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The American Association Papers

Through a wise decision of the executive committee of the American Street & Interurban Railway Association, abstracts of the papers presented at the mid-year meeting of the American Street & Interurban Railway Association on Jan. 28 are made public. The papers were originally prepared as addresses for executive sessions, but the facts given in them were so instructive that it was decided to print them, and with the permission of the authors, abstracts are published elsewhere in this issue. All of the papers relate broadly to the subject of how a fair return can be secured upon investment in electric railway properties. Thus, Mr. Sergeant draws attention to the low rate now being secured in an industry in which there is considerable risk and to the erroneous impression held by the public in general as to the profits gained in electric railway undertakings. Mr. Clark quotes from various authorities the enormous increases which have occurred during the past five years in the cost of labor and materials required in electric railway operation, and points out methods by which the public can be made familiar with these facts. The paper of Mr. Ford is devoted to a discussion of the subject of depreciation. It presents, in brief, the somewhat divergent rules of State and Federal authorities concerning the treatment of depreciation of railway properties and describes a method which has been applied on one property. Mr. Sullivan's address was a complete exposition of the history and work of the Massachusetts Board of Railroad Commissioners, and it was received with close attention as a critical account of the results accomplished by the public regulating body which, so far as street railways are concerned, has been the most conspicuous example of commission rule in the country.

These four papers will give to those who are familiar with the conditions upon individual electric railway properties a very clear understanding of the status of the industry as a whole. To those who are not so conversant with the subject they are of the greatest value because they summarize a situation which is of almost as vital interest to the public as to the railway companies themselves. Taken in connection with the address of President Shaw at the mid-year meeting, they constitute an unanswerable argument in favor of some radical change in the policies generally pursued toward public-service corporations, if the latter are to give efficient service.

The present seems to be an appropriate time for driving this lesson home. The fact that there has been an increase in the price of nearly every article used in individual consumption is a matter of common knowledge, but all do not as fully realize that the "cost of living" of public-service corporations has increased in like ratio. We believe that if the publication of these four papers will assist in extending a knowledge of this fact, the authors of the papers will feel fully repaid for the work expended in their preparation.

Repair Methods and Overhauling Period

A number of large city railways with practically the same class of equipment have adopted 10,000 car-miles as their overhauling interval, but with very different results. Of course, when a railway establishes a standard of this kind for its electrical car equipment, the presumption is that the motors, controllers, circuit breakers and other parts will operate without serious breakdowns until the next overhauling period falls due. If the mileage lost through "run-ins" of electric apparatus does not exceed, say, one-tenth of 1 per cent of revenue mileage, it is fair to say that the company has an overhauling basis which is not too large. Of course, the efficiency of the motormen has a great deal to do with the number of repairs required, but thoroughness in electric repair work is usually the more important factor in fixing the length of the interval between overhaulings.

One company, whose winter record of "run-in" mileage per 1,000 car-miles operated is only 0.75 mile, ascribes this excellent performance to the fact that every part of its motor repairs, controller overhauling, circuit-breaker calibration, and the like, is done at the bench. This method insures thorough performance, because the apparatus is repaired with the best available tools in the most convenient position and under the eyes of the shop foremen. Bench work is not an unmixed blessing, however, because if the different leads and terminals are frequently reconnected they are apt to deteriorate rapidly. It therefore appears advisable to adopt a middle course, and take to the bench only those parts which, in the judgment of the foreman, require the most careful attention. This plan is followed by a company which has had in service 330 cars a day during the past year without a single controller failure. It might be said, however, that the controllers were provided with a system of continuous lubrication, and although the segments are lubricated by rubbing against felt pads soaked in oil, there has been no trouble from fire in the controller cases.

Simple Endurance Tests

It is an excellent plan to obtain performance or endurance records of the many small pieces of apparatus which have to be used on an electric railway system. Such records often will show a purchaser where he can gain a considerable economy. Those roads which have gone into testing work in earnest have found it to be of such value that the scope of the tests has often been broadened. Few roads, however, are large enough to establish a testing bureau as a separate department, and so on some roads each department head assumes the responsibility of recommending to the purchasing agent which make of device or material of a certain class shall be bought for a certain use. This procedure does not approach in thoroughness the work of a testing bureau or well-organized testing department. So much may depend upon the qualities of a device or material that, within reasonable limits, too much care can hardly be given in ascertaining before purchasing just what results may be expected. The large road, with its testing bureau, and the smaller road, as a subscriber to a central testing laboratory, can quickly obtain records that will bring about economies; yet supplementary to such testing bureau work are some endurance tests that can be made in such simple ways that hardly any road can afford not to utilize them. There is such a vast difference in the way in which various materials behave under widely different operating conditions

that an endurance test of some small part will often bring out a flaw in design or material which the purchaser can properly insist on having corrected before he assumes any responsibility.

The shop superintendent of a large city property in the central States has made a number of very simple tests which have produced results far beyond expectation. All of these tests are more or less comparative, and perhaps are not always carried out in close accord with operating conditions, but the results show which kind of material or device will give the best service, price and life considered. Small car parts, for example, are subjected to actual use until they break down, and comparison is made between first cost and life.

At one time bell circuits were to be installed in about 1500 cars. A special resistance formed an important part of a patented scheme for using trolley current for bell ringing. The shop superintendent had some doubt about the life of this resistance, and so obtained sample sets for testing. He connected up a bell circuit similar to that which was planned for the cars, and inserted the sample resistance. Current was taken from the shop trolley, and the circuit was closed so that the bell would ring continuously. The resistance thus was doing very nearly the same service that it would if installed on a car, except that under test the service was continuous. The life of the resistance was noted, and it was found to be not so great as could be desired. Suggested changes were made by the manufacturer, and the samples were again tested. These had a much longer life under the same service. With the life thus determined, the shop superintendent could make close estimates of the cost of trolley current for bell ringing as compared with battery current. He was not accepting the new method blindly.

Another endurance test was made for the purpose of determining the life of trolley bushings. Trolley wheels with the bushings which were to be compared were mounted in harps on poles and bases as regularly used. A rope was passed over two pulleys in such a way that the trolley wheels could be set against the moving rope as in actual service. The speed of the rope was found and the time of starting noted. Thus the miles run by the wheels were measured and the life of the bushings compared. A criticism of this test was that no current passed through the wheels during the test. Nevertheless, with the rope traveling continuously at a high rate of speed the lubrication and mechanical qualities of various wheels could be compared very quickly in this way.

Before deciding on a type of journal box for new cars the management put several makes through endurance tests at the railway shops. The object, of course, was to test the boxes under conditions which closely approached those of actual service, and there was not sufficient time for road tests. Six kinds of boxes were under trial, and interesting results were obtained. The method of testing was to clamp a journal box on its side on the bed of a planer and move it back and forth under a wearing plate which resembled a pedestal guide in its wearing effect. This plate was held down in the box way under a pressure of about 450 lb. applied by an adjustable weight carried at the end of a lever mounted in the tool post. A counter was attached to the planer and the box moved back and forth under the weight 10,000 times or less, according to the wear. Records of the tests showed the number of strokes of the planer with each type of box, wear of the box and wear of the plate, compared with the original thickness of the metal

in the box. With these results it was easy to determine the comparative life to be expected from machined and unmachined boxes and those made of semi-steel, chilled iron, or with steel inserts.

Center bearings also were given tests. Two bearings of like design were placed under a hydraulic press and the amount of pull necessary to turn the two middle halves by pulling on a long bar inserted between them was measured. A comparison of the friction of different kinds of bearings under various loads up to 100 tons was thus obtained. Some of the bearings broke down before the full load was applied, thus exhibiting weakness which would not be desired on the score of maintenance charges, no matter how little friction the bearing had.

In all these and many other tests made at this shop the one idea has been to gain a comparative idea of the qualifications of a certain piece of apparatus or a part for severe service. The results have more than justified the work and expense for testing, and now plans for a more complete testing equipment are being made.

The Hydroelectric Problem

Within the last year or two the question of development of hydraulic privileges has come more conspicuously to the front than ever before. Very keen attention has been concentrated on the matter, owing to the long-winded and somewhat acrimonious discussions over the Government policy toward water-powers, coupled with a great deal of vague polemics directed against the alleged water-power trust. As regards the economic aspect of the matter, it must be admitted that there are two sides to the question. A well-located steam plant operating on a very large scale can really deliver power at a price lower than can be afforded by most hydroelectric plants, while, on the other hand, the well-located and economically installed hydroelectric plant can easily surpass anything in the way of a steam plant that has yet been devised. Between these two extremes lie many debatable cases in which the net economy of hydraulic generation of power may be somewhat in doubt.

There are many instances, especially in the older portions of the country, in which it is certain that water-power as developed costs more per horse-power than would be the case with a thoroughly modern steam plant. Looking at the matter from the larger view however, the cost of coal is steadily increasing and very few power companies can own their own coal mines, as do some of those which are making record breaking low costs. Water-power, on the other hand, is a source of power that will stay with us after the last pound of coal is mined, and as a permanent national resource the integrity of the water-power supply should be jealously guarded. There is no need of befogging the real issue with speculations as to the existence or growth of any trust or combination intended to get possession of the hydraulic resources of the country. If there is not such a combination now there is very likely to be one a few years hence merely on the general principle that every imaginable valuable thing of public utility will be grabbed by a combination of capital if the public permits it. The main question is whether the Government shall, so far as in it lies, exercise a restricting influence on the present development of water-powers, or whether it shall throw open the gates and let them be utilized as speedily and completely as possible.

The recent paper by Mr. Doherty, discussed in the current

number of the "Institute Proceedings," has awakened even a keener interest in the matter than has before existed, and the question has really become of large national importance. From the standpoint of the public good a cheap and plentiful power supply is a prime necessity to successful manufacture. If this can be obtained best by encouraging the rapid taking up and development of water-powers, that is the policy to be pursued, while if such development is likely to lead to imperfect utilization of powers and to combinations which will artificially hold up the price of water-power, then to encourage hasty development is an injury to the public.

In considering this question it seems to us that so far as the matter of combinations is concerned a sharp line ought to be drawn between physical amalgamation and financial association. If the water-powers of a given territory are to be so utilized that they will be a great industrial resource, not to-morrow and next day, but a century ahead, they must be so organized as to assist each other physically. A few great power networks exist, and their usefulness is well established. On the other hand, if the only association of the water-powers of a given territory rests in a community of ownership, either through individuals or by a holding company, then it is perfectly safe to say that the combination will inevitably result in that holding up of the prices which is invariably and always associated with firmly established monopoly. The long and short of the affair is that if the Government is to consider the interest of the public, and not that of favored individuals, it should take a firm and unalterable stand against the merging of power enterprises which are not physically connected and against the acquisition of hydraulic privileges by any concern whose object is to merge them in a financial and not physical way with other holdings. On the other hand, if any persons propose to develop all the powers of a region as a coherent whole, they should be encouraged to do so under rigid Government supervision and control.

Whatever may be said about the virtues of cheap steam power, a first-class group of hydraulic privileges intelligently developed without the taint of high finance is pretty certain to prove a paying proposition at a price for power which benefits the community as well as the stockholders. Moreover, the demand for power in the future is practically certain to increase, probably in a greater ratio than almost any other commodity or service employed by mankind. Power is one of the very few things for which the demand seems constantly to be increasing, but for which the ultimate supply is already in sight. This condition emphasizes the importance in the development of water-powers of a conservation of all of the forces ultimately available. But in not a few recent instances there has been no proper realization of the engineering requirements of the case.

Waste of this sort when applied by any one to matters of so great public concern as hydraulic privileges ought to be put down with a strong hand, in so far as the Government has power to do so with respect to the privileges which remain still in its guardianship. But there is no reason why the Government should hold out a power or group of powers from utilization, provided such utilization be properly carried out, under regulations that will insure on the one hand a fair profit for the cash actually spent and a favorable price of the product to the public, whose rights it is the duty of the Government to conserve.

NEW PAY-AS-YOU-ENTER CARS FOR THE PUBLIC SERVICE RAILWAY, NEWARK, N. J.

The Public Service Railway Company, Newark, N. J., has recently completed nine single-end pay-as-you-enter cars at its Plank Road shops. These new cars are in addition to the 150 cars purchased three years ago from the Cincinnati Car Company and like them will be operated under the license of the Pay-As-You-Enter Car Corporation. The prepayment cars of the Public Service Railway Company differ from the usual designs principally in the fact that they do not use the ordinary folding vestibule doors, but employ in their stead novel platform gates designed by the mechanical department of the railway company.

The nine new cars are very similar to the 150 pay-as-you-enter cars now in use except that they are 3 in. narrower and have different platform arrangements and longitudinal instead of transverse seating. The car body proper is also 32 ft. long instead of 30 ft. 8 in., but its weight has been reduced from 20,063 lb. to 18,589 lb. The total weight of the new car, however, is greater because instead of using Brill 27-GI trucks, which weigh only 10,860 lb. per pair, they have the heavier Brill 27-MCB trucks. The first two trucks of the new design weigh 16,164 lb., but the weight of the remaining trucks was cut down to 14,564 lb. per pair. The No. 27 truck was chosen in order to

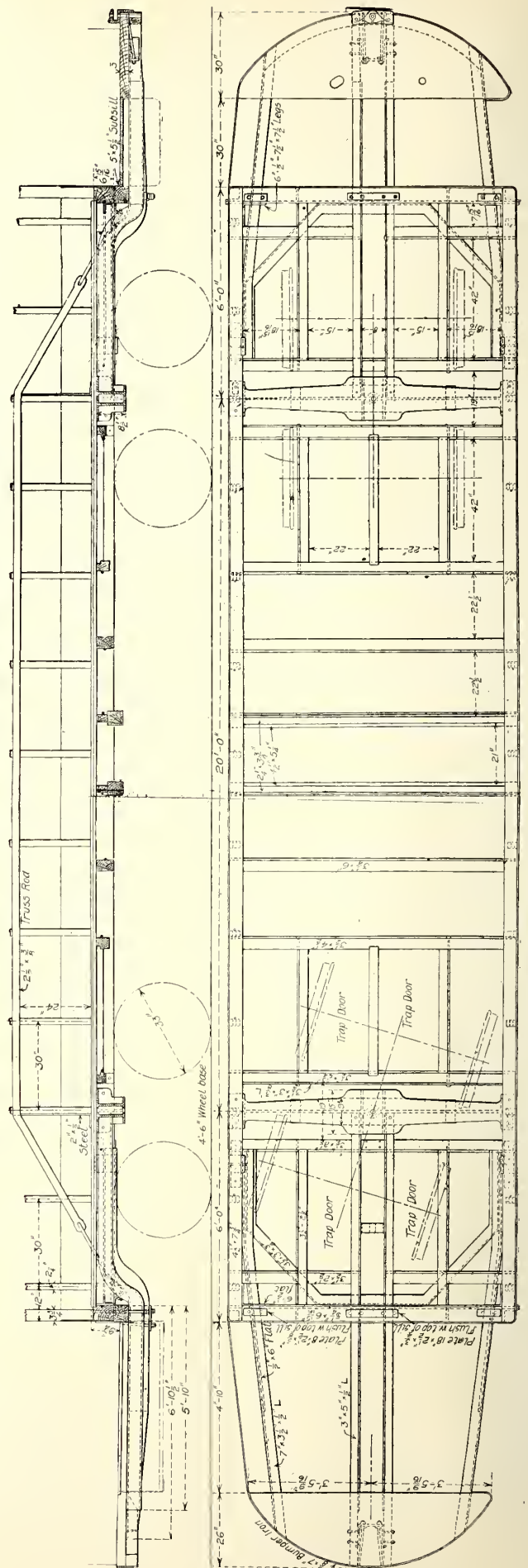


Public Service Railway Cars—Rear Platform, Showing Gates

secure a truck which would permit the use of inside hung motors carried on 5 ft. 10 in. centers.

The table on page 274 gives a comparison of the first and second types of these pay-as-you-enter cars. It will be observed that the type 1900 or more recent car, when carrying exactly the same equipment except for trucks, weighs 1200 lb. per seated passenger, while the type 2100 or older car weighs 1144 lb. per seated passenger.

The new cars are 44 ft. long over the bumpers; 32 ft. long over the corner posts and have an over-all height of 11 ft. 1½ in. from the rail to the roof. The motorman's platform is 4 ft. 6 in. long with a 30-in. exit step, and the conductor's platform is 6 ft. 5 in. long with a 27-in. and 25-in. entrance and exit step opening respectively. The car is 8 ft. 3 in. wide over the posts and 8 ft. 1½ in. wide over the sill plates. This dimension is 3 in. less than the first pay-as-you-enter cars, but it is still liberal enough to have the entrance and exit doors of good widths. Thus the single-entrance door has a clear opening of 24 in. wide and both the rear and front sliding exit doors have

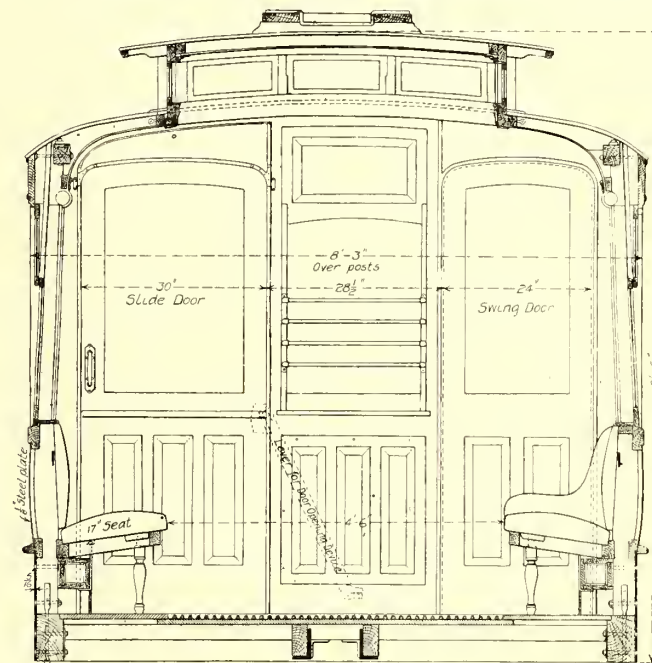
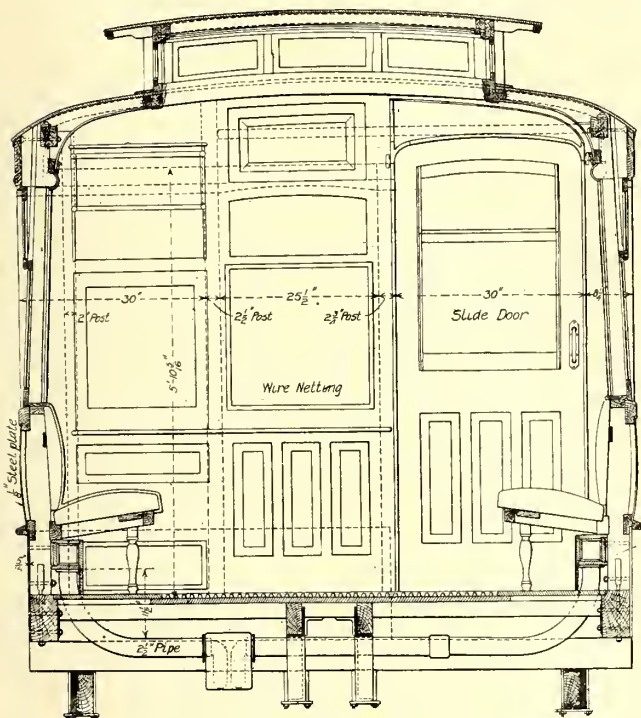


Public Service Railway Cars—Plan and Side Elevation of Underframe

clear openings of approximately 26 in. Furthermore, as the seating on both sides is longitudinal and only 17 in. wide, it has been found possible to have a 54-in. aisle. It will be seen from this that the car is very well suited for the rapid handling of passengers in city service.

The construction of the car is almost entirely of wood. The

These gates are operated by the conductor through two handles placed in the platform railing one above the other. The top handle controls the entrance gates and the bottom handle the exit gates. One pair of gates can be closed while the other is being opened or both may be opened and closed simultaneously. This arrangement places the movement of passengers under the



Public Service Railway Cars—Cross Section at Front End

Public Service Railway Cars—Cross Section at Rear End

side sills are 7 3/4 in. high x 4 1/2 in. wide throughout the car. They have an outer facing of 5/16 in. steel plate, which is carried up 18 in. or as far as the belt rail. A 1/8-in. steel plate is also used between the belt rail and the bottom window sills. The center sills, cross sills and platform sills are also of wood,

control of the conductor. All the operating levers for the gates are beneath the platform or inside the front dividing wall, which is connected to the step stanchion, so that no mechanism obstructs the platform. When the gates are closed, they are parallel to the back of the step. On the company's double-



Public Service Railway Cars—Side View, Showing Exit Door from Front Platform

but most of the members are reinforced with angles and plates as shown on the accompanying drawings.

CONDUCTOR'S PLATFORM AND GATES

The conductor's platform is not divided by a continuous curved rail as on the usual pay-as-you-enter platforms owing to the use of step gates which control the exit and entrance.

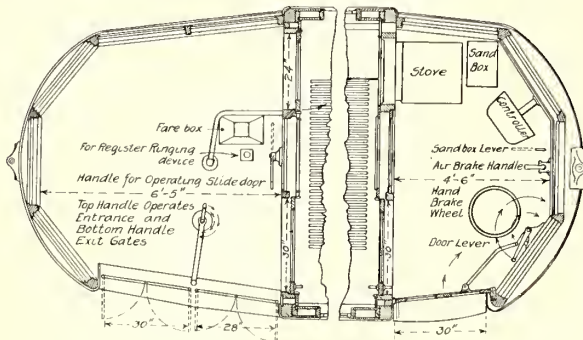
end cars, an unobtrusive locking device is provided to prevent the gates from being manipulated by passengers on the front platform.

The cash box is placed inside a short curved pipe rail in the usual position along the path to the entrance door. With his left hand, the conductor can work the gate handles while his

right hand can control the sliding exit door through a lever. Fares are registered through a pedal mechanism or a strap overhead. In the roof over the cash box there are placed five 16-cp lamps. These afford so much light that at night the conductor is no more likely to be deceived by bad coins or old transfers than in the day time.

MOTORMAN'S PLATFORM

As previously noted these cars are single-enders so that only an exit door has been provided for the front platform. The step exit is closed normally by a double-folding door which is

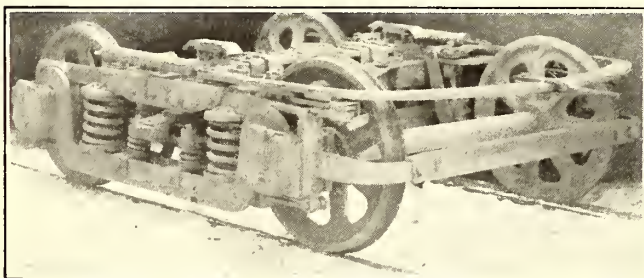


Public Service Railway Cars—Plan of Platforms

manipulated by the motorman through a lever above his hand-brake wheel. This platform contains quite an array of equipment. In the case of the car illustrated, the stove is placed in the rear corner in an aluminum-painted case and the heated air passes through a screen into the body of the car just above the heads of the passengers. The sand is placed in a metal box alongside the stove and thus is kept warm and dry. The rest of the apparatus on this platform consists of the controller and an engineer's valve for the operation of the air brakes. The motorman's vestibule contains no lights except the lamp used in the destination sign box.

MISCELLANEOUS

The electrical equipment of these cars consists of four Westinghouse 101-B2 motors. The power wiring of the motors is lead through 2-in. pipes to opposite sides of the car and thence carried under the car seats in 1/4-in. transite-lined wooden



Public Service Railway Cars—Standard M.C.B. Type Truck

troughs. These troughs are encased by 3/4-in. boards coated on the inner side with flameproof paint, and as shown in the sections have a strip beneath extending to the car floor to prevent the deposit of inflammable rubbish. The cables are led from the forward end of the troughs through 2 1/2-in. pipes to a junction box near the body and sill, and thence under the front platform to the controller.

The window sash are equipped with National Lock Washer Company's fixtures and the ventilator sash are of wired glass. The interior of the car body is illuminated by 12 16-cp lamps set in the roof. As customary in cars of this type, a push-button circuit is also installed. Although the pay-as-you-enter cars are no longer a novelty to the Newark patrons of the Public Service Railway Company, care has been taken to indicate that they are prepayment cars. The dashers, which are painted yellow, bear in aluminum letters the words "Pay-as-you-enter" on a red shield bordered in black. At the rear of the

car the words "In" and "Out" are painted on the steps, and at the end of the car body appear the words "Have Your Fare Ready, Please." Passengers on entering the car also will note instructions on the vestibule sash regarding fare payment by cash or transfers. A large sign extending across the roof inside the car reads "Leave by the Front Door."

OTHER CARS

The company has also placed an order with the Cincinnati Car Company for 100 cars generally similar in design to the cars just described except that they will not be pay-as-you-enter cars. The difference in arrangement will be in the design of the rear bulkhead, which will be provided with double-sliding doors in the manner usually followed in ordinary street cars. These doors when open will give a clear space of 48 in. The fare box will be located on the platform in the usual manner and gates will be installed as on the other cars. Both these cars and the nine others described were designed for independent air brakes as they are for use on lines where storage air is not in operation. The latest cars will seat 41 instead of 39 passengers, and as the car body will weigh only 16,500 lb., the average weight per passenger will be cut down to 1091 lb.

COMPARISON OF TWO P.-A.-Y.-E. CARS OF THE PUBLIC SERVICE RAILWAY.

	Type 1900.	Type 2100.
Length of body.....	32 ft.	30 ft. 8 in.
Seating capacity.....	39	39
Weight of body, with seats.....	18,589 lb.	20,063 lb.
Electric equipment, except motors.....	746 lb.	746 lb.
Two Brill No. 27-G-1 trucks.....	10,860 lb.	10,860 lb.
Two Brill No. 27-M.C.B. trucks.....	14,564 lb.
Four Westinghouse 101-B2 motors.....	10,908 lb.	10,908 lb.
Brakes (approx.).....	1,351 lb.	1,351 lb.
Jewel stove.....	282 lb.	282 lb.
Detroit fender.....	390 lb.	390 lb.
Total equipment weight.....	29,841 lb.	24,537 lb.
Total weight.....	46,830 lb.	44,600 lb.
Weight per seated passenger.....	1,200 lb.	1,144 lb.

LONDON TRAMWAY DEPRECIATION ALLOWANCE FOR INCOME TAX

At a recent meeting of the London County Council the finance committee submitted a record of the results of negotiations with the income tax authorities in relation to the London tramways. The assessment for the past five years under Schedule D had been standing over pending a settlement of the amounts to be allowed for depreciation, etc. The settlement had now been made. Concerning allowances for depreciation of permanent way constructed on the conduit system, figures were prepared for the Council which showed that the average cost of renewal on conduit lines was £5,450 per single mile of track, and this figure had now been accepted by the chief inspector of taxes. Taking the average life at 10 years, the annual allowance was £545. The following items had also been allowed in accordance with a scheme adopted by the Inland Revenue:

Three hundred and fifteen pounds per single mile of track for permanent way on the overhead trolley system, 7 per cent on written-down capital cost of cars, 3 per cent on written-down capital cost of cables, and 5 per cent on written-down capital cost of general plant and machinery. The total allowances for depreciation for each of the 5 years to 1908-09 were £36,202, £52,308, £77,878, £122,680 and £160,900. A claim had also been made to set off against the "profit" on the tramways the loss on the steamboats. This claim had been admitted, and the total amount allowed was £88,171. A claim had also been made for an allowance of £3,725 a mile in respect of horse lines reconstructed for electric traction which were wholly worn out at the time of reconstruction. The present position was that the Council had been allowed £3,725 a mile in respect of about 71 1/4 miles single track wholly worn out, and nothing in respect of about 50 miles not wholly worn out at the time of reconstruction. On March 31, 1909, there were about 69 miles not reconstructed, and the Council would be able to claim allowances for the greater part of these. The amounts allowed each year for 5 years ending 1908-09 were £12,436, £17,135, £104,747, £82,829 and £20,688. The report was adopted.

POWER STATION IMPROVEMENTS AT TERRE HAUTE

The generating capacity of the Terre Haute power station of the Terre Haute, Indianapolis & Eastern Traction Company has just been increased by the installation of a 3000-kw Curtis turbine set. Existing generating apparatus, of the same manufacture, had a rated capacity of 3500 kw. The maximum hourly demand on this station is about 6000 kw, and the daily output is about 80,000 kw-hours. A description of the Terre Haute station appeared in the *ELECTRIC RAILWAY REVIEW* for Nov. 9, 1907, page 755. As explained in that article, the plant was designed with a view to its subsequent enlargement, but at that time the need for its extension so soon was not anticipated.

Additional generating capacity has been made necessary by

ADDITIONS TO BUILDING

The original station building consisted of a boiler room 72 ft. wide x 81 ft. long and an engine-room 62 ft. wide x 81 ft. long. These subdivisions were separated by a brick firewall. All of the side walls of the building except that on the north side, are of concrete, steel and brick. The north wall was constructed temporarily of corrugated iron carried on a wooden framework, and this has been carried out to gain the additional floor space. The new equipment required an extension of 17 ft. on the turbine room and 85 ft. on the boiler room. These extensions are built of yellow brick and have a concrete-steel roof, and conform to the fire-proof construction of the remainder of the building. Because of the height of the 3000-kw turbine, which is mounted on a condenser base, it became necessary to raise the level of the



Exterior View of Remodeled Terre Haute Power Station of the Terre Haute, Indianapolis & Eastern Traction Company

the increase in traffic on the 88-mile interurban system which radiates in four directions from Terre Haute, and by a considerable increase in the lighting and power loads at Terre Haute. The local street car service, with 27 miles of track, and the residence and commercial lighting of Terre Haute and three smaller towns form an important part of the load on the Terre Haute station. The street lighting load includes 606 constant-current arc lamps.

Current at 22,000 volts is fed from this station to six interurban railway substations. The transmission line possesses many interesting features, including a river span 900 ft. long supported on steel towers, all of which were described in the article already mentioned

roof over the new turbine room extension above that of the roof which covers the 1500-kw and 500-kw units first installed. The old turbines are served by a 20-ton Cleveland crane, with runways 26 ft. above the floor. The large new turbine in its 17-ft. extension is served by a 30-ton Cleveland crane carried on runways 45 ft. above the turbine floor. Preparation has been made for the extension of the new crane runways whenever further extension of the turbine room is required.

A concise description of the principal units of this station, including an outline of the improvements made at the time of enlargement, may be of interest.

BOILER PLANT

The fuel used in the Terre Haute plant is local run-of-mine

coal received from mines located about 5 miles from Terre Haute. This coal is delivered on a steam railroad side track parallel with the boiler house end of the station. At the present time coal is distributed to the boiler fronts by hand, but plans have been completed for the installation of a coal-crushing and elevating plant. This plant will include a hopper under the present steel-supported receiving track, a crusher located near by, a cross conveyor leading into the basement of the boiler house and an elevating bucket conveyor which will deposit coal in a concrete bunker above the front of the boilers. The present storage capacity under the receiving track is 1800 tons.

The boiler installation includes the original plant of eight 520-hp Aultman & Taylor boilers and four new boilers of the same size and type. The old boilers are equipped with Foster superheaters and the four new boilers have the B. & W. type superheaters, all designed to superheat the steam 100 deg. The eight original boilers exhausted to two brick stacks 165 ft. high, with an internal diameter of 8 ft. 6 in. The new boiler plant is served by a new stack 175 ft. high, with 9-ft. internal diameter. This stack is made of Kellogg radial brick. Three additional stacks will be needed before the ultimate capacity of the station is reached.

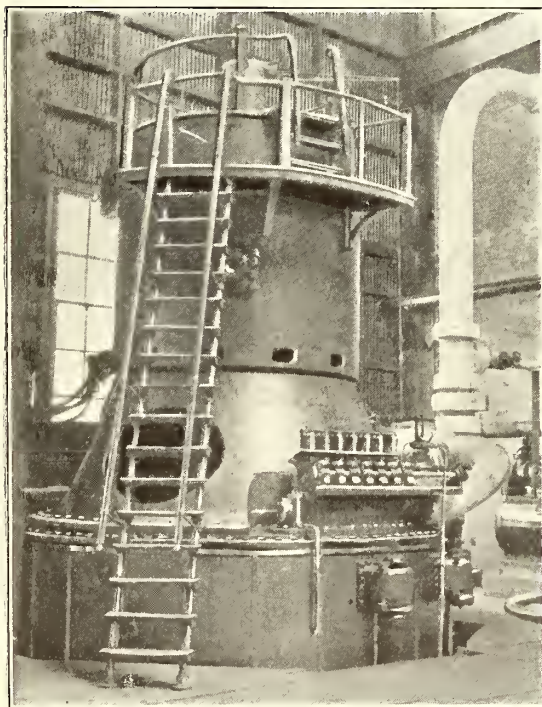
ture. Within the station provision is made for connecting the new and old water supplies.

Feed-water for the four new boilers is supplied by duplicate sets of Dean Brothers pumps with duplex cylinders, 14 in. x 10 in. x 24 in. The older equipment included two Smith-Vaile pumps, with cylinders 12 in. x 8 in. x 12 in. A Venturi meter installed in the discharge end of the boiler feed pumps provides a ready means for measuring the feed-water. A bypass around the meter is available. The boiler-feed water is warmed by two Goubert closed heaters, with a total rating of 3000 hp, and two open-type heaters with a total rating of 6000 hp. The latter heaters were built by the John Angell Company, St. Louis. All the auxiliaries and the surface condensers exhaust into the heaters.

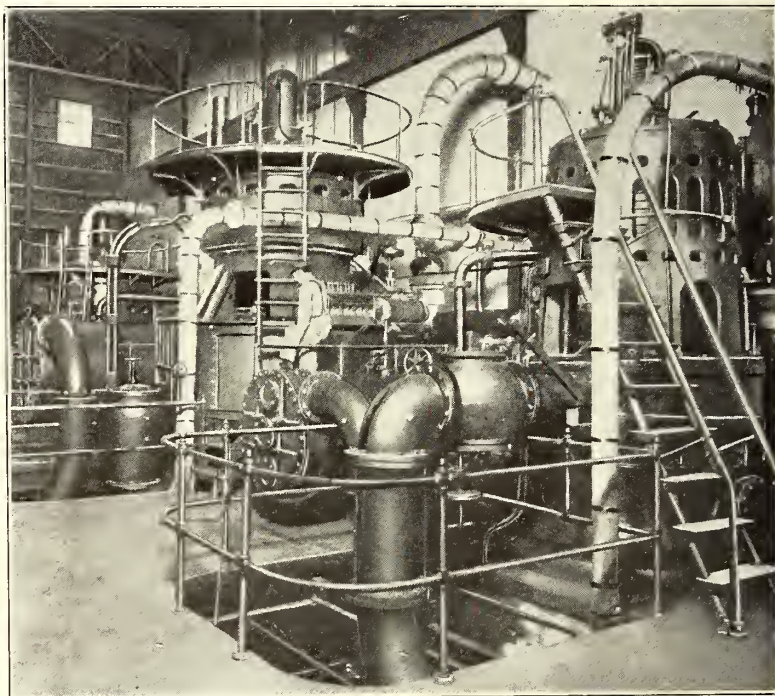
TURBINE EQUIPMENT

The newly installed unit is a four-stage vertical Curtis turbine, operated at 700 r.p.m. at 175-lb. steam pressure. The electrical end of the unit is a 3000-kw, 2300-volt, 60-cycle, two-phase, eight-pole form T General Electric a.c. generator. The older units are two 1500-kw, four-stage and one 500-kw, two-stage Curtis turbine a.c. sets.

The 500-kw unit is equipped with mechanical valve gear, the two 1500-kw units with electrical valve gears, and the new



New Turbine Unit in Terre Haute Power Station



Interior View of Terre Haute Power Station

With the addition of the four new boilers foundations were prepared for four additional boilers and for one other new stack. The latest installation of boilers is equipped with Roney mechanical stokers 12 ft. 6 in. wide, and stokers of similar design have been purchased for the eight older boilers. These will be installed shortly.

WATER SUPPLY

Water for boiler feeding and condensing purposes is obtained through intakes leading to the Wabash River, about 100 ft. distant from the plant. Inasmuch as the level of the river has a yearly variation of about 20 ft., the intake construction is of special design. There are three main intake wells. A new concrete intake well has been built close to the shore, and is supplied with water by a pipe extending 50 ft. out into the river. From this large concrete well on the shore, which is fitted with Liberty strainers, water is carried to a well under the turbine room basement. The suction line is a concrete tunnel with rectangular interior opening 5 ft. high x 6 ft. wide. The discharge conduit directly below the suction conduit is of like dimensions, and forms a part of the same concrete struc-

3000-kw turbine with the latest type of hydraulic valve gear. The new unit receives steam through a 10-in. lead, which is fitted with a Schutte & Koerting automatic throttle valve. A centrifugal device on the main shaft automatically trips and closes the valve at 10 per cent above normal speed. The device is so adjusted that after the valve has been tripped it cannot be closed until the speed has fallen to 15 per cent below normal. The reset is hand-operated.

Steam at 175 lb. and 100 deg. superheat is admitted to the turbine through 14 inlet valves which are grouped in two gangs of seven valves, each located on opposite sides of the casing. One gang of valves normally operates and makes adjustments for ordinary variations in load. The second group is brought into play only on a heavy overload. The movement of each gang of valves is controlled by a camshaft. The two shafts are interconnected and in turn are actuated by a hydraulic piston. The piston has an 8-in. x 12-in. cylinder and is moved by oil at a pressure of 125 lb. per square inch, supplied by duplicate pumps. Close regulation is effected.

H. E. Smith, chief engineer of this plant, finds the regulation

with this new type of governor to be so good that a substitution of the new type on the older equipments is being considered, even though no serious difficulties have been found with parallel operation of the four turbines with the old and new types of governors.

The new 3000-kw turbine is self-ventilated. Cool air is drawn in through a duct leading from outdoors. The revolving ports draw the air through the passages and force it out at the top of the unit.

The step bearing of the new unit is maintained under an oil pressure of 700 lb. per square inch supplied by duplicate steam pumps. Exciting current is furnished by one 75-kw, motor-driven and one 75-kw, engine-driven unit operating in parallel with a 30-kw, engine-driven, and a 35-kw, motor-driven exciter in the older section of the plant.

The new 3000-kw unit is mounted on a base condenser of Alberger design. As the power station is located close to the river it was necessary to build a rather deep foundation for this large unit. The turbine and condenser are supported on a nest of 30-ft. piles capped with a block of concrete 4 ft. deep, surmounted with a concrete foundation 14 ft. in diameter and 6 ft. 6 in. thick. The base condenser has 12,000 sq. ft. of surface, made up of 1-in. tubes. The older condensers in this plant were fitted with $\frac{3}{4}$ -in. tubes, but on account of the impurities in the water experience shows that larger tubes will be more satisfactory. The condensers for the two 1500-kw and the 500-kw turbine units are two surface-type and one barometric-type Alberger installations. These older surface condensers are located below the engine room floor level. The large condenser for the new unit is exhausted by a dry-vacuum pump with cylinders 8 in. x 24 in. and 24 in. x 24 in. Circulating water is furnished by a 22-in. centrifugal pump driven by a 100-hp Westinghouse vertical engine. All the high-pressure piping in the new installation is covered with Keasby & Mattison 85 per cent magnesia insulating material.

On account of the high water sometimes experienced at this plant, an efficient system of drainage and sumps was necessary. The system as designed provides that when the river level is low all the drips find their way to sumps under the basement floor, which drain to the river. At times of high water this outlet is closed, and the sumps are cleared by a steam ejector and a steam sump pump, either or both of which may be used as occasion demands.

MISCELLANEOUS

The new turbine unit operates electrically in parallel with the older turbines, and its output is controlled by a large combination railway and lighting switchboard installed on the second floor of the electrical section of the station. The additions to the switchboard made necessary by the increase in the capacity of the plant include gray marble panels carrying General Electric and Westinghouse instruments. A Tirrill regulator is connected with the exciter bus. Bristol recording instruments are connected to each group of outgoing services to furnish continuous voltage charts and to afford a permanent record of the continuity of the service. A Westinghouse graphic recording wattmeter for the d.c. railway output of three 500-kw rotary converters is included in the switchboard equipment. A totaling panel for the railway transmission lines carries a Westinghouse integrating wattmeter.

Acknowledgment is made to T. F. Grover, general manager of the Terre Haute, Indianapolis & Eastern Traction Company, for assistance in the preparation of this article. Under Mr. Grover's administration of the last few years the Terre Haute property has shown a very substantial increase in earnings as well as in the demand for power made necessary by the railway, lighting and commercial extensions.

The Washington, Baltimore & Annapolis Railway Company is planning to change its electric system from single phase to 1200-volt direct-current on Feb. 14. In Baltimore and Washington 600-volt direct-current will be used.

CONSTITUTIONALITY OF CORPORATION TAX LAW

One of the test cases concerning the constitutionality of the corporation tax law now pending before the United States Supreme Court affects the Coney Island & Brooklyn Railroad Company. Although a number of suits bearing on this law have been carried to the Supreme Court, that which concerns the Coney Island & Brooklyn Railroad Company is the only one that involves a public-service corporation. In this case Wyckoff Van Derhoef, a stockholder, asked that the Coney Island & Brooklyn Railroad and its directors be restrained from the payment of the corporation tax on the ground that the law is unconstitutional.

Charles W. Pierson, of Alexander & Green, counsel in the case, stated that arguments will be heard by the Supreme Court during the week beginning March 14. The case has been through the lower court, which rendered a decision upholding the validity of the law. A motion was made last week to advance the case before the Supreme Court in order that a decision may be rendered as speedily as possible. There is no expectation now that a decision can be rendered before March 1, the date prescribed in the law on which returns must be made for corporations. It is hoped, however, that a decision may be reached before June 30, the last day when the tax may be paid.

The bill of complaint filed by Mr. Van Derhoef in the United States Circuit Court for the Southern District of New York is directed against the Coney Island & Brooklyn Railroad and Slaughter W. Huff, William N. Dykman, James H. Hyde, George H. Prentiss, William H. McIntyre, Charles T. Young, John H. Walbridge, Harold Fitz Gerald, Frank R. Ford, Guy Richards, Edwin S. Marston, Allan McCulloch and Duncan B. Cannon, directors of the company. Mr. Van Derhoef, a citizen of the State of New York and a resident of the Borough of Brooklyn in the City of New York, brings the bill in behalf of himself and all other stockholders of the company who are similarly situated and who are entitled to avail themselves of the benefit of this suit.

It is shown that the business conducted by the company is solely and exclusively that of owning, maintaining and operating railroads on which passengers are transported for hire and that the company is not engaged in the transaction of any business between the State of New York and any foreign country or between the State of New York and any other States or Territories. The bill shows that the net income of the company from all sources during the year ended Dec. 31, 1909, was in excess of \$205,000, after making all deductions of the character provided in the section of the law prescribing the corporation tax. The complainant became the owner and registered holder of 10 shares of capital stock of the company more than 10 years ago and has held it in his own right ever since.

The complainant shows that the company and a majority of its directors have announced that under the alleged authority of the provisions of the act of Congress, they intend voluntarily to make and file with the Collector of Internal Revenue prior to March 1, 1910, a return or statement in the form prescribed by the section of the act, showing in detail the amount of net income of the company for the year ended Dec. 31, 1909, and voluntarily to pay to the collector on or before June 30, 1910, a tax of 1 per cent upon the entire net income of the company over and above \$5,000 received by it from all sources during the calendar year, after making the deductions for which provisions are made in the act. The tax which the company would have to pay upon its net income for the year would, as the complainant is informed, exceed \$2,000. The bill adds that the provisions of the act, purporting to levy a special excise tax upon all corporations with respect to the carrying on or doing business by such corporations and measured by a percentage upon their net income are unconstitutional, null and void in that:

(a) "Said tax is in effect a tax upon the corporate existence or franchises of corporate capacity of the defendant, the Coney Island & Brooklyn Railroad Company, and is, therefore, a tax

upon the exercise by the State of New York of sovereign powers and functions not surrendered to the United States and clearly reserved to said State of New York by the tenth amendment of the constitution of the United States.

(b) "The said tax is in effect an interference with a governmental agency or instrumentality of the State of New York.

(c) "The said tax constitutes, in effect, an interference with the exercise by the State of New York of a governmental function to wit: the function of providing means of transit and intercommunication for its citizens and the public."

The bill further states that the provisions of the act of Congress imposing the tax are unconstitutional, null and void in that they are not uniform throughout the United States as required by section 8 of article I of the constitution and in that they are arbitrary and unequal in violation of the constitution and the fifth amendment thereof and the fundamental principles of taxation and are in excess of the powers of taxation surrendered to the general Government by the States and the people thereof.

The tax is declared to be unequal and arbitrary and not uniform throughout the United States:

(a) "Because the tax is measured not by the income derived from the business carried on, but by the income of the owner derived from all sources whatsoever.

(b) "Because said tax is imposed upon corporations measured by a percentage upon their net income, whereas no similar tax is imposed upon the income of either individuals or ordinary partnerships, although they may be engaged in the same general business.

(c) "Because labor, agricultural and horticultural organizations, fraternal beneficiary societies, orders or associations operating under the lodge system, domestic building and loan associations, organized and operated exclusively for the mutual benefit of their members, all of which are corporations, are specifically exempted in and by said act from all liability for the tax imposed thereby.

(d) "Because all corporations whose net income for any one calendar year does not exceed \$5,000 are specifically exempted in and by said act from the tax imposed thereby.

(e) "Because by said act a larger tax is imposed upon the defendant, the Coney Island & Brooklyn Railroad Company, by reason of the fact that its indebtedness exceeds the amount of its paid-up capital stock, than upon other corporations engaged in the same general business whose capital stocks exceed their indebtedness."

The provisions of the act prescribing the tax are also declared to be unconstitutional in that the corporations subject thereto may be deprived of their property without due process of law and in violation of the fifth amendment of the constitution.

The franchises of the company to construct, maintain and operate its railroads, including its right to occupy the public streets, are, by the laws of the State of New York, defined to be real estate, and substantially the entire income of the company is derived from the exercise of these franchises. If the tax be construed as a tax upon the franchises of the company regarded as property or as a tax upon the income, the provisions of the act imposing the tax are said to be unconstitutional because it is a direct tax upon real estate and personal property or the income therefrom and is not apportioned among the several States according to population as required by sections 2 and 8 of article I of the Constitution.

The provisions of the act imposing a tax are declared also to be unconstitutional in that all corporations thereby taxed may be compelled to produce and disclose their private books and papers in order to make them liable to a penalty or to forfeit their property in violation of the fourth and fifth amendment of the Constitution. The bill states that the suit is not a collusive one to confer on a court jurisdiction of a case of which it would not otherwise have cognizance, and the complainant declares that he has duly requested the company and its directors in writing to refuse to pay the tax, to contest the constitutionality of the act, to refrain from voluntarily making the return, and

to apply to a court of competent jurisdiction to determine the company's liability, but that the company and the majority of its directors, after a meeting at which the request was formally laid before them for action, refused to comply with the demand.

It is stated, further, that if the company and its directors pay a tax out of the net income, they will diminish the assets and lessen the value of the stock and lessen the dividends thereon. It is declared that the voluntary compliance of the company and its directors with the provisions of the act would expose the company to the risk of a multiplicity of suits on behalf of its numerous shareholders, and that such suits would work irreparable injury to the business of the company and involve it and its stockholders in great and irreparable loss.

The stockholders are said to have no adequate remedy at law for the matter in dispute and the contemplated action of the company and its directors is declared to be contrary to equity and good conscience and to tend to manifest wrong, injury and oppression of the complainant, who, therefore, prays that the provisions of section 38 be declared unconstitutional, null and void, that the defendant be restrained from complying with the provisions, and that the complainant may have such further relief as to a court of equity may seem meet.

The exhibits presented with the transcript of record include a letter addressed by Mr. Van Derhoef to the company and its directors on Jan. 18, 1909, in which, as a stockholder, he protested against any action of the company and its directors in voluntarily complying with the provisions of the act, and requested that the company and its directors refrain from so doing. He also requested that the company and its directors contest the constitutionality of said act and protect itself and the stockholders.

In reply to this letter, Duncan B. Cannon, secretary of the company, sent to Mr. Van Derhoef, on Jan. 19, a copy of a resolution passed by the directors on that date expressing their opinion that it was inexpedient to comply with the demand on the ground that failure to obey the provisions of the act would subject the company to litigation with the United States and the risk of incurring penalties and of clouding the title to the real estate.

MILWAUKEE CLASSIFICATION OF ACCOUNTS

The Milwaukee Electric Railway & Light Company and associated and controlled companies have published in convenient form a classification of accounts in conformity with the uniform classification prescribed by the Railroad Commission of Wisconsin. The classification comprises accounts for the electric railway, electric light and power, the steam heat and gas companies. It was arranged by C. N. Duffy, comptroller. The new system was placed in effect on Jan. 1, 1910. The book contains 162 pages printed on only one side of the paper and it is bound in flexible covers which are removable so that the sheets may be changed if desirable. The book measures 7½ x 5 in.

Several pages of special instructions precede the schedule of accounts and the titles and details of the various classifications. The instructions state that the accounts have been arranged to meet the requirements and cover the conditions of the Milwaukee Electric Railway & Light Company, its associated and controlled companies and the diversified business of the companies in conformity with the uniform classification prescribed by the commission. It is also stated that the accounts may be rearranged or subdivided to any extent desired or required for special conditions or purposes provided, as laid down by the Railroad Commission, they are not rearranged or subdivided in a manner that will interfere with the integrity of the general scheme or change the basis of the charges or credits of any account as this would absolutely destroy the purpose and value of the uniform classification prescribed by the commission. Each book is numbered, and an account is kept of those to whom copies are issued. In this way if any changes are made in the classification used, corrected pages can be sent to the holders of the books and these pages can be inserted in their proper places.

PAPERS PRESENTED AT MID-YEAR MEETING OF AMERICAN ASSOCIATION

Four papers were presented at the mid-year meeting of the American Street & Interurban Railway Association held in New York on Jan. 28. The titles of the papers and the gentlemen who presented them were as follows: "Public Service Commissions," by P. F. Sullivan, general manager, Massachusetts Electric Companies, Boston, Mass.; "Treatment of Depreciation," by Frank R. Ford, Ford, Bacon & Davis, New York, N. Y.; "Return on Investments," by C. S. Sergeant, vice-president, Boston Elevated Railway Company, Boston, Mass.; "The Fare Question," by Wm. J. Clark, General Electric Company, New York.

While these papers were read in executive session, it was the consensus of opinion of the members present and of the executive committee of the association that the points brought out in them were so valuable it would be for the interest of the industry at large that they should be made public. After the consent of the authors to this plan had been secured the papers were revised by a committee of the association and are published herewith. The discussions were held in executive session and are not available for publication, but the papers will give those who were unable to be present a partial idea of the subjects taken up and considered.

THE FARE QUESTION

BY WILLIAM J. CLARK, GENERAL ELECTRIC COMPANY, NEW YORK

The "fare question" is the keynote to improvement in results from the operation of street and interurban railways. Its direct solution may be a local question for each individual property, but its consideration by this association can at least lay the foundation for some general plan of action thereon which will be of benefit to each locality and company.

You gentlemen, from personal experience, grasp the present unfortunate condition surrounding your great industry, but a brief review of certain important features involved will not be amiss.

An official statement and chart recently issued by the steam railroad interests show that within a period of 10 years prior to Jan. 1, 1908, rates paid for their labor had increased approximately 31 per cent. The average increase in prices of all materials which they use was slightly greater, while upon certain of such items the increases have been astounding; such, for instance, as 72 per cent on cross ties; 80 per cent on bridge timber; 38 per cent on fuel, and 47 per cent on steel rails. Similar increases in cost have come upon every essential to construction and operation of your properties, plus other burdens unknown in the steam railway field.

The present conditions surrounding American street and interurban railways, as a whole, both on the fare question, per se, as well as upon the net income derived from their operation, can best be illustrated by stating that a coming Census Bulletin will show the following average percentages of increase from 1902 to 1907 for the entire United States on important features bearing upon results derived from their operations:

Length of track.....	52.4	per cent
Investment.....	63.5	per cent
Earnings from operation.....	68.9	per cent
Operating expenses.....	76.6	per cent
Net income (after deducting operating expenses, taxes and fixed charges).....	31.00	per cent
Net income (after deducting operating expenses, taxes and fixed charges) per mile of track.....	Decrease 13.46	per cent
Fare passengers.....	55.9	per cent
Transfer passengers.....	87.8	per cent
Number of salaried employees.....	64.1	per cent
Amount of salaries.....	73.5	per cent
Wage earners.....	56.9	per cent
Amount of wages.....	71.00	per cent
Damages and legal expenses.....	93.3	per cent
Consumption of energy per car mile (kw-hours).....	48.48	per cent

The average percentage of net income on capital stock in 1902 was only 2 per cent, but in 1907 this had shrunk to slightly under 1.6 per cent, a decrease of 20 per cent. The average return upon bonded indebtedness in 1902 was 4.39 per cent. In 1907 this had been reduced to 4.26 per cent, a shrinkage of

about 3 per cent. It is thus seen that inadequate as the return upon investment in street and interurban railways has been, it is rapidly decreasing, probably at a greater rate during the past three years than in five years prior to 1907.

The causes lie in what has already been stated. But to give emphasis to some of those features:

Initial investment and operating costs have increased enormously through rise in prices of labor and materials.

Prejudice against corporations is reflected in the enormous increase in expenditures for damages and attendant legal services.

The use of larger and heavier cars to afford a more satisfactory service for the public has resulted in an average increase of power consumption per car mile of from 1.98 kw-hours in 1902 to 2.94 kw-hours in 1907.

In 1902 for each 100 fare-paying passengers 22¼ were carried free on transfers; in 1907 for each 100 fares 26.8 free transfers were issued.

Labor, representing over 60 per cent of the total of operating expenses, has had its share too, for in 1902 the average annual compensation for each salaried employee was approximately \$1,043.50; in 1907 this average had risen to \$1,102.60. In 1902 the average paid per wage earner was \$600.62; in 1907 this average had become \$658.33.

No single industry can stem the tide of rapidly advancing prices, and as all the refinements of economic management have practically been attained in conducting street and interurban railways, the great question of finding an effective remedy for present conditions resolves itself into that of increasing rates of fare in some manner. Not an easy task, but one born of necessity, so it must eventually be accomplished.

EDUCATING THE PUBLIC

Important as are existing conditions themselves, is the fact that to secure the results desired the public must be educated into realizing what these conditions are; the causes that have created them; what, under the circumstances, is fair to the companies, and, above all else, the course in connection therewith which is most beneficial to the public itself, through showing the co-relation between good local transportation and almost every other interest in which the public, collectively or individually, is directly concerned, some features of which are not thoroughly grasped by ourselves.

As to its form, methods and details, opinions will naturally differ and discussion alone can bring out the strongest and best ideas thereon. So the following suggestions are made, in the hope that discussion and criticism will develop the most effective line of arguments that can be adapted to and utilized in meeting the necessities of the fare question in all localities.

BENEFITS CONFERRED BY ELECTRIC RAILWAYS

First: Frankly admit any past mistakes on the part of the companies as to the construction of unprofitable trackage and underestimation of the costs of operation, etc.

Second: Maintain and demonstrate that the economic benefits derived by the public from the extensive development of local transportation systems has been many times greater than the profit derived from their financing, construction and operation, and far more than offsets mistakes in finance and errors in judgment.

Show that these benefits will continue to the public in direct proportion to the encouragement which is given to the still further development of street and interurban railways operating the best possible service.

This can be done in the following way:

(1) Estimate in dollars and cents the annual value of the time saved by rapid transit to the passengers carried. To illustrate, in 1907-9 9,533,080,761 passengers were carried on the street and interurban railways of the United States. If we consider each passenger was saved but to minutes in time over former methods of transportation and that such time was worth but 15 cents an hour, this economic saving would aggregate the enormous sum of \$238,327,010. This amount is more

than one and a half times greater than the net earnings of the companies from operation, and nearly six times greater than the net income divisible among the stockholders. Emphasize and ring the changes on this indisputable fact until the public realizes that instead of being robbed of something intangible it has been and is receiving enormous tangible benefits on this particular feature.

(2) Work up from local assessor's records and elsewhere statements showing what the development of local transportation systems has done to increase the value of outlying real estate, thus greatly increasing the amount of assessable property with its consequent tendency to hold down the local tax rate. State the amount of taxes paid directly by the company and show that it is much higher proportionally than upon any other class of property in the community. Bring out clearly the enormous sum paid in taxes on personal property by the holders of the securities of local transportation companies. This last for the entire country probably aggregates nearly \$40,000,000 annually.

(3) Arouse civic pride to prevent one of the largest local interests from becoming bankrupt and a consequent reflection upon and injury to every other interest in the community.

(4) More important than all of the rest: Demonstrate in graphic form what street and interurban railways have done on re-distribution of population and lessening its congestion with attendant blessings, such as permitting greater ownership of homes; securing less rate of rentals for better surroundings; greater comfort in every phase of living and securing improved sanitation, with its consequent reduction in the death rate. All of these conditions have been improved in proportion to the increase in local transportation facilities, the value of which, to every community, is beyond estimation.

(5) Elaborate upon how these desirable features can all be extended, increased and improved through more liberal treatment of the companies by the public on "the fare question."

Third: Show the causes that in each instance have brought about the conditions recited in the first portion of this paper.

Fourth: As regards interurban systems, tell the story of their frequent and superior service; state its cost and maintain that in all justice these roads are entitled to as high a rate of fare for the same distances as are the steam railroads.

Fifth: As to the city systems: Go into greater detail. State such facts as follow, addressed directly to the public:

"What we do for a nickel."

"You are transported to your point of destination."

"You are saved minutes in time over horse car days, or time over walking."

"Time is valuable to you. Figure out what the saving is worth."

"Besides transporting you, to enable it to be done, we are also hauling an average of — lbs. in dead weight of car."

"To transport an equivalent amount of weight by dray for the same distance would cost \$...."

"Our rate for hauling this weight in small high speed units is only per cent higher than the average charge for transporting first-class freight in large, slow-moving units on steam railroads."

"For every four nickels received we carry a passenger free on a transfer."

"We are developing your community in every way."

"We are constantly increasing your comfort, health, happiness and chances for improvement in your methods of living."

"We are giving you greater value received than you get for any other nickel you spend."

"We get a far smaller percentage on our turn over and on our investment than does any merchant or manufacturer in the community."

"We have continued to give you good service and all that goes with it for that 5-cent fare, although the cost of every feature involved in doing it has increased enormously in recent years."

Then explain "where the nickel goes," setting forth how,

in payroll and otherwise, its major portion helps local trade and the entire community. The Boston News Bureau on Feb. 26, 1909, in an article on the Boston Elevated, stated this most admirably, as follows:

"There was not very much of each nickel left for the stockholders after the prior claims upon it had been satisfied. Wages of motormen and conductors was the largest single item. Nearly 1½ cents of each fare was paid over to them. More than ½ cent was paid for power and ¾ cent was needed to make good the wear and tear to the rolling stock and roadbed. Only 0.1 mill was used to remove snow because of the open winter, but in some years a full mill has been needed. One-third of a cent was required for interest on bonds and ½ cent for rentals to other companies for the use of surface lines, including the Old Colony and Boston & Northern, as well as the West End. One-third of a cent was spent for damages and legal expenses. It may surprise the jurymen who is in favor of 'soaking the corporations' to find how he pays for it himself. Nearly ½ cent went directly to the city or State, 3½ mills for taxes and 1 mill for the rental of the subway and East Boston tunnel. There remained just over ¼ cent—0.285 cent, to be exact—which was the profit out of each fare paid in dividends to stockholders."

Effective as the above showing is, the local benefits derived from the circulation of most of the nickel after it has been paid out by the company can be still further demonstrated to advantage.

No other industry has so ready and effective means of publicity at command as that afforded by the cars of local transportation companies.

The press will more readily undertake and far more effectively conduct a campaign of truth for the right than it will anything else.

Civic organizations are alive to problems of the day, and the justice of our contentions can be demonstrated to them.

The fair-minded portion of the public, which means its majority, will respond when convinced that a cause is just; that action thereon is imperative and that the truth in its entirety is being told about both features.

When the public responds the work is practically done!

PUBLIC SERVICE COMMISSIONS

BY P. F. SULLIVAN, PRESIDENT, BOSTON & NORTHERN AND OLD COLONY STREET RAILWAY COMPANIES

While the subject upon which I have been invited to speak is "Public Service Commissions," I shall, with your permission, limit it to "Railroad Commissions," in which we are most directly interested. There are railroad commissions of various kinds in 40 States of this Union, and so far as I can learn, in only eight of the States have the commissions jurisdiction over the issue of securities of railroads and street railways. As the Massachusetts board is in this class, is one of the oldest railroad commissions in the country, and has been referred to most frequently by Federal and State authorities, I shall confine myself to some of its work. One word in passing: The Massachusetts board is usually considered the oldest board in the country, whereas, as a matter of fact, the New Hampshire board is the oldest, for while this year it made its sixty-fifth annual report to the Legislature, the Massachusetts board made its forty-first annual report. Yet Massachusetts was early alive to the necessity of having assistance to legislation. Petitions for railroad charters were so numerous that in 1845 the Legislature appointed a Railroad Commission to which it referred petitions for railroad charters, with instructions to investigate and report. The commission reported the following year and, having performed its duties, was discharged.

It may be seen from this that our early New England lawmakers were alive to the changed conditions made possible by two causes—the possibilities resulting from steam applied to transportation, and the creation and development of a new element—the public-service corporation. And this is not surpris-

ing, for in 1820, James Gray, of Nottingham, England, in his observations "On a Railroad for the Whole of Europe," made this remarkable prophecy: "Here is the mainspring of the civilization of the world; all distances shall disappear, people will come here from all parts of the continent without danger and without fatigue; distances will be reduced one-half; companies will be formed; immense capital paid and invested; the system shall extend over all countries; emperors, kings and governors will be its defenders; and this discovery will be put on a par with that of printing."

I stated that our early lawmakers were alive to the necessity, and wisely so, of providing means to meet the changed conditions. Had they not done so in the manner in which they did they would have been compelled to enlarge the courts to meet the legal questions which would arise, and would have been compelled to delegate to municipal officers powers delegated to the Railroad Commission, and this would have resulted in confusion.

THE MASSACHUSETTS RAILROAD COMMISSION

In speaking of the Massachusetts Railroad Commission I shall give you an outline of that organization, also of the statutes under which it acts. Both should be considered together in order intelligently to understand their operation. Later I shall endeavor to show the effects of both, and express my opinion.

Under the Massachusetts statutes the Governor, by and with the advice and consent of his council, appoints three competent persons, each for a term of three years, to serve as a Board of Railroad Commissioners. The salaries are \$6,000 per annum for the chairman and \$5,000 each for the other members. They are authorized to employ clerks, inspectors and experts to assist them in their duties. In the early days it was decided to appoint a lawyer as chairman, and for the other two positions a business man and a man experienced in some branch of railroad work, and this practice has been followed since.

From the very beginning the commission has taken a broad and comprehensive view of its powers and duties. It has always taken the view that its duties were quasi-judicial and administrative, and as a result its decisions carry great weight with the Legislature and with the public; in fact, so much so that they have been quoted approvingly by our courts. Governor Draper, a few weeks ago, publicly stated that the Board of Railroad Commissioners had his full approval; he believed it also had the approval of the public, and that the corporations had no just cause for complaint. Very few changes take place for political reasons. The result is a perfectly consistent course and policy from year to year as consistent and as careful as to precedents even as are the decisions of our courts.

The commission's duties have increased enormously, as may be learned from its latest report to the Legislature. In that report the board states that in 1869, at the time of its first report, the total length of railroad line in the State was 1241 miles; in 1909, 4685 miles. The total capital invested in 1869 was \$132,795,229; in 1909, \$642,906,436. Of street railways the length of line was in 1869, 105 miles; in 1909, 2869 miles. The capital invested was \$5,612,503 in 1869; in 1909, \$168,628,151. In 1869 the board passed upon 140 cases; in 1909, 656, and held 365 public hearings.

LEGISLATION IN MASSACHUSETTS

Previous to 1864 there was no general law in force in Massachusetts relative to street railways and few companies were in existence, and all such companies obtained their charters directly from the Legislature. Those charters usually specified the particular streets in which the companies should operate, but delegated minor details and sometimes the selection of particular routes to Aldermen and Selectmen, not in their capacity as municipal officers, but solely as officers of the State. In 1864, and again in 1871, a general law was passed for the general government of street railway companies and regulating the construction and operation of their railways, but still reserving to the Legislature in every instance the sole power to grant

charters. In 1874, however, a general law was passed making it possible to take out a street railway charter without an act of the Legislature. While from year to year amendments are passed to this general law, a general revision to our statutes is made every tenth year, so that as a result our street railway statutes may be readily understood. At present the railroad and street railway statutes are compiled in a volume of nearly 300 pages, nearly equally divided between both classes of railways—a body of statutes so complete and workable that the street railway companies seldom have occasion to seek general legislation.

Our Legislature meets annually in January, and each session usually sits until late in June. All petitions for legislation must be filed with accompanying bills on or before the third Saturday after the opening of the session. All petitions must be heard and all hearings advertised. If there should be more than one petition relating to the same subject, and the committee be favorable to a report, it is compelled to report a general bill. In addition to basing legislation upon petition, it is also based upon recommendation of the Governor, or upon reports of the various commissions.

EFFECT OF OBTAINING CHARTERS EASILY

I stated earlier that street railway charters can now be obtained without going to the Legislature—that is, unless a company desires privileges beyond the power of the general law. Fifteen or more persons may sign articles of association, state where they intend to build and operate their road, subscribe \$10,000 per mile for urban and \$5,000 for interurban tracks, obtain the local franchises, obtain the approval of the Railroad Commissioners as to the legality of the proceedings, and upon payment of 10 per cent of the subscription, the secretary of the State issues a charter. The ease with which charters are obtained in Massachusetts has, in my opinion, more to do with some of the street railway financial results than all the adverse legislation, decisions of the Railroad Commissioners and public demands, as I shall endeavor to show later.

Franchises in the public streets are obtained from aldermen and selectmen if, in their judgment, "public convenience and necessity" require the grant. While franchises are not limited as to time, nor can they legally be called perpetual, they are practically perpetual, for since 1898 they cannot be revoked by the local authorities without the approval of the Railroad Commissioners. This amendment to the general law was passed in 1898 owing to the threats and improper use of their power by local boards. Previous to 1898 the West End Street Railway Company was the only company which had this protection, and this company had such protection in only two cities and one town. In addition to this amendment, and also in 1898, another amendment was passed giving to the Railroad Commission authority to grant franchises to connect two municipalities, in case the local authorities should refuse the grant or should within 90 days from the filing of the petition refuse to act. In addition to these two important amendments another amendment was passed in 1902 upon the recommendation of the Governor which requires the approval of the commissioners of all original locations and of relocations which change the original locations. While in detail the operation of this amendment is a good deal of a nuisance, it is, on the whole, beneficial, as it enables existing companies to oppose duplication of lines. It also enables the commission to reject franchise grants which contain illegal conditions, such as rates of fare, time limits and other illegal conditions, and this the commission has done. Before a line can be opened for public travel it must be approved by the commissioners as to safety.

ISSUING SECURITIES

All issues of stocks and bonds require the approval of the commissioners after public notice and hearing, but the amount of bonds cannot exceed the amount of the capital stock plus the premium paid into the treasury of the company upon such stock. All securities are issued only for property at cost or value, and to ascertain such cost or value the commission en-

ply experts. All stock must be issued at not less than par at a price approved by the commission, and if the stockholders do not take the stock at the price approved, it must be sold at public auction at not less than par.

No notes or other evidences of indebtedness can be issued by the companies for a period in excess of one year without the approval of the commission. For many years previous to 1902 a street railway company could not get authority to increase its issue of stock or bonds until after an appraisal of its whole property, and such appraisal should show an amount of property at least equal to the liabilities. Since then, companies are authorized to issue securities for additional property at cost.

Rates of fares are, in the first instance, made by the directors of the companies and remain in force unless complaint is made to the commissioners and the latter, after public notice and hearing, recommend otherwise. Many of the franchises of 10 to 15 years ago contained conditions as to fares and transfers, but our Supreme Court decided a few years ago that such conditions were illegal and, therefore, of no force. Transfers are also issued upon authority of the directors, but cannot be reduced or withdrawn without approval of the commission.

Speed of cars is fixed by local boards, subject to approval of the Railroad Commissioners.

An inquiry will naturally be made as to how the street railways of Massachusetts get along with annual sessions of our Legislature and with so much power lodged in the Railroad Commissioners and as to the financial status of street railway companies under such conditions. I shall endeavor to answer such inquiry.

SAFETY VALVES OF PUBLIC OPINION

Annual sessions of our Legislature are, to my mind, one of the great safety valves of public opinion. Every man with a real or an imaginary grievance thinks the General Court is a panacea for all ills, and if he does not succeed in getting what he wants, he has at least the satisfaction of speaking his mind. While our Legislature is annually petitioned for legislation upon 1500 to 2000 subjects, only about one-third or less of these petitions result in legislation. In the case of street railways the legislative committee has considered from 40 to 125 such matters, the smaller number, strange to say, in the later years. The aim of our legislation is to deal with principles, and this is why we have so much general legislation and why so many matters are placed in the hands of the Railroad Commissioners.

We look upon our Railroad Commission as a quasi-judicial body—one to which the public can appeal and one to which we can appeal. The board has always been composed of good and able men. Particularly is this true of the chairmen of the board. Many of these men accepted the position through a sense of public duty—men who would have honored our Supreme Bench. They have all been men of high character, who have carefully studied the principles of their powers and duties. The results are that the commission and its decisions have the confidence of the public—and without this confidence the commission would cease to be of any real service. The commission has always taken the position that charters were granted and received to enable capital to perform a semi-public function at reasonable rates and in a reasonable manner; and it has stated to the companies that this must be done, and to the public that this is all that can reasonably be expected. The rulings of the board have maintained this position.

The commission has authority to approve the consolidation of connecting companies and leases for 99 years or less.

In the matter of fares, the commission has taken the view that a regulated monopoly of transportation furnishes the best service at lowest rates to the whole public, and in line with this view has approved consolidations where they would result in only one company and one rate of fare and free transfers in each municipality. Its rule is that, where practicable, there should be one fare in each municipality and one fare between centers of municipalities.

FINANCIAL CONDITIONS OF MASSACHUSETTS ELECTRIC RAILWAYS

Referring to the financial condition of Massachusetts street

railways: In the text of the latest report of the commission to the Legislature it is stated that 81 companies reported for the year and of the 81 companies, 41 declared or paid no dividend. The 40 companies paid from 2 per cent to 10 per cent. Forty-one companies which declared or paid no dividends is not a good financial showing; in fact, it is a bad financial showing.

The figures which I have just quoted to you are, as I stated, taken from the text of the latest report of our Railroad Commission to the Legislature. As that report does not contain the details of the operation of the companies, I shall use the statistics of 1908 for analysis. Those statistics of 1908 vary very little from these of 1909. What do the statistics of 1908 show? That 39 companies paid dividends varying from 1 per cent to 10 per cent and 43 companies declared or paid no dividends; that the dividends paid averaged 5.29 per cent on the capital stock of the dividend and non-dividend paying companies, and substantially 6 per cent for the dividend-paying companies; that the dividend-paying companies had 75 per cent of the total mileage, 88 per cent of the total capital stock, and 90 per cent of the gross income. The total dividends amounted to rising \$4,000,000.

And what of the 43 non-dividend-paying companies? The West End Street Railway Company in 1888-1889 changed from animal to mechanical power, and in the next two or three years the older and larger companies followed. The apparently successful result of this changed power induced a great wave of street railway building and organization of new companies, which resulted in an increase from 49 companies in 1890 to 118 in 1900, and length of tracks increased 200 per cent. The dividend-paying companies, as a rule, were organized before, the non-dividend-paying companies since, 1890. The non-dividend-paying companies earned, gross, \$3,600, the dividend-paying companies \$13,000 per track-mile per annum. Omitting the Boston Elevated Railway Company, the remaining dividend-paying companies earned \$8,100 per track-mile. The explanation of the condition of so many companies in Massachusetts is that the older companies occupied the best territory and the newer companies were forced into unprofitable territory, and in their anxiety to obtain rights in such territory made too liberal promises as to fares, which reflected upon the older companies, as the latter were forced to extend into unprofitable territory, thereby reducing fares. Massachusetts is overbuilt. This you will admit when you learn that of the total street railway mileage in New England over one-half is in that State.

You naturally will ask if I consider present dividends satisfactory. I unhesitatingly say no, nor do our Legislature or Railroad Commissioners. Our statutes by implication name 8 per cent as the rate, for they provide that, except in the case of the Boston Elevated, when companies pay over 8 per cent they shall then pay to the State an amount equal to the excess of over 8 per cent. Our older companies, as a rule, are steadily improving. They have absorbed by consolidation many of the smaller companies and have not fully digested them.

There is, and has been, a favorable change in the attitude of our Legislature, our commission and the public toward the street railway companies, and that, too, in a period noticeably hostile, not alone to public service, but to all corporations, and our Railroad Commission has done more than any other force, in fact, than all other forces, to bring this about. Some seven or eight of the smaller companies have changed the unit of fares from 5 cents to 6 cents, others have changed the fare zones, and in every case where the matter was brought to the attention of the commission the action of each company was sustained and in language and by reasons which carried infinitely more weight than if stated by representatives of the companies. The commission has taken the ground that in order to interest capital for improvements the companies must show earnings, and that in order to show earnings they must charge living rates.

Frankly, I must state that I am in favor of our statutes as a whole in so far as they relate to essentials, except the ease with which now companies can be organized. I am also in favor of our Railroad Commission as a board of appeal. Its

decisions, on the whole, are more satisfactory than the decisions of our courts in our jury-tried cases, and, strange to say, while the verdicts of our juries have been growing more hostile to corporations, the decisions of our commissioners have been growing more favorable. There is, I find, agitation in other States to place more power in the hands of their commissions. It is bound to come; it is a progressive movement.

A FAIR RETURN UPON THE INVESTMENT

BY C. S. SERGEANT, VICE-PRESIDENT, BOSTON ELEVATED RAILWAY COMPANY

We are living in a period which will be especially noted by historians as a formative one, with reference to many political and social questions, and especially so in regard to the relations between the community and those corporations who serve it.

Men of business activity have been so busily, perhaps so greedily, engaged in the acquirement of wealth that they have paid too little heed to the growth of public opinion. Unwilling to spare either time or money to the cause of good government, they have awakened to see our governing bodies too often composed of cheap men, to a very large extent men with no thought beyond personal gain and popularity with the masses, and any theory or cause embraced which seemed likely to win popular favor.

Nor have our captains of industry paid much attention to the general socialistic propaganda which has gained so much force and has been so insistently pushed in press and school. The eager mind of youth, inflamed by the unscrupulousness of some prominent leaders of finance, and always ready for revolution, has in its inexperience and led by the sociologist embraced heartily the most revolutionary doctrines, the fads of every kind, of which municipal ownership, governmental regulation of business, woman suffrage, trade unionism and socialism are examples.

The conservative and intelligent portion of the community, equally outraged by many manifest wrongs, has gradually been affected by these doctrines and imperceptibly its views have been and are being colored by them.

Public service corporations thus find themselves in a most serious position. Their work comes home to the common people. The common people have been taught:

That the possession of wealth is wrong;

That a corporation is a public robber;

That ordinarily accepted and long-established business methods may be crimes under the law (the anti-trust law);

That it is a sin against the people to make money in any public service.

Under these adverse conditions we may well ask how we are to secure a fair return upon investment.

But what is a fair return? Let us see what others say. Prof. Dugald C. Jackson, in an admirable paper, entitled "Equitable Rate-Making by Public Service Companies," says:

"Seven and one-third per cent is a large return to expect from mortgage bonds of a great corporation like a railway company, owning some thousands of miles of track and carrying on a profitable business in a diversified territory; but it is small as a return on capital risked in general business or manufacturing, and the average business of the electric light companies, electric railway companies, and the like, partakes of risks resembling those of general business concerns;" and, further:

"A new company, even in a stable country, ought to earn more than current rates of interest for its investors, whose enterprise enables them to take the risks of establishing the business, but the rate of return on the investment may be expected finally to approach current rates of interest after the business has become profitable and is firmly established on fixed franchise rights covering a long period. * * * The

public service companies, well established in the old and permanently settled portions of the country, which have elected to do business under franchises without term limits and are guarded from unjust competition, which conditions now exist in several of our States, must finally expect to give their best grade of service at rates which earn a margin for the investors which is little or no greater than the rate of current interest for tried and sound commercial investments."

Mr. Gilbert Holland Montague, in a paper on "Trust Regulation To-Day," in the January, 1910, issue of the *Atlantic Monthly*, expresses the following opinion:

"The duty to serve everybody, without discrimination, at a reasonable price that may be regulated and determined by the State is properly enforceable upon railroads, lighting and water companies, and other corporations which perform a public service, and in most cases enjoy exclusive powers from the State. This duty arises from the fact that the business of such companies is naturally and unavoidably a monopoly, in which competition does not exist, and, in fact, should be discouraged. The duty and purposes of such companies are best fulfilled under State regulation."

The Supreme Court of the United States, in its opinion in the case of "Willcox vs. Consolidated Gas Company," says: "There is no particular rate of compensation which must in all cases and in all parts of the country be regarded as sufficient for capital invested in business enterprises. Such compensation must depend greatly upon circumstances and locality; among other things the amount of risk in the business is a most important factor, as well as the locality where the business is conducted, and the rate expected and usually realized there upon investments of a somewhat similar nature with regard to the risk attending them."

It is unnecessary to go further. Clearly, as would be admitted by any financier, by any investor, the element of risk is most important in determining a fair return.

Let me again call attention to Professor Jackson's conclusion that "the average business of electric light and railway companies partakes of risks resembling those of general business concerns."

What returns are obtained in general business?

Is there any reason why the department store, which has for customers the same public which rides upon our street cars, should make a large profit while we are to be content with simple interest? The manufacturer whose goods we use cannot live on any beggarly 6 per cent. Both the merchant and the manufacturer use money in their business obtained at ordinary rates, as we do, but they do not give the use of this money to their customers at cost, as we do. They expect a profit upon their operations, a return for their energy and skill. Why should we not expect the like?

We must consider not only the risk of the investment, but the nature of the service rendered.

If stockholders in railway and lighting companies contented themselves with the mere loaning of money for use in a public service it might well be concluded that they should be satisfied with ordinary interest rates. We must discriminate between the money lenders (the bond holders) and the venturers (the stockholders). The latter take the main risks of the business. They have been engaged in development work of the highest value to the community. Shall they have no greater reward than the coupon clipper? Not only do they take the risks, accepting a residue of net income after the great demands of the public, the employees and the creditors have been satisfied, but they have led in the marvelous improvements which the past 20 years have developed in the public service. Again and again have they discarded new systems and new apparatus for something more highly developed. With undaunted courage they have gone forward with a progress that has been a world-wide wonder, yet we are told that they must be satisfied with ordinary interest rates.

I contend that their status is not that of a money lender.

They are constructive workers for the general good of mankind, and as such they ought to be rewarded.

But, we are told, they have a monopoly; to prevent abuse they must be restricted in their profits, regulated in their service, taxed unmercifully and allowed to survive if they can under such treatment.

I think we must agree that any company performing a public service and having a monopoly in its own territory must in some way be restricted or supervised for the protection of the public.

We may go so far with Mr. Montague as to acknowledge "the duty to serve everybody, without discrimination, at a reasonable price," but we cannot accept his further conclusion that this service must be performed "at a reasonable price that may be regulated and determined by the State."

Surely the State goes too far when it regulates the rates we shall charge, service we shall render, capital we shall invest, price at which stock shall be sold, rate of dividends we shall declare, and last, but not least, what part of our income shall be paid to the public in the form of taxes.

Such are the conditions governing the street railway industry in Massachusetts. They do not offer great inducements to the investor, nor do they tend to progress in public improvements of this character. I believe the State may properly require a reasonable service and fix in advance a reasonable rate, but should not regulate the rates once fixed. I am speaking now of city railway companies. Having done these two things its functions should cease. The company should be left free to make what profit it may under the conditions, and the conditions must be guaranteed a sufficient permanence to attract capital.

As a different method, the State might require a reasonable service and limit the profit to the stockholder, leaving the latter to fix and regulate rates. Either of these alternatives would amply protect the public which uses the facilities. To recapitulate, it would seem that the determination of a fair rate of return upon investment must depend upon the circumstances of each case, which may be designated.

THE CHARACTER OF THE RISK

This includes the questions of the magnitude of the business to be expected, the length of time of the franchise, the stability or otherwise of the rates, the freedom or otherwise of control by the owners, the limitations of dividends, if any, the danger of oppressive taxation, the danger of adverse legislation, the local, climatic and business conditions, etc.

Since this difficult question of determining the relations between the State and the public service company is continually arising and its settlement is receiving many different solutions, would it not be most desirable that a clear exposition of the principles involved should be made and that the factors in the case should be clearly presented to the public. Thus they might learn that the best service and the lowest rates are only obtainable when undisturbed security is offered the investor and an opportunity for ordinary business profit is not denied him.

In making these suggestions I am not unmindful of the recent utterance of our neighbor Mr. Whitridge: "Beware of general principles; they can only be attained through patient and laborious years. They cannot be reached merely by the expression of vague desire. They are not to be promulgated by every weakling who wants them to lean upon."

Excellent as this advice is it still seems to me that there is grave danger that the State will lose sight of certain cardinal principles in the attempt to correct many abuses which have become manifest in the management of public service corporations and may institute regulative measures of so far-reaching a scope as to deprive stockholders of a reasonable control of their own property and business. There only will remain for their protection that bulwark of liberty—the United States Supreme Court—and it is with no small satisfaction that one reads in the decision of the court in the Knoxville Water case the following:

"Regulation of public service corporations, which perform

their duties under conditions of necessary monopoly, will occur with greater and greater frequency as time goes on. It is a delicate and dangerous function and ought to be exercised with a keen sense of justice on the part of the regulating body, met by a frank disclosure on the part of the company to be regulated. The courts ought not to bear the whole burden of saving property from confiscation, though they will not be found wanting where the proof is clear. The legislatures and subordinate bodies, to whom the legislative power has been delegated, ought to do their part. Our social system rests largely upon the sanctity of private property, and that State or community which seeks to invade it will soon discover the error in the disaster which follows. The slight gain to the consumer, which he would obtain from a reduction in the rates charged by public service corporations, is as nothing compared with his share in the ruin which would be brought about by denying to private property its just reward, thus unsettling values and destroying confidence. On the other hand, the companies to be regulated will find it to their lasting interest to furnish freely the information upon which a just regulation can be based."

THE TREATMENT OF DEPRECIATION

BY FRANK R. FORD, OF FORD, BACON & DAVIS

Each street railway corporation in the United States is to-day in possession of a blank form of the Internal Revenue Bureau, one line of which, under the heading "deductions" from gross income, is as follows:

"5-b. Total amount of depreciation Jan. 1 to Dec. 31, \$—."

A footnote states: "The deductions authorized shall include all expense items under the various heads acknowledged as liabilities by the corporation making the return and entered as such on its books from Jan. 1 to Dec. 31 of the year for which the return is made. This form properly filled out and executed must be in the hands of the Collector of Internal Revenue for the district in which is located the principal office of the corporation making the return on or before March 1."

Therefore, the subject of depreciation has been removed from the realm of theory. Heretofore a few States have required returns to be made on this subject through their commissions having jurisdiction, notably the Public Service Commissions of New York and Wisconsin. The Interstate Commerce Commission has required a depreciation charge only by companies the greater part of whose operated mileage is in States where this is required.

Therefore, street railway companies must now decide whether for the year ended Dec. 31, 1909, they will refuse to acknowledge as a liability the amount of current depreciation and in that event possibly cut themselves off from claiming depreciation for this period as a part of the cost of operation in any case of proposed rate regulation, imposition of additional service or limitations of rate of return on capital; or, on the other hand, by adopting a reasonable plan for charging depreciation offer proof that this is a conservatively managed business.

DIVERGENT RULINGS OF PUBLIC AUTHORITIES

As to what this charge for depreciation should include, there is some divergence in the rulings of the four authorities in question, as follows:

1. The Interstate Commerce Commission provides for electric carriers two accounts called "depreciation of way and structures" and "depreciation of equipment," while for steam railroad companies no charge is required for depreciation with respect to way and structures, but merely for equipment.

2. With regard to the Public Service Commissions of New York it was originally intended that the State railroad commissions having jurisdiction over electric railways would follow the practice adopted by the Interstate Commerce Commission, but these commissions have so enlarged and amplified it as to be in effect a different classification. Thus all replacements under the heading of "way" are to be charged to the proper maintenance accounts and not to the depreciation account. The

New York commissions also, as to electric light and gas companies, provide that depreciation is to be charged in operating expenses under general and miscellaneous expenses rather than under maintenance.

The United States and New York commissions, therefore, do not agree as to the policy of charging depreciation as between steam and electric transportation, or as between public utilities frequently under one capitalization.

The Public Service Commissions of New York have under operating expenses two accounts, namely, "depreciation of way and structures" and "depreciation of equipment." They provide that the "amount estimated to be necessary to cover such wear and tear and obsolescence and inadequacy as have accrued during any month shall be based on a rule determined by the accounting corporation." Apparently, they provide that such an account shall cover not only the actual renewals necessitated by complete depreciation, but also the month's accruals of present or incomplete depreciation due both to wear and tear and also to the so-called obsolescence and inadequacy. This double renewal charge is not financially practicable under present rates of fare, and has not been forced.

3. The law under which the Wisconsin commission is working seems to be tempered with common sense, recognizing that a difference exists between theory and practice. This law provides that: "Every public utility shall carry a proper and adequate depreciation account whenever the commission, after investigation, shall determine that such depreciation can be reasonably required" * * * and that "the commission shall provide for such depreciation in fixing the rates, tolls and charges to be paid by the public."

Under the uniform classification of accounts of the Wisconsin commission it is provided that: "Every electric railway shall carry a proper and adequate depreciation reserve to cover the full replacement of all tangible capital in service. There shall be opened a depreciation account, to which shall be charged monthly, crediting the depreciation reserve, an amount equal to one-twelfth of the estimated annual depreciation of the tangible capital in service of the railway, or as near that amount as the finances of the property will permit."

As tangible property comprises all land and its improvements, it is conceivable that the intent of the commission is to allow for the appreciation of value of real estate, which seems to be contrary to the orders of the other commissions.

4. The Bureau of United States Internal Revenue, which has in charge the collection of the new corporation tax, apparently treats the subject of depreciation as differentiated between complete depreciation or abandonment or destruction due to obsolescence, inadequacy, age, action of the elements or otherwise, and incomplete or partial depreciation due to wear and tear and obsolescence.

Complete depreciation, unless already charged out under the depreciation account or the maintenance accounts, is provided for apparently under one of the deductions from gross income as follows:

"5 (a). Total amount of loss sustained Jan. 1 to Dec. 31, \$——." The definition covering this item is as follows:

"Losses.—The deduction for losses must be in respect of losses actually sustained during the year and not compensated by insurance or otherwise. It must be based upon the difference between the cost value and salvage value of the property or assets, including in the latter value such amount, if any, as has in current or previous years been set aside and deducted from gross income by way of depreciation as defined in the following section and not been paid out in making good such depreciation."

The ruling on "depreciation" provides for the year's accrued or incomplete depreciation due to exhaustion, wear and tear or obsolescence. Complete depreciation due to exhaustion and wear and tear is apparently to be charged under the heading of "expense of maintenance and operation," and complete depreciation due to obsolescence, etc., under the above deduction for losses unless formerly provided for by the depreciation fund. This ruling is as follows:

"Depreciation.—The deduction for depreciation should be the estimated amount of the loss, accrued during the year to which the return relates, in the value of the property in respect of which such deduction is claimed that arises from exhaustion, wear and tear, or obsolescence out of the uses to which the property is put, and which loss has not been made good by payments for ordinary maintenance and repairs deducted under the heading of expenses of maintenance and operation or in the ascertainment of gross income. This estimate should be formed upon the assumed life of the property, its cost value, and its use. Expenses paid in any one year in making good exhaustion, wear and tear, or obsolescence in respect of which any deduction for depreciation is claimed must not be included in the deduction for expense of maintenance and operation of the property or in the ascertainment of gross income, but must be made out of accumulative allowances deducted for depreciation in current and previous years."

This ruling seems to be carefully drawn, although I doubt the propriety or practicability of making an allowance for incomplete or accrued depreciation due to the so-called obsolescence or inadequacy. In the first place, there is no adequate standard for gaging the probable life of any part of the construction or equipment of a street railway, the discarding of which depends on its becoming obsolete or inadequate. A careful distinction should be made between the useful life of the article in question based upon wear and tear or the action of the elements and the useful life before becoming obsolete or inadequate. Wear and action of the elements are dependent upon service and time; obsolescence and inadequacy are dependent upon changes in the art, which may take place within one year or 50 years. Considering the property as a going concern, an article cannot be said to be 50 per cent obsolete by the use of any present standard; it is either obsolete or not obsolete, 100 per cent obsolete or a proper standard. On the other hand, an article can be said to be 50 per cent worn out either by wear and tear or by the action of the elements.

Furthermore, obsolescence and inadequacy usually occur for business or economic reasons. The new standard will produce more net profits than the old one, even allowing for interest and depreciation on the new standard, together with interest on the old. If this were not so the old article would not become obsolete. Consequently, from a business standpoint, renewals due to depreciation from obsolescence can be capitalized. In the street railway business the notable examples of obsolescence from a change in the art have been the change from horse to the cable system, and from the cable to electric. From the rates of fare in force it would generally have been impossible to have made these changes out of income, and certainly so with the increased length of ride and use of transfers of to-day. If a provision had been in force at the time requiring such a change we would probably still be burdened with the older system in the same manner as the city of Edinburgh is to-day suffering from the operation of its cable system.

From the standpoint of the public, if renewal or change of the whole system due to obsolescence before wearing out has to be charged to income, either the present rates of fare must be raised or the replacement cannot be made. It would appear, therefore, that the public's interest is thus served by capitalizing such charges, if otherwise not financially practicable.

The very rulings of these public service commissions that obsolescence shall be charged to income has already had the effect of increasing largely the useful life of all physical property and of delaying changes in the art.

Three different policies of providing for the upkeep of physical property out of income may be followed:

1. Charging out when the expenditure is made.
2. Charging out over a period after expenditure, and
3. Accruing in advance of need.

I believe that a combination of these three methods will produce the most satisfactory results and will correspond with the best steam railroad practice of the past 25 years.

Apart from the technicalities of accounting, I think that depreciation should be divided and charged as follows:

1. Complete depreciation.
 - a. That due to wear and tear should be charged to proper maintenance accounts.
 - b. That due to obsolescence, inadequacy, age or destruction by any cause should be written off from current income or from past accumulations of profit and loss account, if financially practicable, or, if not, such obsolescence or inadequacy should be capitalized.
2. Incomplete depreciation.
 - a. That due to wear and tear, if likely to fall due in large amounts at irregular intervals, should be provided for by a depreciation fund.

From a practical standpoint the method which I have used in working out this problem recently for a street railway property operating both on paved streets and private right-of-way, has been as follows, referring to the balance-sheet accounts of the physical property:

Right-of-way Real Estate.—Appreciation over original cost is estimated to provide partly for depreciation of the intangible property included in the balance sheet.

Track and Roadway.—Renewal of ties, special work and paving is charged direct to maintenance. To provide for the renewal of rails, including the labor, ballast, joints, ties and paving occasioned by such renewal, there is charged annually to a depreciation fund such an amount as will provide the cost of the renewal when it is made, the remaining life of each section of track construction being estimated.

Electric Line.—Renewal of poles, wire and fixtures is made through maintenance.

Real Estate Used in Operation of Road.—Appreciation over original cost it is estimated will more than provide for depreciation on buildings.

Buildings.—Repairs and renewals are charged to maintenance. Depreciation due to obsolescence or inadequacy will be more than covered usually by appreciation on real estate; if not, upon discarding the building any net depreciation should, where financially practicable, be written off.

Investment Real Estate.—Appreciation is estimated to provide partly for depreciation of intangible property.

Power-Plant Equipment.—Renewal necessitated by wear and tear is provided for from maintenance. Any articles retired through age or inadequacy should, where financially practicable, be written off.

Shop Tools and Machinery.—Renewals are made from maintenance. An annual inventory is taken and book values increased or decreased accordingly.

Cars, Including Electrical Equipment.—Physical wear and tear are provided for from maintenance. Any car or class of cars upon being retired should be written off, where financially practicable, unless provided for by car equipment trust or other sinking fund.

The depreciation fund should be available in cash when needed. With this in mind, it may be invested in the company's saleable securities and in some cases in additions to property.

The depreciation fund is essentially a financial problem, the solution of which is apparently by law left to the directors of the corporation, as they are empowered to determine the amount of current income to be set aside for working capital and the amount of dividends to be declared. It is questionable if utilities commissions can lawfully impose rules for the charging of depreciation in cases where the physical property is fairly maintained and securities properly issued. I believe that no hard and fast rule can be laid down for charging a fixed amount to such a fund month by month or year by year; the proper amount to be charged should be known, and if in lean years this amount is not laid aside, in prosperous years the deficiency should be made up. It might even be necessary to use this fund for other purposes than renewal of physical property, due to business contingencies unforeseen.

This program, I believe, will provide for the upkeep of the physical property until another change in the system occurs, such as from the cable to electric, if it ever does.

For the company mentioned, to which we have applied this policy of charging depreciation, I find that it results in a charge

to depreciation fund of about 3 per cent of the gross earnings in addition to charges for renewals in the maintenance account, which, with current repairs, usually average about 10 per cent of the gross earnings, making a total of 13 per cent, to which must be added the amount written off for the abandonment of property due to obsolescence or otherwise, so that the total would probably be 15 per cent of gross earnings. The proper amount to be charged to a depreciation fund varies with every property, and should be carefully estimated as a factor of the physical cost, although it has been here stated, for convenience, as a factor of the gross earnings.

On the other hand, the theoretical depreciation fund arrived at by guessing at obsolescence and assuming a given life for each article of the construction and equipment based on the past 25 years' physical history of horse, cable and electric railways during their development to the present apparently well-settled standards, will involve a charge of usually from 10 per cent to 25 per cent of the gross earnings. Adding to this the current repairs and renewals covered in the usual maintenance accounts, of some 10 per cent of gross earnings additional, the total charge for maintenance, renewals and depreciation will amount to from 20 per cent to 35 per cent or more of the gross earnings. With the present insufficient return upon the capital actually invested in street railway enterprises, it would not be reasonable to expect these corporations to make appropriations for depreciation based upon this theory of obsolescence.

Referring to the methods currently employed for providing for the upkeep of the property from earnings, an examination of the public reports of a number of street electric railway companies in the United States, Canada and Great Britain shows that there is no standard practice; each company is apparently actuated by its financial condition and managerial opinions. The range of methods employed to return income into the property is as follows:

METHODS OF CHARGING RETURNS INTO PROPERTY FROM INCOME

1. From the current year's income.
 1. Actual cost in operating expenses charged for
 1. Maintenance.
 2. Renewals.
 3. Extensions, additions and betterments.
 2. Apportioned in operating expenses for
 1. Renewals.
 2. Depreciation.
 3. Car and equipment obligations.
 3. Apportioned in fixed charges for
 1. Renewals.
 2. Depreciation.
 3. Car and equipment obligations.
 4. Sinking funds, if permanently to retire capital.
 5. Contingent funds.
 4. Apportioned from net income or surplus for
 1. Renewals.
 2. Depreciation.
 3. Extensions, additions and betterments.
2. From accumulated profit and loss from operation.
 1. Apportioned to physical uses for
 1. Renewals.
 2. Depreciation.
 3. Extensions, additions and betterments.
 2. Apportioned to adjust accounts of
 1. Assets affecting maintenance, renewals, etc.
 2. Liabilities affecting maintenance, renewals, etc.
3. From profit and loss other than operation—not applicable to dividends.
 1. Premium on securities sold. Held and used for extensions, additions, etc.
 2. Profit on assets sold and reinvested in property.

The rights of stockholders as to preservation of original investment and return upon securities are involved in any consideration of depreciation or the return of income into property. Should stockholders, who in early years have taken the risk and have provided for and outlived early losses of operation, be subject to the obligation of providing for wholly theoretical wasting of capital in the future?

Provision for charging depreciation has been made in the new franchises which have recently been granted to the street railway companies at Chicago and Cleveland. In the Chicago franchise, beginning February, 1910, it is provided that there shall be set aside 8 per cent of the gross earnings as a renewal fund, in addition to 6 per cent and as much more as may be necessary for current repairs or maintenance. The total charge for current maintenance, depreciation and renewals in Chicago will, therefore, as a minimum, be 14 per cent of the gross earnings.

In the Cleveland franchise it is provided that an average of about 5 cents per car-mile shall be applied to maintenance, depreciation and renewal account, which is about 22 per cent of the gross earnings.

From the published reports of the 20 largest electric railway companies in the United States and Canada it is apparent that 13 are making specific charges to income for depreciation or renewals; these, in percentage of gross earnings, are as follows:

City.	Year ending	Amount.	Per cent, gross earnings.
Baltimore-United Rys. & El. Co.	Dec. 31, 1908	\$813,751 B.F.	11.9
Milwaukee Elec. Ry. & Lt. Co.	"	475,127 E.	10.0
Minneapolis-Twin City R. T. Co.	"	544,000 C.	8.5
Buffalo-International Tr. Co.	"	403,280	7.7
St. Louis-United Rys.	"	527,856	5.0
Montreal St. Ry.	Sept. 30, 1909	175,000	4.5
Detroit United Ry.	Dec. 31, 1908	300,000 A.	4.2
Toronto Railway	"	150,000	4.2
Washington Ry. & Elec. Co.	"	150,323 B.	4.0
Washington-Capital Traction Co.	"	70,117 B.	3.8
Boston Elevated Ry.	Sept. 30, 1909	200,000	1.4
Brooklyn Rapid Transit Co.	June 30, 1909	148,806 G.	.7
Kansas City Ry. & Lt. Co.	May 31, 1908	829,814 D.	13.7

- NOTES.
 A. Also set aside \$50,000 to contingent liability reserve, including which the percentage of gross earnings is 4.9.
 B. Renewals and betterments.
 C. Including interest on fund, which consists of company bonds, this percentage is 9.
 D. Written off surplus—applicable to 1908 and prior years.
 E. Includes Milwaukee Light, Heat & Traction Co.
 F. Subject to further distribution by directors.
 G. In the last six years \$5,400,000 discount on bonds has been written off.

In all of the above cases these charges do not represent the entire return into the property from income. When we include all charges for maintenance, reserves, depreciation and other funds, special appropriations and unappropriated surplus these figures are increased largely.

For the last year obtainable for various groups and individual street railways of this and foreign countries the total amounts returned into the property from income have been the following percentages of gross earnings:

RETURN INTO PROPERTY FROM INCOME

Company, State, etc.	Kind of service.	Year.	Per cent gross earnings.
United States Census, 1907	939 electric railway companies, including small amount of electric light.	Dec. 31, 1907	17.1
United States Census, 1902	799 companies, all electric railways, including some electric light.	Dec. 31, 1902	17.4
State of N. Y.—District No. 1	Electric railways.	June 30, 1907	11.7
State of N. Y.—District No. 2	Electric railways.	June 30, 1907	19.9
State of Massachusetts	Electric railways.	Sept. 30, 1908	15.3
United Rys. & Elec. Co., Baltimore	Urban and suburban railway.	Dec. 31, 1908	21.7
Brooklyn Rapid Transit Co.	Surface and elevated railway.	June 30, 1909	19.3
International Tract. Co., Buffalo	Urban, suburban & interurb. railway.	Dec. 31, 1908	19.3
Twin City Rapid Transit Co.	Urban and suburban railway.	Dec. 31, 1908	18.1
Kansas City Ry. & Lt. Co.	Railway and electric light.	May 31, 1908	17.8
Boston Elevated Railway	Surface, elevated, subway railway.	Sept. 30, 1909	18.6
American Cities Ry. & Lt. Co.	5 electric railway & light companies, B'ham, Memphis, Little Rock, Knoxville and Honston.	Dec. 31, 1908	14.9
Capital Tract. Co., Washington	Urban and suburban railway.	Dec. 31, 1908	14.1
Philadelphia Rapid Transit Co.	Surface, elevated, subway railway.	June 30, 1909	9.7
Great Britain and Ireland	Municipal and company railways.	Dec. 31, 1907	28.7
Great Britain and Ireland	Municipal rys.	Mar. 31, 1908	31.2
Great Britain and Ireland	Company railways.	Dec. 31, 1907	22.2
Glasgow Corporation Tramways	Municipal rys.	May 31, 1909	42.6

The ability of large manufacturing corporations to make the consumer pay for the charge for depreciation and the great difference between the financial condition of those properties and that of street railway properties are shown by a recently advertised letter of the Western Electric Company to its bankers, dated Jan. 21, 1910, from which I quote the following:

"The stated net profits are after deducting liberal charges for depreciation, pursuant to the well-known policy of all companies controlled by the American Telephone & Telegraph Company. This is evidenced by the fact that the book valuation of real estate and plants covered by the mortgage has been reduced to 51 per cent of their actual cost."

Under the present well-known conditions of the street railway industry this method of treatment is an impossibility today. After all is said, the treatment of depreciation is largely a financial problem.

ELECTRIFICATION OF BAVARIAN STATE RAILWAYS

Several short notes have been published in this paper in regard to the investigation being conducted by the Bavarian Government into the electrical equipment of a number of the Bavarian main line and branch line railroads. A very full abstract of the report recently submitted to the Bavarian Parliament by the Minister of Transportation of that country is contributed by J. Jacquin, engineer to the Bavarian State Railways, to the *Bulletin* of the International Railway Congress, published in Brussels.

In the report the trains were divided into four classes: Freight trains, suburban trains, express trains and local trains, and power-speed-distance curves were prepared for each line. The total consumption and ton mileage of the system estimated upon are shown in the accompanying table, which is based on an average day in July, 1906. To the figures for energy therein shown an allowance was made of 10 per cent for contingencies, 15 per cent for transformer losses based on a transmission voltage of 10,000 and 25 per cent for transmission losses. This gives for the average daily demand 3,400,000 hp-hours, equivalent to an average daily load of 142,000 hp. With a load factor of 33 per cent and a further allowance for extensions probable before 1920, the engineers estimate that there should be provided a maximum power station capacity of 606,000 hp. The largest output of energy is required in November, because at that time power is needed for light and heat and the traffic is greater than during any other winter month. The least energy is required in April. The figures for July are a close average of those for the year.

A study of different electrical systems resulted in the recommendation for single-phase operation with transmission voltage of 50,000 and a trolley voltage of 10,000 with low frequency.

The report then considered the financial aspect of the proposition. This was based on a cost of coal per ton in the northern sections of \$5.12 and in the southern sections of \$5.48, and a cost per kw-hour from water-power in the northern sections at from 0.8 cent to 1.2 cents, and in the southern section, where water-power is more abundant, from 0.4 cent to 0.8 cent. The conclusion is reached that electric power would be cheaper than steam on the southern lines and on some of the lines running northward.

DISTRIBUTION OF ENERGY CONSUMPTION ON BAVARIAN STATE RAILWAYS

	Ton, miles.	Kw hours.	Watt hrs. per ton mile.
<i>Main lines—</i>			
Passenger trains	8,416,813	578,890	68.27
Freight trains	14,542,236	646,010	44.48
<i>Branch lines—</i>			
Passenger and freight	1,433,976	78,525	54.61
<i>Miscellaneous—</i>			
Switching		135,400
Local lines	197,359	12,270	62.46
Total	24,590,384	1,447,095	58.87

Note—All tons are English tons. One ton = 2240 lb.

The Japanese Government is said to be preparing plans to lay four tracks on the Tokio-Yokohama line, 18 miles long, and to equip it for electric operation.

ASSOCIATION NEWS

The electrification by several steam railroads of sections of their lines has led to a growing interest in the American Street & Interurban Railway Association by the officers of these steam railroads, particularly by the officers connected with engineering departments. In many respects the American Street & Interurban Railway Association is in a better position to assist these officials in a solution of their problems than any other association, because many of the questions connected with their work are similar to or closely allied with those in connection with interurban and rapid transit systems. In view of this condition, President Shaw has appointed as an additional member of the committee on active membership of the association, J. S. Doyle, of the Interborough Rapid Transit Company, New York, who will give special attention to the subject of active and associate membership in the association of these steam railroad companies and their officers.

In this connection several proposals have been made that the name of the association should be changed to American Electric Railway Association. No immediate plans have been made for such a change, but President Shaw has appointed a committee to consider all phases of the question. The committee consists of W. Caryl Ely, Thomas N. McCarter and the president.

Several member companies have recently suggested that it would be of considerable value to the association, as well as to the companies themselves, if each company should secure from each delegate whom it sends to conventions a statement of the most helpful ideas obtained at the convention and suggestions as to matters to be considered or changes made at future conventions. Certain companies have made it a practice in the past to do this, and the suggestion has been offered that if duplicates of these reports should be filed with the association they would be helpful. The officials of the association are considering the matter.

The following is a list of the companies which have been added to active membership list of the association since Oct. 1, 1909, and of those added to the associate membership since Jan. 1, 1910:

NEW ACTIVE MEMBERS, ADMITTED BETWEEN OCT. 1, 1909, AND FEB. 7, 1910

Albia Interurban Railway Co., Albia, Ia.
 Asheville & E. Tennessee R. R. Co., Asheville, N. C.
 Baton Rouge Electric Co., Baton Rouge, La.
 Central California Traction Co., San Francisco, Cal.
 Coast Counties Light & Power Co., Santa Cruz, Cal.
 Connecticut Co., New Haven, Conn.
 Denver & South Platte Railway Co., Denver, Colo.
 Guadalajara Tramways Co., Guadalajara, Mex.
 Indianapolis, Crawfordsville & Western Trac. Co., Indianapolis, Ind.
 Inter-State Traction Co., Duluth, Minn.
 Johnson City Traction Co., Johnson City, Tenn.
 Lincoln Traction Co., The, Lincoln, Neb.
 New York & North Shore Trac. Co., Long Island City, N. Y.
 Pacific Electric Railway Co., Los Angeles, Cal.
 Peekskill Lighting & Railroad Co., Peekskill, N. Y.
 Portsmouth Street R. R. & Lt. Co., Portsmouth, O.
 Quebec Railway, Light & Power Co., Quebec, Que., Can.
 Rapid Transit Railway Co., Dallas, Tex.
 Saginaw & Flint Railway Co., Saginaw, Mich.
 San Jose & Santa Clara Railroad Co., San Jose, Cal.
 Shawinigan Falls Terminal Ry. Co., Montreal, Que., Can.
 Tama & Toledo Electric Ry. & Lt. Co., Toledo, Ia.

NEW ASSOCIATE MEMBERS FROM JAN. 1, 1910, TO FEB. 7, 1910

J. M. Ayer, engineer, Boston Elevated Railway Company, Boston, Mass.
 C. F. Bedwell, assistant engineer, Public Service Railway Co., Newark, N. J.
 H. C. Benagh, roadmaster, Nashville Railway & Light Company, Nashville, Tenn.
 Frank L. Bigelow, president, Bigelow Company, New Haven, Conn.
 F. W. Brooks, general manager, Detroit United Railway, Detroit, Mich.
 Harry Bullen, general superintendent, Detroit United Railway, Detroit, Mich.
 Samuel A. Bullock, assistant manager electric truck department, Baldwin Locomotive Works, Philadelphia, Pa.
 J. B. Burdett, Burdett-Rowntree Manufacturing Company, Chicago, Ill.
 C. H. Burnett, manager, Los Angeles & Redondo Railway Company, Redondo Beach, Cal.
 W. C. Burrows, chief clerk accounting department, Third Ave. Railroad Company, New York, N. Y.
 W. M. Casey, trainmaster, Denver City Tramway Co., Denver, Colo.
 Reginald M. Campbell, eastern sales manager, Peter Smith Heater Company, New York, N. Y.
 Everett U. Crosby, manager, Independence Inspection Bureau, Philadelphia, Pa.
 W. C. Cuntz, Pennsylvania Steel Company, Steelton, Pa.
 Geo. H. Davis, Ford, Bacon & Davis, New Orleans, La.
 W. T. Dougan, engineer maintenance of way, Metropolitan Street Railway Company, New York, N. Y.
 Clark D. Eaton, sales agent, American Car & Foundry Company, New York, N. Y.
 Emil Ehnbohm, engineer, Denver City Tramway Company, Denver, Colo.

J. H. Davis, electrical engineer, Baltimore & Ohio Railroad, Baltimore, Md.
 James F. Feely, secretary to general manager, Third Ave. Railroad Co., New York, N. Y.
 Paris R. Forman, mechanical engineer, Burdett-Rowntree Manufacturing Company, Chicago, Ill.
 Henry Glazier, superintendent, Holmesburg, Tacony & Frankford Electric Railway Company, Tacony, Pa.
 James Grady, vice-president, Columbia Machine Works & Malleable Iron, Company, Brooklyn, N. Y.
 W. B. Graham, division superintendent, Public Service Railway Company, Newark, N. J.
 J. E. Harrall, district superintendent, United Railways & Electric Company, Baltimore, Md.
 Ernest F. Hartmann, president, Carbolineum Wood Preserving Company, New York, N. Y.
 E. C. Hathaway, general manager, Norfolk & Portsmouth Traction Company, Norfolk, Va.
 J. F. Heyward, vice-president and general manager, Maryland Electric Railways Company, Annapolis, Md.
 J. M. Hood, Jr., chief engineer, United Railways & Electric Company, Baltimore, Md.
 Albert F. Hovey, cable engineer, Interborough Rapid Transit Company, New York, N. Y.
 Samuel P. Hunt, assistant general manager, Manchester Traction Lighting & Power Company, Manchester, N. H.
 Wm. F. Ham, comptroller, Washington Railway & Electric Company, Washington, D. C.
 John M. Johnson, superintendent of transportation, South Shore Traction Company, New York, N. Y.
 Chas. W. Jones, assistant engineer of construction, New York, New Haven & Hartford Railroad Company, New Haven, Conn.
 J. F. Layng, engineer, Maryland Electric Railways Company, Annapolis, Md.
 Ira B. Lesh, National Brake Shoe Company, New York, N. Y.
 James Link, superintendent of power, Knoxville Railway & Lighting Company, Knoxville, Tenn.
 Alexander McIver, commercial engineer, Westinghouse Electric & Manufacturing Company, New York, N. Y.
 R. L. MacDuffie, vice-president, Wendell & MacDuffie Company, New York, N. Y.
 H. G. McConaughy, Dearborn Drug & Chemical Works, New York, N. Y.
 H. W. Marsh, Marsh & McLennan, New York, N. Y.
 W. G. Matthews, superintendent overhead lines, Denver City Tramway Company, Denver, Colo.
 C. S. Mitchell, auditor, Pittsburg Railways Company, Pittsburg, Pa.
 T. C. Moore, New York sales manager, International Time Recording Company, New York, N. Y.
 J. W. Moyer, president, Schuylkill & Dauphin Traction Company, Pottsville, Pa.
 Wm. S. Murray, electrical engineer, New York, New Haven & Hartford Railroad Company, New Haven, Conn.
 John C. Neale, assistant manager sales, Carnegie Steel Company, Pittsburgh, Pa.
 F. C. Norisiek, purchasing agent, Metropolitan Street Railway Company, New York, N. Y.
 Wm. Northrop, president, Virginia Railway & Power Company, Richmond, Va.
 Farley Osgood, general superintendent, Public Service Railway Company, Newark, N. J.
 R. J. Owens, manager New York branch, Boston Woven Hose & Rubber Company, New York, N. Y.
 Wm. H. Pape, manager, Pittsburg & Butler Street Railway Company, Butler, Pa.
 G. W. Parker, general express and freight agent, Detroit United Railways, Detroit, Mich.
 Lee H. Parker, Stone & Webster Engineering Corporation, Boston, Mass.
 R. Henry Phillips, secretary and manager, Kensington Railway Company of Maryland, Washington, D. C.
 A. J. Pizzini, New York sales manager, International Time Recording Company.
 J. R. Pratt, assistant general manager, United Railways & Electric Company, Baltimore, Md.
 L. W. Proctor, general foreman electric department, Boston & Maine Railroad Company, West Medford, Mass.
 H. F. Purrington, Sr., superintendent maintenance of way, Rhode Island Company, Providence, R. I.
 W. J. Quinn, assistant engineer, Third Avenue Railroad Company, New York, N. Y.
 C. H. Quereau, superintendent of electric equipment, New York Central & Hudson River Railroad Company, New York, N. Y.
 Harold Rowntree, secretary-treasurer, Burdett-Rowntree Manufacturing Company, Chicago, Ill.
 E. M. T. Ryder, engineer maintenance of way, Third Avenue Railroad Company, New York, N. Y.
 H. A. Robbins, superintendent of power, Brooklyn Rapid Transit Company, Brooklyn, N. Y.
 Darrow Sarg, chief engineer, Jersey City Power House, Hudson & Manhattan Railroad Company, Jersey City, N. J.
 Ralph Sanger, Wonham, Magor & Sanger, New York, N. Y.
 Pierre V. C. See, superintendent car equipment, Hudson & Manhattan Railroad Company, Jersey City, N. J.
 J. N. Shannahan, vice-president and general manager, Washington, Baltimore & Annapolis Electric Railway Company, Baltimore, Md.
 Nathan Shute, district sales agent, Ohio Brass Company, Philadelphia, Pa.
 J. B. Smiley, assistant sales agent, Pennsylvania Steel Company, New York, N. Y.
 D. W. Smith, president, Peter Smith Heater Company, Detroit, Mich.
 M. G. Starrett, consulting engineer, New York, N. Y.
 John H. Sturge, assistant district superintendent, Public Service Railway Company, Newark, N. J.
 Geo. W. Swint, master mechanic, Nashville Railway & Lighting Company, Nashville, Tenn.
 C. E. Taylor, superintendent, Edmonton Radial Railway Company, Edmonton, Alta., Can.
 Carroll Thomas, electrical assistant, United Railways & Electric Company, Baltimore, Md.
 T. H. Tutwiler, president, Memphis Street Railway Company, Memphis, Tenn.
 J. L. Thurston, Hildreth Varnish Company, New York, N. Y.
 Langdon B. Valentine, second vice-president, Valentine & Company, New York, N. Y.
 R. N. Wallis, treasurer, Fitchburg & Leominster Street Railway Company, Fitchburg, Mass.
 C. B. Wells, superintendent of transportation, Denver City Tramway Company, Denver, Colo.
 Sydney F. Weston, New York district manager, National Brake & Electric Company, New York, N. Y.

J. M. Willis, chief dispatcher, Nashville Railway & Lighting Company, Nashville, Tenn.
 Augustus Wolff, superintendent of motive power, United Railways & Electric Co., Baltimore, Md.
 W. E. Woodard, manager electric locomotive and truck department, American Locomotive Company, Schenectady, N. Y.
 Percy Warner, president, Nashville Railway & Lighting Co., Nashville, Tenn.

HEARING ON SERVICE IN NEW YORK SUBWAY

A hearing was held before William R. Willcox and J. E. Eustis, of the Public Service Commission of the First District of New York, on Feb. 1, 1910, in regard to the method of operation and equipment of the subway lines of the Interborough Rapid Transit Company. H. H. Whitman acted as counsel for the commission and James L. Quackenbush and Theodore L. Waugh represented the company in a similar capacity. Frank Hedley represented the company in his capacity as vice-president and general manager.

E. G. Connette, transportation engineer of the commission, submitted observations of the express service in the subway on Jan. 25 and of the local service on Jan. 26, which were made under his direction. Referring to southbound express trains, Mr. Connette said that there were only one or two trains at Seventy-second Street between 6 a. m. and 10.30 a. m. in which there were not more passengers than seats. At the Grand Central station the overload period began at 7 a. m. and continued until 10.30 a. m. Between 7 a. m. and 7:30 a. m. at the Grand Central station 16 eight-car trains were operated with a seating capacity of 6400 and approximately 10,000 passengers. At Fourteenth Street the overload period commenced at 8 a. m. and continued until 10:30 a. m. Between 10:30 a. m. and 4 p. m. 235 express trains were operated northbound and southbound between Fourteenth Street and Forty-second Street. Passengers were standing in about 60 per cent of these trains. Between 10 a. m. and 4 p. m. 231 local trains were operated north and south of Twenty-eighth Street. Thirty-eight, or 30 per cent, of these trains carried passengers who were standing. Between 11 a. m. and 12 m. no overload period was noted on the express trains. Details of observations of the local trains made at the various stations on Jan. 26 were also given by the witness.

Mr. Connette recommended that the maximum express service should be operated for a greater length of time than at present in order to provide adequate service before and after the peak at the rush hours. The fastest service north that Mr. Connette had noted on the express lines for an half-hour period was 16 trains at the Fourteenth Street station, or an average of one train every 112 seconds. Eighteen trains, or a train every 100 seconds, comprised the fastest southbound service.

Mr. Hedley said that the service observed by Mr. Connette on Jan. 25 and 26 was substantially that given daily by the company, although a train or two might have been withdrawn. The speed control system installed at the Ninety-sixth Street crossing had been fully developed in all stations and had exceeded expectations. The headway of trains could be reduced to 90 seconds when the station stops were reduced through the operation of the sidedoor. The starting of the train from the home signal, approaching a station, the acceleration and the deceleration took fixed periods of time, and these plus the time of the station stop make the intervals between trains. The company had 20 men at the Fourteenth Street station, 20 men at the Forty-second Street station, and six or eight men at the Seventy-second Street station to assist in handling traffic.

Mr. Hedley said that the company had ordered 250 steel cars, 150 of which were contracted for delivery in October, 1909, but only one sample car had been delivered to date. One hundred and ten cars were under order with the American Car & Foundry Company, 100 with the Pressed Steel Car Company and 40 with the Standard Steel Car Company. It had been impossible to secure the steel from the mills for these cars. With these new cars in service a headway of 1½ minutes could be maintained. According to the revised records of the company, complete side-door trains had decreased the time of the different station stops from about one minute to 35 or 40

seconds. Under the conditions which now obtain it would be at least a year before the company secured enough side-door cars to complete the express service. About 150 side-door cars were now in service, 70 of which were of wood construction.

The American Car & Foundry Company had promised to ship two cars on Feb. 1, six on Feb. 8, six on Feb. 15, six on Feb. 22 and at the rate of eight per week commencing March 1. The Standard Company had promised to deliver 40 cars during March and April. It would require from 20 to 30 days to equip each car. If the car companies lived up to their promises, the company would have nine cars ready by March 1, 24 by April 1, 32 more by May 1, 40 more by June 1, and nine more by July 1. The contract with the Pressed Steel Car Company had been placed last and did not call for delivery until June, July and August, 1910. Three patents cover the form of door controlling the device to be used on these cars. Two of these were owned by the Pitt Car Gate Company and the other by the Interborough Rapid Transit Company. It took a combination of the three to make a successful device. The device had been in use on the cars of the company for some time and had never tended to delay the completion of equipment by the car companies.

Mr. Connette said that the company has 818 cars available. On an average about 23 of these were in the shops for change into side-door cars, leaving 795 available for service. On Dec. 15, 1909, 43 cars were in the shops undergoing repairs. In order to comply with the order of the commission of May 11, 1909, and give a headway of 1 minute and 30 seconds on the express service with side-door trains, a total of 640 cars would be required.

Mr. Eustis asked Mr. Hedley to file with the commission a report of the number of cars on hand for subway service at present, the number of cars operated on the average and the percentage of cars out of service. The hearing was then adjourned until Feb. 7.

CHICAGO SUBWAY PLANS

Bion J. Arnold, chairman of the Board of Supervising Engineers, Chicago Traction, has just been appointed by Mayor Busse engineer to undertake the work of constructing a system of subways for Chicago. Mr. Arnold will organize an engineering force and prepare plans for the work. He is quoted as saying that in a general way the plans will include provisions for the through routing of trains between different sides of the city and the elimination of loops so far as practicable in the business district.

The city has a fund of more than \$3,000,000 as its share of the net receipts of the traction companies during the past two years, and approximately \$1,500,000 will be paid in by April, 1910. In addition to this fund it is stated that the surface railway companies are required to contribute the entire expense of building those parts of the subways which are occupied by their cars, with the provision that this shall not exceed \$5,000,000 for the first five years of operation under their ordinances.

Walter L. Fisher, special traction counsel, in commenting on the transportation future of Chicago, has urged the union of the surface and elevated systems. In his opinion, if all the companies were consolidated the passengers would use the elevateds for long rides and the surface lines for shorter travel, according to their convenience. If a 5-cent fare was found to be insufficient to give a fair return on the capital invested when unified traction facilities were afforded, then, Mr. Fisher held, the rate should be made adequate by charging for transfers. The first step toward a more ideal transportation system would be to secure a thorough and comprehensive report on the whole question of the proper development of local transportation, including elevated, surface and subway services. It is understood that this is one thing which the local transportation committee has in mind in appointing Mr. Arnold to take charge of subway construction.

INTERSTATE COMMISSION REPORT ON DISTRICT OF COLUMBIA STREET RAILWAYS

In its second annual report to Congress on street railways in the District of Columbia, dated Jan. 24, 1910, the Interstate Commerce Commission renews its recommendation of a year ago that it be relieved of the duty of supervising the street railway service in the district. The commission believes that its responsibility of regulating interstate carriers is an undertaking of sufficient magnitude to demand all of the time and personal attention of the members of the commission. The report of the Interstate Commission says in part:

"The supervision of a city's local street car service presents a problem essentially different in character and entirely foreign to the purpose for which this commission was established. Moreover, the members of the commission must necessarily be absent from Washington for extended periods throughout the year, thus rendering impossible that intimate touch with local conditions which is believed to be necessary if the intent of the act of May 23, 1908, is to be effectuated. These considerations prompt us to strongly urge that Congress place this work and responsibility in some other hands.

"A survey of the work of the past year shows that gratifying progress has been made in the direction of improving the local street car service. Responsive to orders from this commission the equipment of cars has been materially improved. Modern safety appliances have been installed, better route signs have been adopted, and heating apparatus has been extensively provided.

"Perhaps the most stubborn problem confronting the commission is the overcrowding of cars. Conditions have been improved in some measure by requiring the operation of more cars under shorter headway on important routes during the rush hours, but these requirements have proved by no means an adequate cure for the overcrowding evil. The long-continued failure of the street railway companies to observe the provisions of the law at length led the commission to institute prosecutions in the police court of the District of Columbia. Four informations were filed charging the Washington Railway & Electric Company and the Capital Traction Company with operating cars in a crowded condition. The defendant street railway companies moved to quash the information upon the ground (1) that the act is unconstitutional in that the penalties provided for disobedience are so heavy as not only to be confiscatory of the property of the defendants, but to deter them from attempting to test in the courts the validity of the law or of regulations made by the Interstate Commerce Commission in pursuance thereof; (2) that the section is altogether general in its terms, being intended only to announce certain principles which should guide the commission in prescribing such regulations as might be necessary in order to make the law effective. This second contention was sustained by the police court in a decision rendered on Sept. 23, 1909, and the motions to quash the information were granted. The initial contention of the defendants, viz., that the penalties established by the act rendered it unconstitutional, was not sustained. The case has been carried to the court of appeals on a writ of error, and it is hoped that in the near future a decision will be rendered which will definitely fix the responsibilities of the street railway companies under the law."

CONEY ISLAND & BROOKLYN RAILROAD VALUATION

Since the publication in the *ELECTRIC RAILWAY JOURNAL* of Jan. 15, 1910, of an abstract of testimony before the New York Public Service Commission, First District, in the case involving the valuation of the Coney Island & Brooklyn Railroad, several additional hearings have been held. Frank R. Ford, of Ford, Bacon & Davis; G. B. Watkins, a statistician of the commission; S. W. Huff, president of the company, and Elmer M. White, auditor of the company, have testified. The next hearing will be held on Feb. 17.

DATA BOOK ON THE COLUMBUS, MARION & BUCYRUS RAILWAY

H. L. Weber, chief engineer of the Columbus, Marion & Bucyrus Railway, has gotten out in neat pocketbook form a series of blue prints of general use to the men in his department and for other officials of the road who like to keep with them in convenient form engineering data of the line. The book of blue prints, when folded for the pocket, measures 7 in. x 3¼ in., and includes the following: Map and timetable of the line; data on the track; schematic plan of the line, showing curves, feeder layout and street crossings, with the name of the foreman of each section of the line; tables of super-elevations in inches at different degrees of curves and miles per hour; leads used for switches and frogs of different angles; diagrammatic chart of running time; diagrams showing standard spiral and method of its calculation; diagram of standard overhead construction; spiral tables; diagram of standard 4-deg. curve and typical form for field notes. The blue prints are pasted together so that they make a long folder, and where a little extra space is available at the end of a sheet Mr. Weber has added some appropriate motto, such as, "Do the thing right and do it right now," "Don't worry, but tighten up those loose joints."

The blue points comprising the book are contained in a blue print cover, which bears the statement that it is the 1910 edition of the Columbus, Marion & Bucyrus Railway Company's Blue Book, which is "issued every once in a while by the chief engineer for the members of the flock." While Mr. Weber was chief engineer of the Fort Wayne & Wabash Valley Traction Company he published a somewhat similar folder for that road, but it was not so elaborate.

MOVING DOUBLE-TRUCK CARS WITH A SINGLE-TRUCK TRANSFER TABLE

The Homewood shops of the Pittsburg Railways Company were built to accommodate single-truck cars and the transfer tables in the carpenter shop and paint shop have platforms only 11 ft. long. In order to handle double-truck cars on these transfer tables a track was laid across the shop floor parallel to the pits and far enough outside so that the distance between the center of the transfer table platform and the center line of the surface track was approximately equal to the distance between truck centers of the double-truck cars. A very low platform car carrying a pair of rails runs on this surface track and the front truck of a double-truck car is run over the transfer table and up onto the rails of the platform car, which have beveled ends. The rear truck then stands on the transfer table and the wheels are securely blocked in place. When the transfer table is moved the platform car carrying the front truck moves with it. This arrangement cost practically nothing to install and saves the floor space which it would have been necessary to sacrifice if all of the tracks had been shortened to accommodate a wide transfer table.

CATALOGS OF TECHNICAL BOOKS

The McGraw-Hill Book Company has just issued in pamphlet form three catalogs of books published by it. The first catalog is entitled "Electrical Books," the second "Mining and Metallurgy," and the third "Engineering Books—Civil, Mechanical, Machinery." Each catalog is indexed by the titles of the books and by their authors, and each contains a brief description of each book listed, showing the size of the book, number of pages and in all cases where it is practicable the chapter headings.

All books sold by this publishing company carry the guarantee that where cash accompanies the order the purchaser may, within five days of the receipt of the book, return it for any reason whatsoever, and his money will be refunded promptly.

News of Electric Railways

Chicago Elevated Loop Situation

The local transportation committee of the Chicago City Council announced that on Feb. 9, 1910, it would take up with the representatives of the elevated railways in Chicago the question of congestion on the Union Elevated Loop, which encircles the business district of the city. The chairman of the local transportation committee has declared that an effort would be made to bring about such a solution of the problem as would increase the capacity of the loop tracks. In his opinion, the best means to do this was by through routing of the trains of the different railroads.

The Union Elevated Loop is a double-track structure 2 miles in length, which is used by all the elevated railways in Chicago as a downtown terminal. Most of the elevated trains operated in the city encircle this loop, and at the rush hours the loading capacity of the platforms and the capacity of the interlockers to handle the incoming and outgoing trains freely is exceeded. The managements of the elevated railways desire to lengthen the platforms so that seven-car trains can replace the five-car trains now in service. With platforms long enough so that two trains could be loaded and unloaded at the same station at the same time, it is claimed that the passenger-handling capacity of the loop would be increased 25 per cent.

Charles K. Mohler, consulting engineer for an association of property owners known as the "Loop Protective Association," is said to have asserted that the present platforms, slightly extended, could accommodate seven-car trains without difficulty if a plan for through routing trains from one side of the city to the other was adopted, and that through routing would increase the number of trains which could be passed through the loop more than 100 per cent. With seven-car trains the increase in car capacity with through routing and slightly longer platforms over the present method of operation would be from 130 per cent to 140 per cent.

In connection with the discussion to increase the capacity of the loop, Mason B. Starring, president of the Northwestern Elevated Railroad, and Chas. V. Weston, president of the South Side Elevated Railroad, have publicly expressed the attitude of the companies which they represent toward the question. Mr. Starring said:

"On the question of through routing of cars and passengers, the Northwestern Elevated Railroad has yielded to the city's views. All it can do it has done. It is denied permission to floor over the platform extensions, long since erected, but not floored over because the work was stopped by the city authorities. This improvement the city should order made at once. An immediate increase of 20 per cent in car seating capacity would thus be afforded and, to a great extent, the two stops and two starts at each station, now mostly caused by short platforms, would be eliminated.

"This improvement has been recommended by the city's experts, Bion J. Arnold and George Weston. Similar improvements have been ordered by the Public Service Commission in New York City and by the Massachusetts Railroad Commission in Boston. The city's rights with regard to pending or future litigation can be preserved with the same safeguards it secured in the Ravenswood and subsequent ordinances.

"Just as soon as the city will permit the necessary structural changes the elevated railroads will proceed with plans to rearrange their tracks with a view of removing the delay due to the direct interference caused by one company's trains crossing those of another at grade at junction points.

"These two necessary improvements should materially and quickly increase the capacity of the loop, affording substantial relief to elevated railroad patrons for years to come. They should be made now, not delayed to await other and more remote developments. I see no gain to the patrons of elevated railroad service by waiting for such improvements as subways, for instance. The Northwestern Elevated Railroad is not antagonistic to subways. On the

contrary, it did, on Feb. 26, 1908, ask the city to consider track privileges for it in a subway from Chicago Avenue downtown. Its existing four-track road ends at Chicago Avenue—thence it comes to the central business district over two tracks. The number of persons it carries will warrant the operation of four tracks from Chicago Avenue downtown as soon as such tracks can be constructed."

In his statement Mr. Weston said in part:

"The Union Elevated Loop, as a terminal for the four elevated railways of Chicago, has a relatively greater importance in the transportation of the public into and out of the business district than is generally known.

"The surface car systems cover the same general territory as do the elevated roads, but, because of their many lines, give transportation to a large district not served by the elevated railways. The surface car passengers are brought into the downtown center by three main trunk lines from the south, five trunk lines from the west and three trunk lines from the north. The number of passengers carried by these lines into the district outlined during the hour of maximum travel is about 88,500.

"A comparison of the figures follows:

	Passengers.	Per cent.
Elevated lines.....	62,000	41.2
Surface car lines.....	88,500	58.8
Total.....	150,500	100.0

"The number of cars entering the Union Loop during the maximum hour follows:

	Trains.	Cars.
Metropolitan	45	208
South Side.....	40	180
Northwestern	40	186
Oak Park.....	22	86
Total.....	147	660

"The number of cars on the surface lines entering the business district during the maximum hour is 910.

"A comparison of the above figures follows:

	Cars.	Per cent.
Elevated lines.....	660	42
Surface lines.....	910	58
Total	1,570	100

"The outer loop track is used jointly by the Northwestern Elevated Railroad and the Chicago & Oak Park Elevated Railroad, the combined traffic being, approximately, 62 trains and 272 cars during the hour of maximum travel. The inner loop track is used jointly by the Metropolitan West Side Elevated Railway and the South Side Elevated Railroad, all the cars of these companies being forced to cross the traffic of the outer loop in order to gain access to the inner loop track.

"The volume of traffic on the inner loop is, approximately, 85 trains and 388 cars during the hour of maximum traffic. This makes a total of 147 trains and 660 cars operated on two tracks, all of the cars being operated in the direction of maximum travel.

"The station platforms, each used jointly by two roads, are of such length that the maximum length of a train that can be operated is five cars. Separate stops must be made by each train, as the platforms are not long enough to permit two trains to make simultaneous stops at a station.

"A comparison of the capacities of elevated and subway systems in various cities follows:

	Cars.	Capacity per hour—	
		Trains.	Cars.
Manhattan elevated.....	7	60	420
New York subway.....	8	32	256
*Hudson tunnels.....	8	40	320
Brooklyn elevated.....	6	60	360
*Boston elevated.....	8	35	280
*Philadelphia elevated.....	8	40	320
‡Union Loop, inner track.....	5	85	388

*Ultimate capacity. ‡Some trains less than five cars, due to traffic conditions.

"From these figures it is seen that more trains per hour are operated on the inner track of the Union Loop in Chicago than on any single track in any city in the United States and more cars are operated than on any single track on any system except the Third Avenue Elevated in New York, where seven cars are operated in each train.

"It also is shown that the train length in Chicago is shorter than operated or provided for in any city in the United States. Lengthening the train unit is the easiest and most effective way of increasing the capacity of any transportation system, and until the length of trains in Chicago is increased beyond the present limit, the elevated roads are not being operated to the extent that the public has a right to demand.

"A close study of the relative importance of the elevated loop to the transportation of people in Chicago reveals the fact that the general impression concerning the value of that utility is erroneous and that it not only deserves to be continued, but its usefulness should be increased as much as possible. Here is an instance of service companies making an honest effort to improve conditions and where every effort of the companies to accomplish a good thing is being blocked by those who should be most interested in obtaining better service for the public. All possible inconvenience from the building of these platforms has already been suffered by the property owners adjacent to the stations without gaining any of the benefits which will arise from increased traffic when the platforms are put in use.

"It is the plain duty of every one concerned to begin now, at this moment, to make the very best use of that which we have, and not put it off until some future day, when a comprehensive and satisfactory enlargement of the local transportation systems shall have been devised and created to meet the demand of the future growth of the city's population."

Electric Club of Chicago.—At the annual meeting of the Electric Club of Chicago on Feb. 2, 1910, the following officers were elected for 1910: Frederick P. Vose, president; Homer E. Niesz, vice-president; F. S. Hickok, secretary; F. J. Postel, treasurer.

Experimental Service in New York with Edison Storage Battery Car.—The single-truck car equipped with the new Edison nickel-iron storage batteries, which was described in the *ELECTRIC RAILWAY JOURNAL* of Jan. 29, 1910, has been placed in service on the Central Park, North & East River Railroad, New York, N. Y., with a view to adopting cars of this type to supplant horses as motive power.

Negotiations Between Railway and Power Company in Cleveland for Power.—Negotiations are said to have been entered into for the Cleveland Electric Illuminating Company to furnish current for operating the Cleveland Railway. Samuel Scovill, vice-president of the Cleveland Electric Illuminating Company, said that his company could take care of the railway load, and that the matter hinged on the question of terms which both sides might consider reasonable.

Application for Permit to Cross Manhattan Bridge, New York.—Application has been made to the Board of Estimate and Apportionment by the Brooklyn Rapid Transit Company, Coney Island & Brooklyn Railroad and the Metropolitan Street Railway for a temporary permit to operate cars across the newly completed Manhattan Bridge, until a permanent franchise can be granted. The railways state that the line across the bridge will be ready for service 30 days after the permit is granted.

Suits to Compel Restoration of Strip Tickets in Philadelphia Before Supreme Court.—The Supreme Court of Pennsylvania has heard the separate appeals taken by the city of Philadelphia and Rudolph Blankenburg, acting for the Committee of Fifteen, from the decision of Common Pleas Court No. 2 in dismissing the suits to compel the Philadelphia (Pa.) Rapid Transit Company to restore the six-for-a-quarter strip tickets. Court No. 2 was unanimous in dismissing the Blankenburg suit, but one of the judges before whom the action of the city was brought filed a dissenting opinion.

New Mechanical Engineering Laboratory at Yale.—A gift of \$250,000 to the Sheffield Scientific School of Yale University for the construction and equipment of a new mechanical engineering laboratory is announced. The donors are G. G. Mason, New York, and W. S. Mason, Evanston, Ill. The new laboratory will occupy an area 85 ft. x 200 ft. and will be four stories in height. The

equipment will consist of the most modern appliances for assisting the student in studying the fundamental principles of applied science which are closely related to mechanical engineering. It is expected that the building will be completed and equipped by June, 1911.

Lectures on Electric Railroading at University of Minnesota.—On Feb. 1, 1910, Edw. P. Burch began a course of 12 lectures on "Electric Traction for Railway Trains," before the senior students in electrical engineering at the University of Minnesota. The subjects of the lectures follow: "History of Electric Traction;" "Modern Steam Locomotives;" "Advantages of Electric Traction;" "Electric Systems Available for Traction;" "Characteristics of Electric Locomotives;" "Features of Motor-Car Trains;" "Electric Railway Motors;" "Power Required for Trains;" "Steam, Gas and Water-Power Plants;" "Transmission and Contact Lines;" "Electrification of Railways;" "Work Done to the Year 1910."

LEGISLATION AFFECTING ELECTRIC RAILWAYS

New York.—Senator Harden, the successor of P. H. McCarran, has introduced a bill making mandatory the construction of subways in the Williamsburg and Greenpoint sections of Brooklyn according to routes set forth in detail in the bill. The Assembly has adopted a concurrent resolution continuing the life of the joint legislative committee appointed by the last Legislature to examine the Ivins charter and administrative code for New York City. In its third annual report, which will soon be presented to the Legislature of New York, the Inter-State Bridge Commission will recommend that the proposed bridge across the Hudson River have its New York approach at 179th Street, where it will cross part of Fort Washington Park. The estimated cost of the structure is \$10,000,000 and the cost of the bridge and its approaches, together with land damages, is estimated at \$30,000,000. The bridge will extend over Palisade Park on the New Jersey side. On the Manhattan side it will be convenient to the 181st Street subway station. The commission has served without compensation in conjunction with a similar body appointed by the Legislature of New Jersey. The act introduced in the Senate to amend the railroad law by making it necessary for railroads to post time tables in all their stations and publish their time tables in the newspapers in each city of the third class in which they maintain a station has been referred to the committee on railroads. On Feb. 7, Assemblyman Lee of Kings introduced the bill to render effective some of the provisions contained in the debt-limit amendment for New York City which was adopted in the referendum in November, 1909. The Lee bill, in providing for the exclusion of certain classes of bonds from consideration in the computation of the city debt, applies only to bonds issued prior to Jan. 1, 1910. About \$40,000,000 worth of rapid transit bonds will be excluded under the Lee bill should it become a law. All additional borrowing capacity thus obtained must be used exclusively for rapid transit and dock purposes. Two concurrent resolutions introduced by Assemblyman Goldberg of New York called upon the Public Service Commission for the First District to furnish to the Legislature full information to show what it had done to bring about a restoration of transfers on the Fifty-ninth Street line, New York, and to provide electric railway facilities over the Blackwell's Island Bridge. Both have been referred to the committee on railroads. The Public Service Commission of the First District of New York has asked the Legislature to appropriate \$600,000 for the elimination of grade crossings within the limits of New York City. It is proposed to divide this sum between the different counties within the city as follows: Queens, \$400,000; Kings, \$50,000; Richmond, \$50,000, and New York, \$100,000.

Ohio.—Representative Shankland has introduced a bill which will allow railroads to maintain four tracks instead of two so as to make it possible to operate a suburban service out of cities separate from the main traffic. A bill has been introduced to exempt those who are unable to obtain seats on street cars from paying fare. Another bill authorizes municipalities to build conduits and rent or lease space in them to electric light, telephone, telegraph, street railway and water companies.

Financial and Corporate

Annual Report of North American Company

New York Stock and Money Market

February 8, 1910.

The stock market during the past week has more nearly bordered on a state of demoralization than at any time since the fall of 1907. Prices have declined sharply, the entire tone of the market has been very weak and nervous, and there has been an absence of any definite attempt at support. The industrials have been especially weak, Amalgamated Copper and United States Steel leading in the downward movement. The traction shares have followed the trend of the market, and Interborough-Metropolitan and Brooklyn Rapid Transit have each suffered considerable declines. Third Avenue has remained about the same.

The money market continues easy. Quotations to-day: Call, 2¼ to 2½ per cent; 90 days, 3¼ to 4 per cent.

Other Markets

There has been considerable activity in Rapid Transit stock in the Philadelphia market during the past week at prices which have eased off in sympathy with the general depression in securities. Other tractions have been inactive.

In Chicago, a few sales of Series 2 Chicago Railways at old prices were the only transactions.

In the Boston market, Massachusetts Electric continues to be the most active traction stock. Transactions, especially in the common, have been quite liberal. The price for the common is slightly lower.

In Baltimore the bonds of the United Railways are still popular with the traders. The prices at which these are selling have not changed materially.

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

	Feb. 1.	Feb. 8.
American Railways Company.....	a48	a47
Aurora, Elgin & Chicago Railroad (common).....	a61	a57¾
Aurora, Elgin & Chicago Railroad (preferred).....	a92	*91
Boston Elevated Railway.....	132	129½
Boston & Suburban Electric Companies.....	74	15
Boston & Suburban Electric Companies (preferred).....	16	73
Boston & Worcester Electric Companies (common).....	a11½	a11½
Boston & Worcester Electric Companies (preferred).....	44	42
Brooklyn Rapid Transit Company.....	72½	68¾
Brooklyn Rapid Transit Company, 1st pref. conv. 4s.....	83½	82½
Capital Traction Company, Washington.....	a134½	a133½
Chicago City Railway.....	*185	a195
Chicago & Oak Park Elevated Railroad (common).....	*2	*2
Chicago & Oak Park Elevated Railroad (preferred).....	*10	*10
Chicago Railways, ptcptg., ctfs. 1.....	a109	a106½
Chicago Railways, ptcptg., ctfs. 2.....	a30½	a30
Chicago Railways, ptcptg., ctfs. 3.....	a17	a14
Chicago Railways, ptcptg., ctfs. 4s.....	*9½	*9
Cleveland Railways.....	*91½	*91½
Consolidated Traction of New Jersey.....	a77½	a76
Consolidated Traction of New Jersey, 5 per cent bonds.....	a105	a105½
Detroit United Railway.....	*63	*63
General Electric Company.....	152	148½
Georgia Railway & Electric Company (common).....	105	a107
Georgia Railway & Electric Company (preferred).....	a88	a88
Interborough-Metropolitan Company (common).....	20¾	18½
Interborough-Metropolitan Company (preferred).....	52	46
Interborough-Metropolitan Company (4½s).....	80½	79
Kansas City Railway & Light Company (common).....	a30½	a30
Kansas City Railway & Light Company (preferred).....	*70½	a70½
Manhattan Railway.....	*136¾	*136¾
Massachusetts Electric Companies (common).....	a174	a16
Massachusetts Electric Companies (preferred).....	80¾	a80½
Metropolitan West Side, Chicago (common).....	a17	a17
Metropolitan West Side, Chicago (preferred).....	a56	a53½
Metropolitan Street Railway.....	*21	18
Milwaukee Electric Railway & Light (preferred).....	*110	*110
North America Company.....	*76¼	76
Northwestern Elevated Railroad (common).....	a18	a17½
Northwestern Elevated Railroad (preferred).....	a68	a70
Philadelphia Company, Pittsburg (common).....	a50½	a49
Philadelphia Company, Pittsburg (preferred).....	a16	a45
Philadelphia Rapid Transit Company.....	a26¾	a25¾
Philadelphia Traction Company.....	a80	*89
Public Service Corporation, 5 per cent col. notes.....	*100½	*100½
Public Service Corporation, ctfs.....	a106	a105
Seattle Electric Company (common).....	a115	a115
Seattle Electric Company (preferred).....	a104½	a106
South Side Elevated Railroad (Chicago).....	a53	a51
Third Avenue Railroad, New York.....	10¾	11
Toledo Railways & Light Company.....	*11	10¾
Twin City Rapid Transit, Minneapolis (common).....	112½	111
Union Traction Company, Philadelphia.....	a51½	a51
United Rys. & Electric Company, Baltimore.....	a13½	a13
United Rys. Inv. Co. (common).....	*33	*33
United Rys. Inv. Co. (preferred).....	61	60
Washington Ry. & Electric Company (common).....	a38½	37
Washington Ry. & Electric Company (preferred).....	a88¼	a88
West End Street Railway, Boston (common).....	a93	a93
West End Street Railway, Boston (preferred).....	*106	a108
Westinghouse Elec. & Mfg. Company.....	71	63
Westinghouse Elec. & Mfg. Company (1st pref.).....	*120	*120

a. Asked.

* Last Sale.

The annual report of the North American Company for the year ended Dec. 31, 1909, shows a net income of \$1,706,876. The undivided profits as of Dec. 31, 1908, were \$3,445,777 and the dividends paid and accrued during the fiscal year aggregated \$1,489,665. The balance as of Dec. 31, 1909, was \$3,662,988.

James Campbell, the president, states that "in accordance with established precedent, the securities and assets of the company have been revalued as of Dec. 31, 1909." The company sold to a syndicate of St. Louis people on July 1 of last year its holdings of Laclede Gas Light Company common stock, consisting of 74,408 shares, at 97½. This stock was carried on the books of the company at 93½, netting a profit of \$286,570. Of \$5,000,000 of 5-year 5 per cent collateral trust notes, dated May 1, 1907, \$2,584,000 have been cancelled, leaving \$2,416,000 outstanding.

In referring to the subsidiary companies Mr. Campbell says:

"The officers and directors of this company were advised that the acquisition and development of the property of the West Kentucky Coal Company would be advantageous in the operation of the public utility plants in St. Louis controlled by this company. This belief was at the time in part, at least, justified by the then prevailing prices of Illinois coal. But this expectation will not be realized, as coal cannot now be mined at these mines and delivered in St. Louis in competition with Illinois coal at present prices. The policy of the company must therefore be directed to the development of the properties and the increase of the output, so as to enable it successfully to compete with other mining companies in the commercial field."

In the following comparison of income accounts of two of the subsidiary properties, the Milwaukee figures refer to the combined operations of the Milwaukee Electric Railway & Light Company, the Milwaukee Light, Heat & Traction Company, the Milwaukee Central Heating Company, the Racine Gas Light Company, the Kenosha Gas & Electric Company, and the Watertown Gas & Electric Company:

	Milwaukee.	United Railways Company of St. Louis.
Gross revenue.....	\$5,709,946	\$11,111,431
Operating expenses, taxes and reserves.....	3,680,420	7,028,178
Gross income.....	\$2,029,526	\$4,083,253
Interest accrued.....	1,257,974	2,798,182
Net income.....	\$771,552	\$1,285,071
Preferred stock dividends.....	270,000	849,160
Balance.....	\$501,552	\$435,911
Common stock dividends.....	315,000
Balance carried to surplus....	\$186,552	\$435,911

Legislative Hearing on Financing of Shelburne Falls & Colrairie Street Railway

The committee on street railways of the Massachusetts Legislature gave a hearing on Feb. 1, 1910, upon the bill to authorize the Shelburne Falls & Colrairie Street Railway, Shelburne Falls, Mass., to refund its funded debt and fund its floating debt by issuing \$50,000 of bonds. The case is similar to that of the Connecticut Valley Street Railway, Greenfield, Mass., which was successful in its appeal to the Legislature of 1909 for rights of the same kind. C. M. Stoddard, Greenfield, who represented the company, stated that it had paid only two dividends of 1 per cent each in 1903 and 1904. The earnings had been sufficient to pay the operating expenses and the interest on the bonds, but the rest of the revenue had been put into the property. A year ago the company built a concrete bridge across the Deerfield River, between Shelburne and Shelburne Falls, and entered into an agreement with the Boston & Maine Railroad to handle cars between the tracks of that company and the plants of manufacturers along the Shelburne Falls & Colrairie Street Railway. The reduction in the cost of handling freight and express matter between the Boston & Maine Railroad and the manufacturers would net the community \$1,000 per year, in addition to the interest on the securities desired.

The floating debt was about \$36,000, personally indorsed

by directors of the company. The company had about \$154,180 of permanent property outstanding and would save nearly 2 per cent on its capital stock by refunding its debt. F. L. Davenport, president of the company, said that the cost of transportation has been reduced from \$2,500 per year to \$12 a month since the abandonment of teaming freight across the river. No market existed for the stock, and it was felt that the bonds could be placed without difficulty. The supervision of the Railroad Commission would be acceptable to the company. Although the consideration was small, the principles were important. The only question raised was the advisability of a general law to meet cases of this kind. The hearing was then closed.

American Railways, Philadelphia, Pa.—The American Railways has leased the Scranton, Dunmore & Moosic Lake Railroad, 10 miles long, and will electrify the road.

Aurora, Elgin & Chicago Railroad, Chicago, Ill.—The Aurora, Elgin & Chicago Railroad has sold \$555,000 of its first and refunding 5 per cent mortgage bonds to Hayden, Miller & Company, Cleveland, Ohio. The company had outstanding on June 30, 1909, \$1,494,000 of these securities, making the total of this issue, including the new \$555,000 issue, \$2,044,000. The total bonded debt of the company is \$7,044,000.

Chambersburg, Greencastle & Waynesboro Street Railway, Waynesboro, Pa.—Arrangements have been made by the Chambersburg, Greencastle & Waynesboro Street Railway to authorize \$1,000,000 of bonds of which \$600,000, it is said, will be reserved to retire existing issues of the same aggregate amount.

Chicago (Ill.) City Railway.—The Chicago City Railway has declared an extra dividend of 4 per cent for the year ended Jan. 31, 1910, payable on March 2, 1910, to stockholders of record on Feb. 21, 1910. The Appellate Court has affirmed the decision of the Superior Court by dismissing the mandamus suit brought by Clarence H. Venner against the Chicago City Railway in which he asked to be allowed to examine the books of the company.

Chicago (Ill.) Railways.—The National City Bank, New York, N. Y., and N. W. Harris & Company, New York, N. Y., offer for subscription at 101 and interest \$6,000,000 of first mortgage 5 per cent gold bonds of the Chicago Railways, dated Feb. 1, 1907, and due Feb. 1, 1927. This is the last of the bonds to be issued to insure the rehabilitation of the property of the company.

Chicago, South Bend & Northern Indiana Railway, South Bend, Ind.—It is reported that the interests which control the Chicago, South Bend & Northern Indiana Railway are negotiating for the purchase of the property of the Southern Michigan Railway in the interest of the Chicago, South Bend & Northern Indiana Railway.

Columbus, Delaware & Marion Railway, Columbus, Ohio.—Eli M. West, receiver of the Columbus, Delaware & Marion Railway, has deposited with the trustee for the holders of the \$1,000,000 consolidated mortgage bonds of the company the money for the payment of the coupons on which payment was defaulted on Aug. 1, 1909. Asking that sales of stock made on alleged fraudulent representation by J. G. Webb, Springfield, be set aside and that they be adjudged creditors of the company, an intervening petition has been filed in Common Pleas Court by George McMillan and others against the Columbus, Delaware & Marion Railway.

Detroit (Mich.) United Railway.—The Detroit United Railway will pay the \$2,000,000 of collateral trust 5 per cent notes of the company at maturity on Feb. 15, 1910, with funds derived from the surplus of the company and from money borrowed.

Eastern Ohio Traction Company, Cleveland, Ohio.—The Cleveland & Chagrin Falls division of the Eastern Ohio Traction Company was sold at auction to Frank H. Ginn and J. R. Nutt, by R. D. Beatty, receiver, acting as master commissioner, on Feb. 5, 1910, for \$263,050. Mr. Ginn and Mr. Nutt represent the holders of the first mortgage bonds of the company.

Elmira Water, Light & Railroad Company, Elmira, N. Y.—The Public Service Commission of the Second District

of New York has authorized the Elmira Water, Light & Railroad Company to issue \$20,000 of consolidated mortgage 5 per cent 50-year gold bonds for the purpose of acquiring the capital stock of the Montour Falls Electric Light Company.

Forty-second Street, Manhattanville & St. Nicholas Avenue Railroad, New York, N. Y.—Judge Lacombe has signed an order directing that the decree of foreclosure and sale of the Forty-second Street, Manhattanville & St. Nicholas Avenue Railroad be adjourned until March 26, 1910. This order was entered in the suit brought by the Union Trust Company for the sale of the road. All defendant parties agreed to the adjournment. The order was issued on the petition of Benjamin A. Morton, who asserted that the plan of reorganization submitted to the Public Service Commission had not yet been approved.

Fort Smith Light & Traction Company, Fort Smith, Ark.—H. M. Byllesby & Company, Chicago, Ill., offer for subscription at 97 and interest \$650,000 of 3½-year 6 per cent notes of the Ft. Smith Light & Traction Company dated Jan. 1, 1910, and due July 1, 1913, but callable on 30-days' notice at 101 and interest. The American Trust & Savings Bank, Chicago, Ill., is trustee of the issue.

Galveston-Houston Electric Railway, Galveston, Tex.—The Galveston-Houston Electric Railway has filed a first mortgage to the City Trust Company, Boston, Mass., to secure not more than \$5,000,000 of 5 per cent bonds dated Oct. 1, 1909, and due Oct. 1, 1954, but callable on any interest day at 105 as a whole or for sinking fund of 1 per cent yearly between 1910 and 1944, and 1½ per cent yearly between 1945 and 1954. The issue is guaranteed as to principal, interest and sinking fund by the Galveston-Houston Electric Company. The Railroad Commission of Texas on Dec. 31, 1909, authorized the company to issue \$3,000,000 of the bonds to cover the cost of construction of the railway between Houston and Galveston. The remaining \$2,000,000 of bonds are reserved to provide for future acquisitions, improvements, betterments, etc.

Grand Rapids (Mich.) Railway.—Anton G. Hodenpyl of Hodenpyl, Walbridge & Company, New York, N. Y., has been elected a director of the Grand Rapids Railway to succeed Jacob Kleinhaus.

Holmesburg, Tacony & Frankford Electric Railway, Tacony, Pa.—The decree of Judge Holland of the United States Circuit Court at Philadelphia, on Jan. 25, 1910, ordering the sale of the property of the Holmesburg, Tacony & Frankford Electric Railway under foreclosure on May 25, 1910, at an upset price fixed at \$350,000, was vacated on Jan. 28, 1910, for lack of proper notice.

Hudson Companies, New York, N. Y.—The Hudson Companies has arranged for the sale to J. P. Morgan & Company and others of \$5,500,000 of 3-year 5 per cent notes, to be secured by the deposit of \$1,500 of bonds of the Hudson & Manhattan Railroad for every \$1,000 of notes. The bonds which secure the notes are part of an authorized issue of \$100,000,000 of which \$54,500,000 have been issued. Up to the time of the issue of \$15,000,000 notes in January, 1908, a total of \$34,190,164 had been expended by the Hudson & Manhattan Railroad on its tunnels and other property.

Indianapolis, Crawfordsville & Western Traction Company, Indianapolis, Ind.—The Marion Trust Company, Indianapolis, Ind., as mortgage trustee, has brought suit in the Federal Court at Indianapolis for the foreclosure of the mortgage of the Indianapolis, Crawfordsville & Western Traction Company at the request of a committee composed of Guy M. Walker, New York, N. Y.; A. B. Conover, Chicago, Ill.; A. E. Reynolds, Crawfordsville, Ind.; T. M. Lucas, Frankfort, Ind., and Hugh Dougherty, Indianapolis, Ind., which represents the holders of about \$1,000,000 of the \$1,500,000 of bonds of the company.

Interstate Railways, Philadelphia, Pa.—It is understood that the Interstate Railways will take advantage of the three months' grace allowed for the payment of the semi-annual interest due on its 4 per cent bonds on Feb. 1, 1910. The time for the deposit of bonds under the plan of the readjustment committee, of which George H. Earle, Jr., is chairman, with the Real Estate Trust Company or the

Guaranty Trust & Safe Deposit Company, Philadelphia, Pa., has been extended to Feb. 15, 1910.

Louisville (Ky.) Railway.—The stockholders of the Louisville Railway have authorized a blanket mortgage in favor of the Fidelity Trust Company, Louisville, Ky., as trustee to secure an issue of not more than \$20,000,000 of 5 per cent, 40-year bonds. L. W. Botts has been elected a director of the Louisville Railway and the Louisville Traction Company to succeed the late Henry Bishop.

New Orleans Railway & Light Company, New Orleans, La.—Bertron, Griscom & Jenks, New York, N. Y., have made a conditional proposition to buy from the stockholders of the New Orleans Railway & Light Company \$4,000,000 of the common stock and \$2,000,000 of the preferred stock of the company, being 20 per cent of their respective holdings, at 62½ for the preferred stock and 30 for the common stock, provided the requisite assents be filed with the Hibernia Bank & Trust Company, New Orleans, La., not later than Feb. 15, 1910.

Northern Texas Traction Company, Ft. Worth, Tex.—A special-meeting of the stockholders of the Northern Texas Traction Company has been called to authorize an issue of \$10,000,000 of 5 per cent bonds, \$1,000,000 of which will be issued at once to retire \$500,000 of 6 per cent bonds due on May 1, 1911, and for improvements. The balance will be reserved to retire an issue of first mortgage 5 per cent bonds due in 1933 and for improvements.

Railway & Light Securities Company, Boston, Mass.—Stone & Webster, Boston, Mass., offer for subscription at 100 and interest \$500,000 of collateral trust sinking fund 5 per cent gold bonds of the Railway & Light Securities Company dated Nov. 1, 1909, and due Nov. 1, 1939, interest payable on May 1 and Nov. 1 at the office of the Old Colony Trust Company, Boston, Mass., trustee.

Reading (Pa.) Transit Company.—The Reading Transit Company has been incorporated by H. G. Louser, Lebanon, Pa.; Geo. L. Roller, Reading; Chas. J. Easterly, Reading; J. C. Murray, Reading, and H. H. Reigel, Reading, with a nominal capital of \$10,000, to lease the property of the United Traction Company, Reading, and the Schuylkill Valley Traction Company from the Inter-State Railways.

Rutland Railway, Light & Power Company, Rutland, Vt.—The Rutland Railway, Light & Power Company proposes to construct several extensions to its railway system aggregating about 7 miles and is planning to acquire water-powers. Two or three lighting properties have been added to the system during the year. The statement for the year ended Dec. 31 follows: Gross earnings, 1908, \$250,403.20; 1909, \$258,922.31; operating expenses, 1908, \$133,486.16; 1909, \$129,935.63; net earnings, 1908, \$116,917.04; 1909, \$128,986.68; interest on bonds, 1908, \$75,000; 1909, \$75,000; taxes, 1908, \$5,617.42; 1909, \$6,900; net income, 1908, \$36,299.62; 1909, \$47,086.68.

San José & Santa Clara Railroad, San José, Cal.—It is reported that L. E. Hanchett, president of the San José & Santa Clara Railroad, has exercised an option which he obtained recently on the San José Railway in the interest of the San José & Santa Clara Railroad.

South Side Elevated Railroad, Chicago, Ill.—Resolutions adopted by the stockholders of the South Side Elevated Railroad who attended the annual meeting personally require the board to "take up the matter of resuming dividends not later than April 1," on the ground that "the period of depression has passed, and the company accumulated during the suspension of dividends an available cash surplus of \$340,000, and is earning 3 per cent on the stock."

Toledo & Indiana Railway, Toledo, Ohio.—Judge Brough, of the Common Pleas Court, has confirmed the sale of the property of the Toledo & Indiana Railway under foreclosure in Toledo on Jan. 18, 1910, to S. C. Schenck, formerly president of the company, who represented the bondholders, for \$1,058,500.

United Railways, St. Louis, Mo.—W. J. Kinsella has been elected a member of the board of directors of the United Railways to succeed C. W. Wetmore, who was succeeded recently as president of the North American Company by James Campbell.

Traffic and Transportation

Increase in Fare Between Washington and Baltimore

The Washington, Baltimore & Annapolis Electric Railway has announced that on March 1, 1910, it will increase the one-way fare from Baltimore to Washington from 75 cents to \$1, and that on the same date it will increase the round-trip fare between the cities from \$1.25 to \$1.50. In explanation of the increase, George T. Bishop and George W. Williams, receivers of the company, have issued the following statement:

"On March 1, 1910, when the Washington, Baltimore & Annapolis Electric Railway will be operating its cars through to the Treasury Building without change, with free transfer privilege in Washington, the receivers will put into effect a new schedule of passenger rates. While there will be no radical changes, it is hoped by the receivers that the new schedule of rates will result in increasing the gross receipts of the company about 10 per cent. The receivers now know that the revenue of the company must be increased. Even with this increase the gross earnings will still be inadequate to pay the operating expenses and fixed charges of the company, but the receivers believe that with the better facilities which they will furnish the traveling public after March 1, 1910, travel will increase until the earnings are sufficient to pay the interest on the capital invested.

"Since Oct. 28, 1909, the date on which the United States Circuit Court of the District of Maryland took charge of the property, and we were appointed receivers, we have made a close study of the situation and the conditions which resulted in the appointment of receivers. The property has been, and is being, economically managed.

"In order to pay 5 per cent on the present bonded indebtedness, it is necessary for the property to earn over and above taxes and operating expenses \$327,800 per annum. From April 1, 1908, to April 1, 1909, which was the first year that the property was operated, the net earnings fell short of the amount required to pay the interest on the bonds \$129,756.82, and in the same way from April 1, 1909, to the date of the appointment of the receivers, Oct. 28, 1909, the net earnings were insufficient to pay the interest on the bonded debt by the sum of \$55,920.29. From the standpoint of conservative railroad management, every railroad should each year charge off and lay aside a sum to represent depreciation, so that when it becomes necessary to replace parts of the property worn out in service, there will be sufficient money in hand to make this replacement.

"That both of these items should be considered in arriving at what is a fair and proper rate has been held by the Supreme Court of the United States. In the recent Knoxville Water Works case, decided Jan. 4, 1909 (see page 13, United States Supreme Court Reports, volume 212), the court used the following language:

"Before coming to the question of profit at all, the company is entitled to earn a sufficient sum annually to provide not only for current repairs, but for making good the depreciation and replacing the parts of the property when they come to the end of their life. The company is not bound to see its property gradually waste without making provision out of the earnings for its replacement. It is entitled to see that from earnings the value of the property invested is kept unimpaired, so that at the end of any given term of years the original investment remains as it was at the beginning. It is not only the right of the company to make such provision, but it is its duty to its bond and stockholders, and, in case of a public service corporation, at least, its plain duty to the public. If a different course were pursued the only method of providing for replacement of property which has ceased to be useful would be the investment of new capital and the issue of new bonds or stock. This course would lead to a constantly increasing variance between present value and bond and stock capitalization—a tendency which would inevitably lead to disaster either to the stockholders or to the public or to both."

"As receivers of the company we decided not to recommend to the court any increase in rates until we had tried in every way to increase the net earnings of the property

to a sufficient amount to care for depreciation and a reasonable return on the investment. Having exhausted every alternative we submitted a statement of the situation to the court, and our proposed action has been approved by Judge Morris.

"While the rates are increased in certain particulars, still it must not be overlooked that the company will, at the time this new rate schedule becomes effective, give better and more convenient service in that the cars of the company will be operated to the Treasury Building in the city of Washington, which is 3 miles further than the present terminus. In addition, transfers will be given on all the intersecting lines of the Washington Railway & Electric Company, thereby enabling passengers to transfer to practically any point in the city. The new schedule for the operation of cars will increase the service by giving a limited car every half hour in both directions from each terminal, in addition to the present local service."

Proposal to Prevent Establishment of Through Rates

The bill introduced in the House of Representatives on Jan. 10, 1910, by Charles E. Townsend, of Michigan, designed to create an Interstate Commerce Court, contains a number of provisions of interest apart from the establishment of this court. Of these provisions, one of particular importance to electric railways is that which stipulates that the Interstate Commerce Commission "shall not establish any through route classification or rate between street, suburban or interurban electric passenger railways and railroads of a different character."

The proposed United States Court of Commerce, if the bill as introduced passes, will have jurisdiction over cases for the enforcement of orders of the Interstate Commerce Commission other than for the payment of money; of cases brought to enjoin, set aside, annul or suspend any orders of the Interstate Commission; of such cases as under the act to further regulate the commission with foreign nations and among the States would be maintained in the United States Circuit Court, and of such mandamus proceedings as under the provisions of the regulating commission would be maintained in the United States Supreme Court. The proposed court would be composed of five judges, to be designated by the Chief Justice of the United States from among the United States circuit judges.

The bill provides that no railroad shall acquire, directly or indirectly, any interest in the capital stock or purchase or lease the railroad of any competing railroad. Nothing in this section, however, would operate to prevent any such railroad which, at the date of the passage of the act, owns not less than one-half of the outstanding capital stock of any other railroad from acquiring any of the remainder of such stock in order to prevent any such corporation which is now operating under lease of any less than 20 years a railroad of any other corporation from ruining such lease by acquiring a reversionary ownership of the lessor railway. The words "railroad corporation" as used in this section would not apply to street, suburban or interurban electric passenger railway corporations.

Official Electric Railway Guide of Eastern & Western New York

The United Traction Company, Schenectady Railway, Hudson Valley Railway, Fonda, Johnstown & Gloversville Railroad, Utica & Mohawk Valley Railway, Otsego & Herkimer Railroad, Oneida Railway, Syracuse Rapid Transit Railway, Syracuse, Lake Shore & Northern Railroad, Syracuse & South Bay Electric Railroad, Auburn & Syracuse Electric Railroad, Auburn & Northern Electric Railroad, Rochester, Syracuse & Eastern Railroad, Rochester Railway; Rochester & Eastern Rapid Railway, Rochester & Sodus Bay Railway, Buffalo, Lockport & Rochester Railway and Buffalo & Lake Erie Traction Company have begun the publication of a monthly official electric railway guide of Eastern and Western New York entitled "How, Where and When to Go." The first issue is dated February, 1910. The publication is 8 in. x 9 in. and contains time tables of all of the companies mentioned.

For the purpose of showing the routes of the lines issu-

ing the publication two double-page maps are presented. One includes the territory between Hudson and Utica on the south, Warrensburg and Oswego on the north, Pittsfield and North Adams, Mass., on the east and Ithaca and Auburn on the west, and embraces Albany, Schenectady, Saratoga Springs, Glens Falls, Little Falls, Utica, Rome, Coopertown, Oneida, Syracuse and Albany. The other map includes the territory between Utica, Auburn and Oswego on the east and Buffalo, Niagara Falls, St. Catherines and Erie on the west, Utica and Erie on the south and Lake Ontario on the north, and embraces Auburn, Utica, Geneva, Rochester, Lockport, Buffalo, Niagara Falls and Erie. Besides the routes of the electric railways operating in this territory the routes of the electric railways under construction, the routes of the steam railroads, the course of the new barge canal and the Erie canal are shown. The maps are entitled, respectively, "Electric Railways of Central New York" and "Electric Railways of Western New York." The publication is concluded with suggestions to passengers and indexes to the various railways. The statement is made that a union waiting room and ticket office has recently been completed at Syracuse from which cars of the Syracuse, Lake Shore & Northern Railroad, Syracuse & South Bay Electric Railroad and Oneida Railway start. Cars of the Rochester, Syracuse & Eastern Railroad also arrive and depart from this terminus over the Syracuse, Lake Shore & Northern Railroad.

Meeting of Central Electric Traffic Association

A. L. Neereamer, chairman of the Central Electric Traffic Association, issued on Feb. 4, 1910, the following call for a meeting of the members of the association at the Algonquin Hotel, Dayton, Ohio, on Feb. 19, 1910:

"In conformity with a resolution passed by the Central Electric Traffic Association at a meeting held in Columbus on Jan. 26, 1910, a meeting is hereby called for Feb. 19, 1910, at the Algonquin Hotel, Dayton, Ohio. The following subjects are scheduled for discussion and action:

"1. 'Matters Pertaining to Reissuing Joint Passenger Tariff No. 3.'

"2. 'Compilation and Issuing of Joint Express or Dispatch Freight Tariff.'

"3. 'Compilation and Issuing of Joint Tariff of Estimated Weights of Standard Commodities.'

"4. 'A Uniform Basis for Handling of Milk and Cream, and such Other Business as may be Properly Brought Before the Meeting.'

"It is urgently requested that each line be represented at this meeting so as not to delay any of the work. The meeting will convene promptly at 9 a. m. in order that the subjects may be thoroughly discussed and members be given a chance to return home that night."

Mayor of Pittsburgh Advises City to Retain Traction Expert

In a statement which he made recently to the press of Pittsburgh, Mayor Magee of that city said:

"About six weeks ago, at my instance, a resolution was introduced in Common Council providing for the employment of a competent engineer, or engineers, to study the whole subject of railway transportation in the present city of Pittsburgh and in territory that will logically become part of the city in a more or less distant future. The primary purpose of this, however, is to advise the city officials on the subway project, in view of the number of parties who are looking into that phase of the subject with the intention of asking Councils for a franchise.

"The city needs the counsel of the highest authority on this subject. If the city acts now without such advice the terms laid down by Councils might either be improvident, or, on the other hand, might repel the advances made by capital by prescribing terms so strict as not to be accepted, in either event resulting in loss to the city. Without such advice the city authorities might authorize the construction at the request of promoters in an illogical way and prevent in the future any further construction of similar nature.

"A complete study must be made of the present population and the probable trend of the future city growth, in connection with the present surface railways and the terri-

tory served by them. Such a study of the situation necessarily includes consideration of the management of the Pittsburgh Railways, both incidentally and fundamentally."

Increase in Wages in Harrisburg.—On Feb. 1, 1910, the Central Pennsylvania Traction Company, Harrisburg, Pa., increased the wages of its conductors and motormen 1 cent an hour to the following scale: First year, 18 cents per hour; second and third years, 20 cents per hour; fourth and fifth years, 21 cents per hour; after five years, 22 cents per hour.

Rerouting Plans Considered in Rochester.—Charles R. Barnes, electric railroad inspector of the Public Service Commission of the Second District of New York, has conferred recently in Rochester with E. J. Cook, general manager of the Rochester lines by the New York State Railways regarding plans submitted to the commission by Mr. Cook for rerouting lines in Rochester so as to overcome operating problems particularly in down-town Rochester.

Circular on Amended Rules in Indiana.—The Railroad Commission of Indiana has issued Circular No. 59, in which are given the amended and additional rules to be incorporated in the standard code in use by the interurban railways in Indiana. These additions and amendments were agreed upon at a conference of interurban railway officials and the commission held on Jan. 18, 1910. A report of this conference and the text of the amendments to the rules were printed in the *ELECTRIC RAILWAY JOURNAL* of Jan. 22, 1910, page 156.

Protest Against Increase in Fare in Pennsylvania.—The West Chester Turnpike Real Estate Improvement Association has protested to the Railroad Commission of Pennsylvania against the increase in fare by the Philadelphia & West Chester Traction Company, Philadelphia, Pa., from 25 cents to 30 cents which went into effect in October, 1909, on its line between Philadelphia and West Chester. The association alleges that the increase is in violation of an agreement entered into between it and the company in 1899.

Supreme Court of Oregon Sustains Commission in Fare Case.—The Supreme Court of Oregon has sustained the Railroad Commission of Oregon in ordering the Portland Railway, Light & Power Company, Portland, Ore., to reduce the fare between Portland and Milwaukee from 10 cents to 5 cents. The order of the commission was the result of an appeal to it by residents of Milwaukee about three years ago. The case was taken to the State Circuit Court, which decided that the order of the commission was reasonable, and was then appealed to the State Supreme Court.

Detroit-Saginaw Limited Service.—A new timetable for the Flint division of the Detroit (Mich.) United Railway announces three limited trains each way between Detroit and Saginaw, Mich., a run of 101 miles, which is made in 3 hours and 15 minutes. The limited trains and an additional one make the run from Detroit to Flint, 68 miles, in 2 hours and 15 minutes and the local trains in 3 hours. On Jan. 14, 1910, when the competitive steam railroads were much hampered by severe snow storms the Detroit United Railway satisfactorily handled an eight-car excursion from Saginaw to Detroit and return.

Enforcement of Front Platform Rule in Philadelphia.—The Philadelphia (Pa.) Rapid Transit Company has replied in part as follows to a communication from the Railroad Commission regarding the enforcement by the company of the rule of the commission against permitting passengers to ride on the front platform of cars: "We admit that this rule is not invariably observed. Our instructions to car crews and street superintendents are that passengers must not be allowed to ride on front platforms, but during the afternoon rush hour it is impossible to enforce this order without employment of physical force, and in such cases the commission's order and our rules are defeated, not through any desire on our part or any laxity on the part of our car crews, but because it would require the assistance of the police forcibly to remove passengers. We are confident, however, that the recent renewal of the commission's front-platform order and our own efforts have reduced front-platform riding very materially; in fact, it may now be considered exceptional."

Personal Mention

Mr. R. R. Smith has resigned as traffic manager of the Louisville (Ky.) Railway.

Mr. G. H. Dodge has been appointed acting superintendent of the Syracuse & South Bay Electric Railroad, Syracuse, N. Y.

Mr. William H. Evans has been appointed industrial agent of the Illinois Traction System, Peoria, Ill., a newly created office with the company.

Mr. D. W. Cooke, general traffic manager of the Erie Railroad, New York, N. Y., has officially denied the statement that he has accepted the presidency of the Kansas City Railway & Light Company, Kansas City, Mo., as reported in several of the daily papers.

Mr. J. S. Mills has resigned as master mechanic of the Lehigh Valley Transit Company, Allentown, Pa., which position has since been abolished and the office of superintendent of shops and equipment created, and to this new position Mr. C. E. Lenhart has been appointed.

Prof. D. C. Jackson, of the Massachusetts Institute of Technology, has been nominated by 72 prominent members of the American Institute of Electrical Engineers as president of that body. In a circular letter signed by these gentlemen the services of Professor Jackson to electrical engineering and to the Institute are mentioned.

Mr. Samuel Riddle, formerly general manager of the Chicago, South Bend & Northern Indiana Railway, South Bend, Ind., has been appointed superintendent of transportation of the Louisville (Ky.) Railway, effective on Feb. 15, 1910, in which position he will succeed to the duties of Mr. R. R. Smith, who has resigned as traffic manager of the company.

Mr. G. L. Estabrook has been elected assistant secretary and treasurer of the Grand Rapids (Mich.) Railway and will succeed Mr. Benjamin S. Hanchett as treasurer of the company. Mr. Hanchett, who was formerly treasurer and general manager of the company, has been elected president of the company and will continue as general manager of the company.

Mr. H. H. Roseman has resigned as traffic manager of the Illinois Traction System, Springfield, Ill. Mr. Roseman was formerly in charge of freight traffic on the Cairo division of the Chicago, Cleveland, Cincinnati & St. Louis Railroad. He began his railway career in 1885 as clerk to the master mechanic of the Baltimore & Ohio Southwestern Railroad in Vincennes, Ind.

Mr. J. F. Knowlen has resigned as superintendent of the City & Suburban Railway, Brunswick, Ga., to accept the position of electrician at the shops of the Louisville & Nashville Railroad, New Decatur, Ala. Mr. Knowlen was formerly connected with the North Alabama Traction Company, New Decatur, Ala., and supervised the conversion of the lines of that company from horse power to electricity.

Mr. C. E. Lenhart, whose resignation as master mechanic of the Buffalo & Lake Erie Traction Company, Buffalo, N. Y., was noted in the *ELECTRIC RAILWAY JOURNAL* of Dec. 4, 1909, has been appointed superintendent of shops and equipment of the Lehigh Valley Transit Company, Allentown, Pa., a new position with the company, the office of master mechanic having been abolished following the resignation of Mr. J. S. Mills from that position.

Mr. Alexander Rennick, second vice-president of the Philadelphia (Pa.) Rapid Transit Company, has been appointed assistant general manager of the company. He will retain the office of second vice-president. Mr. Rennick has been connected with the street railways in Philadelphia since 1878. He was appointed controller of the Philadelphia Rapid Transit Company in 1901, and in 1904 was elected third vice-president of the company. In 1909 he was elected second vice-president of the company.

Mr. H. C. Hoagland, formerly chief electrical and mechanical engineer of the Illinois Traction System, Peoria, Ill., has accepted a position with H. M. Bylesby & Company, Chicago, Ill., as special agent, and is at present at Muskogee, Okla., investigating the water-power of streams in that vicinity. Mr. Hoagland is vice-president and general

manager of the North Missouri Central Railway, St. Louis, Mo., which has recently awarded contracts for the construction of a 60-mile electric railway from Jefferson City to Mexico, Mo.

Mr. J. B. McClary has resigned as general manager of the Sheffield (Ala.) Company, which controls the railway, light and power systems and the water works of Sheffield, Florence and Tusculumbia, Ala., and Mr. W. R. Hall, formerly manager of the North Alabama Traction Company, New Decatur, Ala., has been appointed to succeed him. Mr. McClary has been connected with the Sheffield Company since December, 1904. Prior to that he was for 10 years general manager of the companies which were taken over by the Birmingham Railway, Light & Power Company, Birmingham, Ala., and for two years after the formation of the Birmingham Railway, Light & Power Company he was manager of the railway department of the company under Ford, Bacon & Davis, New York, N. Y. Mr. McClary was vice-president of the American Street Railway Association in 1901 and 1902. He leaves the Sheffield Company to devote all his attention to the interests of J. B. McClary & Company, Birmingham, Ala., in the selling field. At the annual meeting of the stockholders of the Sheffield Company in New York, resolutions were adopted commending Mr. McClary for the ability which he displayed as general manager of the company and expressing regret at his retirement.

Mr. Charles F. Propst, second vice-president and purchasing agent of the Denver & Inter-Mountain Railroad, Denver, Col., has recently been elected president of the company. Mr. Propst has been with the Denver & Inter-Mountain Railroad since the line was equipped with electricity between Denver and Golden about a year ago. He was formerly in the lumber business with his brother in Paris, Ill., and later was manager of the Paris (Ill.) Traction Company. The Denver & Inter-Mountain Railroad is 22 miles long. The property of the company was described at length in the *ELECTRIC RAILWAY JOURNAL* of Oct. 2, 1909, page 513.

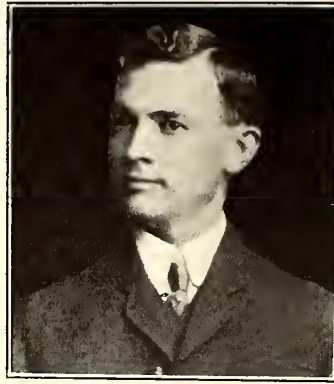


C. F. Propst

Mr. Britton I. Budd was elected president of the Metropolitan West Side Elevated Railway, Chicago, Ill., on Feb. 7, 1910, to succeed Mr. H. G. Hetzler, who has been elected president of the Chicago & Western Indiana Railroad, as announced elsewhere in these columns. Mr. Budd has been general manager of the Metropolitan West Side Elevated Railway since April 15, 1907, in charge of all matters pertaining to operation and the purchase of supplies. Mr. Budd has been connected with the company since the construction of the road in 1895. He started with the company as a clerk in the storekeeper's office, was storekeeper for five years, and in 1899 was appointed purchasing agent, a position he held until April, 1907, when he was appointed general manager. Mr. Budd retains the position of general manager of the company.

Mr. Howard G. Hetzler, who has been president of the Metropolitan West Side Elevated Railway, Chicago, Ill., for five years, has been elected president of the Chicago & Western Indiana Railroad, in which position he will have charge of terminal improvements in Chicago to cost about \$30,000,000. Previous to his election as president of the Metropolitan West Side Elevated Railway Mr. Hetzler was superintendent of the Chicago division of the Chicago, Burlington & Quincy Railroad, in charge of freight and passenger traffic. Mr. Hetzler began his railway career in 1886 in the engineering department of the Chicago, Burlington & Quincy Railroad, and in 1893 went to Chicago in the capacity of roadmaster of the company. Mr. Hetzler is 46 years old and a graduate of the University of Michigan. He has been elected a vice-president of the Metropolitan West Side Elevated Railway and will continue as a director of the company.

Mr. Frank L. Butler has been elected vice-president and a director of the Denver & Inter-Mountain Railroad, Denver, Col., and was recently appointed general manager of the company. Mr. Butler was born in Terre Haute, Ind., in 1874. When 20 years of age he began service with the Vandalia Railroad and was employed in various capacities in several different cities along the Vandalia railroad until February, 1909, when he was appointed to the position of superintendent of the Denver & Inter-Mountain Railroad, which had just been converted for electric operation between Denver and Golden, a distance of 22 miles.



F. L. Butler

Mr. Benjamin S. Hanchett, treasurer and general manager of the Grand Rapids (Mich.) Railway, has been elected president of the company to succeed Mr. C. M. Clark, Philadelphia, Pa., and will retain the title of general manager of the company. Mr. G. L. Estabrook will succeed Mr. Hanchett as treasurer of the company and will have the title of assistant secretary and treasurer. Mr. Hanchett has been connected with the Grand Rapids Railway and its predecessors continuously since 1883, when he entered street railway service in the office of the company after leaving the Grand Rapids High School. Soon thereafter he was promoted to the position of assistant bookkeeper and then to bookkeeper. In 1888 he was made chief clerk of the company. Subsequently he was made paymaster of the company and later was elected secretary of the old horse car system. Shortly after this the Valley City Street & Cable Railway purchased all the local lines in Grand Rapids and changed the motive power from horses to electricity. Mr. Hanchett was elected secretary and assistant treasurer of this company. In 1900 the railways in Grand Rapids were taken over by the Grand Rapids Railway in the interest of the present owners and Mr. Hanchett was elected secretary and treasurer of the company. In May, 1904, Mr. Hanchett was appointed general manager of the company to succeed the late G. Stewart Johnson, and was continued as secretary and treasurer of the company.

Mr. George Whysall, whose election as president of the Central Electric Railway Association at the annual meeting of the association which was held in Columbus, Ohio,



G. Whysall

on Jan. 27, 1910, was noted in the *ELECTRIC RAILWAY JOURNAL* of Feb. 5, 1910, page 231, has been connected with public service corporations since 1879, when he entered the gas field. Mr. Whysall first became interested in electric railways in 1892, and since then has devoted a constantly increasing part of his time to electric railway interests. In 1903 he became connected with the Columbus, Delaware & Marion Electric Railroad, and later became general manager of the company. He is an ex-president of the Ohio Gas Light Association, which was merged a few years ago with other associations into the American Gas Institute. Besides being a member of the Central Electric Railway Association, Mr. Whysall is a member of the American Street & Interurban Railway Association, the American Gas Institute and the National Natural Gas Association of America, and acts as consulting engineer for several gas, electric light and railway properties.

Construction News

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

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

RECENT INCORPORATIONS

***Lakeview Street Car Company, Pensacola, Fla.**—Application for a charter will shortly be made by this company to build a street railway over certain streets of Pensacola. Capital stock, \$20,000. Those interested are J. E. Baars, Jr., Theodore Baars and John W. Bullock, Jr., Pensacola.

***Chicago & Elmhurst Railway, Chicago, Ill.**—Incorporated in Illinois to construct an electric railway from Oak Park to a point in Addison Township in Dupage County. Incorporators: Henry Williford, Jr., Henry Fearing, F. D. Kilmer, A. J. Parker, F. W. Pringle and William Rawson.

***Hamilton, Carthage & Nauvoo Railway, Nauvoo, Ill.**—Incorporated in Illinois to build an electric railway from Carthage to Keokuk. Capital stock, \$2,500. Incorporators: R. R. Wallace, E. F. Jolidon, Harry M. Cuerden and Henry K. Denton, Hamilton, and James T. Hendricks and James McCarthy, Carthage.

Cincinnati, Newport & Licking Valley Railway, Cynthiana, Ky.—Incorporated to build a 65-mile electric railway from Cynthiana to Newport. Capital stock \$20,000. Incorporators: R. W. Ray, Scranton, Pa.; F. L. Fuller, New York, N. Y.; Wade Lail, Harrison Paterson, R. H. Rees, Cynthiana; and D. G. McVean, Covington. [E. R. J., Jan. 29, '10.]

***Westchester Northern Railroad, White Plains, N. Y.**—Incorporated with a capital stock of \$1,000,000 to operate a steam or electric railroad 45 miles long, of which 35 miles is to be in New York and 10 miles in Connecticut. The main line is to be operated from the New York, Westchester & Boston Railway at White Plains to the line of the New York, New Haven & Hartford Railroad at Danbury, Conn. There will be a branch line 14 miles long from Pound Ridge, Westchester County, to the New York, New Haven & Hartford Railroad in Putnam County. Directors: L. S. Miller, W. A. Cokely, New York; Allan Wardwell, Lawrence; R. P. Buell, Bayside; Robert T. Bird, Hartford, Conn.; James L. Crider, Mount Vernon; John C. Gleason, New Rochelle; Charles L. Nagle, Bayonne, N. J.

Reading (Pa.) Transit Company.—Incorporated in Pennsylvania with a nominal capital of \$10,000 to lease the property of the United Traction Company, Reading, and the Schuylkill Valley Traction Company, Norristown, from the Inter-State Railways. Incorporators: H. G. Louser, Lebanon; Geo. L. Roller, J. C. Murray and H. H. Reigel, Reading.

Bradford County Traction Company, Towanda, Pa.—Chartered in Pennsylvania to build a 3-mile electric railway in Towanda. Capital stock, \$5,000. Incorporators: G. L. Hill, Geo. W. Kipp, E. Whalen and T. L. Haverley. [E. R. J., Jan. 15, '10.]

***Wilkes-Barre (Pa.) Railway.**—Chartered in Pennsylvania to construct a 10-mile electric railway between Wilkes-Barre and Pittston. Capital stock, \$100,000. Incorporators: Thomas J. Connelly, Ashley, president; J. L. Dunn and E. J. Loughran, Wilkes-Barre.

***Brownwood North & South Railway, Brownwood, Tex.**—Incorporated in Texas for the purpose of building a 20-mile railway to connect Brownwood and May. Capital stock, \$30,000. Headquarters, Brownwood. Incorporators: Brooke Smith, J. A. Walker, R. B. Rogers, Henry Ford and J. J. Timmins.

***Walking Wheel Traction Company, Spokane, Wash.**—Incorporated in Washington with a capital stock of \$100,000. Incorporators: J. W. Wooley, Leo M. Casey, John T. Casey and O. W. Stone, Spokane.

FRANCHISES

***Pensacola, Fla.**—The Lakeview Street Car Company has applied to the City Council for a franchise to build a street railway on Sixteenth Avenue from Thirteenth to Fourteenth Streets; eastward on Fourteenth Street thoroughfare to Magnolia Street and thence to the city limits.

Beech Grove, Ind.—The Town Board has granted a franchise to the Beech Grove Traction Company to operate an electric railway through the streets of Beech Grove and to connect Beech Grove and Indianapolis. All of the right of way has been acquired and work will begin as soon as the weather permits. It is expected the railway will be in operation during the summer. W. H. Ogan, president. [E. R. J., Jan. 8, '09.]

Kokomo, Ind.—At an election held in Kokomo this week the voters refused subsidies to the Kokomo Western Traction Company, Kokomo, and the Kokomo, Frankfort & Terre Haute Traction Company, Frankfort. Each line asked for a subsidy of \$35,000 to be used in building a railway through Howard County.

East Grand Forks, Minn.—C. H. Anderson, representing the Grand Forks Railway, has petitioned the Council for a franchise to operate an electric railway through some of its principal streets. This is part of a plan to build an electric railway between Grand Forks and Oslo. [E. R. J., Feb. 5, '10.]

Akron, Ohio.—Thomas Childs, promoter of the Turkey Foot Traction Company, has applied to the County Commissioners for an extension of the franchise which was granted him some time ago. [E. R. J., May 8, '09.]

Clairton, Pa.—The Peters Creek Street Railway, which is to connect Glassport, Coal Valley, Wilson, Blair and Clairton, has been granted by the County Commissioners a perpetual franchise over the county road in Jefferson Township between Wilson and Clairton Boroughs. W. G. Wilson, Dravosburg, president. [E. R. J., Jan. 29, '10.]

***Regina, Sask.**—The City Council has received proposals for street railway franchises in Regina from J. W. D. O'Grady, Winnipeg, Man., and Messrs. Cost and Grant, Montreal, Que.

Centerville, S. D.—C. A. Magee, president, Sioux City, Sioux Falls & Missouri River Railway, Parkston, has applied to the City Council for a franchise to build an electric railway through Centerville. The route as planned will be from Sioux City to Sioux Falls via Elk Point, Centerville, Leeville and Worthing. [E. R. J., Jan. 29, '10.]

Spokane, Wash.—The Spokane Traction Company has applied to the City Council for a franchise to double-track and extend some of its local lines.

Janesville, Wis.—The Rockford, Beloit & Janesville Railway, Beloit, has applied to the Council for a franchise giving it the right to extend its electric railway in Janesville.

TRACK AND ROADWAY

Pacific Electric Railway, Los Angeles, Cal.—This company has been given authority by the War Department to erect two trestles over Cerritos Slough northeast of Long Beach harbor.

***Denver, Col.**—Press reports state that Joseph Monnette, Lawrence, Mass., and J. W. Emard, Montreal, Que., representing Canadian interests, are engaged in securing a right-of-way for an electric railway from Steamboat Springs to Hahn's Peak, Farwell Mountain and the Three Forks mining district of Colorado and Wyoming. Water rights have also been secured on the Snake River for power to operate the new line.

West Chester & Wilmington Electric Railway, Wilmington, Del.—At the annual meeting of this company it is stated that definite plans were made for building an electric railway this year, connecting Wilmington and West Chester. Surveys are completed and all rights-of-way secured. Officers elected: Lewis Dalmios, Philadelphia, Pa., president, and C. P. Faucett, West Chester, Pa., secretary and treasurer. Directors: Howard Ross, Wilmington; Charles Gleason, Brandywine Summit, Pa., and Sidney Kenney, Philadelphia, Pa. [E. R. J., Oct. 23, '09.]

Bayboro Investment Company, St. Petersburg, Fla.—This company advises that it will commence construction about March 1 on its proposed electric railway connecting St. Petersburg with its property. Officers: H. A. Murphy, president; C. A. Harney, vice-president; H. A. Kellam, secretary; H. C. Duet, treasurer; A. Welton, superintendent. [E. R. J., Jan. 29, '10.]

Decatur Southern Traction Railway, Decatur, Ill.—This company advises that it expects to commence construction within the next four months of its projected 35-mile electric railway which is to extend from Decatur to Elwyn, Macon, Walker, Moweaqua, Assumption, Dunkel and Pana. Surveys are made and all rights-of-way secured. Power station and repair shops to be built at Decatur. Capital stock, \$25,000. Officers: Joseph Nordenschild, 29 Broadway, New York, N. Y., president; Peter Chase, Decatur, vice-president and general manager; Henry C. Simons, Virden, Ill., secretary; John J. Pierpont, Pana, treasurer. All communications should be addressed to the company at Decatur. [E. R. J., Jan. 29, '10.]

Murphysboro & Southern Illinois Railway, Murphysboro, Ill.—This company expects to place contracts during the next four weeks, for building 70 miles of single track to Carbondale, Herrin, Duquoin, Carterville and Shawneetown. This company has just closed contracts with the Itawamba Engineering Company, St. Louis, Mo., for the trestle work from Third Street and Walnut Street, in Murphysboro, to the Big Muddy River, and the construction of a 229-ft. bridge. C. H. Clay, general manager.

Evansville, Mt. Carmel & Olney Electric Railway, Evansville, Ind.—This company has let the contract for the construction of its 64-mile railway which is to extend from Evansville, Ind., to Olney, Ill., spanning the Wabash River near Mt. Carmel, Ill., to Burns & Company, Chicago. All material will be purchased through Burns & Company. The line will pass through Highland, Darmstadt, Cynthia, Owensville, Mt. Carmel, Friendsville, Lancaster, Berryville and Olney. E. Q. Lockyear, secretary. [E. R. J., Mar. 27, '09.]

Indianapolis, Crawfordsville & Western Traction Company, Indianapolis, Ind.—It is stated that this company is planning to extend its railway from Crawfordsville to Veedersburg.

Covington & Southwestern Railway, Kingman, Ind.—At the annual meeting of this company recently held in Covington, J. J. Burns, Chicago, was elected president and added to the board of directors. The other officers were all re-elected. An order was placed with the Illinois Steel Company for 2500 tons of steel rails.

Southern Michigan Railway, South Bend, Ind.—It is stated that this company contemplates extending its railway 4 miles to Buchanan. M. P. Reed, South Bend, purchasing agent.

Motor Grand Traction Company, Belleville, Kan.—At a recent meeting of the directors of this company, which is promoting the construction of an interurban railway between Belleville and Wichita, E. N. Van-Hosen resigned as secretary and treasurer and was elected to the office of first vice-president and assistant manager. W. S. Ball was appointed treasurer, C. F. Davis, secretary. [E. R. J., Jan. 15, '10.]

Frederick (Md.) Railway.—Within the next few weeks this company will place contracts for building 2 miles of new track and a freight yard. W. S. Taylor, general manager. [E. R. J., Dec. 25, '09.]

Twin City General Electric Company, Ironwood, Mich.—During the next 3 months contracts will be placed by this company for building 6 miles of road bed. H. F. Pearce, purchasing agent. [E. R. J., Jan. 1, '10.]

Gulfport & Mississippi Coast Traction Company, Gulfport, Miss.—This company advises that it has placed contracts for the construction of about 6 miles of track. W. F. Gorenflo, Gulfport, purchasing agent.

Mexico, Santa Fé & Perry Traction Company, Mexico, Mo.—This company has begun the construction of its power house in Mexico and also on its projected electric railway which will pass through the Counties of Andrain, Callaway, Boone, Monroe and Ralls, Mo. Mexico, Perry, Fulton and Columbia will be connected by the new line. Mathias Crum, president.

***Winston-Salem, N. C.**—Francis D. Degiers is negotiating with representative citizens along the proposed line regarding the building of a 75-mile electric railway which will extend from Leakville, through Rockingham and Stokes Counties, to Mt. Airy.

Ohio Electric Railway, Cincinnati, Ohio.—This company expects to extend its Lima-Defiance division from its present terminus in Defiance, 2 miles, to the Second Street Anglaize River Bridge, three blocks from the Court House and business section.

Hocking-Sunday Creek Traction Company, Nelsonville, Ohio.—The section of this company's railway between Nelsonville and Athens has been completed and will be put into operation this week. McKeen gasoline cars will be used. The line will be in the form of a loop, one side of which connects Nelsonville and Athens directly. The other connects these two towns by way of Murray City, Goucester and several other towns of the coal mining district. [E. R. J., Nov. 20, '09.]

Grand Valley Railway, Brantford, Ont.—This company advises that it expects to place contracts during the next three months for the construction of 116 miles of interurban railway and 12 miles of city line. William P. Kellett, chief engineer.

***Arnprior & Pontiac Railway, Ottawa, Ont.**—This company advises that it will begin construction this season on its projected 75-mile electric railway which is to connect Ottawa, Fitzroy Harbor, Arnprior and Campbell's Bay. The line will connect with the Canadian Pacific Railway at Campbell's Bay and New Arnprior and with the Grand Trunk Railway at Graham's Bay. Power station and repair shops will be located at Fitzroy Harbour. Arthur Prince, 75 Somerset Street, Ottawa, chief engineer.

Portland, Eugene & Eastern Railway, Portland, Ore.—This company has agreed to build, for a bonus of \$35,000, several extensions to its lines, including a loop 5 miles in length out South Willamette Street past College Hill, then into the city again by way of Oregon Avenue, and at the intersection of Eleventh and Willamette Streets. A. Welch, purchasing agent.

***Pittsburgh, Butler, Slippery Rock & Grove City Railway, Butler, Pa.**—This company has recently been organized to construct a 20-mile electric railway between Butler and Slippery Rock via Prospect and West Liberty. Application for a charter will soon be made. Final surveys will be made during the next few weeks under the direction of F. E. Barrett, Pittsburgh. Connections will be made with the Pittsburgh & Butler Street Railway, and the Pittsburgh, Harmony, Butler & New Castle Railway at Butler, and with the proposed Slippery Rock & Grove City Railway. Officers: W. C. Thompson, Butler, president; J. A. Smith, Butler, secretary; W. C. McCandless, Butler, treasurer.

American Railways, Philadelphia, Pa.—This company expects to electrify the Scranton, Dunmore & Moosic Lake Railroad, 10 miles long, which it has recently leased.

***Orangeburg, S. C.**—Press reports state that William C. Wolfe and others are interested in a plan to build an electric railway to connect Orangeburg, North Springfield, Bowman, Elloree and Branchville. A plant on the Edisto River will generate the power.

***Austin, Tex.**—A syndicate composed of M. Hurley, J. S. Hansford and Paul Hurley is said to be considering plans for building a 50-mile electric railway between Fort Worth and Mineral Wells. The proposition is indorsed by the Board of Trade of Fort Worth. The survey for the proposed railway has been made.

***Quanah, Tex.**—It is reported that Wiley W. Lowry, Poteau, Okla.; Elmer S. Woods and Fox Woods, Fort Smith, Okla., are interested in a plan to construct a 35-mile electric railway from Quanah to Altus.

Metropolitan Steam & Electric Railway Company, San Antonio, Tex.—The Citizens' Club of Bandera has appointed a committee of three to confer with this company on a proposal to build an interurban railway from Boerne via Bandera to Hondo City. It is the intention of the club to donate the right-of-way through the county and terminal grounds. [E. R. J., Dec. 11, '09.]

Whatcom County Railway & Light Company, Bellingham, Wash.—This company states it contemplates the construction of a 33-mile interurban railway from Bellingham south to Skagit County. L. H. Bean, local manager.

***Sultan Railway & Power Company, Everett, Wash.**—Press report states that this company will construct a 16-

mile electric railway from the Great Northern power plant site, 8 miles, up the valley to the Forty-five, North Coast and Blackman mines. The company is under contract to the Government to begin construction of the railway before July 1, 1910. Judge Geo. D. Emery, promoter.

***Wenatchee, Wash.**—It is stated that A. J. Linville, C. B. Halbert and John Godfrey, Wenatchee; E. C. Long and Guy Long, Cashmere, are interested in a plan to construct an electric railway from Wenatchee through Cashmere and Peshastin to Leavenworth.

SHOPS AND BUILDINGS

Murphysboro & Southern Illinois Railway, Murphysboro, Ill.—This company expects to place contracts during the next four weeks for the erection of a new car house to have a capacity of 10 cars. C. H. Clay, general manager.

Southern Michigan Railway, South Bend, Ind.—This company is planning to build a new passenger station at Niles, Mich. M. P. Reed, South Bend, purchasing agent.

Lexington & Interurban Railways, Lexington, Ky.—The car house of this company, together with 13 cars and a snow sweeper were destroyed by fire on Feb. 4. Seven city cars, one freight car and the line construction car were also damaged. The loss is said to be \$60,000, fully covered by insurance.

Frederick (Md.) Railway.—During the next few weeks this company will place contracts for building new car shops. W. S. Taylor, general manager.

Old Colony Street Railway, Boston, Mass.—This company expects soon to place contracts for building a storage car house at Brockton to have a capacity of about 65 cars. Robert S. Goff, general manager.

Grand Rapids (Mich.) Railway.—It is stated that this company is considering plans for the erection of a new car house between Front Street and Court Street to cost about \$80,000.

POWER HOUSES AND SUBSTATIONS

San Francisco, Oakland & San José Railway, Oakland, Cal.—This company has placed an order with the General Electric Company for an additional 2700-kw railway generator set to be direct connected to Hamilton & Corliss engine furnished by Chas. C. Moore & Company.

Public Service Railway, Newark, N. J.—This company will build an addition to its power station at Marion, to be 75 ft. x 100 ft. and 75 ft. high. It is to contain ten boilers and will have a capacity of 18,000 kw. A. E. Sanford Company has been awarded the contract for the foundation piling, and the contract for the erection of the building has been let to the Hedden Construction Company. [E. R. J., May 20, '09.]

Oklahoma City & Suburban Railway, Oklahoma City, Okla.—This company expects to purchase 1 2000-kw turbine, 1 400-hp boiler and 5 500-kw motor generators. W. A. Haller, engineer.

Grand Valley Railway, Brantford, Ont.—This company advises that it expects to place contracts during the next three months for the erection of a new power house at Brantford to be equipped with 3 500-kw motor generator sets. Wm. P. Kellett, chief engineer.

Spokane & Inland Empire Railroad, Spokane, Wash.—This company has recently placed an order with the Westinghouse Electric & Manufacturing Company for a complete equipment of the second half of its power plant at Nine Mile, including 2 3000-kw generators, 2 3000-kw, three-phase, 6600-volt transformers, high-tension switches, apparatus, etc. The installation will be complete by June 1. The company has also contracted with the Westinghouse Electric & Manufacturing Company for 2 1500-kw synchronous motor generator sets, 4 2000-kw, 66,000-volt, single-phase transformers, switchboard and equipment. This apparatus is to be installed in the substation at Spokane.

Chippewa Valley Railway, Light & Power Company, Eau Claire, Wis.—This company has awarded a contract to the Amburson Hydraulic Construction Company, Boston, Mass., for the construction of a dam and power station at Cedar Falls on the Red Cedar River. The construction will cost \$300,000 and the equipment \$200,000. It is expected that 8000 hp will be developed. [E. R. J., Jan. 29, '10.]

Manufactures & Supplies

ROLLING STOCK

Columbus, Marion & Bucyrus Railway, Delaware, Ohio, will buy two interurban cars, it is rumored.

Murphysboro & Southern Illinois Railway, Murphysboro, Ill., will buy five new double-truck cars within the next four weeks.

Indianapolis & Louisville Traction Company, Louisville, Ky., it is reported, is planning to buy several new cars in the near future.

Oklahoma Railway, Oklahoma City, Okla., has placed an order with the Niles Car & Manufacturing Company for six 45-ft. vestibuled steel cars.

International Railway, Buffalo, N. Y., is remodelling 35 cars for pay-as-you-enter operation. Consolidated electric heaters will be used on these cars.

Citizens Railway Company, Waco, Tex., has ordered three single-end, one-man pay-as-you-enter cars, 20 ft. 8 in. in length, from the American Car Company.

Wichita Falls (Tex.) Electric Railway has ordered from the American Car Company four 34-ft. pay-as-you-enter cars, and four 60-ft. pay-as-you-enter trail cars.

San Antonio Traction Company, San Antonio, Tex., has ordered six semi-convertible pay-as-you-enter cars, 28 ft. 10 in. long over all, from the American Car Company.

Terre Haute, Indianapolis & Eastern Traction Company, Indianapolis, Ind., is having six cars built in its Greenfield shops. Standard Motor Truck Company's trucks were bought for use under these cars.

Lexington & Interurban Railways, Lexington, Ky., suffered a loss by fire recently of 13 cars and one snow sweeper which were entirely destroyed. Seven city cars, one freight car and a line construction car were damaged.

Interstate Railways, Philadelphia, Pa., mentioned in the *ELECTRIC RAILWAY JOURNAL* of May 29, 1909, as contemplating the purchase of some cars, has ordered eight cars for the Trenton Street Railway from The J. G. Brill Company.

Washington Railway & Electric Company, Washington, D. C., reported in the *ELECTRIC RAILWAY JOURNAL* of Dec. 18, 1909, as expecting to order 50 cars for city service, has placed an order with The J. G. Brill Company for this number of pay-as-you-enter cars.

Grand Rapids (Mich.) Railway has placed an order for 12 pay-as-you-enter cars with the American Car Company. These cars are to be exact duplicates of the order for the same number of cars which was placed by this company in 1909. Peter Smith heaters were specified.

Seattle-Everett Traction Company, Seattle, Wash., mentioned in the *ELECTRIC RAILWAY JOURNAL* of Dec. 18, 1909, as having ordered six interurban motor cars from the Niles Car & Manufacturing Company, has prepared the following details: Length of body, 40 ft.; over vestibules, 51 ft.; over all, 52 ft.; width over all, 9 ft.; semi-steel body and underframe; Standard Steel Works Company's axles and Baldwin trucks.

TRADE NOTES

Gilsim Lubricator Works, Utica, N. Y., has moved from 67 Jay Street to 158 Genesee Street, Utica.

Railway Audit & Inspection Company, Philadelphia, Pa., has moved from 1013 Arch Street to 508 Brown Building, Philadelphia.

Standard Underground Cable Company, Philadelphia, Pa., has moved from the Betz Building to 1510 North American Building, Philadelphia.

Standard Varnish Works, New York, N. Y., have certified to the Secretary of State of New York that the capital of the company has been increased from \$2,000,000 to \$2,600,000.

Baldwin Locomotive Works, Philadelphia, Pa., received an order from the Portland Railway, Light & Power Company, Portland, Ore., which operates more than 225 miles of city and suburban railway, for two motor trucks.

Cooper Heater Company, Dayton, Ohio, elected the following officers at its semi-annual meeting last month: E. J. DeVille, president; W. L. Blackwell, vice-president; F. W. Gruen, secretary and treasurer. Mr. Blackwell, in addition to filling the office of vice-president, will for the present act as eastern sales manager. W. E. Hinmon has been appointed western sales manager.

New York Car & Truck Company, Kingston, N. Y., reports that the Supreme Court of the United States rendered a decision on Jan. 17, 1910, in the case of The J. G. Brill Company vs. the Washington Railway & Electric Company, Washington, D. C., based upon the alleged infringement of certain claims in patents 627,898 and 627,900 on trucks. The Peckham trucks used by the defendants were held by the court not to infringe these claims.

Michigan Steel Boat Company, Detroit, Mich., announces 20 different designs of rowboats for the coming season. The steel boat is especially well adapted for use in street railway parks as it needs no boat house, does not bother the owner with gunwales or broken oarlocks, and affords opportunity for the utmost grace in design. The company is offering for 1910 an unusual number of patterns of rowboats at low prices which are illustrated and described at length in new catalogs.

Mitsui & Company, Ltd., New York, N. Y., announce that they have transferred their business to a corporation formed in Japan with a capital of about \$10,000,000, fully paid in, under the firm name of Mitsui & Company, Ltd., in America and Europe, Mitsui Bussan Kaishiki Kaisha in Japan, and Mitsui Bussan Kaisha, Ltd., in other parts of Asia. The head office of the company will be at No. 1 Suruga-cho, Nihonbashi-Ku, in Tokio. The incorporation of the company was decided upon for family reasons and will involve no interruption or change in management of the business.

J. G. White & Company, Inc., New York, N. Y., announces that to assist in caring for their increasingly important irrigation and hydraulic work, they have recently added I. W. McConnell to their staff of hydraulic and irrigation engineers, with the title of chief irrigation engineer. Mr. McConnell was recently supervising engineer of the United States Reclamation Service, and is well known in connection with the Gunnison tunnel. As chief irrigation engineer for J. G. White & Company, Mr. McConnell will have general supervision of all matters relating to irrigation undertakings, with headquarters at the main offices of the company, at 43 Exchange Place, New York, N. Y.

Columbia Machine Works & Malleable Iron Company, Brooklyn, N. Y., is planning to build, this spring, a 56 ft. x 150 ft. extension one story high with gallery, to be used more particularly for the manufacture of gear cases. Accommodations will be provided, however, for handling the company's shop-tool specialties such as axle straighteners, pinion pullers, armature banding and heading machines, coil winders, armature trucks, pneumatic pit jacks, etc. The company's need for more room indicates that it has had a prosperous year. In fact, the company reports that during the last four months of 1909 the volume of business was as great as that previous to the depression of 1907.

International Steel Tie Company, Altoona, Pa., held its first annual meeting of stockholders on Jan. 14, 1910. W. P. Day, first vice-president and general manager of the company, in his report set forth at length the progress of the company and made a number of recommendations, among them a plan to issue \$50,000 of stock to establish the manufacturing plants necessary for filling the orders already on the books. This was approved. The assembly factory at Johnstown will be pushed to completion as rapidly as possible. The location of the site for the fastener factory has not been settled. The following officers were elected: V. A. Oswald, president; George Harpham, secretary; S. M. Hoyer, treasurer; W. P. Day, manager.

H. M. Byllesby & Company, Chicago, Ill., held a convention of officers and department heads of the company at Chicago, in January. About 150 representatives from the 11 cities in which Byllesby & Company operate public utilities and from the home office in Chicago were in attendance. The purpose of the association, as stated in the constitution, is "the interchange of ideas and the promo-

tion of acquaintanceship and good feeling among officers and employees." Arthur S. Huey, vice-president of Byllesby & Company, presided at the sessions, which were held in the Auditorium Annex. The convention was concluded with a dinner at the Auditorium Annex, at which C. A. Coffin, president of the General Electric Company; Samuel Insull, president of the Commonwealth-Edison Company, Chicago, and Charles G. Dawes, president of the Central Trust Company, made addresses. A number of very interesting papers were read, among them "Power House Construction and Economic Operation," by H. Boyd Brydon, "Successful Utility Management," by Arthur S. Huey, and "Street Railway Operation," by J. N. Walter Gillette. It has been decided to hold similar conventions hereafter twice a year, in January and July. The association will be known as the Association of H. M. Byllesby Companies. Officers have been elected as follows: F. H. Tidnam, Oklahoma City, president; H. J. Garrison, Fort Smith, Ark., secretary; Errett L. Callahan, Chicago, assistant secretary.

ADVERTISING LITERATURE

Hydrostatic Machinery Company, Rochester, N. Y., has issued a 24-page publication entitled "Hydraulic Machinery," in which its products are described and illustrated.

Wagner Electric Manufacturing Company, St. Louis, Mo., has issued Bulletin No. 89, dated December, 1909, in which its type B. W. polyphase induction motor is described and illustrated.

C. A. Wood Preserver Company, Austin, Tex., has issued a card on which is reproduced a photograph showing part of the equipment required in the manufacture of C. A. Wood Preserver.

Stromberg-Carlson Telephone Manufacturing Company, Rochester, N. Y., has issued Booklet No. 201, in which the company's flush and non-flush types of inter-communicating telephones are described and illustrated.

Joseph Dixon Crucible Company, Jersey City, N. J., has published Graphite for January, 1910, which is the first issue of Volume 12. The principal article is by W. H. Wakeman on "The Prevention of Corrosion of Steel Machinery."

American Carbon & Battery Company, East St. Louis, Ill., has issued a price list of its street railway motor brushes effective Jan. 1, 1910, and a price list of its motor and generator brushes effective Jan. 1, 1910. A number of brushes of new grades are included in the publications.

Goheen Manufacturing Company, Canton, Ohio, has prepared an illustrated pamphlet showing a number of important steel structures which have been painted with its "Carbonizing Coating," a preservative paint which it is claimed will prevent rust and corrosion from fumes.

J. G. Brill Company, Philadelphia, Pa., in the *Brill Magazine* for January, 1910, has begun the publication of a series of biographical sketches accompanied by portraits. The subject of the first sketch is Gen. Geo. H. Harries, second vice-president of the Washington Railway & Electric Company, Washington, D. C. Among the feature articles are the following: "Conditions which Govern the Type of Car for City Service," "Eighteen-Passenger Motor Omnibuses," "Two Types of Coal and Ash Cars," "Passenger Cars for the American Railroad of Porto Rico," "Double-Deck Cars for Natal, South Africa," "Equipment for the British Columbia Electric Railway Company."

Western Electric Company, New York, N. Y., has issued a neatly arranged and illustrated booklet in which are described the company's various types of intercommunicating telephones, its cable terminal, connecting block, batteries and battery boxes used in connection with these sets. The company has also issued Bulletin No. 5230, in which its Hawthorn type of "SL" induction motor is described and illustrated. A new trade name has been adopted by the company for the telephones heretofore known as inter-communicating or private line telephones. They will be known hereafter as Western Electric inter-phones. Another publication of the company contains a detailed description of the company's Hawthorn carbon and flaming arc lamps and illustrations of the latest types of Hawthorn lamps and the Hawthorn works.