northern Street Railway and Old Colony Street Railway, Boston, Mass.

Address on "Railway Arbitration, with an Example," by Clarence Deming, associate editor *Railway Age-Gazette*, New Haven, Conn.

In the evening the Manufacturers' Association will entertain at a banquet the officials of the member companies of the association in attendance at the meeting. This dinner will be given at the Hotel Astor at 7 p. m. and will be followed by addresses by prominent speakers.

The notices of the annual meeting, which were sent out by the secretary some time ago, were accompanied by a card upon which the companies were requested to advise the secretary of the name of the official who would probably attend this annual mid-year meeting. These cards are now being received by the secretary in large numbers and indicate that the attendance at the meetings will be very representative as regards both number of companies and individuals.

## Conference on Interurban Operating Methods in New York

The following official call has been made by the Public Service Commission of the Second District of New York through J. S. Kennedy, secretary of the commission, for the conference of general managers, division superintendents, chief train dispatchers and master mechanics of the interurban electric railways under the jurisdiction of the commission in Syracuse on Jan. 19, 1911, of which brief mention was made in the *ELECTRIC RAILWAY JOURNAL* of Dec. 31, 1910, page 1283:

"The following resolution has been adopted by this commission:

"Whereas, There have occurred during the past few months a number of serious accidents on interurban electric railroads (nearly all outside the State of New York

but involving conditions existing in this State), and the same are of frequent occurrence; and

"Whereas, Nearly all of these accidents were caused by defective methods of operation, defects in block signals or violation of rules or orders; now

"Resolved, That a conference of the general managers, division superintendents, chief train dispatchers and master mechanics of the interurban electric street railroads under the jurisdiction of this commission be called and held in Syracuse, N. Y., on Jan. 19, 1911, at 10 a. m., for a discussion of all questions affecting the safety of operation by said railroad companies.

"C. R. Barnes, the electric railroad inspector of this commission, has been instructed to arrange the details of this conference, and he has suggested the following program, which has been approved by the commission.

"In view of the limited time which can be devoted to this conference, we believe that the best results will be obtained by limiting the discussion to four important subjects which have a direct bearing on collisions and their causes.

"With the view of facilitating the work of the conference and to effect the purpose indicated above, the commission has invited the following-named gentlemen to prepare and read papers on the indicated subjects:

"Methods of Employment, Instruction and Discipline of Motormen and Conductors on Interurban Roads,' by J. K. Choate, general manager of the Otsego & Herkimer Railroad.

"Collisions on Interurban Roads and Their Causes,' by E. F. Peck, general manager of the Schenectady Railway.

"Train Dispatching on Interurban Roads,' by C. E. Lewis, chief train dispatcher of the New York State Railways.

"Block Signals on Interurban Roads,' by W. K. Howe, signal engineer.

"These men, by reason of their experience, are ably qualified to point out defects in present-day methods of operation, and the ideas expressed in their papers, followed by a full and free discussion by all present, it is hoped will form the basis for suggestions for greater safety of operation.

"You, and the members of your operating force designated in the above resolution, are respectfully requested to attend the conference, which will be called to order at the Onondaga Hotel in Syracuse on the above-mentioned date and hour, and which will continue for two days if necessary."

## Program of Central Electric Railway Association

The following program has been announced for the annual meeting of the Central Electric Railway Association, which is to be held in the palm room of the Claypool Hotel, Indianapolis, Ind., on Jan. 19, 1911:

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

Business session and reports of special committees.

Paper, "Logical Basis for Valuations of Interurban Street Railways," by C. G. Young, engineer, New York, N. Y.

Discussion.

Paper, "Relation of Common Carriers to the Public," by Joseph A. McGowan, secretary and treasurer of the Terre Haute, Indianapolis & Eastern Traction Company, Indianapolis, Ind.

Discussion.

Adjournment for lunch.

### AFTERNOON SESSION, 1 P. M.

Paper, "Automatic Signaling for Electric Railways," by W. K. Howe, engineer of the General Railway Signal Company, Rochester, N. Y.

Discussion.

Reports of standing committees.

Annual report of secretary-treasurer.

Annual address of the president.

Election of officers.

The executive committee will meet immediately after the adjournment of the association.

The official call for the meeting, signed by George Whysall, president of the association, and A. L. Neereamer, secretary, is dated Jan. 6, 1911. It contains the following suggestions:

"In view of the fact that this is the annual meeting and that the officers for the ensuing year are to be elected as well as reports from the standing committees read, it is sincerely hoped that every member of the association will be present and make it one of intense interest.

"It is suggested to those members living at a distance that the trip be made in special interurban cars, which will tend not only to increase the interest but make the trip one of immense value by personal observation.

"Members have the privilege of bringing their wives and inviting any friends they wish to have present at this meeting. It is also urged that all operating, traffic and mechanical officers be present.

"The attention of managing officers is called to the fact that some of their subordinate officers are on important committees which should make report at this meeting."

### Transit Affairs in New York

The Brooklyn Rapid Transit Company made a proposition to the Public Service Commission on Jan. 10, 1911, which involves the expenditure of \$30,000,000 for the operation of the Fourth Avenue subway in Brooklyn and certain extensions of its own existing system which, with a proposed subway across Manhattan Island connecting with Brooklyn by way of the Manhattan Bridge, would give the company a through route, for the most part four-tracked, from the North River to the Atlantic Ocean. It is stipulated in the proposition that the fare to Coney Island shall be 10 cents, although the city is given the right to reduce the fare to 5 cents provided the city assumes any deficit resulting from the operation at that fare.

The company offers to divide the net profits equally with the city for the Fourth Avenue subway, but stipulates that the city bind itself to stand any losses should the profit not be sufficient to meet the sinking fund costs and the cost of construction. For the line into Manhattan the company offers only to stand interest on the cost of construction and the sinking fund charge, the city still to be liable for any deficit. The company proposes also to extend the four-track system of the Brighton Beach line north of Church Avenue and to connect that line with the Fourth Avenue subway, which is now under construction by the city as far as Forty-third Street. The company also proposes to operate trains across the Manhattan Bridge and across Manhattan Island in a subway to be laid out along some route that may seem feasible. The offer includes the extension of the Brooklyn Fifth Avenue line from Third Avenue and Sixty-fifth Street to Fort Hamilton. This would not interfere with the previous proposition of the company to use the Centre and Delancey Street subway from the Williamsburg Bridge for surface cars, as well as for elevated trains.

The letter of the Public Service Commission of the First District of New York favoring the proposal of the Interborough Rapid Transit Company for the construction and operation of new subway lines in New York was considered by the Board of Estimate and Apportionment of New York on Dec. 30, 1910, and referred by that body to its transit committee, consisting of Mayor Gaynor, Comptroller Prendergast and President Mitchel, of the Board of Aldermen. At the meeting of the board on Jan. 5, 1911, Messrs. Prendergast and Mitchel, as a majority of the transit committee, presented a report in which they assailed the Interborough Rapid Transit Company and declared in favor of an independent subway as the only solution of the city's transit problem. In connection with their report Messrs. Prendergast and Mitchel sought to obtain the adoption of the following resolutions:

"Resolved, First—That the available credit of the city be devoted to the construction of an independent municipally owned and controlled subway system, whose integrity as an operating unit can be forever maintained.

"Second—That the present or future available credit of the city shall not be lent, in whole or in part, to any existing system of subways until such independent system shall be completed and put in operation."

When put before the board this resolution to commit the city at this time to an independent subway system and to deny municipal credit to the Interborough Rapid Transit Company for its extensions was defeated by a vote of 10 to 6. The question was raised whether the meetings of the Board of Estimate in committee of the whole for the consideration of the subway matter should be open or private. Mr. Mitchel offered a resolution to the effect that all such meetings, with the exception of the conference with the Public Service Commission, should be public, but withdrew his resolution on the understanding that the board would meet publicly when important action on the matter was to be taken or discussed in a formal way. The vote for the resolution referring the matter to the committee of the whole was unanimous.

The Public Service Commission has adopted a resolution providing for a public hearing on the proposition for a subway and tunnel from Fourth Avenue and Sixty-fifth Street, Brooklyn, under various streets and private property and New York Harbor to St. George, Staten Island. This would connect with the Fourth Avenue subway, although that has been contracted for only as far as Forty-third Street. A resolution requesting the commission to lay out such a rapid transit route has been passed by the Board of Estimate and Apportionment on motion of Borough President George Cromwell, of the Borough of Richmond. The hearing is set for Jan. 18, 1911.

### Suit Heard to Compel Annulment of Agreement Between Company and City of Philadelphia

The suit of Elmer E. Brode, as a taxpayer of Philadelphia, to annul the agreement executed on July 1, 1907, between the City of Philadelphia and the Philadelphia Rapid Transit Company was before the Supreme Court in Philadelphia on Jan. 3, 1911, for argument on appeal from the decision of Judge Kinsey in Common Pleas Court No. 1 sustaining the validity of the agreement. John McClintock, Jr., represented Mr. Brode, and James G. Gordon and Ellis Ames Ballard appeared for the city and the company. This is the last of the several suits arising from the adoption of this agreement and the withdrawal of the six-for-a-quarter tickets.

Mr. McClintock's principal contention was that the act of April 15, 1907, under which the agreement was made between the city and the company, was unconstitutional, in that "it violates Article IX, Section 7, of the Constitution of Pennsylvania, in attempting to authorize cities to acquire the property of motor-power companies which are holding companies, and thereby become stockholders in such companies, and in attempting to authorize cities to loan their credit to private corporations by attempting to authorize such cities to enter into the management of such companies by the appointment of directors."

In replying Mr. Gordon, after giving a synopsis of the agreement between the city and the company and the purposes of the agreement, said in part:

"It is indeed magnifying the letter and killing the spirit of the Constitution to argue that the provision of this agreement which enables the city to resume at a fair price certain functions which the most progressive school of political economy now says should never have been granted to private corporations should be blocked by a constitutional provision intended solely to put a stop to a diversion of public funds in aid of private promotions.

"Reverting to Wheeler vs. Philadelphia, we may say in the language of this court: 'We may be very sure that a purpose so unreasonable was never entertained by the framers of the Constitution.'

"As a corollary to his main proposition, the appellant argues at great length that credit has been lent to the Philadelphia Rapid Transit Company by reason of the fact that a partnership has been effected. It is an abuse of terms to speak of the city and the company as being or becoming partners. There can be no partnership between them. The company was, is and will continue to be a corporation, transacting its business as such, and that business cannot become a partnership in any sense. The prohibition of the Constitution is not against a partnership, but against a lending of credit. Credit in this sense must be money credit, and not merely the assurance of stability, which arises when the relations between a corporation and a municipality

are amicably and equitably fixed and determined on an enduring basis."

Mr. Kinsey briefly held that the contract was not a complete partnership because the city is not obliged to assume any financial losses of the company, but merely to share in certain earnings. He also held that the right of the city to hold and operate a public utility was not involved in the proceeding, as the city did not contemplate any such action. The court reserved decision.

#### Cleveland Traction Situation

At the regular meeting of the City Council of Cleveland on the evening of Jan. 3, 1911, a letter, formulated by Mayor Baehr and G. M. Dahl, street railway commissioner, was adopted as a reply to the communication of the Cleveland Railway asking for a conference on the changes in the Tayler grant under which the Cleveland Railway operates suggested by N. W. Harris & Company and recommended by Harris & Company to be made. The reply refuses to grant a conference and the Council places itself on record as opposed to the changes suggested. The letter suggests, however, that the administration might consider the idea of allowing bonds to be sold at a discount.

When asked for a statement in regard to the action of the Council, J. J. Stanley, president of the company, said that he hoped the Mayor, the street railway commissioner and the Council would do nothing to prevent the company from giving good service and improving its system. Mr. Stanley said further that it was the avowed intention of the framers of the franchise to protect the stockholders in the values allowed them and pay a dividend of 6 per cent on the investment, as well as the return of the principal. He also said that the action of the Council indicated that the city does not wish to treat with the company upon its recommendations, one of which was to amortize the franchise value given to the stock, to insure the stockholders the full amount allowed them in the settlement.

By some it is thought that the company will do the best it can with the power and equipment it has until the city authorities see fit to aid in securing funds with which to meet its needs. Others have concluded that the city officials are playing politics and do not wish to make a move that would injure their interests.

#### Railway Affairs in Detroit

The committee on franchise of the Detroit City Council had no report to make to that body on the evening of Dec. 28, 1910, regarding the proposed negotiations with the Detroit (Mich.) United Railway on the franchise question. The committee met and discussed the matter earlier in the day, but reached no conclusion.

F. T. Barcroft, who appraised the property of the company for the committee of fifty, was present at the meeting on Dec. 28, 1910, and again stated that he was ready to discuss his work under "proper conditions." Several members of the committee are in favor of allowing him to proceed, provided he does not consume unnecessary time.

The committee seems to be divided over the necessity of having another appraisal until an agreement is made which will insure the acceptance of the new appraisal by both sides. Some of the members felt that the Webster ordinance has in a way met with the approval of the people, and that the company has verbally agreed to accept it if enacted, provided a valuation fixed by a competent board of arbitration is embodied in it.

Judge Connelly has given the company another week in which to make tests and prepare plans for ventilating its cars. Attorney Donnelly, for the company, stated that a ventilating system made by a local company is perhaps the best, but that it requires a change in the heating system of the cars which will entail too heavy an expense at this time. He said this system would be installed as rapidly as the heaters wore out or need repairs, but that plans for immediate improvements will be presented at the time specified by the court.

**Suit to Set Aside Chicago Settlement Dismissed.**—The Supreme Court of the United States has dismissed an appeal from the decision of the Supreme Court of Illinois,

which had dismissed a suit brought by Clarence H. Venner as a stockholder of the Chicago City Railway to set aside the street railway settlement ordinance of Chicago which was approved in 1907.

**Dedication of Mechanical Engineering Laboratories, University of Nebraska.**—On Jan. 9 the new Mechanical Engineering Laboratories of the University of Nebraska at Lincoln were formally opened. Invitations to the ceremony were issued in the name of the Board of Regents, the Chancellor and the Faculty of the College of Engineering of the University.

**Bion J. Arnold to Report on Service in Providence.**—Bion J. Arnold, Chicago, Ill., who has been in conference recently with the special committee on railroad franchises of City Council of Providence, R. I., is to be retained by the City Council to study traffic conditions in Providence, with a view to making recommendations as to how the Rhode Island Company can improve its service.

**Two Technical Papers Combine.**—Announcement has recently been made of the consolidation of the *Electric Trunk Line Age* and the *Railway Electrical Engineer*. C. L. de Muralt, of the firm of Muralt & Company, engineers, and professor of electrical engineering at the University of Michigan, has been retained as editor. He was formerly editor of the *Electric Trunk Line Age*.

**Test of Storage Battery Car in San Francisco.**—The public utilities committee of the Board of Supervisors of San Francisco, Cal., has decided to recommend that the board accept the offer of the Federal Storage Battery Car Company, New York, N. Y., to furnish a storage battery car for experiment on the Geary Street Park & Ocean Railroad, which is being equipped for operation by the city, to determine the possibilities of the car for use on the road.

**Railways Sustained in Their Contentions Against the Ohio State Tax Commission.**—On Jan. 3, 1911, Judge Kinkead, sitting at Columbus, Ohio, ruled, in the injunction cases of the Cincinnati, Georgetown & Portsmouth Railway and the Felicity & Bethel Railway against the Ohio State Tax Commission, that the character of the business rather than the charter is the vital point of difference between steam railroads and interurban railways. The companies mentioned had brought suit to prevent the commission from certifying them to the state auditor as steam railroads or on the tax basis of steam railroads, and the restraining order is continued in force by the court. Both these roads were formerly operated as steam railroads, but several years ago they changed their motive power to electricity and the character of the business to interurban work. Had they been certified as steam railroads they would have been compelled to pay an excise tax of 4 per cent on their gross earnings. Under the interurban rule they will pay 1.2 per cent. Owing to the failure of the company to state its causes of action properly Judge Kinkead sustained the demurrer of Attorney General Denman against the petition filed by the Youngstown & Ohio River Railway in a case similar to those above, but the same general ruling was made.

**Meeting of National Civic Federation.**—The invitations have been issued for the eleventh annual meeting of the National Civic Federation, which was called for Jan. 12, 13 and 14, 1911, at the Hotel Astor, New York. The discussion of the subject of industrial efficiency, including consideration of the piecework, bonus and premium system of payment for labor, occurred on Jan. 12, 1911. The proposed uniform State measure on compensation for industrial accidents was presented and discussed on Jan. 13. The other subjects for consideration, to wit, "The Regulation of Combinations and Corporations" and "Methods of Preventing Industrial Disturbances," are likewise of interest to all employers. The speakers on the subject of "Efficiency" were Harrington Emerson, of the Emerson Company, New York City; H. L. Gantt, industrial expert, New York City; Warren S. Stone, grand chief of the International Brotherhood of Locomotive Engineers, Cleveland, Ohio; James O'Connell, president of the International Association of Machinists, Washington, D. C. The program of the meeting of the federation on Jan. 12, 13 and 14, 1911, was given briefly in the *ELECTRIC RAILWAY JOURNAL* of Dec. 17, 1910, page 1213, and the meeting of the sub-committee of the federation to discuss means of preventing strikes by employees



of public service corporations was referred to in the same issue, page 1205.

**LEGISLATION AFFECTING ELECTRIC RAILWAYS**

**Massachusetts.**—The Legislature of 1911 convened on Jan. 4. Speaker Joseph Walker of the House, and President Allen T. Treadway of the Senate, were re-elected. In accordance with the ideas advanced by Governor Foss, a bill has been introduced to abolish the Railroad Commission, the Gas & Electric Light Commission, the Highway Commission and the Boston Transit Commission, and create a new public utilities board to assume the functions of the existing commissions in the main. The bill as drawn would provide two commissions of three members each, one with jurisdiction in Boston and the other with jurisdiction in the rest of the State. Many special reports to the Legislature by various commissions are expected. Among these are the studies of the Railroad, Harbor and Land, Metropolitan Park and Boston Transit Commissions of the electrification of railroads, inter-terminal tunnel, Boston & Eastern Elevated Railroad project, consolidation of the Boston Elevated Railway and West End Street Railway, acquisition of control of suburban traction systems by the Boston Elevated Railway and the construction of additional subways and tunnels for rapid transit service in Boston.

**New Jersey.**—The Legislature convened on Jan. 10. John Franklin Fort's term as Governor will end on Jan. 16, 1911. Dr. Woodrow Wilson, his Democratic successor, will be inaugurated on Jan. 17. Governor Fort in his message recommended that the Legislature should enact a law abolishing the rule which makes the negligence of a fellow-servant a defense in personal injury cases, but he made no reference to the work of the new Board of Public Utility Commissioners. The Senate is Republican and the House is Democratic, and a flood of bills was introduced in the Senate at once which are in keeping with Republican pledges. One of these measures would confer rate-making powers on the Board of Public Utility Commissioners. Both branches have adjourned until the evening of Jan. 16.

**New York.**—The Legislature convened on Jan. 4 and continued in session for two days, when it adjourned to reconvene on the evening of Jan. 12. During the preliminaries incident to organizing for business Senator Stilwell, a Democrat from the Bronx, introduced a bill abolishing the Public Service Commissions and establishing in their place two new commissions to be known as corporations commissions, one with jurisdiction outside of New York City and the other with jurisdiction in New York City. The commission with jurisdiction in the State would consist of five members, as at present, with a salary of \$10,000 each, the new commissioners to be appointed by Governor Dix. It is proposed to substitute a corporation commission of five members for the present commission of the First District, one member to be elected from each borough, and the salary to be \$10,000 each. The same powers are proposed for the new commissions as are vested in the Public Service Commissions, except that the telegraph and telephone supervision would be divided territorially between the two corporation commissions instead of being lodged as at present.

**Rhode Island.**—The Legislature convened on Jan. 3, 1911, and before the committees were appointed a bill to create a public service commission in accordance with the recommendations of Governor Pothier in his annual message was introduced by Senator Pierce, of Cranston. Accompanying the act was a resolution calling for the appointment of a special joint committee to consider the subject and all other matters of the same nature. The act provides for a service commission of five members, to be appointed by the Governor, by and with the advice and consent of the Senate, with full control over fares, freight rates, price of gas and electricity and telephone rates. The commission would be vested with power to fix the wages and regulate the hours of labor and conditions of employment of conductors, motormen, engineers, brakemen, linemen, operators, clerks and other employees in any of the public services regulated by the act. The bill provides that no motorman or conductor of any street railway shall be required to work more than 10 hours in any one day.

**Financial and Corporate**

**New York Stock and Money Market**

Jan. 10, 1911.

Sharp selling of practically all of the active issues during the closing hour of trading to-day carried prices below yesterday's levels. The net losses were not large, but they were recorded in almost every issue. The earlier hours of the day had developed much the same conditions that had characterized the market for the last week. Trading was confined largely to the professionals. The industrials were weaker than the railroads, although there was no apparent reason for this.

The bond market continues to be encouraging and the money market easy. Quotations for money to-day were: Call, 3@4 per cent; 90 days, 3½@3¾ per cent.

**Other Markets**

Traction shares have been fairly active in the Philadelphia market during the week, but not sufficiently so to indicate that any particular buying sentiment has developed.

Railways certificates have been much less active during the week in the Chicago market than they were before the close of the old year. Series 2 has been far more active than the others, but there has been little change in price. There has been a small movement in Metropolitan Elevated with some advance in the selling-price of both issues.

Massachusetts Electric issues and Boston Elevated have been traded in to a limited extent in the Boston market during the week, but there have been no particular price changes. Other tractions are inactive.

There has been very little trading in United Railway stock on the Baltimore market within the past week. The bonds of the same company have been fairly active at former prices.

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

	Jan. 3.	Jan. 10.
American Railways Company.....	442½	442
Aurora, Elgin & Chicago Railroad (common).....	443	440¾
Aurora, Elgin & Chicago Railroad (preferred).....	83½	85½
Boston Elevated Railway.....	129	129½
Boston Suburban Electric Companies (common)....	416	415½
Boston Suburban Electric Companies (preferred)....	472	471
Boston & Worcester Electric Companies (common)....	410	410½
Boston & Worcester Electric Companies (preferred)....	439½	440
Brooklyn Rapid Transit.....	75¾	75½
Brooklyn Rapid Transit Company, 1st ref. conv. 4s... 83½		83
Capital Traction Company, Washington.....	4129	*129
Chicago City Railway.....	165	200
Chicago & Oak Park Elevated Railroad (common)....	*3¼	*3¼
Chicago & Oak Park Elevated Railroad (preferred)....	*7¼	*7¼
Chicago Railways, pteptg., ctf. 1.....	4100	4100
Chicago Railways, pteptg., ctf. 2.....	425¼	425
Chicago Railways, pteptg., ctf. 3.....	411¼	411
Chicago Railways, pteptg., ctf. 4.....	46½	46½
Cleveland Railway.....	*91½	*91½
Consolidated Traction of New Jersey.....	472	472½
Consolidated Traction of N. J., 5 per cent bonds....	4104	4104½
Detroit United Railway.....	*69¾	*67½
General Electric Company.....	4151½	4152
Georgia Railway & Electric Company (common)....	117¾	118
Georgia Railway & Electric Company (preferred)....	87¼	88¼
Interborough-Metropolitan Company (common)....	19¾	19¼
Interborough-Metropolitan Company (preferred)....	54¼	53¾
Interborough-Metropolitan Company (4½s).....	79¾	79¾
Kansas City Railway & Light Company (common)....	422¼	422
Kansas City Railway & Light Company (preferred)....	472	471
Manhattan Railway.....	4140	4140
Massachusetts Electric Company (common)....	*18½	419
Massachusetts Electric Companies (preferred)....	485	485
Metropolitan West Side, Chicago (common).....	422½	422½
Metropolitan West Side, Chicago (preferred)....	470	469½
Metropolitan Street Railway, New York.....	*19½	*19½
Milwaukee Electric Railway & Light (preferred)....	*110	*110
North American Company.....	65¾	64
Northwestern Elevated Railroad (common).....	422	422
Northwestern Elevated Railroad (preferred)....	465	462
Philadelphia Company, Pittsburg (common).....	50½	452
Philadelphia Company, Pittsburg (preferred)....	43	444½
Philadelphia Rapid Transit Company.....	418½	419¾
Philadelphia Traction Company.....	484	484½
Public Service Corporation, 5 per cent col. notes....	496	496
Public Service Corporation, cfs.....	4100½	4100½
Seattle Electric Company (common).....	4106½	4106½
Seattle Electric Company (preferred).....	4102½	4103
South Side Elevated Railroad (Chicago).....	472	468
Third Avenue Railroad, New York.....	10	11½
Toledo Railways & Light Company.....	48	48
Twin City Rapid Transit, Minneapolis (common)....	4109	4109
Union Traction Company, Philadelphia.....	443½	445½
United Rys. & Electric Company, Baltimore.....	*14½	417
United Rys. Inv. Co. (common).....	31¾	41¾
United Rys. Inv. Co. (preferred).....	60	65
Washington Ry. & Electric Company (common)....	433¾	*33¼
Washington Ry. & Electric Company (preferred)....	86½	*86½
West End Street Railway, Boston (common).....	491	492¾
West End Street Railway, Boston (preferred)....	4103	4104¾
Westinghouse Elec. & Mfg. Co.....	66	66½
Westinghouse Elec. & Mfg. Company (1st pref.)....	*124	*124

a. A-sked. \*Last sale.

### Annual Report of the Boston & Worcester Electric Companies

A statement of the results of operations of the Boston & Worcester Electric Companies for the year ended Sept. 30, 1910, shows total income of \$55,710, of which \$30,375 was received as dividends on Boston & Worcester Street Railway shares owned and \$25,335 was interest on notes and other miscellaneous income. Total disbursements were \$54,549, divided as follows: Dividend of \$1 per share on preferred shares, payable on Jan. 1, 1910, \$33,936; interest on \$300,000 of 3-year notes, \$18,000; miscellaneous expense, \$2,613. The surplus for the year was \$1,161 and the accumulated surplus \$4,296, making a total surplus of Oct. 1, 1910, of \$5,457. The report of the Boston & Worcester Street Railway for the year ending Sept. 30, 1910, follows:

INCOME:	
Passenger receipts.....	\$576,154
Transportation library books.....	200
United States mail.....	451
Track and power rental.....	1,031
Rent of buildings, equipment, advertising, etc.....	5,048
<b>Total income.....</b>	<b>\$582,884</b>
OPERATING EXPENSES:	
Maintenance of track and line.....	\$35,915
Maintenance of buildings.....	410
Maintenance of equipment.....	71,184
Transportation labor.....	83,399
Electric motive power, including power plant repairs..	81,568
Other transportation expenses.....	10,728
Salaries of treasurer, superintendents, auditors and clerks .....	16,598
Fuel for buildings.....	475
Printing, tickets and stationery.....	3,641
Removal of snow and ice.....	2,220
Track rental.....	710
Insurance .....	10,500
Advertising .....	3,733
Damages .....	17,782
Other general expenses.....	4,482
<b>Total operating expenses.....</b>	<b>\$343,345</b>
Net above operation.....	\$239,539
Interest charges.....	\$130,231
Taxes .....	40,077
<b>Surplus for year.....</b>	<b>\$69,231</b>
Dividend 1½ per cent. paid during year.....	30,375
<b>Net surplus for year.....</b>	<b>\$38,856</b>
Surplus Oct. 1, 1909.....	2,873
<b>Total surplus Oct. 1, 1910.....</b>	<b>\$41,729</b>
Less deductions for adjustment of old accounts.....	6,188
<b>Total surplus Oct. 1, 1910.....</b>	<b>\$35,541</b>

William M. Butler, president of the Boston & Worcester Electric Companies, says in his report:

"Passenger receipts of the street railway company increased about \$24,000 over the previous year, approximately 4½ per cent, which compares favorably with the increase of passenger revenue of other street railways throughout the State. It will be remembered that the company during the year ending Sept. 30, 1909, received an unusual income of about \$19,000 for the sale of power to other street railways on account of temporary disability of power plants. No such unusual income has been received the past year, but the passenger receipts have so increased that this amount has been more than made good and the total gross income has increased \$5,300 more than the year before.

"The operating expenses were \$22,000 in excess of the previous year, a large part of which is accounted for by the increased amounts charged to the maintenance of track, line and equipment.

"The fixed charges for the year were somewhat less than last year, as a portion of the floating debt of the previous year was converted into capital stock.

"The profit and loss surplus has increased during the year from \$2,873 to \$35,541.

"The street railway company has now no floating debt, except that owed to the Boston & Worcester Electric Companies and its current accounts, and has a good supply of cash on hand for its requirements.

"While the net earnings of the operating company for the past two years have been disappointing, the shareholders may be assured that the management is making every effort to increase its revenue and to operate the property in a most economical manner, always having in mind, however, the necessity of keeping its roadbed, equipment and other property in a high state of efficiency.

"The passenger express service between Boston and Worcester, inaugurated in the early part of this year, has proven popular and successful and will undoubtedly continue to stimulate our through travel between Boston and Worcester, and the natural growth of the cities and towns through which we operate should continually produce a healthy increase in local travel.

"The trustees, after most careful consideration of the dividend question, unanimously decided that no action relative to a dividend be taken at this time.

"The financial condition of the company is excellent, but it seems wise to defer dividend action for the present, so that when dividends are resumed they may be expected to continue without interruption."

### United Properties Company of California

The United Properties Company of California was incorporated at Dover, Del., with a capital stock of \$200,000, on Dec. 30, 1910, to merge all the public utilities companies of Oakland and Berkeley, Cal., including the ferry line that connects those places, with San Francisco. The directors of the company are F. M. Smith, W. S. Tevis, R. G. Hanford, Gavin McNab, C. B. Zabriskie, W. A. Alberger, Dennis Searles and Harry W. Davis. The operating offices will be in San Francisco and Oakland. Mr. Zabriskie is manager in New York of the Pacific Coast Borax Company, of which Mr. Smith is president. In addition to public utilities, the promoters will establish a steamship line. F. M. Smith, speaking of the company's plans, said:

"The company will organize, finance and create many new enterprises, as well as increase and develop others already in existence, and means a great deal to California. Most of the activity will be on the Oakland side of San Francisco Bay, and immense sums of money will be expended in the elaboration of carefully worked out plans, of wide scope, for the gradual development of public utilities, the completion of which will be fully consummated as rapidly as possible. Among the plans so far decided on are those for the development of the Key Route basin, embracing projects of great value to the industrial, manufacturing and commercial interests of Oakland. While outside capital has taken advantage of the situation, the composition of this new company is strictly Californian, and the management will be in the hands of local men familiar with the conditions who have been the principal factors in the origin of the properties now to be fully developed."

### Report on Assets of New York, New Haven & Hartford Railroad

The special committee, consisting of Walter Perley Hall, George W. Bishop, Clinton White, William D. T. Trefry and A. B. Chapin, appointed by the Legislature of Massachusetts to appraise the property of the New York, New Haven & Hartford Railroad with a view to ascertaining if the assets of the company exceeded its outstanding capital stock and indebtedness, filed the following report on Dec. 31, 1910:

"The commission created under Acts of 1910, Chapter 652, 'An act to validate the present outstanding securities of the New York, New Haven & Hartford Railroad and to provide for an examination of its property,' now files a certificate of its finding with the secretary of the Commonwealth. This is to certify that the outstanding capital stock and indebtedness of the New York, New Haven & Hartford Railroad as of June 30, 1910, which it finds to be the only practical date of ascertaining this indebtedness, were as follows:

Outstanding capital stock.....	\$104,435,600
Indebtedness .....	289,711,863

"And it further certifies that the outstanding capital stock as of June 15, 1910, was \$104,435,600, and its indebtedness as of said June 15 was not in excess of \$289,711,863.

"And it further certifies that the aggregate corporate assets of said corporation were sufficient as of June 15, 1910, to secure its said outstanding capital stock and indebtedness to the said amount hereinbefore stated."

In an explanatory note the commission adds:

"June 30, 1910, was the date of the close of the financial

year of the New York, New Haven & Hartford Railroad, and all its subsidiary companies, and is identical in time with the financial year for which a return is required by the interstate commerce commission and the Massachusetts railroad commission.

"The return of the New York, New Haven & Hartford Railroad, as of said June 30, disclosed capital stock of \$121,878,100. One hundred and seventy-two thousand nine hundred and forty-six shares of said capital stock were on said date in the treasury of the New England Navigation Company, and 1479 shares in the treasury of the Rhode Island Company. By virtue of stock ownership of said companies by the New York, New Haven & Hartford Railroad Company, certificates of said amounts have been treated as treasury stock of the New York, New Haven & Hartford Railroad and not as outstanding capital stock.

"All payments to the New York, New Haven & Hartford Railroad on account of the stock subscriptions and premiums thereon have been taken as indebtedness and not as capital. Payments for the New England Navigation Company have been deducted therefrom by virtue of the stock ownership by the New York, New Haven & Hartford Railroad."

On or before Feb. 15, 1911, the commission is expected to file a detailed report of the results of its work, in accordance with the provisions of the validating act.

**Chicago (Ill.) Railways.**—In the account which was published in the ELECTRIC RAILWAY JOURNAL of Jan. 7, 1911, about the sale of the property of the Chicago Consolidated Traction Company to the Chicago Railways and the County Traction Company mention was made of the controversy over the question of fares which arose as the result of the separate operation of the lines within the city and those outside the city. These difficulties still remain unsettled, although the compromise is still in effect which provides for a 5-cent fare until Feb. 12, 1911. A number of conferences have been held and indications point to an arrangement which will provide for one fare across the city limit line within prescribed zones.

**Columbus, Marion & Bucyrus Railway, Delaware, Ohio.**—The stockholders of the Columbus, Marion & Bucyrus Railway have voted to increase the capital stock of the company to \$600,000 by an issue of \$100,000 of preferred stock, with a view to ending the receivership.

**Detroit (Mich.) United Railway.**—It is stated that negotiations are pending for the purchase or underwriting by a Montreal syndicate headed by J. W. McConnell, of Johnston, McConnell & Allison, of a block of \$1,500,000 of first consolidated mortgage 4½ per cent bonds, to provide for the floating debt and the resumption of dividends.

**Forty-second Street, Manhattanville & St. Nicholas Avenue Railroad, New York, N. Y.**—The sale of the property of the Forty-second Street, Manhattanville & St. Nicholas Avenue Railroad under foreclosure has been further postponed by Judge Lacombe of the United States Circuit Court to March 17, 1911.

**Louisville & Eastern Railroad, Louisville, Ky.**—T. J. Minary, president of the Louisville & Interurban Railroad, has announced that the Louisville & Eastern Railroad, which was purchased by the Louisville & Interurban Railroad at receiver's sale on Jan. 3, 1911, as announced in the ELECTRIC RAILWAY JOURNAL of Jan. 7, 1911, page 50, will be consolidated with the Louisville & Interurban Railroad under that name. The Louisville & Interurban Railroad is incorporated with a capital stock of \$1,500,000, which will be increased by \$2,000,000. No changes will be made in the officers or organization of the Louisville & Interurban Railroad. Notice of the sale has been filed with the court, and Henry Glover, as receiver, will be discharged within the next 30 days. The Louisville Railway held claims against the Louisville & Eastern Railroad which amounted to \$1,717,500. These claims consisted of mechanics' lien amounting to \$57,000; \$700,000 of bonds; \$500,000 of construction notes, and most of the receiver's certificates, amounting to \$460,000, issued to complete the Shelbyville extension.

**Metropolitan Street Railway, New York, N. Y.**—The sale of the property of the Metropolitan Street Railway under foreclosure, which was scheduled for Jan. 5, 1911, has been postponed until Feb. 16, 1911, upon the petition of the reorganization committee.

**Somerset Water, Light & Traction Company, Somerset, Ky.**—The property of the Somerset Water, Light & Traction Company will be sold under foreclosure on Jan. 16, 1911, at Somerset, Ky., by the Master Commissioner of the Pulaski Circuit Court. The company has been in the hands of J. L. Waddy as receiver for two years.

**South Shore Traction Company, Patchogue, N. Y.**—It is stated that Joseph G. Robin, the indicted president of the Northern Bank of New York, which suspended recently, owns \$569,100 of the \$600,000 stock of the South Shore Traction Company, which was placed in the hands of Paul T. Brady and Willard V. King as receivers on Dec. 31, 1910, as noted in the ELECTRIC RAILWAY JOURNAL of Jan. 7, 1911, page 50. Notes of \$95,820 are due or about to fall due, and the application for the appointment of receivers was granted on the ground of insolvency.

**Susquehanna Railway, Light & Power Company, Lancaster, Pa.**—The Susquehanna Railway, Light & Power Company is negotiating with the United Traction Company, Reading, Pa., to lease the properties in Reading which are controlled by that company.

**Third Avenue Railroad, New York, N. Y.**—Robert A. Chesebrough, as holder of \$112,000 of the bonds of the Third Avenue Railroad, which are represented by the bondholders' reorganization committee, and the Chesebrough Building Company, as the owner of \$55,000 of these bonds, have brought suit in the Supreme Court against the reorganization committee as individuals, seeking an injunction restraining the committee from attempting further to carry into effect the so-called second plan of reorganization for the Third Avenue Railroad.

**Dividends Declared**

- Boston (Mass.) Elevated Railway, 3 per cent.
- Brooklyn (N. Y.) City Railroad quarterly, 2 per cent.
- London (Ont.) Street Railway, 3 per cent.
- Springfield & Xenia Railway, Springfield, Ohio, quarterly, 1¼ per cent, preferred; ½ of 1 per cent, preferred, extra.
- Stark Electric Railroad, Alliance, Ohio, quarterly, 75 cents.
- Thirteenth & Fifteenth Streets Passenger Railway, Philadelphia, Pa., \$6.
- Western Ohio Railway, Lima, Ohio, quarterly, 1½ per cent, second preferred.

**ELECTRIC RAILWAY MONTHLY EARNINGS**

CHATTANOOGA RAILWAY & LIGHT CO.						
Period.		Gross Revenue.	Operating Expenses.	Net Revenue.	Fixed Charges.	Net Income.
1m.,	Nov. '10	\$70,840	\$36,326	\$34,154	\$24,120	\$10,034
1 "	" '09	65,171	36,342	28,460	22,237	6,223
11 "	" '10	799,419	407,431	391,985	258,722	133,263
11 "	" '09	707,165	405,684	297,981	237,519	60,462
COMMONWEALTH POWER, RAILWAY & LIGHT CO.						
1m.,	Nov. '10	\$431,851	\$219,742	\$212,109	\$120,862	\$91,247
1 "	" '09	401,219	201,115	199,804	117,495	82,309
11 "	" '10	4,513,565	2,323,808	2,189,757	1,352,559	837,198
11 "	" '09	3,961,850	2,030,431	1,931,119	1,300,795	630,624
EAST ST. LOUIS RAILWAY.						
1m.,	Nov. '10	\$194,974	\$101,661	\$93,313	\$50,347	\$42,966
1 "	" '09	177,712	89,839	87,873	49,941	37,932
11 "	" '10	2,161,328	1,134,179	1,027,149	551,402	475,747
11 "	" '09	1,850,565	1,001,050	849,515	544,544	304,971
FORT WAYNE & WABASH VALLEY TRACTION CO.						
1m.,	Nov. '10	\$123,554	\$66,666	\$56,888	\$45,384	\$11,504
1 "	" '09	123,051	69,770	53,880	45,213	8,667
11 "	" '10	1,389,049	772,946	616,694	496,767	119,927
11 "	" '09	1,284,806	748,696	536,111	468,943	67,168
ILLINOIS TRACTION SYSTEM.						
1m.,	Nov. '10	\$578,769	\$333,255	\$243,514	.....	.....
1 "	" '09	479,820	253,678	226,142	.....	.....
11 "	" '10	5,597,934	3,391,391	2,296,333	.....	.....
11 "	" '09	4,859,145	2,774,249	2,084,995	.....	.....
ST. JOSEPH RAILWAY, LIGHT, HEAT & POWER CO.						
1m.,	Nov. '10	\$87,644	\$43,961	\$43,683	\$23,308	\$20,375
1 "	" '09	82,296	42,334	39,962	21,608	18,354
11 "	" '10	948,097	502,857	439,150	250,364	188,786
11 "	" '09	893,466	460,031	427,435	235,210	185,347
TWIN CITY RAPID TRANSIT CO.						
1m.,	Nov. '10	\$510,149	\$319,732	\$299,417	\$137,912	\$161,505
1 "	" '09	580,795	273,044	307,751	140,251	167,500
11 "	" '10	6,884,875	3,316,581	3,568,294	1,539,886	2,028,408
11 "	" '09	6,354,177	2,982,786	3,371,391	1,529,012	1,842,379
UNION RAILWAY, GAS & ELECTRIC CO.						
1m.,	Nov. '10	\$265,668	\$138,840	\$126,828	\$67,762	\$59,066
1 "	" '09	251,351	134,712	116,639	65,026	51,613
11 "	" '10	2,687,557	1,475,061	1,211,896	728,063	483,833
11 "	" '09	2,534,338	1,391,649	1,232,689	708,344	524,345

# Traffic and Transportation

## Insufficiency of Present Street Railway Fares

The Milwaukee Electric Railway & Light Company, Milwaukee, Wis., published the following advertisement recently in the daily papers of Milwaukee under the heading "Insufficiency of Present Street Railway Fares":

"Street railway fares in many cities must be increased in the near future, or some limit must be placed upon the service to be furnished for one fare.

"This is the unanimous judgment of street railway men and all others who have thoroughly studied traction conditions as they exist throughout the country.

"Financial statements of individual companies and statistics compiled by the United Census Bureau for the whole country show clearly that the companies will be unable to meet the constantly increasing demands for service and the increasing cost of production and still continue to carry passengers at present unremunerative rates of fare.

"Reduction of operating costs has reached its limit. For years experts all over the country have studied every little detail in every branch of street railway operation to reduce its cost. Every economy that practical experience and scientific skill could devise has been applied.

"Much money has been saved in this manner, but the saving has been more than offset by the higher cost of materials, labor, fuel and the other items of expense. In spite of all economy, the cost of service has become steadily greater and is constantly increasing.

"Street railway men of long experience and experts are convinced that there can be no further reduction of operating costs except by cutting wages. Therefore they feel that relief must be found in higher fares or limitation of service.

"Among those who have studied the subject seriously it is agreed that unless present conditions are changed the cities will be obliged in time to provide their own street railway service by municipal ownership and operation. Under this plan all deficits would be made good from the public funds. Losses from street railway operation would fall upon the taxpayers.

"It is considered reasonably certain that if the companies continue to operate one or more of the following changes of method must be put into practice:

- "(a) Abolishment of free transfers.
- "(b) Adoption of the European zone system of fares.
- "(c) Increase in rate of fare.
- "(d) Reduction or abolishment of taxes.

"The taxes of the Milwaukee Electric Railway & Light Company in 14 years increased 481 per cent. In the same period the operating revenue increased 242 per cent."

## An Interurban Creed

E. F. Schneider, secretary and general manager of the Cleveland, Southwestern & Columbus Railway, Cleveland, Ohio, as a part of the campaign against accidents which he has carried on for three years, has presented each employee of the company with a copy of "The Southwestern Creed," printed in colors. As it is a creed to which all employees of electric railways, no matter where they are located, might well subscribe, it is appended in full:

"I believe in the Southwestern of to-day and in that glorious and harmonious spirit of its employees which will surely build up the Greater Southwestern of to-morrow.

"I believe in the territory and community through which it runs and in the future development of its business.

"I believe in my passengers and in the public, and know they will co-operate with us when they understand what we are trying to do and what we are trying to accomplish, i. e., to make the Southwestern an absolutely safe railroad to ride upon.

"I believe in man, and most thoroughly believe in my fellow employee, through whom we will be able to do away with the disastrous and dangerous part of this business, and run a railroad without any accidents whatsoever.

"I will help my fellow employee and ask my fellow employee to help me to attain that end so that we may truly say we have caused no pain, we have caused no suffering, we have caused no death.

"Believing all these things as I do, and steadfastly looking forward to the dawn of the new day which will make the Southwestern greater on account of the personal interest of the employees, the one to the other, and the personal interest of the employees to the passenger and to the public, and the personal interest of the public to the company, I heartily subscribe to the above tenets, and will use my utmost endeavors to live up to this creed."

**United Board Investigating Railway Service in Baltimore.**—The Public Service Commission of Maryland has commenced an investigation into possible methods of relieving the street railway congestion in Baltimore during rush hours.

**Fare Case in Reading Argued.**—Judge Endlich, in the District Court at Reading, Pa., has reserved decision after hearing the argument on the application for a permanent injunction to restrain the United Traction Company, Reading, Pa., from discontinuing the sale of six-for-a-quarter tickets in Reading.

**Service in Richmond, Ind.**—Certain members of the Board of Public Works of Richmond, Ind., have been delegated to visit the officers of the Terre Haute, Indianapolis & Eastern Traction Company in Indianapolis and confer with them regarding the improvement of the service of the company in Richmond.

**Increase in Fare by Southern Pennsylvania Traction Company.**—The Southern Pennsylvania Traction Company has increased the fare between Angora and Media, on its Media-Philadelphia line, from 5 cents to 10 cents, and has increased the fare for the through trip between Media and Philadelphia from 15 cents to 20 cents.

**Railways to Increase Pay of Employees.**—S. F. Hazelrigg, who is president of the Staten Island Midland Railway and the Atlantic Coast Electric Railway and vice-president and general manager of the Richmond Light & Railroad Company, recently issued a notice to motormen and conductors that on Jan. 1, 1911, these railways would increase the rate of pay 12½ per cent.

**New Agreement Between Railways.**—The agreement between the St. Joseph Valley Traction Company and the Chicago, South Bend & Northern Indiana Railway concerning the operation of cars between Elkhart, Ind., and Bristol, Ind., went into effect Jan. 1, 1911, by which the St. Joseph Valley Traction Company will use the tracks of the Chicago, South Bend & Northern Indiana Railway.

**Service in Sea Cliff, N. Y.**—The Public Service Commission of the Second District of New York has closed upon its records the complaint of the residents of Sea Cliff, L. I., against the Nassau County Railway, Sea Cliff, as to condition of roadbed, stations, paving, etc. After service of the complaint a conference was held between the officials of the village and the company and satisfactory adjustment was made.

**Service in Fishkill, N. Y.**—The Public Service Commission of the Second District of New York has closed upon its records the complaint of the residents of Glenheim, Dutchess County, against the Fishkill (N. Y.) Electric Railway, as to additional passenger service between Fishkill Village and Fishkill Landing, changes in operation having been made which removed the cause of complaint without the necessity of an order by the commission.

**Front Platforms Will Be Cleared.**—John B. Gorman, superintendent of transportation of the Worcester (Mass.) Consolidated Street Railway, has issued instructions that no passenger shall ride on the front platform of a car unless he has a permit to do so. In the past it has been customary to allow passengers to occupy the front platform during rush hours, but owing to an accident that recently occurred because the motorman was crowded and distracted by the passengers, it was felt best by the company to keep the platform clear.

**Plan Proposed by Company to Improve Service in Springfield, Mass.**—L. S. Storrs, president of the Springfield Street Railway, has recently signified the willingness of his company to contribute \$10,000 toward the expense of opening a new street south of Mill River, provided the company is given a location grant on the street. The com-

pany also wants to re-route and lay extra tracks on some of its lines during 1911. Petitions for these changes have been made at different times, but have been rejected by the Board of Aldermen. The company has now renewed its petition in a letter sent by Mr. Storrs to Claud C. Margerum, chairman Board of Public Works, Springfield.

**Decision in Regard to Fares to Coney Island on Saturdays, Sundays and Holidays.**—The Public Service Commission of the First District of New York handed down a decision on Jan. 10, 1911, dismissing the complaint of Jonas Monheimer against the Coney Island & Brooklyn Railroad asking that this company should be required to re-establish a 5-cent fare to Coney Island on days other than Saturdays, Sundays and holidays. The proceeding followed a previous decision of the commission in which it was decided that the Coney Island & Brooklyn Railroad could not be obliged to establish a 5-cent fare on Saturdays, Sundays and holidays, but might be required to do so on other days.

**United Railways Entertains Employees and Their Families.**—The United Railways Company, St. Louis, Mo., gave a Christmas entertainment on Dec. 23, 1910, to its employees and their families in the company's hall, at Grand Avenue and Park Avenue. The company issued hundreds of free car tickets to and from the hall, so that all of the employees and their families would feel able to attend. Arrangements had been made for a vaudeville and moving picture show, which was greatly enjoyed by all the 2500 people present. During the evening several numbers were played by the company band, which is made up entirely of employees. Before closing the program the company gave a box of candy to every child present.

**Passes Abolished in Trenton.**—The Trenton & Mercer Traction Company has abolished all passes, and transports free only employees of the road and policemen and firemen in uniform. The company's formal announcement in regard to the abolition of passes, which was signed by Rankin Johnson, vice-president of the company, follows: "The Trenton & Mercer County Traction Corporation has, effective Jan. 7, 1911, decided to discontinue issuing free transportation, except to employees and to policemen and firemen in uniform. This step has been taken after careful consideration, and in recognition of what we believe to be a modern tendency in the changing relations between public utility corporations and the people, to which we desire to conform."

**Railway to Have Ventilation Inspectors.**—E. G. Buckland, vice-president of the Connecticut Company, who has taken over the personal supervision of the trolley traffic difficulties in Bridgeport, Conn., announced after a conference with Mayor Buckingham, of Bridgeport, that a special force of inspectors will be placed on the different lines, who will give their whole attention to the proper ventilation and heating of cars. As to the crowding of cars during rush hours, when two or three cars follow each other on the same line, a red sign will be used when necessary on which will be inscribed "Car following." Passengers seeing this sign will know that the car is crowded and that the crew has placed the sign on the car to notify them that they will be better accommodated in the next car. Should a car carrying one of these signs empty its load before reaching its destination the sign will be removed.

**Police Must Stand in Cars.**—Mayor Gaynor and Police Commissioner Cropsey, of New York, have recently been receiving numerous complaints that policemen monopolize seats in the street cars and in the subway and elevated trains, while revenue passengers are standing. The police manual contains a rule forbidding policemen who are enjoying free transportation to occupy seats which revenue passengers should have. To emphasize this Commissioner Cropsey has issued the following order: "No member of the police force riding free upon any surface car, subway, elevated, or steam railroad train, whether so riding because of being in uniform or upon the presentation of a transportation card or pass, shall occupy any seat in such conveyance if any other passenger is standing, but shall immediately arise and tender his seat to such other passenger and remain standing so long as any other passengers are not seated."

**Terms of Settlement of Winnipeg Strike.**—As stated in the *ELECTRIC RAILWAY JOURNAL* of Jan. 7, 1911, page 46, the

strike of the conductors and motormen of the Winnipeg (Man.) Electric Railway was terminated on the afternoon of Dec. 31, 1910. The company offered to take back 300 of the men who went on strike, giving the married men the preference and reserving the right to retain certain men hired during the strike. After a conference lasting several hours the men voted to accept the offer of the company. On Jan. 1, 1911, a number of the men applied to the company for reinstatement and were given their former positions. The company refused, however, to take back the three men whose discharge for drinking while in uniform caused the strike. The company has placed an old employee and one of the men engaged during the strike on each car. The full terms of the settlement were not made public.

**Physical Examination of Brooklyn Employees.**—The annual physical examination of the surface car motormen of the Brooklyn Rapid Transit Company has been completed by Dr. Edward T. Gibson, the examining physician for the system. The examinations were made at the depots, the terminals and on the forward platforms of the cars themselves. It consisted of a thorough examination of the heart and a general inspection of the motorman's face and body. When a man's face indicated that he was not well Dr. Gibson ordered him to the medical examination room, at the main office of the company, for a complete examination so that he could satisfy himself as to the condition of the man's health. In these inspections particular attention is given to the heart, the lungs, the hearing and eyesight. Under the eyesight test great care is used to detect color blindness. Men who wear glasses are not admitted to the company's uniformed service. When a conductor who has been in the service for many years has a reputable oculist certify that his glasses are of minor strength and that he will not be helpless if they are broken, he is given a special permit for their use, but these cases are the exceptions. A feature of Dr. Gibson's recent examination, which is, of course, supplemental to entrance and preceding annual physical examinations and is intended to show any defects that may have developed in a twelvemonth, was the remarkable freedom from tuberculosis and other lung complaints among the motormen. The annual tests will now be extended to the motormen on the elevated trains. In cases where men cannot pass the tests they are removed at once to some other department of the railroad, where the safety of its passengers does not depend upon the physical fitness of the employee.

**Complaint Against Operation of Hoboken Terminal Dismissed.**—The Board of Public Utility Commissioners of New Jersey has dismissed the complaint brought by the City of Hoboken against the Public Service Railway in regard to the facilities of the company at its Hoboken terminal. The board recommends that the company place in operation at least one, and if practicable two, additional turnstiles during the rush hours. It also recommends that cars be stopped for transfer at the crossing of Washington Street nearest to the terminal. The board says: "The board would not be justified in finding that the company does not, in the particular complained of, furnish adequate service. Investigation of the conditions prevailing at the Hoboken terminal of the company makes it clear that to permit the desired transfer to be made would interfere with the plan of operation in force at that point. Such interference would present no ground for the dismissal of the complaint if the board in fact found that such plan clearly inconvenienced a considerable part of the traveling public or resulted in furnishing them with inadequate facilities. This fact the board has, however, not found. On the contrary, it finds that the plan of operation of the terminal is well designed to meet the needs of the traveling public as a whole. It serves to separate the incoming and outgoing travel, prevents confusion and delay in loading and unloading, dispenses with the delay in collection of the fares of passengers entering cars, enables adherence to schedule and observance of headway and so facilitates the ready and regular movement of traffic. The ends so accomplished by this plan are important to the traveling public, as a whole, employing the several lines passing through the terminal. To grant the request of the complainant would require changes to some extent destroying the advantageous results attained through the present plan of terminal operation."

## Personal Mention.

**Mr. Frank Arnold** has resigned as superintendent of the Fort Dodge, Des Moines & Southern Railroad, Boone, Ia.

**Mr. John Y. Boyd**, Harrisburg, Pa., has declined reappointment as a member of the Pennsylvania State Railroad Commission.

**Mr. H. W. Ellicott**, purchasing agent of the Northwestern Pacific Railroad, San Francisco, Cal., has also been elected treasurer of the company to succeed Mr. C. H. Redington.

**Mr. C. H. Robertson**, superintendent of the East Shore & Suburban Railway, Richmond, Cal., will hereafter act as purchasing agent of the company as well as superintendent.

**Mr. Van Dusen Rickert**, who is purchasing agent of the Eastern Pennsylvania Railways, Pottsville, Pa., was also made claim adjuster of the company, effective on Jan. 1, 1911.

**Mr. J. C. Bell**, who was division superintendent of the Eastern Pennsylvania Railways, at Lansford, Pa., has been made division superintendent of the company, with headquarters at Pottsville, Pa.

**Mr. E. N. Lake**, formerly division engineer of electrical transmission and distribution, Board of Supervising Engineers, Chicago Traction, has resigned and entered the engineering department of Stone & Webster, Boston, Mass.

**Mr. Ralph S. Powley** has resigned as auditor and general passenger agent of the Toledo, Fostoria & Findlay Traction Company, Fostoria, Ohio, to become district agent of the Northwestern Mutual Life Insurance Company, Fostoria, Ohio.

**Mr. A. G. H. Janssen**, district passenger and freight agent of the Ohio Electric Railway, had his jurisdiction extended over the entire Lima-Toledo Division on Jan. 1, 1911, not including Lima. Mr. Janssen's headquarters are in the passenger station of the company at Toledo.

**Mr. J. L. Blake** has resigned as general manager and purchasing agent of the Fort Dodge, Des Moines & Southern Railroad, Boone, Ia., to engage in farming. Mr. Blake was closely identified with the building of the Fort Dodge, Des Moines & Southern Railroad and he will remain with the company until the construction of the extensions is finished.

**Mr. Charles Remelius**, who resigned in November last as superintendent of rolling equipment of the Public Service Railway, Newark, N. J., has become connected with the Pay-As-You-Enter Car Corporation, for which he will cooperate with railway companies and manufacturers of pay-as-you-enter cars in improving the details of design and construction, so as to make the equipment suitable for different classes of service. A biography of Mr. Remelius was published in the personal column of this paper for Dec. 3, 1910.

**Mr. Charles F. Propst**, formerly president of the Denver & Inter-Mountain Railroad, Denver, Col., has been appointed local manager of the Michigan United Railways in Battle Creek. Before being elected president of the Denver & Inter-Mountain Railroad Mr. Propst was second vice-president and purchasing agent of the company, serving in those capacities during the work of equipping the line with electricity. He was formerly in the lumber business with his father in Paris, Ill., and later was manager of the Paris (Ill.) Traction Company.

**Mr. Walter H. Acker** has resigned as engineer of power stations of the West Penn Railways, Connellsville, Pa., to become chief engineer of the Newport News & Old Point Railway & Electric Company, Newport News, Va. Mr. Acker entered the service of the West Penn Railways about four years ago as construction foreman at Charleroi. About three years ago he succeeded Mr. L. O. Vesper as assistant to Mr. J. S. Jenks, superintendent of power. This position he held until about two years ago, when he was promoted to the position of chief engineer.

**Mr. H. A. Benedict**, who resigned recently as mechanical and electrical engineer of the United Traction Company, Albany, N. Y., to become mechanical engineer of the Public Service Railway, Newark, N. J., as announced in the ELECTRIC RAILWAY JOURNAL of Dec. 17, 1910, was tendered an informal dinner at the Hotel Ten Eyck, Albany, on the

evening of Dec. 31, 1910, by some of his associates in Central New York. Among those at the dinner were Mr. J. P. Barnes, electrical engineer of the Syracuse Rapid Transit Railway; Mr. W. J. Harvie, chief engineer of the Utica & Mohawk Valley Railway; Mr. F. J. Doyle, master mechanic of the Schenectady Railway; Mr. E. S. Fassett, general manager of the United Traction Company; Mr. Charles H. Smith, general superintendent of the United Traction Company; Mr. M. C. Carpenter, master mechanic of the United Traction Company, and Messrs. H. N. Ransom, C. F. Scott and C. E. Barry, of the General Electric Company.

**Mr. A. T. Bushong** has recently been appointed superintendent of the Green Bay (Wis.) Traction Company, to succeed Mr. J. M. Carl. Mr. Bushong began his railway career in 1895 as a lineman with the Consolidated Traction Company, Pittsburgh, Pa. After being connected with the Consolidated Traction Company about a year and a half Mr. Bushong served successively the Metropolitan Street Railway, New York; Columbia Railway, Washington, D. C.; International Traction Company, Buffalo, N. Y., and the Lima Electric Railway & Light Company, Lima, Ohio, in various capacities from foreman to superintendent of construction in charge of track and electric line construction. In 1902 Mr. Bushong accepted the position of roadmaster with the Elgin, Aurora & Southern Traction Company, Aurora, Ill., but resigned from the company in 1906, shortly after the property was merged with the Aurora, Elgin & Chicago Railroad, to become engineer of maintenance of way with the Michigan United Railways, with headquarters in Kalamazoo. He resigned from the Michigan United Railways in 1908, and entered the employ of the Hudson & Manhattan Railroad, which operates under the Hudson River between New York and New Jersey. Mr. Bushong resigned from the Hudson & Manhattan Railroad to spend a year on his farm near Washington, D. C., for the benefit of his health.

**Mr. Paul Shoup**, who was recently elected vice-president of the reorganized Pacific Electric Company, Los Angeles, Cal., has assumed the active management of the system, which comprises all of the electric railways out of Los Angeles, and extends from the seashore at a dozen different points eastward to Redlands and Riverside. Prior to undertaking his present work Mr. Shoup was assistant general manager of the Southern Pacific Company in charge of its electric lines in California, which included the Los Angeles-Pacific Company and the Peninsular Railway at San José. Inasmuch as the Los Angeles-Pacific Company is now merged in the Pacific Electric Company, Mr. Shoup's duties at San José are only incidental. He is the active representative of the Southern Pacific Company in the Pacific Electric Company, and since the withdrawal of Mr. Henry E. Huntington Mr. Shoup has been in charge. For many years Mr. Shoup was assistant general passenger agent of the Southern Pacific Company at San Francisco. He entered the service of the Southern Pacific Company in 1891 as a station clerk in the office at San Bernardino. When the old narrow-gauge road between Riverside and San Bernardino went into the hands of a receiver Mr. Shoup was practically in charge, and he is said to have been largely responsible for converting the road into a paying investment. Next Mr. Shoup entered the passenger department of the Southern Pacific Company. Soon thereafter he was assigned to San José as district freight and passenger agent of the company. Later he went to Portland, Ore., and reorganized the freight department of the Southern Pacific Company in that city. Since December, 1908, Mr. Shoup has given his time to the interests of the late E. H. Harriman in California not directly related to the Southern Pacific Company. He will still remain at the head of this department, but his new duties make it necessary more minutely to classify and organize its work. Mr. Shoup's headquarters are in the Pacific Electric Building, Los Angeles, Cal.

### OBITUARY

**William H. Martin**, a retired capitalist of San Francisco, is dead. Mr. Martin organized the Powell Street Cable Railway, San Francisco, and constructed the cable railway from Market Street, San Francisco, to North Beach. This road is now controlled by the United Railroads of San Francisco.

## Construction News

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

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

### RECENT INCORPORATIONS

**Alberta (Alta.) Electric Railway.**—Application for a charter will be made by this company at the present session of the Dominion Parliament to build electric railways, telegraph and telephone lines throughout the province. The members of this proposed company are said to be an English firm of electric railway builders, and it is their intention to proceed with the work as soon as the charter is granted. One of the branches of this line is proposed to extend from Calgary to McLeod, through Southern Alberta. [E. R. J., Nov. 12, '10.]

**United Properties Company of California, San Francisco, Cal.**—Incorporated in Delaware to build and operate electric and steam railroads, electric light and power lines, etc. Capital stock, \$200,000,000. Operating offices, San Francisco and Oakland, Cal. Directors: H. W. Davies, Wilmington, Del., of the United Traction Company, Albany, N. Y.; F. M. Smith, president of the Oklahoma, Kansas & Missouri Interurban Railway, Miami, Okla.; W. S. Tevis, vice-president of the Power, Transit & Light Company, Bakersfield, Cal.; R. G. Hanford, Gavin McNab, C. B. Zabriskie, W. R. Alberger and Dennis Searles.

**Lake Erie & Northern Railway, Brantford, Ont.**—Application has lately been made by this company to the Dominion Parliament for a charter to build a radial electric railway from Brantford to Port Dover. Capital stock, \$1,000,000. Incorporators: Hal Donley, M. P., Somcoe; W. S. Brewster, R. E. Ryerson, John Muir and W. D. Schultz, Brantford. [E. R. J., May 29, '09.]

**\*Port Bolivar Iron Ore Railway, Longview, Tex.**—Chartered in Texas to build a 50-mile electric or steam railway from Longview, Gregg County, through Gregg, Upshur, Harrison, Marion and Cass Counties to a point in Cass County about 10 miles north of Hughes Springs. Capital stock, \$50,000. Headquarters, Longview. Incorporators: L. P. Featherstone, Fox Winnie, L. C. Luckel, W. D. Myers, W. C. Brothers, Eugene A. Wilson, Lewis A. Featherstone, Murrell L. Buckner and T. B. Stinchcomb.

### FRANCHISES

**Montgomery, Ala.**—The Montgomery Traction Company has received a franchise from the City Council to build several extensions in Montgomery. C. G. Abercrombie, Montgomery, general manager. [E. R. J., Jan. 7, '10.]

**Modesto, Cal.**—The San Joaquin Valley Electric Railway, Stockton, has received a franchise from the City Council to build its railway over certain streets in Modesto. Morris L. Brackett is interested. [E. R. J., Dec. 24, '10.]

**Sacramento, Cal.**—The Northern Electric Railway, Chico, has asked the City Trustees for a renewal of its franchise to build a line on Front Street and on M Street, from its intersection with M Street, in Sacramento, to the Sacramento River.

**Hartford, Conn.**—The Connecticut Company has asked for another franchise from the Council to double track some of its lines in Hartford.

**Moodus, Conn.**—The Moodus & East Hampton Electric Railway, Swansea Centre, will ask the Council for a franchise to build an electric railway in Moodus. [E. R. J., Dec. 24, '10.]

**\*Chicago, Ill.**—The Chicago Subway, Arcade & Traction Company has announced that it will ask the City Council for a franchise to construct passenger and freight subways in Chicago. Dwight H. Perkins is interested.

**Ludlow, Mass.**—The Springfield Street Railway, Springfield, has received a franchise to build its railway over certain streets in Ludlow.

**Swansea, Mass.**—The Providence & Fall River Street Railway, Swansea Centre, will ask the Council for a franchise to extend its line in Swansea for about a mile to North Swansea.

**Worcester, Mass.**—The Worcester & Northern Street Railway, Worcester, has received a year's extension of

time of its franchise from the Massachusetts Railroad Commission in which to construct its proposed electric railway to connect Fitchburg, Princeton and Worcester via Wachusett Mountain. There is a provision in the grant stating that work must be begun within a year. All rights-of-way have been secured. [E. R. J., Jan. 15, '10.]

**Middletown, Ohio.**—The Ohio Electric Railway, Cincinnati, is negotiating with the authorities of Middletown for a 25-year franchise to build an electric railway in Middletown. The company proposes to build three lines, one of which involves the construction of a bridge by the municipality in order to reach the large plant of the American Rolling Mill Company.

**Toledo, Ohio.**—The Toledo Railways & Light Company has asked the City Council for a franchise to extend its street railway south of Fassett Street, including the territory reached by Owens Street, Oakdale Street and Prentice Street and that occupied by the Stillman Brown addition in Toledo.

**Hamlin, Tex.**—The Hamlin Street Railway has received a franchise to build its railway to the Central Nazarene University.

**\*Aberdeen, Wash.**—The Citizens' Lighting & Power Company, Aberdeen, will ask the City Council for a franchise to build an electric railway in Aberdeen.

**Bellingham, Wash.**—The Nooksack Valley Traction Company, Bellingham, has received a year's extension of its franchise to complete its proposed electric railway in Bellingham. The line will connect Bellingham, Ferndale, Blaine, Lynden and Sumas. J. S. Wheeler, Seattle, general manager. [E. R. J., Oct. 29, '10.]

**\*Seattle, Wash.**—George W. White and associates have asked the City Council for a franchise to operate an electric railway from the intersection of First Avenue south to the city limits in Seattle.

**\*South Bend, Wash.**—J. D. Creary has asked the City Council for a franchise to build an electric railway in South Bend and extend it to Raymond. Work will be begun in the spring.

**\*Tacoma, Wash.**—The Island Railway & Navigation Company has asked the City Commissioners for a franchise to build a proposed 3-mile electric railway on Sixth Avenue, from Proctor Street, Tacoma, to the Narrows.

### TRACK AND ROADWAY

**Little Rock Railway & Electric Company, Little Rock, Ark.**—This company will build 2 miles of new track during 1911. D. A. Hegarty, general manager.

**Fresno (Cal.) Traction Company.**—During 1911 this company will build 30 miles of single track. F. A. Caslin, superintendent.

**Uncompahgre & Gunnison Valley, Montrose, Col.**—It is reported that this company has awarded the contract to M. L. Paret, Kansas City, Mo., for the engineering work for building its proposed 29-mile electric railway to connect Montrose and Delta via the west side of the Uncompahgre River, along Spring Creek mesa and California mesa to Olathe and through Sharano and Coal Creek Valley. J. M. Pepper, Montrose, is interested. [E. R. J., Oct. 15, '10.]

**Norwich, Colchester & Hartford Traction Company, Norwich, Conn.**—It is reported that this company will petition the General Assembly for an amendment to its charter, thus gaining another entrance to Norwich. H. M. Pollock, secretary. [E. R. J., Dec. 31, '10.]

**Connecticut Company, Waterbury, Conn.**—This company has filed a petition with the Secretary of State, asking the General Assembly to grant a charter right to build a loop line through Pearl Lake Road, connecting the Baldwin Street and South Main Street lines, in Waterbury.

**Georgia Railway & Electric Company, Atlanta, Ga.**—This company will double-track its Forrest Avenue line in Atlanta from Peachtree Street to Jackson Street. Work will begin in the spring.

**\*Wendal, Idaho.**—Mayor J. Calhoun, Boise, representing Eastern capital, it is said, is promoting the construction of an electric railway from Wendell to Hagerman.

**Charleston, Westfield, Marshall & Terre Haute Electric Railway, Charleston, Ill.**—Interest has again been revived

in this proposed 12-mile electric railway. Surveys have been completed and rights-of-way secured. The railway will connect Charleston, Marshall and Westfield, Ill., and Terre Haute, Ind. W. R. Patton, Charleston, president. [E. R. J., June 19, '09.]

**Springfield & Central Illinois Traction Company, Springfield, Ill.**—This company has surveyed 45 miles of its line from Springfield to St. Louis. This proposed 110-mile electric railway will connect Pawnee, Morrisonville, Hillsboro, Coffeen, Durley, Greenville, Carlyle, Hoffman and Centralia. The following officers have been elected: Isaac Smith, St. Louis, president; George W. White, vice-president; Noble E. McMillan, treasurer, and James W. Gullett, secretary.

**Evansville, Mt. Carmel & Olney Electric Railway, Evansville, Ind.**—This company has begun the construction of its 14-mile line from Mt. Carmel to Lancaster. The line will be extended later to Evansville. This proposed 65-mile railway will connect Mt. Carmel, Highland, Darmstadt, Cynthia, Owensville, Friendsville, Lancaster, Berryville and Olney. E. Q. Lockyear secretary. [E. R. J., Oct. 29, '10.]

**Charles City & Western Railway, Charles City, Ia.**—This company intends to build during 1911 about 20 miles of new track. C. W. Hart, president. [E. R. J., Sept. 10, '10.]

**Iowa City, Ottumwa & Southwestern Electric Railway, Iowa City, Ia.**—It is said that this company will let several contracts in the spring for building its proposed 70-mile electric railway to connect Iowa City and Ottumwa via Sharon Center, Trytown, Amish, Wellman, Keota and Ollie. Frank Tanner, Iowa City, general manager. [E. R. J., Aug. 27, '10.]

**Oklahoma-Kansas Railway, Baxter Springs, Kan.**—This company has completed surveys and has partly secured capital for construction work. It will award contracts this spring. The railway will connect Columbus, Galena, Hattonville, Miami, Sunny Side and Lincolnville. C. F. Lambert, Kansas City, chief engineer. [E. R. J., Jan. 7, '11.]

**Manhattan City & Interurban Railway, Manhattan, Kan.**—A 15-mile extension from Manhattan to Fort Riley will be constructed by this company during the year 1911. Joseph T. West, Manhattan, purchasing agent.

**Twin City General Electric Company, Ironwood, Mich.**—This company expects to build 5½ miles of single track from Ironwood to Bessemer during 1911.

**Lincoln (Neb.) Traction Company.**—About 5 miles of new track will be built by this company in Lincoln during 1911.

**Brooklyn & Jamaica Bay Railroad, Brooklyn, N. Y.**—Commissioner Bassett, of the Public Service Commission, will recommend the commission to grant the certificate of convenience and necessity to this company for building a 2½-mile electric railway from Liberty Avenue and Montauk Avenue, Brooklyn, down Montauk Avenue to Railroad Avenue and Old Mill Creek, Jamaica. Horace J. Subers, 25 Broad Street, New York, president. [E. R. J., June 25, '10.]

**Cleveland, Alliance & Mahoning Valley Railway, Alliance, Ohio.**—It is announced that construction will be commenced on this line between Ravenna and Alliance early in the spring and cars will be running by fall. This section will be operated in connection with the Stark Electric Railroad, whose owners are also largely interested in the new company. It is estimated that the line between Cleveland and Ravenna will be in operation two years. The railway will connect Cleveland, Alliance and Mahoning. [E. R. J., Nov. 5, '10.]

**Illinois Central Electric Railway, Canton, Ohio.**—This company expects to build a 6½-mile extension from Norris to Farmington during 1911. Geo. W. Chandler, chief engineer.

**Columbus, Urbana & Western Railway, Columbus, Ohio.**—In order that it may extend its tracks to Dublin at once, and later on to Plain City, this company has asked the city of Columbus to waive its rights across the McLaughlin place and allow it to construct its tracks along the Ohio River banks near the storage dam. The land was deeded to the city on condition that the grant become void in case any public service corporation was granted the right to build on the land or east of it.

**Toledo, Fostoria & Findlay Railway, Fostoria, Ohio.**—This company is considering plans for building an extension to Prairie Depot.

**Tri-State Traction Company, Steubenville, Ohio.**—This company is considering plans to extend its railway to Weirton.

**Ottawa, Rideau Valley & Brockville Railway, Ottawa, Ont.**—This company has completed preliminary arrangements and will begin construction in the spring on its proposed 60-mile electric railway which is to connect Ottawa and Brockville. Andrew Haydon, president. [E. R. J., Nov. 19, '10.]

**\*Salem, Ore.**—It is reported that J. J. Hill has closed a deal for the Salem, Falls City & Western Railroad, which terminates at Salem. The newly acquired railway will be electrified and added to the Oregon Electric Railway.

**\*Sutherlin, Ore.**—M. M. Valerius, Sutherlin, and G. E. Fosbroke, St. Paul, are promoting plans to build an electric railway in Sutherlin. It is also planned to build a power plant.

**Clarion & East Brady Electric Railway, Clarion, Pa.**—This company has awarded the contract to the Carnegie Steel Company for 1500 tons of rails. G. E. Arnold, Clarion, president. [E. R. J., Dec. 3, '10.]

**West Penn Railways, Pittsburgh, Pa.**—This company will soon build a 20-mile extension to connect Bitner, Vance Mill, West Newton and Hunkers.

**Wilkes-Barre & Wyoming Valley Traction Company, Wilkes-Barre, Pa.**—This company has placed in operation its 8-mile extension from Miller Hill to West Avoca.

**Sherbrooke (Que.) Street Railway.**—During 1911 this company will rebuild 5 miles of track and build a 2-mile extension. Material has been ordered.

**Aberdeen (S. D.) Street Railway.**—This company has finished and placed in operation its 5-mile electric railway in Aberdeen. Charles N. Herried, Aberdeen, president. [E. R. J., May 21, '10.]

**Chattanooga Railway & Light Company, Chattanooga, Tenn.**—During 1911 this company will extend its line for a distance of about 5 miles.

**Cleburne (Tex.) Street Railway.**—This company has begun work on its 6-mile electric railway in Cleburne. Power will be purchased from the Cleburne Electric & Gas Company, and the company will operate 5 cars. Capital stock, \$65,000. Officers: Daniel Hewitt, Cleburne, president; Perry E. Coon, secretary and treasurer, and T. Bushon, electrical engineer. [E. R. J., Dec. 13, '10.]

**Haskell (Tex.) Traction Company.**—An 11-mile extension from Haskell to Rule will be constructed by this company during 1911.

**Houston (Tex.) Electric Company.**—This company will expend \$400,000 during 1911 for improvements to its railway. The Washington Street line will be extended to the Southern Pacific Company's tracks, and a bridge will be built across Buffalo bayou at the foot of Texas Avenue, leading to the Grand Central Station.

**Rutland Railway, Light & Power Company, Rutland, Vt.**—During 1911 this company will build a 9-mile extension from Poultney, Vt., to Granville, N. Y.

**Seattle-Tacoma Short Line Railway, Tacoma, Wash.**—This company expects to compete its 65-mile railway between Seattle and Tacoma during 1911. A. E. Rothermel, Tacoma, secretary.

#### SHOPS AND BUILDINGS

**British Columbia Electric Railway, Vancouver, B. C.**—This company is considering plans for building a new station at Edmonds, which is situated just on the city limits in Burnaby. The structure will be similar to the one at Chilliwack.

**Connecticut Company, New Haven, Conn.**—This company has completed plans for building an additional building adjoining its present car house on Midland Avenue, Port Chester. The structure will be 180 ft. x 225 ft. and of brick, steel and reinforced concrete construction with slag roof. It will afford space for 58 cars, also paint, truck repair and pump rooms. The present machine shop will



be enlarged 50 ft. x 160 ft., in similar style, and another addition will enlarge the office building 20 ft. x 50 ft., in duplication of its present two stories.

**Boise & Interurban Railroad, Boise, Idaho.**—This company has completed and is now occupying its new depot on Seventh Street and Bannock Street in Boise.

**Illinois Traction System, Champaign, Ill.**—This company has started condemnation proceedings to secure certain property necessary to complete the site for its new terminal station at Twelfth and Linden streets in St. Louis.

**Detroit (Mich.) United Railway.**—This company will begin work in the spring on a new depot, freight and car house on Saginaw Street, in Pontiac. When the work is completed the car houses at Birmingham will be abandoned by the company.

**Michigan United Railways, Lansing, Mich.**—This company completed and placed in service on Jan. 2 its new interurban terminal.

**Public Service Railway, Newark, N. J.**—This company will soon build new car houses in South Orange on Springfield Avenue, between Forty-third Street and Boyden Avenue, Hilton. The structure is to be one story high, except at its easterly end, where it will be two stories high. It will be 362 ft. x 200 ft. and of steel, brick and concrete construction. It will be built in accordance with the standard type of car houses adopted by this company. It will have a storage capacity of 120 cars, also an office, a recreation room for the employees of the division, and an assembly hall with dressing-room and a well-equipped kitchen. The cost is estimated to be about \$150,000.

**Rochester, Syracuse & Eastern Railroad, Syracuse, N. Y.**—Plans are being considered by this company for building a new union station in Rochester.

**Oklahoma (Okla.) Railway.**—This company expects to build a repair shop at Olive Avenue and Second Street in Oklahoma City. The cost is estimated to be about \$75,000.

#### POWER HOUSES AND SUBSTATIONS

**Cedar Rapids & Iowa City Railway & Light Company, Cedar Rapids, Ia.**—This company will build two new power stations during 1911. One will be at Iowa City and the other at North Liberty.

**Lexington & Interurban Railways, Lexington, Ky.**—This company, which is planning the construction of a large power house and which had indicated that the structure would be erected at Valley View, on the Kentucky River, has decided to build the power house at Lexington instead.

**Berkshire Street Railway, Pittsfield, Mass.**—This company is now building a new power house at Zylonite which will furnish power for the electrification of the Hoosac tunnel in North Adams. The cost is estimated to be about \$200,000.

**Northern Ohio Traction & Light Company, Akron, Ohio.**—This company, in order to supply additional power until the new power station at Cuyahoga Falls is completed, has placed orders for a 2500-kw turbine and a 1000-kw generator, both to be installed in the Akron station.

**Oklahoma City (Okla.) Railway.**—This company will double the capacity of its present power plant at Oklahoma City. It will also build an addition to its present power plant at Belle Isle, which will double its present capacity, increasing the hp from 2500 to 5000.

**Mt. Hood Railway & Power Company, Portland, Ore.**—This company has begun the construction of a water power plant in Portland.

**Lehigh Valley Transit Company, Allentown, Pa.**—This company has placed an order with the Westinghouse Machine Company, Pittsburg, Pa., for one 4000-kva turbo-generator set. The turbine is to operate between 175 lb., 100 deg. superheat and a 28-in. vacuum. The generator is designed for 3-phase, 25-cycle operation at 13,300 volts.

**Utah Light & Railway Company, Salt Lake City, Utah.**—This company has finished and put in operation its new power station at Murray.

**Seattle (Wash.) Electric Company.**—This company will build a new power house at Tenth Avenue and Madison Street in Seattle.

## Manufactures & Supplies

### ROLLING STOCK

**Lincoln (Neb.) Traction Company** will order four or six passenger cars.

**Springfield (Mo.) Traction Company** will purchase six double-truck motor cars.

**Inter-State Traction Company, Duluth, Minn.,** will purchase two double-truck motor passenger cars.

**Norfolk City & Suburban Railway, Norfolk, Va.,** has purchased two passenger cars from The J. G. Brill Company.

**Washington Water-Power Company, Spokane, Wash.,** has ordered 25 pay-as-you-enter cars from The J. G. Brill Company.

**Charleston (S. C.) Consolidated Railway & Lighting Company** will order six single-truck cars with complete equipment.

**Fort Dodge, Des Moines & Southern Railway, Fort Dodge, Ia.,** has purchased one electric locomotive crane from the Browning Engineering Company, Cleveland, Ohio.

**Municipal Street Railway, Regina, Sask.,** has placed an order with the Ottawa Car Company for four single-truck and two double-truck cars, delivery to be made by July 5, 1911.

**Rio de Janeiro Tramway, Light & Power Company, Rio de Janeiro, Brazil,** has ordered from the Westinghouse Electric & Manufacturing Company 150 No. 304 interpole motors.

**Oklahoma Railway, Oklahoma City, Okla.,** has purchased through J. G. White & Company, from the Westinghouse Electric & Manufacturing Company, Pittsburgh, Pa., two quadruple equipments of No. 101-B motors.

**Boston (Mass.) Elevated Railway** has ordered from the Westinghouse Electric & Manufacturing Company 50 quadruple motor equipments, which include hand-operated unit-switch control and No. 306 interpole motors.

**Quebec (Que.) Railway, Light, Heat & Power Company** will purchase eight pay-as-you-enter, double-truck steel motor cars, eight double-truck trailer cars, 10 single-truck open car bodies and 25 closed box cars, including trucks.

**Northern Ohio Traction & Light Company, Akron, Ohio,** has ordered 25 cars from the G. C. Kuhlman Car Company, Cleveland, Ohio. Eight of these cars will be for interurban service and 17 will be for city and suburban service. The contract calls for the cars to be delivered early in the spring.

**Detroit (Mich.) United Railways** has ordered 50 new cars, which will be built under license from the Pay-As-You-Enter Car Corporation. Thirty-five of these cars are to be built by the G. C. Kuhlman Company, Cleveland, Ohio, and 15 by the Niles Car & Manufacturing Company, Niles, Ohio.

### TRADE NOTES

**Wendell & MacDuffie Company, New York, N. Y.,** have received the contract to cover the roof of the new express and freight building of the Dartmouth & Westport Street Railway, Fall River, Mass., with asbestos corrugated sheathing.

**McKeen Motor Car Company, Omaha, Neb.,** has received an order from the North Coast Railroad for a 70-ft. gasoline motor car, which will be delivered in March. This company also reports that it is operating two 55-ft. motor cars in the vicinity of Kenniwick, Wash.

**Dossert & Company, New York, N. Y.,** report a large increase in their export business during the year 1910. Among other orders they have recently shipped to South Africa through the Western Electric Company an order for over 2500 connectors of various types and sizes.

**Pressed Steel Car Company, Pittsburgh, Pa.,** is building five additions to its works at McKee's Rocks, to accommodate the new department it will start shortly for the building of all-steel passenger and traction cars. The new department will give employment to at least 500 skilled mechanics.

**Michel-Kurze Company, New York, N. Y.**, has been organized to do photo retouching and illustrating of machinery subjects. The business will be managed by A. E. Michel, and the staff of artists will be in charge of Wm. F. Kurze, who for several years has been art director of the Scientific Engraving Company.

**Lord Manufacturing Company, New York, N. Y.**, which succeeded to the business of the manufacturing department of the Lord Electric Company on June 1, 1910, reports a better record for the year just ended than the manufacturing or railway department of the Lord Electric Company ever made. The company begins the year 1911 with sufficient business in hand and contracts for future delivery to keep the manufacturing department busy for several months.

**George C. Wing and Frederick W. Hempy, Cleveland, Ohio**, have just been granted another patent covering the construction of maximum standing capacity cars in which the seats may be folded or unfolded in accordance with traffic demands. The original design was described on page 409 of the *ELECTRIC RAILWAY JOURNAL* for July 9, 1910. In the second patent the usual cross seats are arranged between transverse handrests so that they may be folded back or collapsed at will.

**James A. Farrell**, president of the United States Steel Products Company, has been named as president of the United States Steel Corporation, to succeed William Ellis Corey, who has tendered his resignation. This announcement was made known by Judge Elbert H. Gary, chairman of the finance committee and the board of directors of the corporation. Mr. Farrell before becoming president of the United States Steel Products Company had been an official of the American Steel & Wire Company.

**F. G. Bolles**, who recently resigned as commercial engineer of the Allis-Chalmers Company, is the principal stockholder in the Alliance Engineering & Sales Company, incorporated for \$50,000, which has purchased the patents and taken over the exclusive sales agencies of the Reliance Engineering & Equipment Company. The consulting work carried on by the latter will be retained by it, under the management of C. A. Tupper. The offices of both companies are in suite 415-417 Engineering Building, Milwaukee.

**Allis-Chalmers Company, Milwaukee, Wis.**, has elected D. W. Call president, to succeed W. H. Whiteside, resigned. Mr. Call is of Scotch descent, and was born on a farm near Cleveland, Ohio. At the age of 17 years he commenced his business career in Cleveland, and later entered the employ of the National Malleable Castings Company, manufacturer of car couplers and railroad castings. He was appointed general manager of sales of this company in 1900, from which position he resigned in 1904 to accept the position of assistant to the president of the American Steel Foundries Company, with headquarters in New York City. Mr. Call's wide experience in the sales department in the railroad supply field and in the executive management of large manufacturing corporations will be invaluable to him in his new position at the head of the Allis-Chalmers Company, which has such a large and diversified output of mechanical, electrical and mining machinery.

**Western Electric Company, New York, N. Y.**, has this year changed the fiscal year to end Dec. 31, instead of Nov. 30. For the 13 months ending Dec. 31, 1910, its sales were approximately \$66,000,000, as compared with \$45,000,000 for the 12 months of last year. The best year in the history of the company was in 1906, when its sales amounted to \$69,000,000. The increase over the past year has been well distributed over the various lines which the company manufactures. In the latter part of 1910 the company authorized the construction of several new buildings at Hawthorne to cost \$1,000,000, which will still further in-

crease the capacity of the plant. The company now employs in all departments nearly 24,000 men.

**Ackley Brake Company, New York, N. Y.**, manufacturer and exporter of the Ackley adjustable brakes, has just completed the first year of business devoted entirely to the export or foreign trade in these brakes. That it has been successful can be attested by the fact that the brake has been introduced into every important country of the world in that time. Throughout Continental Europe it is becoming widely used and hundreds of Ackley brakes have been shipped into Japan, China, Australasia and the Philippines during the year. The roads in the British Empire are supplied through the British Ackley Brake Company of London. Ackley brakes are in use in Egypt, Tunis, Algiers, Morocco, Greece, Turkey, Roumania and Russia. Trondhjem, Norway, is the city farthest north, and Dunedin, New Zealand, is the city farthest south whose cars are equipped with these brakes. G. S. Ackley, patentee and inventor of the brake, is at present making a tour of the principal cities of South America in the interests of his company, and has cabled to the New York office of the company orders aggregating 800 Ackley brakes for various tramways in the South. During the past year the brake has received meritorious awards at various exhibitions abroad, the principal one being the silver medal award at the International Exposition at Brussels.

#### ADVERTISING LITERATURE

**American Blower Company, Detroit, Mich.**, has recently issued bulletin No. 266 on steam traps.

**Frank Ridlon Company, Boston, Mass.**, has issued a catalogue giving a list of second-hand electrical machinery for January, 1911.

**Wendell & MacDuffie Company, New York, N. Y.**, have issued a postal card describing the different features of the Russell snow plow.

**Rogers, Printz & Company, Warren, Pa.**, have recently issued several folders illustrating and describing the different types of "Arpeco" wrenches.

**N. W. Halsey & Company, New York, N. Y.**, are distributing gratuitously a vest pocket card containing 1911 calendar and bond interest table, which will be found very useful to bond buyers.

**Trussed Concrete Steel Company, Detroit, Mich.**, has issued a catalog illustrating and describing the standard types of United steel sash. The catalog also contains complete tables of dimensions and full-sized details of the lintels, sills and jambs.

**Hess-Bright Manufacturing Company, Philadelphia, Pa.**, has recently issued a very attractive catalogue illustrating and describing the different styles of Hess-Bright ball bearings and also containing a number of tables on sizes, dimensions and sustaining capacity of the bearings. In connection with the catalogue the company has issued a small folder for convenient ready reference, duplicating the different tables on bearings.

**Westinghouse Machine Company, Pittsburgh, Pa.**, has reprinted a paper on "Present Steam Turbine Progress" presented by Edwin D. Dreyfus before the Railway Club of Pittsburgh on May 20, 1910. Mr. Dreyfus' paper showed by both illustrations and figures wherein the present steam turbine excels the original forms in requiring less space, adjustment and oil; in giving better steam economy, and in costing less to maintain. The paper also referred to turbines for low-pressure service and other special applications.

**Walpole Rubber Company, Walpole, Mass.**, has had printed in pamphlet form under the title "A Visit to Walpole" the story of its growth from a small factory established under the name of the Massachusetts Chemical Company in South Boston in 1892 for the manufacture of liquid electrical insulating compounds. In 1900 the company moved to a new plant at Walpole, which has been enlarged several times to provide additional space to care for the increased output, which includes insulating compounds, tapes and cloths, molded rubber goods and pneumatic tires. To handle the company's Canadian business a large factory was built at Granby, Que., in 1909. The pamphlet is a very handsome piece of printing and is illustrated with numerous views of the company's factories at different periods to show the steady growth of the business.



D. W. Call