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Rounding Out the Motorman's Instruction

The Brooklyn Rapid Transit Company's elaborately equipped instruction car for elevated service, described elsewhere in this number, shows the length to which operators of modern heavy electric railway equipment go in training their men in the careful operation of their trains. It is true that many managers believe that the motormen of city surface railway cars need know little more about their equipment than how to cut out a defective motor or to replace a fuse. But the conditions are different with frequent high-speed service, whether elevated or subway, and the trend of practice is toward giving the men a thorough education at considerable expense. This means that the instruction of several weeks in the regular schedule operation of a train must be supplemented by lessons on a specially equipped instruction car, where the student can see more than the covers of his apparatus. The prospective motorman seldom has any technical knowledge either of the electrical or braking equipment, and it is therefore essential that their details should be explained to him in a thorough manner. The experience of the Brooklyn company with this method of instruction has been so satisfactory that the elevated trainmen and the yard attendants also have been taken into the course. As a result, the management can feel confident that no matter where an emergency may arise in its elevated service at least one competent substitute will be on hand to take care of the train.

Publicity Through Civic Boards

Mr. Sylvester's paper on electric railway advertising presented at the Jan. 25 meeting of the New England Street Railway Club and abstracted in our issue of Jan. 29 contains some excellent suggestions on cultivating the good will of the public through the medium of commercial clubs, boards of trade and similar organizations. Every railway company certainly ought to be represented in such local bodies because the latter are so frequently the source from whence many complaints arise against the traction service. Some of these complaints are bona fide, but others are brought up by chronic kickers or by individuals who have some axe to grind. In either event, it is well to have some one on hand at the meetings to present the railway's side of the case, if necessary, before false impressions can take hold. By belonging to bodies of this kind also, it is possible for railway managements to gage accurately the quality of their membership and the extent of their influence. Often an organization with a most grandiose title is composed of nothing more than half a dozen real estate speculators. In one instance, the same individuals who were posing as a group of public-spirited citizens desirous of ridding their district of an abandoned power station actually had organized for no other purpose than to force the railway company to sell its

property to them at a sacrifice. On the whole, however, civic societies offer an excellent field for publicity as they are generally composed of representative tax-payers in the community. One of the largest railways in the East is now planning an illustrated lecture campaign whereby every prominent body of this kind will be familiarized with the daily problems confronting this electric railway in satisfying the needs of its patrons. In the past three or four years this company's president or manager has delivered an address on traction matters at the annual banquets of the more important organizations and it is hoped that the new plan will be even more successful in promoting good feeling between the company and the public.

The Central Electric Railway Association

The Central Electric Railway Association was organized Jan. 25, 1906, by the amalgamation of the interurban railway associations of Ohio and Indiana. The annual meeting of the association held last week in Columbus, Ohio, therefore marked the completion of the fourth year of its existence. It must have been most gratifying to the members to learn that the year just ended had been a prosperous and satisfactory one in every sense. The financial report showed a comfortable surplus in the treasury with no outstanding bills, in spite of heavy expenses incurred in carrying on the diversified work of the parent association and its offspring, the Central Electric Traffic Association. The membership now includes 47 companies with an aggregate of 3531 miles of track and interest in the work of the association shows no signs of lagging.

The value to its members of such a strong organization as this has grown to be cannot be measured in words. The interests of all the interurban roads in the Middle West are becoming each year more closely identified as connecting lines are built and new avenues of through traffic are thrown open. The problems of one road are the problems of its neighbors and the association meetings are the clearing house for the interchange of knowledge and experiences. If there had been in the last four years no tangible or intangible result of its work other than the launching of the Central Electric Traffic Association the members might still be proud of their organization. There have been other results of great benefit to all, among which could be named the adoption of uniform operating rules and standards of equipment, the formulation of equitable rules for interchange of cars, and, of most importance, the creation of a harmonious spirit of co-operation in all matters of common interest.

The Central Electric Railway Association is not in any sense a rival of the American Street & Interurban Railway Association. Nearly all of its members are also identified with the national body. The presidents of three of the four national associations affiliated with the American Association, and the first vice-president of the latter body, are associated with companies which have always taken an active interest in the work of the Central Electric Railway Association. The latter, like the other sectional and State organizations, has its own problems to solve, and as its membership is made up of a smaller number of companies, with less diversified interests than the national body, it can undertake work entirely outside of the scope of the latter organization. The members of the Central Electric Railway Association who have given it their loyal support are to be congratulated upon the accomplishments and standing of the organization, and we extend to them our best wishes for its continued success.

Midyear Meeting of the American Association

The plan of holding a midyear meeting in New York of the American Street & Interurban Railway Association proved so successful last week that undoubtedly the association will continue the practice next year and in the future. The attendance was good and equal to, if not larger than, those at the annual meetings of the association. The discussion was well maintained and we believe that all those present will carry away new ideas and a clear conception of the viewpoints of other managers on questions of policy which will far more than repay them for the time required to be present. In the committee meetings of the previous day, of which altogether 12 were held, action was taken on work to be pursued during the coming year.

Probably the most important feature of popular interest at the midyear meeting was the address of President Shaw at the banquet Friday evening, when he emphasized his well-known views on the future policy of the association and illustrated his remarks by referring to various recent events of street railway interest.

According to President Shaw the conditions now surrounding the average city railway property are such as not only to discourage the investment of capital for extensions and improvements, but even to militate against the supply of good service. Concurrently with a rapid increase in the cost of materials and labor during the past few years there has been almost as rapid a decrease in the receipts per passenger-mile, on account of the wider use of transfers and the longer rides furnished. In many instances the margin now between receipts on the one hand and operating expenses plus fixed charges on the other is so small that it is only by the most rigid economy that the properties can be kept solvent, while in a still larger number of instances the return paid on the money actually invested on the properties is so small as to discourage any further development of the street railway facilities. This is a condition which is desirable neither for the companies nor for the cities in which they are located. President Shaw outlined the remedies possible, but he stated that practically they could be applied only in communities where their justice and necessity are recognized by a majority of the intelligent electorate. Hence he advocated a policy by which electric railway companies would welcome an impartial examination of their affairs by those interested and concerned in the welfare of the communities in which these companies operate. Brief sketches of recent street railway history in Kansas City, Cleveland, New York and Massachusetts were given to illustrate the force of these remarks.

In one sense, the situation, so far as the railway companies themselves are concerned, is improving. The policy heretofore actuating practically all companies has been to build extensions liberally into unprofitable territory, to keep up with the population and with the hope that ultimately they will prove valuable additions to the system. But if this plan is no longer followed, the traffic on most systems will increase with the natural growth of the population, and where the congestion is not too great and the average length of ride not too long, this additional traffic will be profitable. But this is not a condition consistent with the proper development of the community nor is it a desirable one for the railway company itself except where no other plan is practicable. Its interests, broadly speaking, lie with those of the community which it serves, and, to obtain the best results for both city and company, each should gain as the other prospers.

Transportation and Urban Development

A goodly number of interurban electric roads have been projected recently in territory already well occupied, and their rights to a place in the world of transportation naturally hinges upon the question of their public utility. This point is vigorously claimed by their promoters and as vigorously denied by every steam railroad whose lines traverse the territory it is proposed to occupy. Now, the essential point of the whole controversy seems to us to be the following: whether by the building of the proposed road the collective John Smith, so to speak, will be the more readily able to go about his business, and whether his property will through greater accessibility become desirable for homes for others of his kind.

If one examines carefully a map of almost any section of the country he will readily see that while in many districts steam railroads have done admirable service in opening up the country, they touch immediately a comparatively small extent of territory. A given railroad line, be it steam or electric, does not open up a broad area even under the most favorable circumstances; not even in interurban territory, let alone suburban. The ordinary steam road, with its customary line of stations, practically serves a residence space only from one to two miles in width, or rather a series of overlapping or adjacent circles, half a mile to a mile in radius. In almost any suburban territory the effect of placing these stations is evident by the growth of a series of villages, each of comparatively small extent. These towns, strung like beads along the railway line, extend out radially, because about most American cities belt railways are of rare occurrence, and between these lines there is often a great deal of desirable but undeveloped territory surprisingly near to the urban center of population.

The fast interurban line has done sterling service in extending the hour radius, if one may so call it, within which it is feasible to live and do business in the city. This extension is due to the speed, and brings into availability much added territory by linear expansion, so to speak, even though the strip served still remains comparatively narrow. It seems logical to expect that our cities are to keep on growing rapidly, and they absolutely need more territory into which to expand. Residence area is absolutely necessary in order to keep down living expenses, and if it cannot be had by existing steam lines, it seems highly important that it should be obtained by the expansion outward given by fast electric service. A steam road, once established through a given territory, may reasonably expect to keep up its traffic earnings if it keeps up its service, for it has already pre-empted the territory naturally tributary to it. If it does not keep up its service it certainly has no right to demand the suppression of proposed lines to make up for its deficiencies.

The experience of some years shows that population follows the trolley out into suburban districts, and this tendency ought certainly to be encouraged by the supply of the best facilities for transportation which can be made available. Moreover, interurban lines, where the terminals are reasonably large, so as to give suburban as well as through service, have very generally made good from a financial standpoint, and there is every reason to expect that they will continue to do so. Investors are not risking their money for fun in roads which are unlikely to pay, and in most cases it seems to us that if investors wish to invest in an interurban line in the belief that

it will be profitable, no hindrance should be put in the way of their desire. The mere fact that some of the steam roads are afraid of losing their less favorably situated traveling public is not really a thing which would weigh heavily against the desire of the public for better facilities.

Tracing the effect of interurban and suburban roads on population and property values shows plainly that transportation facilities such as they afford are a good thing for the community at large, and their building should therefore be encouraged at every reasonable opportunity. American cities are growing, not through normal increase of population, but through an extraordinary rapid aggregation, and no theories based on normal increase from census to census bear any definable relation upon the probable traffic that can be gathered by well-designed and carefully operated transportation systems.

Stealing Railway Property

Some interesting experiences were related at the Columbus meeting of the Central Electric Railway Association last week, of the theft from interurban cars in the Middle West of different portable articles. The ingenuity displayed by dishonest persons in sequestering such property belonging to the company as lanterns, brooms, brasses, camp stools, shackle bars and even rear doors would have brought delight to the heart of Mr. Fagin, were that worthy gentleman now alive. Electric railways in all parts of the country have long suffered from the depredations of copper thieves and many of them undoubtedly have undergone losses from thievery of car supplies and equipment which when perpetrated on the scale described constitutes a larger loss than that from purloined bonds. Many of the articles which disappear have little or no intrinsic value as junk or second-hand material, yet the very articles which have the least value are most frequently missing. It is next to impossible to keep brooms on cars, and thermometers, feather dusters, water buckets and switch irons vanish like thin air.

All of the checking schemes which have been devised attempt to put the responsibility for loss on the crew which had the car in charge when the article or articles disappeared, but it is hardly fair always to place the blame or the burden of making good the value of the missing equipment entirely on them. Employees may occasionally appropriate some of the company's property to their own use, but in the vast majority of instances the crews are no more to blame than the general manager. They cannot see everything going on inside and outside of the car nor can they search every alighting passenger to make sure that he is not concealing a feather duster up the back of his coat or a camp stool in his suit case. One company in Western Ohio discovered, merely by chance, that a regular passenger on its cars made a practice of entering the lavatory just before the car passed his home and throwing out of the window the broom and feather duster which were hung inside on hooks. This is petty thievery, but severe measures to break it up are warranted. It is worth while to spend \$100 to prosecute to the limit a thief who steals a 25-cent broom or brass fitting if just for the moral effect. A few convictions would go farther toward stopping the practice than attempting to put everything movable on a chain or under lock and key. The junk dealers who buy parts stolen from electric railway cars need to be warned by one or two severe lessons quite as much as the traveling public. They have long since ceased to buy steam

railroad junk because they know it is dangerous to be caught with the goods, and with the exercise of the same vigilance and determination to stop thievery on the part of electric railways, we believe the trouble would soon almost entirely cease.

Apprentice Courses for Transportation Positions

Elsewhere in this issue an account is published of a course which has been followed on the Boston Elevated Railway with the idea of training men for the transportation department, and as this was the first phase of the work considered by the committee on education of the American Association, and as several companies have since adopted regular courses leading to this end, an account of the plan followed in Boston will be of interest. The course has been taken by but one student, and the trial is too recent to give an idea of its general success, although the experiment has extended now over somewhat more than three years. The fact, also, that one young man has gone through a schooling and has profited by it does not necessarily mean that others would do so any more than the reverse would be the case. The ultimate value of the plan must be determined by results secured by a good many cases, although the experience in other lines of work is a sufficient indication that in its main principles it is correct.

Success in the establishment of any apprentice course of this kind depends largely upon both the apprentice and the company taking a broad view of the conditions. In a sense, each is making a sacrifice. The apprentice devotes three years or more to work in which the hours are long and more or less broken, and for which the pay is small, with the sole object of laying a foundation for his future career in railway service. If, before beginning the work, he has taken a college course, he will probably be 25 years of age or over before beginning his life work, so far as financial returns are concerned. Moreover, his expenditure of time and money will be largely thrown away if, during or after his course, he is compelled to abandon the work for more remunerative employment.

On the other hand, the expenditure made by the company is even greater and more speculative than that made by the student, because it has no guarantee that his opportunities will be grasped, or if taken to heart will be used later to the advantage of the company conducting the course. While the railway company pays the student the regular workman's wage it is not getting full value for its money. He is continually a beginner and is, like all beginners, an expense in material and equipment and in time spent by more experienced men teaching him. The student no sooner learns the work and begins to be an asset than he is removed to start learning some other branch. Thus both parties give time and capital to the other, and if either or both are too intent on profit each will suffer a loss and force a loss upon the other.

If the company persists in paying a low salary to the man after he has been educated he will be driven through necessity to seek employment elsewhere. This may tend, if he continues in street railway work, to broaden him and make him of more value to the first employer later in life, and if he has been diligent and has acquired a good knowledge of electric railway practice he will serve as a fine example of the company's methods. But such a course would be more apt to result in the student taking up some entirely different line of work and losing his investment of time as well as the company losing its investment of money. On the other hand, if the student

is too persistent in his demand for higher salary he will force the company into dispensing with his services.

In carrying out a plan of this kind the higher officials of the company should give the student or students personal attention and allow the course to have enough elasticity to provide for different temperaments and capacities. They must win the respect as well as the gratitude of the student. They must exercise great care in the selection of men, so that those unfitted for the course may save attempting it to their mutual loss.

The student taking a course like this must enter it with a full understanding of the effort entailed and the possible results. He must realize the position of the company and what it is doing for him, and must have the firm intent of proving worthy of the trust and effort made in his behalf. He must be willing and able to sacrifice a purely financial gain and content himself with a moderate return. Above all, he must not look on this sort of a plan as an easy road to high positions, but must appreciate the fact that his continuance and progress with the company depend wholly on his own efforts, and that he is morally bound to excel all men with whom he comes in contact in his work.

Individual Accident Policies and Damages

The effect of a settlement by an insurance company with whom an injured motorman had an individual accident insurance policy was passed upon last year by the United States Circuit Court of Appeals in a case against the Puget Sound Electric Railway Company brought by a motorman named Van Pelt. His duties required him to ride in a small motorman's compartment, and, by the explosion of a fuse, he received serious injuries to his eyes, for which a jury awarded him \$2,000.

On the trial evidence was offered by the company tending to show that at the time of the accident the motorman's policy provided that the insurance company should be liable to the insured, in case of permanent disability arising from such an accident, for a period of 12 months' total disability. The company also sought to show that two months after the accident the plaintiff freely and voluntarily settled with the insurance company in consideration of a sum equal to what he would have been entitled to receive under his policy for four months' total disability and two months' partial disability. The trial court refused to receive this evidence, and it was contended on appeal that this exclusion constituted reversible error. The Federal Appellate Court held, however, that no error was committed. While there was a dissenting opinion, it does not discuss this particular point, so the decision may, in this regard, be looked upon as unanimous.

While it is true, the court said, that if Van Pelt, in his settlement with the insurance company, made admission of any fact which would tend to contradict the allegations of his complaint against the railway company, evidence on this point would have been admissible, but it considered that a settlement made two months after the accident on the terms of which proof was offered and excluded, did not contradict in any degree the averments of the complaint, filed nearly four months after the accident, as to the serious character of the injury. While the verdict was sustained on other grounds as well, this point is of general interest because of the large number of employees who carry accident policies and recover benefits from them as well as from their employers.

The Latest Cleveland Ordinance

The ordinance granting a renewal of the franchises of the Cleveland Railway Company, on which citizens of Cleveland will vote on Feb. 17, contains a number of terms differing in important respects from the measures which have been under consideration previously in connection with the negotiations for a settlement of the street railway situation in Cleveland.

The preamble to the ordinance recites that it is agreed that a complete readjustment of the situation should be made upon terms that will secure to the owners of the property security of their investment and "a fair and fixed rate of return thereon," and will secure to the public the largest powers of regulation and the best transportation at cost "consistent with the security of the property and the certainty of a fixed return and no more." This statement underlying the new ordinance represents clearly the ideas of Judge Talyer, of the United States Circuit Court, who, as arbitrator, has directed the main terms of the measure to be placed before the public of Cleveland for acceptance or rejection.

The primary provision of the ordinance is that it grants the company a renewal of rights until May 1, 1934. It has been pointed out in previous issues of this paper that the ordinance which has been drawn to embody the ideas forming the present basis of settlement is founded upon a predetermined schedule of fares in which there is some room for revision downward, an arbitrary valuation somewhat similar in method and results to the last preceding valuation and a rate of dividend which, although fixed definitely at 6 per cent per annum, is subject to penalty by temporary reduction in the event of failure of the company to abide promptly by the decision of a board of arbitrators upon any point which may be in controversy.

It is in accordance with these fundamental provisions of the settlement that the ordinance recites that "for the purpose of fixing from time to time the rate of fare to be charged by the company and the return to the company for the service rendered by it to the public" and for the further purpose of fixing the price at which the property may be purchased, the capital value is declared to consist of various items, which are specified in detail. These values, aggregating \$24,091,049.53, include bonded indebtedness of \$8,128,000, floating indebtedness as of Jan. 1, 1908, of \$1,288,000, and the balance of \$14,675,049.53, to which \$550.47 was added in order to equalize the stock value, making for the residue of the capital value \$14,675,600.

To this amount additions may be made from time to time in accordance with sections of the ordinance providing for increase of the capital account under certain restrictions. Various provisions, however, regulate the terms upon which the securities may be issued. The stock may not be sold for less than par. Bonds may be sold for less than par with the consent of the city. Floating debt may not be increased except as may be necessary to capitalize the debt enumerated in the ordinance or to provide for such extensions, betterments or permanent improvements as the terms of the ordinance contemplate shall become a part of the capital value. No restriction is placed upon the company if it chooses to sell its stock or increase its bonded or floating debt without the consent of the city, but no such increase shall be considered a part of the capital value under the ordinance unless made in pursuance of its provisions.

Wide latitude downward is stipulated in the section of the ordinance regulating the rate of fare, but the maximum possible is 4 cents, with seven tickets for 25 cents and 1 cent for a transfer without rebate, while the possible minimum rate of fare runs as low as 2 cents with 1 cent for a transfer and 1 cent rebate when the transfer is redeemed. To regulate transfer abuse it is provided that the company shall not be required to furnish a round trip for a single fare. The rate of fare is to be regulated according as the sum in an "interest fund" remains above or below \$500,000.

The "interest fund" of \$500,000 is to receive all earnings of the company after the payment of the allowances for operating expenses, depreciation, renewals and maintenance. Interest and dividends will be charged against the funds. Any surplus remaining in the fund above \$500,000 is to constitute a fund to be absorbed in the reduction of fares.

For current operating expenses the ordinance allows 11.5 cents per motor car-mile and 60 per cent of this figure, or 6.9 cents, per trailer car-mile. In addition to these sums, fixed deductions are to be made from gross revenues each month, which shall be placed to the credit of the maintenance depreciation and renewal account. In January, February, March, April, May and December 4 cents per car-mile is to be allowed. In November 5 cents per car-mile, in June, July, August, September and October 6 cents per car-mile. If not needed for immediate maintenance or renewals, this sum shall be accumulated and may be invested from time to time in the bonds of the company or in payment of floating debt, provided that such debt forms part of the capital value of the company. These allowances may be increased or decreased by agreement between the city and the company so as to enable the expenses of operation, including the costs of insurance, accident and damage claims, to be met.

Supervision on behalf of the city is to be exercised by a city street railroad commissioner, who, with broad powers, is to act as a technical adviser to the Council in all matters affecting interpretation of the ordinance and all actions affecting the service, the cost thereof, or the rate of fare.

While there are various other provisions affecting the terms of operation, some of which are not dissimilar from many other ordinances, the principal additional section is that relating to the possible purchase of the property by the city or by another firm, person or corporation. In the event of purchase by the city the price shall be the capital value plus 10 per cent. The right to purchase may be exercised at any time when the city has the legal power, upon six months' notice. After Jan. 1, 1918, the city may designate any firm, person or corporation to purchase the property upon the same terms, except that the licensee in this event shall agree to accept a return by at least one-quarter of 1 per cent smaller than the 6 per cent permitted on the stock by the ordinance under consideration. In case of expiration of the grant without the exercise of the foregoing provisions for purchase, the city reserves the right to purchase at such price as may be agreed with the company or upon failure to agree, then for such price as may be determined by a board of arbitration. The price which the city would pay in this case would be the value of the property for street railroad purposes. The cost of reproduction would be estimated and a reasonable amount deducted for depreciation. To the total valuation of the physical items, as thus determined, 10 per cent would be added.

RE-EQUIPPED ELEVATED INSTRUCTION CAR OF THE BROOKLYN RAPID TRANSIT SYSTEM

The Brooklyn Rapid Transit System has just finished the re-equipment of its elevated instruction car to make it complete and the best of its kind in every particular. Primarily, the changes and additions were made necessary by the recent adoption of the new Westinghouse A M L and A T L graduated release, quick recharge brake for all elevated cars. How-

the simple and attractive manner afforded by the illuminated boards. The car was built and equipped by the mechanical department at the eastern division elevated shops for the elevated division of the transportation department. It is maintained by the former department at whatever inspection shop it happens to be during the instruction periods.

ELECTRICAL EQUIPMENT

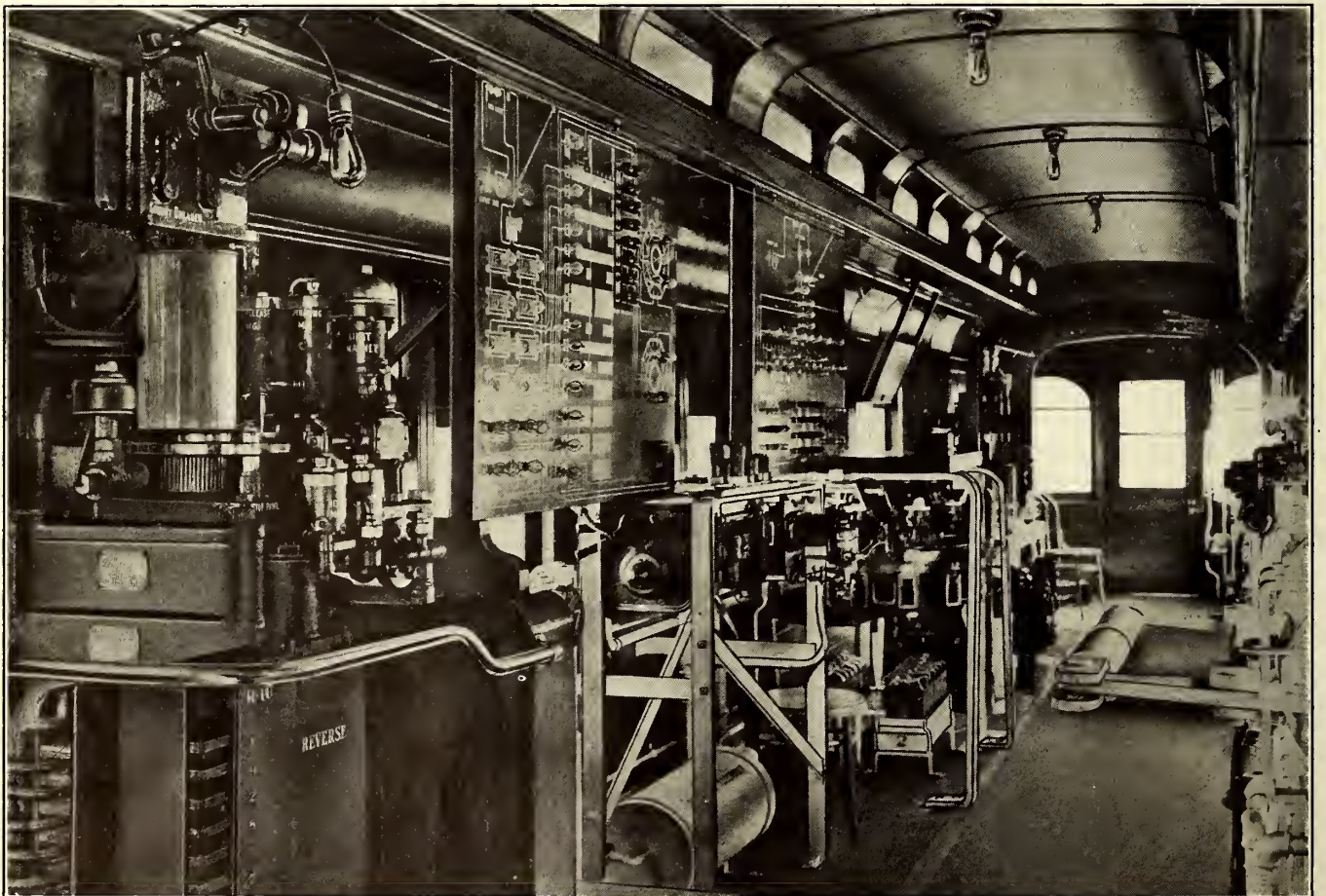
The electrical equipment on this car consists of single complete sets of the Westinghouse 131 and 160 control and the



Brooklyn Instruction Car—General View of Car After Its Re-equipment

ever, advantage was taken of this improvement to elaborate the instruction features of the electric control equipments by the installation of illuminated instruction boards. Thus when

Type A B unit switch group control, together with sample motor car and trailer-switch cabinets with references to where these cabinets are placed on the different types of cars. The



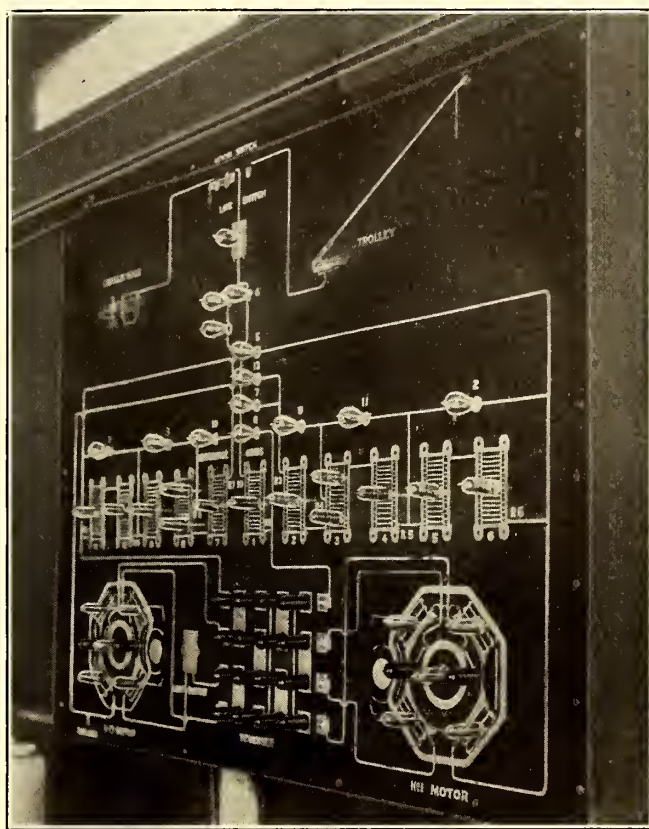
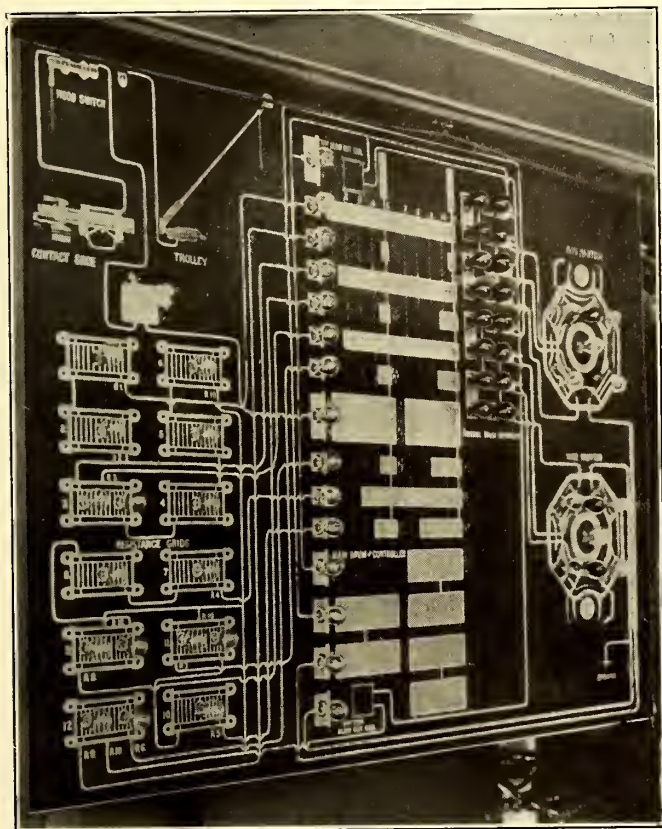
Brooklyn Instruction Car—Electrical Side, Starting from the Drum Control

the motormen now go through the instruction course, they will not only become familiar with the very latest form of braking and draft-rigging equipments in use but will also have the opportunity of studying the electrical operation of trains in

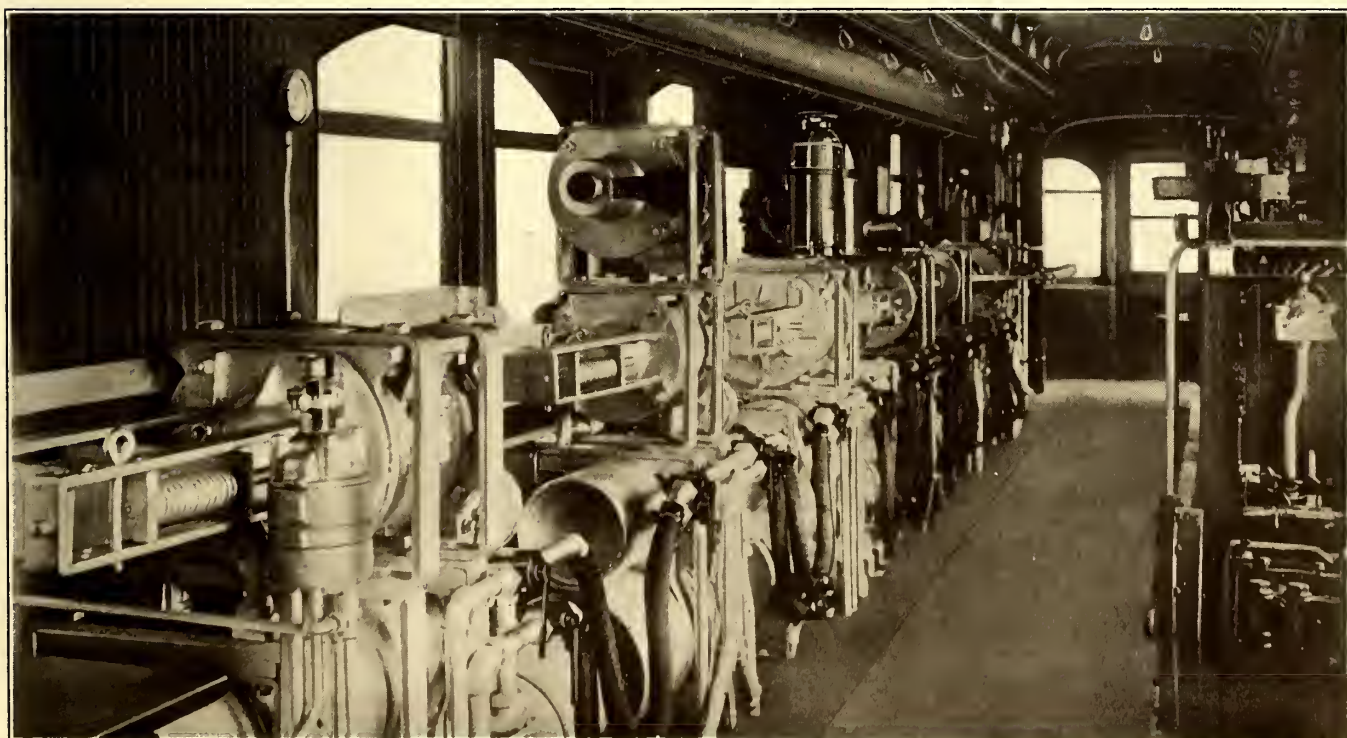
former control can be used in the actual running of the car, as a two-way switch permits the instruction board circuit to be cut in or out as the case may be. Each control system has all of its components mounted inside the car in plain view

and is supplemented by sections of the principal parts. Both of the illuminated lamp boards are faced with 1/4-in. x 36-in. x 48-in. asbestos wood, ebony impregnated and backed by 1/8-in. asbestos wood. All the wiring is in metal conduit for the 14-

accompanying wiring diagrams and the following explanation of what occurs on the board representing the unit switch group control when the master controller in that circuit is manipulated. As shown on the diagram, current may be taken



Brooklyn Instruction Car—Illuminated Lamp Boards for Drum and Unit Switch Group-Control Systems



Brooklyn Instruction Car—Air Brake Side, Showing Full Equipment for a Standard Six-Car Train

volt miniature lamps which represent the control circuits and the 115-volt series lamps which represent the motor circuits.

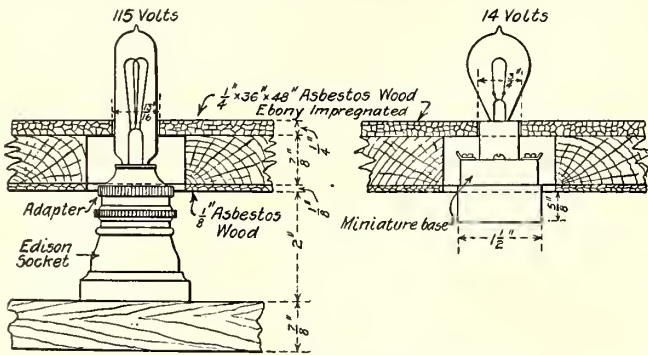
OPERATION OF THE ILLUMINATED INSTRUCTION BOARDS

The operation of the lamp boards may be understood from the

either from a trolley wire or a contact rail. Next comes the hood switch, its outlines being painted on the board but having no lamp indication. From this point on lamps are provided in parallel with the different portions of the equipment, such as

the line switch, resistance grids, reverser and motors. In the first position of the master controller, the current from the line switch will light up its corresponding white lamp and thence proceed through lamp indications corresponding to control

The current then enters No. 1 motor field, which is represented by four white lights, after which it continues on to No. 2 motor. As the controller is moved from step to step, the lights representing the resistances cut out are successively extinguished. At the same time the lamps representing the switches of the unit-switch group light up as the switches close. It will be understood that as the resistances are cut out, the lights representing the motor armatures and fields become brighter and brighter. In this way, the student receives a vivid impression of what goes on in the power circuit in relation to the building up of voltage. The limit switch shown on the diagram permits the instructor to stop on any point of the controller to make required explanations.



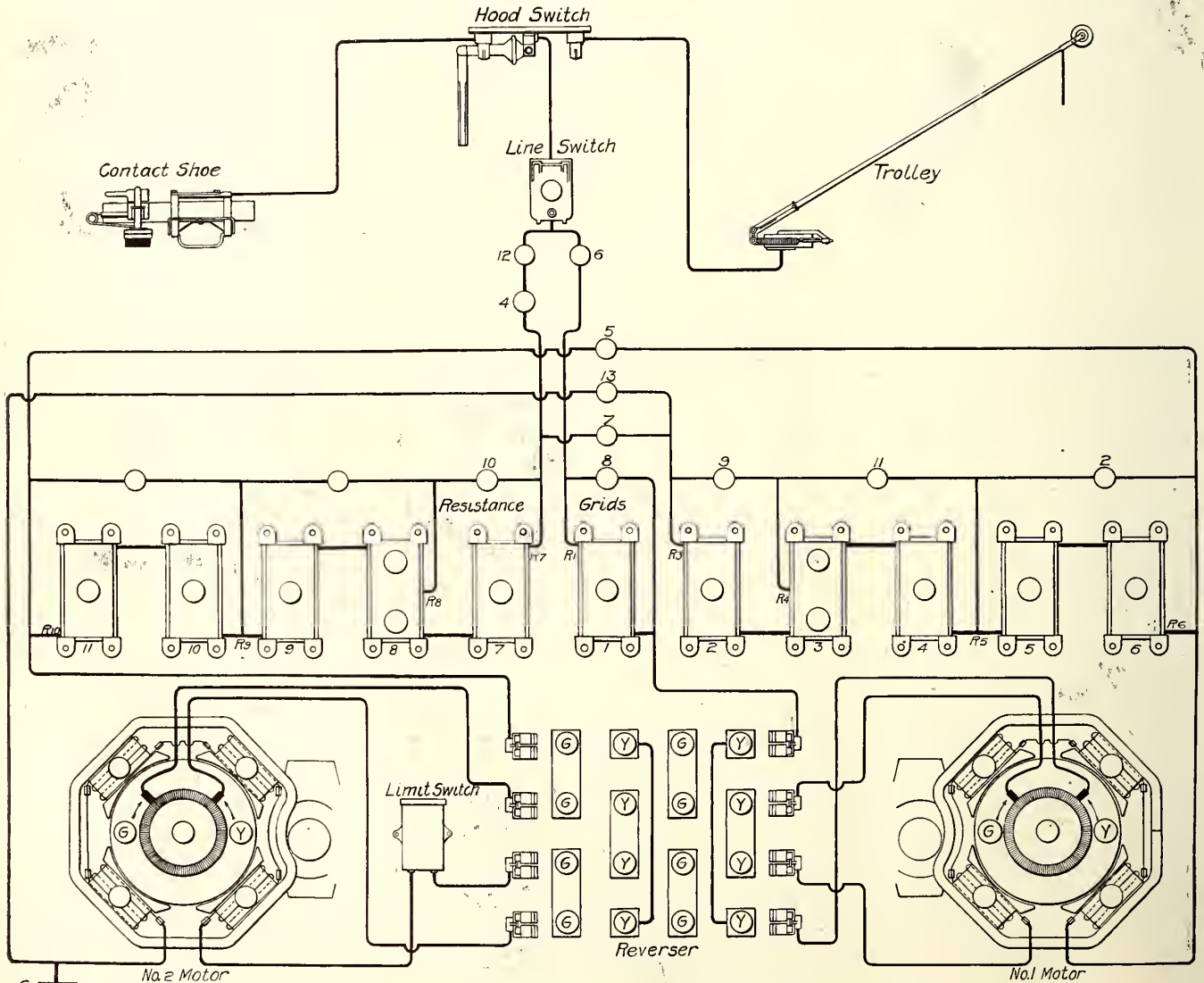
Brooklyn Instruction Car—Detail of Lamp Mounting on Illuminated Board

switches to the white lamp of R_1 . On reaching the reverser, the green lamps of the latter will light up if the reverser is in the forward position, but the yellow lamps will light up if it is in the reverse position. These colors correspond to the clear and cautionary signals used in the transportation service. The

The 131 and 160 control differs from the unit-switch group in having a regular controller instead of the turret switches and in having the reverser contact as a part of the controller instead of separate.

AIR-BRAKE EQUIPMENT

The new air-brake equipment corresponds to that of a Brooklyn Rapid Transit standard six-car train, which consists of four motors and two trailers. Besides the complete equipment which is used in the actual braking of the car, there are provided full-size sections of the brake, triple, feed and engineer's valves, of hose couplings, and of both Christensen and Westinghouse governors. The complete Westinghouse governor forms a part of the operating equipment. Gages are



Brooklyn Instruction Car—Circuit Diagram for Board Representing the Westinghouse Unit Switch Group Control

illumination of the green lamps indicates that the current is going to the positive brush-holder, which is also indicated by a green lamp, thence to the armature of No. 1 motor, after which it returns to the reverser and lights the corresponding lamps.

provided to show how the pressure of the different reservoirs varies during the several applications of the braking system. The sectional triple valve installed is joined to the operating triple valve by a connecting rod so that the various service

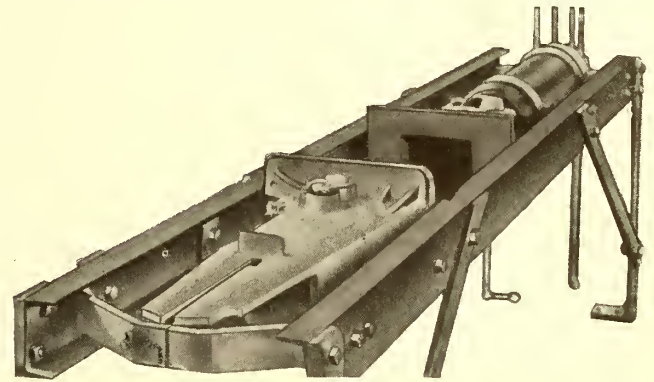
applications as they occur on a standard six-car train may be seen and explained to the students. A similar connection is provided between the operating and sectional compressors. Colored sectional charts of this new braking system are in course of preparation by the air-brake manufacturer, but at present the company is using for this purpose special white prints which are printed on linen cloth.

As all of the elevated cars are being equipped with slack adjusters, one has been installed under the instruction car and another is shown in section for instruction purposes. A rather novel part of the equipment is a Van Dorn No. 18 pneumatically operated coupler which has been placed inside the car to show how a coupling is made in every-day operation.

USE OF INSTRUCTION CAR

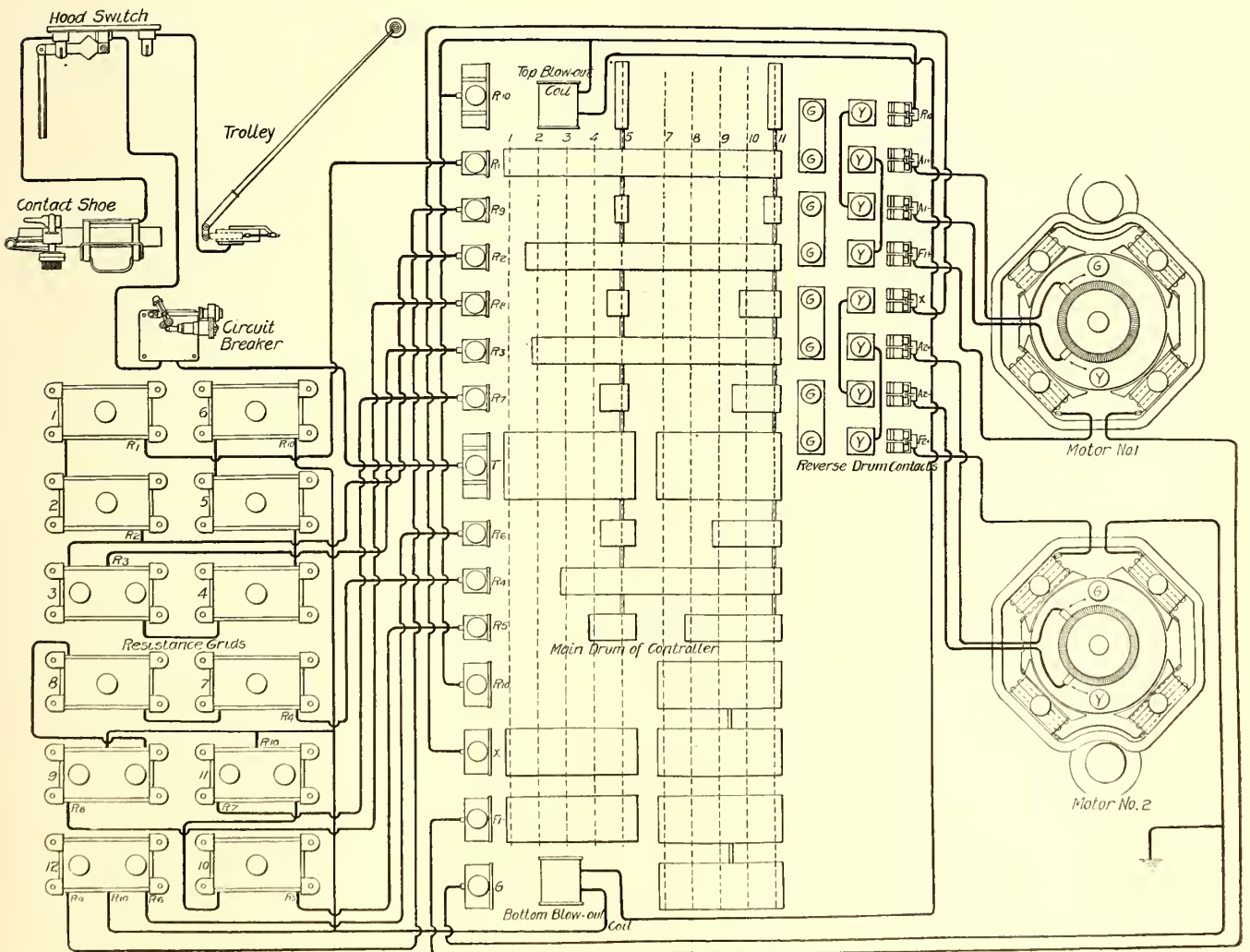
The instruction car is used by the transportation department both for new men who are being taught to handle elevated apparatus for the first time and for men who have been working on the line for some years. The candidates for the position of elevated motorman must be between the ages of 24 and 37 and are selected only from employees who have been motormen on the surface cars for two years or who have spent a like period as trainmen or yardmen in the elevated service. All applicants must not only have a clear record, but have to submit to a searching physical examination before they are permitted to take the instruction course, as it is the policy of the company to employ in its elevated train service only those men who have already proved their fitness and reliability. The requirements are so severe that, in general, not more than

not include the instruction car, but is simply a regular train carrying no passengers, but with which all of the regular starts and stops are made. Hence, the student can familiarize himself with the track and bell signals, grade and curve conditions,



Brooklyn Instruction Car—Pneumatically Operated Coupler

etc., without distraction as to details of apparatus. The instruction car was formerly a part of the school train, but it has been found more satisfactory to station it at different division headquarters, as required, rather than to keep it moving along the line all the time. An instruction train class consists of six men under an instructor motorman, each man taking his turn at the control equipment and spending the balance



Brooklyn Instruction Car—Circuit Diagram for Board Representing the Westinghouse No. 131 Drum-Type Control

75 per cent of the men who apply under these conditions are finally accepted.

The instruction of the recruit motormen begins with a preliminary course of six days on a school train. The latter does

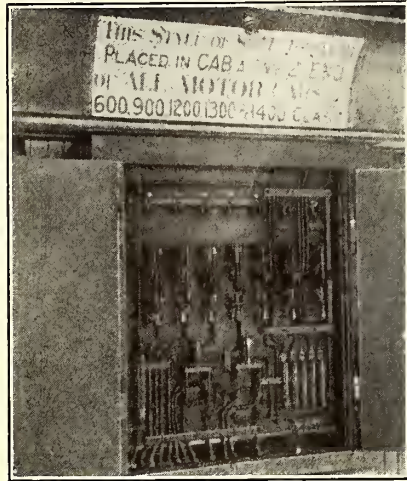
of his time in studying the several instruction blanks, rules and the catechism relating to the equipment and operation of the train. If the candidate can pass a satisfactory oral examination at the end of the six day trial, he is placed under an in-

structor motorman for 12 days on a regular passenger train. During both courses, he attends a supplementary course in the instruction car for an hour each morning before going out on the school train and for one hour in the afternoon.

The final acceptance of the candidates depends upon the confidential reports of the motormen instructors who turn in the student's assignment sheets on which the records of their work are presented. The students are paid \$2 a day during the training period and after graduation are usually placed on the extra

list, or, if that is long enough, are returned to their old positions pending appointment. In this way the company always has a considerable body of trained men ready to take up the operation of its elevated rolling stock at a moment's notice.

When the instruction car was first placed in service, the course was confined to prospective motormen, but it has since been extended to include the elevated trainmen and yardmen. Experienced mo-

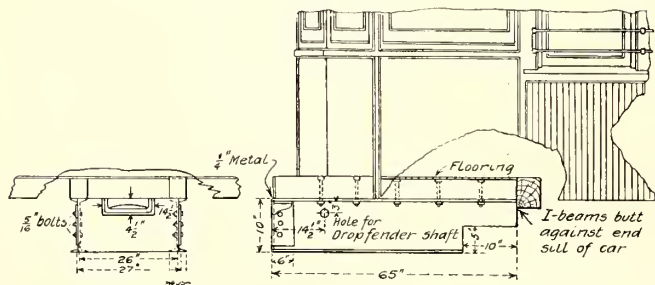


Brooklyn Instruction Car—Switchboard Location

tormen are obliged to go through the instruction car about every six months, the dispatcher assigning them to the car for two hours during an off-duty period. It is likely that the instruction hours of the veterans will be lengthened on this occasion owing to the radical changes made in the air-brake equipment and because of the adoption of the illuminated instruction boards. The men show great interest in the equipment of the instruction car and it is not uncommon to see shopmen and others visit the car on their own time to hear the explanations of the instructors and to examine the apparatus themselves.

SPECIAL BUMPERS TO PREVENT OVERRIDING

Last summer safety bumpers were added to all of the high suburban cars of the Detroit United Railway. The additional bumpers have a depth of 10 in. and will prevent overriding if the suburban cars come in contact with city cars having low platforms. An accompanying illustration presents a side sectional view of the floor of a car with the safety bumper in-



Special Bumper for Suburban Cars of Detroit United Railway

stalled. At each end of the car two 10-in. I-beams 5 ft. 5 in. long are bolted to wooden sills and are butted against the end sills of the car. The I-beams are held vertically and are spaced 26 in. apart between centers. At the bumping end they are blocked apart and are sheathed on the outside with metal $\frac{1}{4}$ in. thick.

MESSAGES OF THE GOVERNORS

Extracts from the messages of the Governors of New York, New Jersey and Illinois, referring to public utility legislations, were published in the issue of the *ELECTRIC RAILWAY JOURNAL*, Jan. 22, 1910, page 157. Extracts from the messages of the Governors of Maryland and Rhode Island follow:

GOVERNOR POTHIER, OF RHODE ISLAND

The controversy between the city of Providence and the street railway authorities concerning passenger traffic between the center of the city and the east side is likewise of more than local interest. The present admittedly inadequate service affects not only citizens of Providence but the residents of East Providence and Pawtucket, and the towns south and west of Providence, who have occasion to use the College Hill route. The whole question of congested street railway traffic in the business section of Providence concerns the entire suburban district extending into half a dozen cities and towns. At the present rate of increase in population the time is not many years distant—perhaps a decade or two—when a subway from the east side to the Doyle monument, and even to Trinity Square, will be absolutely necessary to accommodate ordinary daily travel. I am not prepared to say that the State should become a factor in the settlement of the question of an east side approach; but I do urge a recognition of the fact that interests not bound by the geographical lines of the city of Providence are undeniably involved and entitled to consideration.

GOVERNOR CROTHERS, OF MARYLAND

The reasonable and just regulation of public-service corporations through the agency of a commission with prescribed powers and duties has, as a policy, been adopted by a number of the largest and leading States of the Union, and is under favorable consideration in many other States. In New York and Wisconsin, and in Virginia and North Carolina experience has shown that such commissions furnish appropriate and essential protection to the rights and interests of the public, while at the same time they afford important and just safeguards and immunities to the public-service corporations themselves. The fact is so obvious as to dispense with the necessity of prolonged discussion that a public-service commission in Maryland, as in other States, will shield and secure the people from injustice, abuse and disadvantages of whatsoever form at the hands of corporations engaged for their own profit in the sale and supply of utilities and service of a general and public nature and will reasonably guarantee to the people adequate and proper service at just prices. The people are entitled to this in respect to the utilities in question—that is to say, they are entitled to justice—no more, no less. On the other hand, the same measure of regard and consideration is due to the capital and corporate and personal interests engaged and involved in the organization and maintenance of the public-service corporations of this State. These institutions, it cannot be denied, are often subjected to unreasonable demands and unjustifiable attacks. They, too, are entitled to justice—no more, no less. A public-service commission clothed with the necessary powers and charged with appropriate functions, and, above all else, composed of men imbued with a full measure and high standard of intelligence, character and public spirit, would meet these requirements and subserve and accomplish the great public end in view, which, after all, is the full preservation to the people of the rights and advantages to which they are justly entitled without imposing unnecessary or unreasonable burdens upon the corporations in question. To effect this rightful object, which, indeed, is one of the salutary ends of government itself, it is indispensable not only that such a commission be provided for by the Legislature, but that it be vested with full and plenary powers to effectually and impartially accomplish its important object with respect to all public-service corporations in the State in their various relations to the people. This is the spirit and design of the pledge we made to the people. Without hesitancy or shortcoming in any particular, let us now faithfully redeem it.

TRACKLESS TROLLEY LINES IN AUSTRIA

The prevalence of good roads on the Continent has lent considerable encouragement to the development of trackless trolley lines. The Mercedes-Stoll system, used chiefly in Austria, is one of the best known, and it may be of interest, therefore, to give a few details in regard to it.

Two types of overhead construction are employed, according to the conditions. Lines with heavy traffic are provided with two pairs of trolley wires, each pair consisting of a positive and

views, collector derailments are avoided by using a short and a long hook under each wheel to prevent the collector from rising.

All fittings and clamps for supporting the trolley wires are made of bronze and are fastened on brackets or span wires. Iron poles are used usually on lines with two sets of conductors, owing to the considerable weight of four No. 00 wires and the additional downward pressure of the current collectors produced by the suspension weight. The current is conducted from and to the collecting device through a flexible weather-proof cable which is carefully protected against wear and tear.

The cable ends in a coupling plug by which the connection to the car circuit is established.

The cars are of the omnibus type, all wheels being provided with rubber tires. Each car is driven by two gearless motors, which are either placed in the front or in the rear wheels in such a manner as to form their hubs. Contrary to the usual railway motor design, the field is the rotating part of the motor, while the armature windings are placed in the stator. The average one-hour rating of such a motor is about 20 hp, but in short periods of time an overload of 100 per cent can be attained. The motor frame is dustproof and waterproof. As all parts are substantially made, troubles with this style of motors are very rare. The trackless line in Gmünd, for instance, reports that during the first 20 months of service not a single motor defect was encountered. Grades of 4 per cent to 10 per cent



The Local Clergy Blessing a New Line

negative conductor. In this case one pair of wires is used for one direction, while the other pair is for returning, so that cars can pass independently. Where little traffic is expected the roads only need one pair of overhead wires. This, however, renders it necessary to provide a certain method of changing over the current collector at the meeting points of cars. On several trackless roads in Germany the collector of one car is taken down while the other car is passing. With the Mercedes-Stoll system, however, both collectors can remain on the trolley wires and only the flexible connections to the car circuits are

are found on nearly all the roads, but they are climbed quite easily.

For starting and electric braking a controller only 2 ft. high is used. It is placed beside the motorman's steering wheel. The motor circuits are controlled through resistance, and the other electrical equipment is similar to that used on ordinary electric cars.

Trackless trolley lines are found in various parts of Austria, and their number is increasing every year. There are many small towns where street railway lines are needed, but on ac-



Circular Terminal Loop and Trackless Trolley Current Collector

transferred from one car to the other. This manipulation can be made at any point on the line, and generally is accomplished in a few seconds' time. The collecting device is a carriage with four brass wheels, and runs on top of the pair of power wires and is dragged along by the moving motor car. The collector is divided lengthwise, both halves being carefully insulated from each other for carrying the positive and negative circuits, respectively. As shown in one of the accompanying

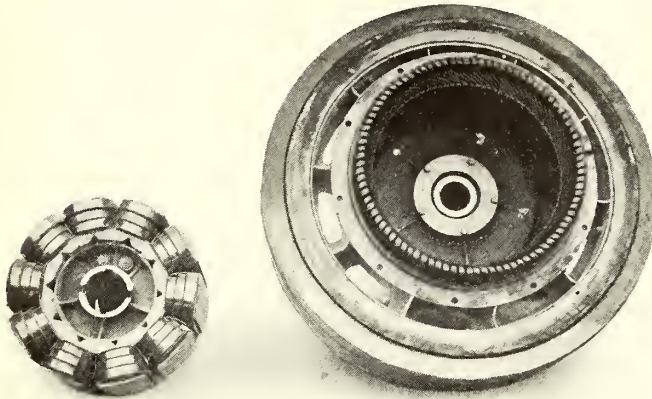
count of high first cost the wishes of the population cannot be gratified.

In such cases the trackless trolley line shows its chief advantage very clearly. The construction cost is only one-fourth to one-third of that of regular railway lines. The costs of maintenance are also considerably lower. The average operating expenses per car mile of the trackless trolleys are given in the table on the next page.

Current at a rate of 15 to 20 heller (3 to 4 cents) a kw-h.	4-7 h.
Wear on rubber tires.....	9-12 h.
Wages (no conductors).....	7-10 h.
Repairs	4- 6 h.
Administration	4- 6 h.
	28-41 h.

(Or only 6 to 8 cents.)

The fares on these lines are very low, generally 10 heller (2 cents). Working people and children are carried for only 6 heller (1 1-5 cents). The consumption of current is a little



Wheel of Trackless Bus with Built-In Motor

higher than on street railways, owing to the greater friction of the rubber tires. It amounts to 80 watt-hours per ton-mile on the horizontal and 90 to 120 watt-hours on lines with grades from 4 per cent to 10 per cent. Compared with the number of passengers per car carried, however, the cost of current is lower than on railway lines, as the weight of cars for 22 passengers is only 2½ tons.

A rather curious ceremony is the inauguration of a trolley



Trackless Buses Interchanging Current Collectors

line in a small Austrian country town. After several speeches concerning the great importance of the new line have been made by the burgomaster and other authorities of the town and the Government, there is begun a solemn clerical consecration of the line, and in particular of the vehicles. Each car is blessed separately. One of the accompanying cuts shows the oldest priest of a town preparing to carry out this ceremony.

Work will soon be started on an extension of the Central London Railway's tubes from the Bank to Liverpool Street, about ½ mile.

AUDITING EXPRESS AND RAILROAD EXPENSE BILLS

BY CHARLES T. DOERR, PURCHASING AGENT, BIRMINGHAM (ALA.) RAILWAY, LIGHT & POWER COMPANY

For convenience as well as for economical reasons many companies let their hauling of material and supplies to local transfer companies and voucher the accumulated freight and express bills periodically. When this is done there is sometimes a tendency to make only a hurried addition of the separate items and to ignore, or examine in only a superficial way, the detail of each charge. Such an audit gives assurance only that the freight shown on the bill has been received in good order.

In this day of economies, when every item of expense is analyzed, it will be surprising to many managers to find, upon a close examination of this account, that many small leaks are due to so haphazard a manner of checking expense bills. It is not likely that the amount involved is so great in extent that it would justify the expense of retaining the services of an official employed solely for this work, but almost any company can detail some one who will devote a portion of his time to the study and application of freight tariffs and classifications. The variety of items is not so great or the shipping points so many but that he will become sufficiently familiar with this work in time to effect an appreciable saving. The expense of a local freight bureau or a "rate doctor" in auditing this account will often be found a good investment.

Even though the approval of freight bills be not within the province of the purchasing agent, it is clearly one of the many subjects with which he should familiarize himself as far as possible. It is almost needless to say that unless he has at least a working acquaintance with the underlying principles his efficiency must be considered lacking in a very important detail.

In spite of highly titled officials, traffic managers, etc., actual billing is usually left to the whim or ignorance of clerks and subordinates, who are just as likely to ship commutators as "electric fixtures" as they are to designate electric irons as "electrical machinery," thus leading to endless disputes and contentions with local agents and voluminous correspondence with the inspection bureau. Most of the troubles of the consignee arise from this use of generic headings, and it would be desirable to have bills of lading show actual contents or proper names.

Electric railways, central stations and car companies are consumers of various kinds of specific materials, many of which are not set forth in sufficient clearness in the various classifications, and where listed are in many instances incapable of definite interpretation. As an example, the writer has now under consideration by the "powers that be" the question of whether electrically operated block signal apparatus should be classed under "electrical appliances" (first class) or "semaphores" (third class). It is also a question whether trolley poles in the rough, without base, harp or wheel, should be classed as "steel tubing."

While many instances may be cited showing the difference arising in the application of analogous classes and the losses which may occur through negligence on the part of shippers in the matter of unintelligible bills of lading, sufficient attention has been directed to this subject to illustrate the necessity of a closer scrutiny of expense bills.

The railroads endeavor at much expense and by every method of checking and inspection to assess charges justly, and they will almost invariably correct erroneous billing when properly presented. It devolves upon the consignee, therefore, to study the rules and tariffs pertaining to his interests, and to insist upon intelligent bills of lading from consignors and corresponding attention on the part of carriers. Absorption of switching charges, combination rates, or equalization through various gateways, as well as the relative advantage of all-rail and rail and water rates are all important details, which, in the aggregate, add to the total list of benefits to be obtained by an acquaintance with the governing conditions.

A DIRECT READING ACCELEROMETER

At a meeting of the Indiana Academy of Science on Nov. 26, 1909, C. R. Moore, of Purdue University, Lafayette, Ind., read a paper describing a new electrical device which can be calibrated to read directly the rate of change in velocity of a car. The measurement of acceleration has been attempted in many ways, but accelerometers employing a freely moving mass of some sort have been most used. Dr. Sheldon's device is of this type, using a suspended weight carrying a pointer at the bottom, fastened thereto by rods, which plays over a scale. The mass, being free to move, is sensitive to changes of velocity, and the scale may be calibrated to read acceleration directly. The calibration is fairly simple, and the device is not difficult to construct.

Another device, which works on much the same principle, consists of a "U" tube partially filled with mercury so placed that its plane is parallel to the motion of the car. It is obvious that changes of velocity will cause the mercury to rise in one side of the tube and to fall in the other. The more quickly these changes occur the greater will be the difference between the heights of the mercury in the two portions of the tube. The tube may therefore be calibrated to read acceleration directly. Still another form of accelerometer is a slightly inclined track upon which rolls a ball. This track is made to extend in both directions and has a short level portion at the middle. Changes of velocity cause the ball to move one way or the other along the track. This device is difficult to read, and is not very accurate. All of these accelerometers are confined to horizontal motions, and if the track be other than level, corrections must be made therefor. This involves a great deal of labor and expense, so that while the devices are simple in themselves, their use is complicated. It is next to impossible to make them self-recording.

Acceleration may also be measured by two magnetically actuated markers so arranged that dots may be made by each of them on a sheet of paper moved at a uniform rate of motion. The magnet of one of these pointers has its circuit closed through battery at regular time intervals by a clock. The other pointer has its magnet operated on a circuit which is closed through battery a definite number of times per revolution of the car wheel. From the record made by these pointers the acceleration at any time may be determined. This apparatus also involves a great deal of labor and expense, and is seldom used.

The new accelerometer described by the author depends for its operation entirely upon electrical phenomena and is independent of its own location, motion or position. It will therefore read acceleration vertically or at any angle as well as in a horizontal direction. No corrections are necessary, and it may easily be made self-recording. It is not difficult to calibrate, and is permanent. The apparatus consists of a double commutation, direct-current magneto having permanent magnet fields, a high-grade direct-current voltmeter, a condenser of suitable capacity and a bank of external resistance connected as shown in the accompanying diagram.

The equation of the condenser is $Q = EC$, in which Q represents the quantity of electricity in coulombs (ampere seconds), E is the voltage impressed, and C is the capacity in farads of the condenser. If E is increased uniformly, the quantity of the charge Q on the condenser plates will also increase uniformly. Since Q is increasing uniformly with respect to time, the inflow of current is at a constant rate. Likewise, a constantly decreasing E will give a constant outflow of current. However, as soon as E reaches a fixed value all current flow in the circuit ceases, since it is one property of the electric condenser to arrest the flow of direct current. The terms "inflow" and "outflow" refer to those condenser plates that are directly connected to the instrument terminal. Of course, as much current flows on to one set of plates as flows off of the other plates, the current in the line having a definite direction during an increase of voltage. The magnitude of these currents are shown by the direct-cur-

rent instrument, which consists merely of a coil swinging in a uniformly magnetic field. So long, then, as the voltage is changing uniformly the instrument will read a constant value, returning to zero only when E ceases changing. It follows that if E does not change uniformly the instrument will not read a constant value, but that its indications will be proportional to the instantaneous rate of change of the voltage. The direct-current magneto is so designed that its voltage is directly proportional to its speed, so that changes of voltage at its terminals can only occur as a result of changes in speed. Therefore the instrument reads the rate of change of speed or acceleration, whether positive or negative.

It was implied above that an electric condenser allows no current to pass when the voltage E has reached a fixed value. This would be a fact if an ideal condenser could be made, but it is a well-known fact that there is always some leakage even in the best condensers. Provision must therefore be made to compensate for this small leakage current. The second commutator on the magneto is arranged so that it can feed current through a high resistance to another coil on the moving element of the voltmeter. This second coil is wound over the first and works in the same magnetic field. The current is passed through it in such a direction that the torque produced thereby opposes the torque of the original coil. By adjusting the high resistance these torques may be made equal and the-

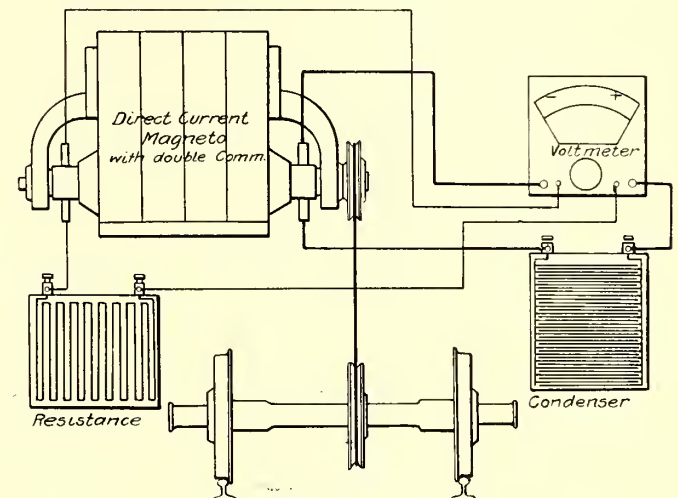


Diagram of Connections for Accelerometer

instrument will read zero for any constant value of voltage within reasonable limits. This allows the charging currents to actuate the instrument entirely independent of the leakage current, and therefore condensers of reasonable cost may be employed.

Almost any condenser when suddenly discharged will experience a rise in potential at its terminals if allowed to stand a few minutes. This rise is due to the residual charge. In the apparatus described this effect is entirely negligible, for the reason that the condenser is never charged or discharged suddenly, some few seconds being required to complete the action. In all condensers there is also some absorption, but with good condensers used at the voltages proposed for this apparatus this effect is also quite negligible, and for a given voltage change at any part of the potential range equal quantities of electricity pass through the instrument. With an instrument having a uniformly graduated scale, therefore, the apparatus will show equal increments or readings for equal rates of change of velocity. It is obvious that the readings of the instrument are unaffected either by grades or side tilting of the car.

The apparatus may be made self-recording by employing a recording instrument instead of an indicating one. These recorders may be obtained in the market, and are very sensitive and reliable. The accelerometer may be made self-contained, and is easily transferred from one car to another.

PHYSICAL APPRAISAL OF THIRD AVENUE RAILROAD

At a hearing of the Public Service Commission of New York, First District, held Jan. 18, to consider the plan for the reorganization of the Third Avenue Railway, submitted by the bondholders' committee, Henry Floy, acting for the committee, presented the estimates given below. These estimates were made by him as a result of an examination which he had made of the properties of the Third Avenue Railroad Company.

ESTIMATED PRESENT ACTUAL COST OF REPRODUCTION BY A GOING CONCERN (IRRESPECTIVE OF ANY ALLOWANCE FOR DEVELOPMENT EXPENSES).

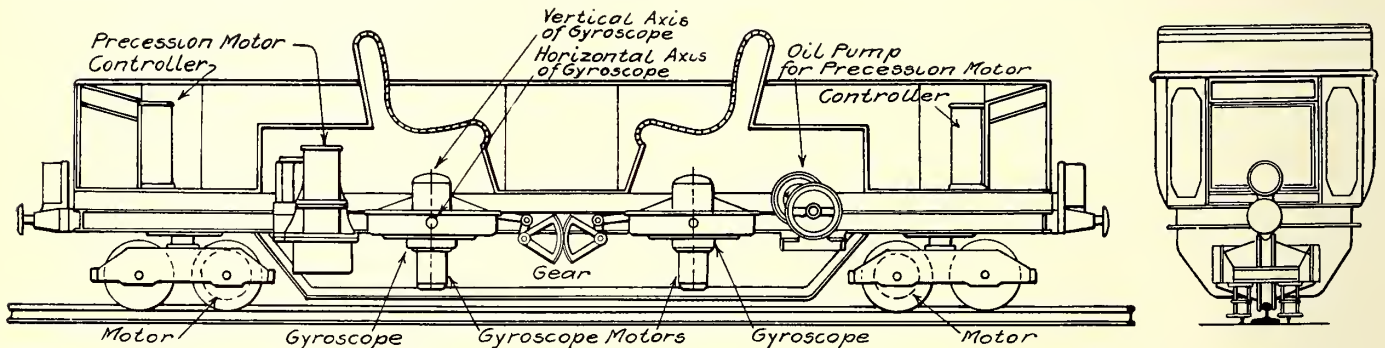
Estimated actual cost of reproduction tangible properties, including construction and installation of plant, etc., on basis present day prices (as per itemized statement "A").....	\$46,500,000
Deduct items not subject to depreciation, such as real estate, obstructions, paving for obstructions, etc., at least.....	6,500,000
Leaving to represent reproduction cost of tangible property subject to depreciation (see statement "B"), approximately.....	\$40,000,000
Deduct depreciation on said tangibles, an average of 25 per cent.....	\$10,000,000
Leaving as present approximate value of said tangibles on basis of reproduction cost less depreciation.....	\$30,000,000
Add items not subject to depreciation as above.....	\$6,500,000
Approximate present value tangible property.....	\$36,500,000

Stated in different form:

1. 75 per cent of net reproduction cost of \$40,000,000 of tangibles.....	\$30,000,000
2. Plus real estate, etc., not subject to depreciation, as above.....	6,500,000
Total.....	\$36,500,000

NOTE.—The reproduction cost as above of \$46,500,000 contains no allowance for development expenses and disbursements covering promotion, discounts on securities, expenses of financing, taxes, interest, title insurance, brokers' commissions and other general administration, legal and contingent expenses necessarily attending such an enterprise (See statement "C."). Minimum provision for these purposes should be 25 per cent, or \$11,625,000, making a total cost of reproduction to a new company of \$58,125,000.

This estimate makes no allowance for franchises, for loss involved in changing from horse to cable power and from cable to electricity, for obsolescence of portions of plant, for good will or for working capital.



Side and End Elevation of Gyroscopic Car

STATEMENT A—COST OF REPRODUCTION.

Estimated Actual Cost of Reproduction of Entire Physical Properties, on basis of Present-day Prices of Third Avenue proper, 42d Street, Dry Dock, Union, Southern Boulevard, Bronx Traction, Kingsbridge, Yonkers and Westchester Railroads.

Building structures.....	\$7,205,315
Tracks.....	10,331,894
Paving.....	3,542,644
Distributing system.....	2,838,246
Overhead construction.....	1,200,500
Duct lines.....	2,116,538
Power equipment.....	3,495,219
Rolling stock.....	7,650,934
Removal of obstructions.....	1,479,049
Paving over obstructions.....	1,289,035
Real estate.....	4,524,570
Tools, supplies, fixtures.....	553,165
Horses, wagons, etc.....	56,874
Salvage, material.....	5,822
Total.....	\$46,389,805
Purchase price, Mamaroneck & Larchmont Road.....	110,000
Grand total.....	\$46,499,805

STATEMENT B—INCIDENTAL AND CONTINGENT EXPENSES INCLUDED IN ACTUAL COST OF REPRODUCTION.

The following were the incidental and contingent expenses included in the actual cost of reproduction:

- Administration expenses chargeable to construction, including superintendence, inspection, accounting, salaries of officers and clerks, consents of authorities and property owners, legal expenses in connection with construction, rent, printing, store-room expenses, etc.
 - Architects' and engineers' fees, including cost of design and testing all construction and equipment items.
 - Provision for various incidentals and contingencies, incomplete inventories, unforeseen requirements, etc., which practical experience has shown to be necessary.
- These incidental and contingent expenses attributable to actual construction would probably run over an average of two years and constitute capital expenditures to cover which at least 15 per cent should be provided.

STATEMENT C—DEVELOPMENT EXPENSES.

The outlay and expenditures necessarily attending organization, promotion and conduct of an enterprise such as the Third Avenue and other railroads, mentioned in Statement A, will average at least 25 per cent on actual cost of construction, and in City of New York would undoubtedly average much more. These include:

- Legal and other expenses of preliminary promotion, incorporation and organization of companies, procuring property owners' consents, making arrangements for trackage rights and terminals, procuring local franchises and approval, consents and certificates from public bodies, title examinations and insurance, brokers' commissions, etc., at least 1/2 of 1 per cent.
 - Technical expenses in connection with preliminary work, surveys, expert estimates, etc., at least 1/2 of 1 per cent.
 - Interest on capital and bond issues, rents, wages of superintendence and administration in addition to portion of similar expense chargeable to construction, etc., payable during development stage and period of construction and until property can earn surplus over operating expenses and taxes sufficient to pay interest or dividends on investment. Minimum allowance of 8 1/2 per cent.
 - Taxes, including incorporation tax, mortgage tax, real estate tax, personal property tax, capital stock tax, franchise tax, etc., which must be provided for and paid during period from first organization to date when property will earn a net surplus over operating expenses at least 1/2 of 1 per cent.
 - Discounts on securities or other customary and necessary expenditures in connection with financing such an undertaking and marketing securities. These expenses are greater in the cases of new enterprises or of the reorganization of old enterprises which have become insolvent, where there is as yet no established earning capacity and credit, or where credit has been impaired or destroyed by insolvency. The value of all street surface securities in New York at present time is greatly discredited and money could only be raised at or about par on the credit of the city itself. Minimum discount 10 per cent.
 - Reasonable promotion profit or compensation for risk of capital estimated at 5 to 10 per cent of cash secured and actually invested and put at risk in enterprise. Minimum allowance 5 per cent.
- This percentage is calculated on basis of total reproduction value of \$46,500,000.

OPERATING PRINCIPLES OF THE SCHERL GYROSCOPIC CAR

The accompanying cuts show a side and end elevation of the Scherl gyroscopic mono-rail car, described in the ELECTRIC RAILWAY JOURNAL of Jan. 15. Further particulars were presented in connection with Professor Franklin's lecture at the New York Electrical Society on Jan. 27. The Scherl gyro-

scopes are mounted on vertical axes with ball bearings and not on horizontal axes as in the Brennan mono-rail car. In both cases, however, the gyroscopes work in a vacuum and the force produced by the revolution of the flywheels is at right angles to the running rail. The Scherl gyroscopes weigh only 125 lb. each, but, as they revolve at the great speed of 8000 r.p.m., their momentum and consequent tendency to resist tipping is very great. They are driven in opposite directions by a 3/4-hp motor.

The simultaneous movement of the gyroscopes is secured by bell-crank levers and a pair of toothed quadrants, as shown in the side elevation. The tendency of the gyroscope flywheels is to rotate in a horizontal plane on their vertical axes and thus maintain the equilibrium of the car. If an outside force such as one due to the unequal weighting of the car or to wind pressure is applied, the car will tend to tip over, but this action is immediately opposed by the righting tendency of the gyroscopes which have what is termed a precessional or tilting movement. The righting movement of the gyroscopes is transmitted through levers to a valve controlling the piston of a hydraulic motor. The operation of the piston tends to increase the tilting movement of the gyroscopes which resist this movement by producing a powerful reaction transversely to the car. The latter is therefore restored to stable equilibrium. The precession motor at the back of the gyroscope casings is driven by an electrically operated oil pump, as illustrated.

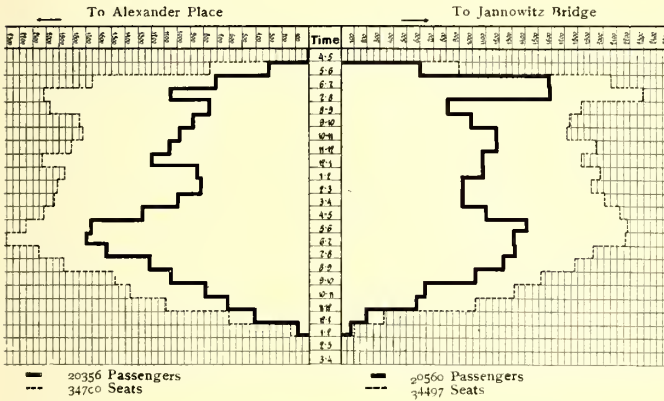
NOTES ON FRANCHISE, FARE AND TRAFFIC CONDITIONS IN BERLIN

The Grosse Berliner Strassenbahn and its allied companies operate the largest part of the street railways in Berlin and the adjacent communities. The lines of the company are in 19 distinct municipalities, and the franchises are also of the most diverse character. The corporate life of the company and its subsidiaries extends to 1949. In Berlin proper all leases will expire in 1919, whereas those granted by the adjoining communities will be in force for varying periods up to 1997. In general, the several municipalities reserve the right to buy, and in

greater ratio than the population of the city and its suburbs—large as that has been. It is interesting to observe that 80 per cent of the company's entire traffic is handled in Berlin proper, with 70 per cent of the total car-miles operated and 52 per cent of the total trackage. These figures show that the suburban towns have not yet reached the most profitable point of travel density. In round numbers, the present populations of Berlin and its suburbs are 2,000,000 and 1,500,000, respectively.

AGREEMENTS WITH SUBSIDIARY COMPANIES

The three subsidiary companies of the Grosse Berliner Strassenbahn are the Berlin-Charlottenburg Street Railway, the Western Berlin Suburban Railway and the Southern Berlin Suburban Railway. All of the cars are maintained in the shops of the parent company, but each corporation owns its own cars, which at the end of 1907 numbered: Grosse Berliner, 1250 motors and 872 trailers; Berlin-Charlottenburg, 79 motors and 61 trailers; Western Berlin, 67 motors and 57 trailers; Southern Berlin, 30 motors and no trailers. The contract between the four companies calls for the through operation of any car over any desirable combination of routes. Each company, however, is directly in charge of the service over its track, and, therefore, must assume all legal responsibilities, and all injury and damage suits, etc., involved on its particular section. Employees of each company are bound by the rules and instructions of the line over whose tracks they are running.



Berlin Traffic Conditions—Chart Showing Relation Between Passengers and Seating Capacity in Heart of Berlin

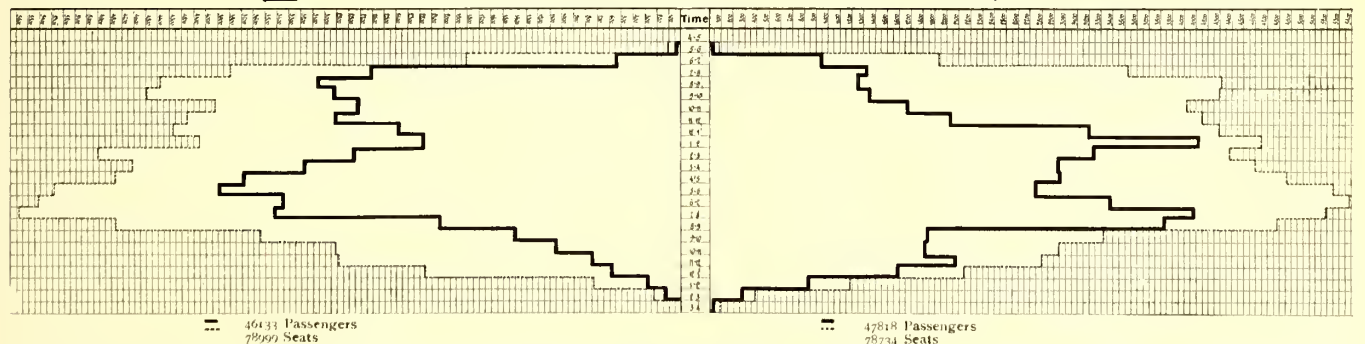
some cases to take over without cost the property of the company either upon the expiration of the franchises or before. The city of Berlin receives as franchise compensation 8 per cent of the company's gross income (in Berlin) plus fixed proportions of any surplus remaining after enough money has been laid aside to declare a 6 per cent dividend. The suburban towns receive less. From 1904 to 1908, inclusive, the average dividend of the Grosse Berliner Strassenbahn, with a total capitalization of 100,082,400 M (\$24,019,776), has been 7.9 per cent.

A unique feature of the franchise agreement with the municipality of Berlin is that under certain conditions the latter must reimburse the railway company for any losses due to the construction of competing subway, surface or elevated lines, whether built by the city or private interests. The actual awards are made by a court of arbitration, after both parties have submitted their traffic statistics. No damages have been

The division of the income of all interconnected lines is based in general on the car-miles run over the tracks of the several companies, but there are certain other agreements limiting the minimum which each is to receive. Each company also receives from the others 20 pf. for every motor-car-kilometer (8 cents per car-mile) and 10 pf. for every trailer-kilometer (4 cents per car-mile) operated over its track. An exception is made in the case of the contract between the Grosse Berliner and Southern Berlin companies, where the respective payments are 7.2 cents per motor-car-mile and 3.6 cents per trailer-mile. Accountings are made monthly. Each company has the privilege of withdrawing from the agreement upon six months' notice before the close of the year.

ARRANGEMENT OF TRAFFIC ROUTES

Berlin extends practically in all directions, with its business section in the center and suburban towns directly adjacent on every side. The traffic development, therefore, tends to be of radial character, except for various detours caused by parks and military grounds. Thus it is necessary for most of the cars to run over a portion of Leipziger Street, the main business thoroughfare, after which they radiate in all directions. It has been the policy of the companies in Berlin to run through



Berlin Traffic Conditions—Chart Showing Relation Between Passengers and Seating Capacity in Leipziger Strasse, the Busiest Street in Berlin

awarded for losses due to the present subway line or for the proposed direct extension from Spittelmarkt to Schönhauser Allee, because the street railway company failed to make a claim when the original franchises were granted in 1897.

Despite the added competition of elevated-subway lines and motor buses, the prosperity of the company has steadily increased during the last five years, and the traffic has grown in

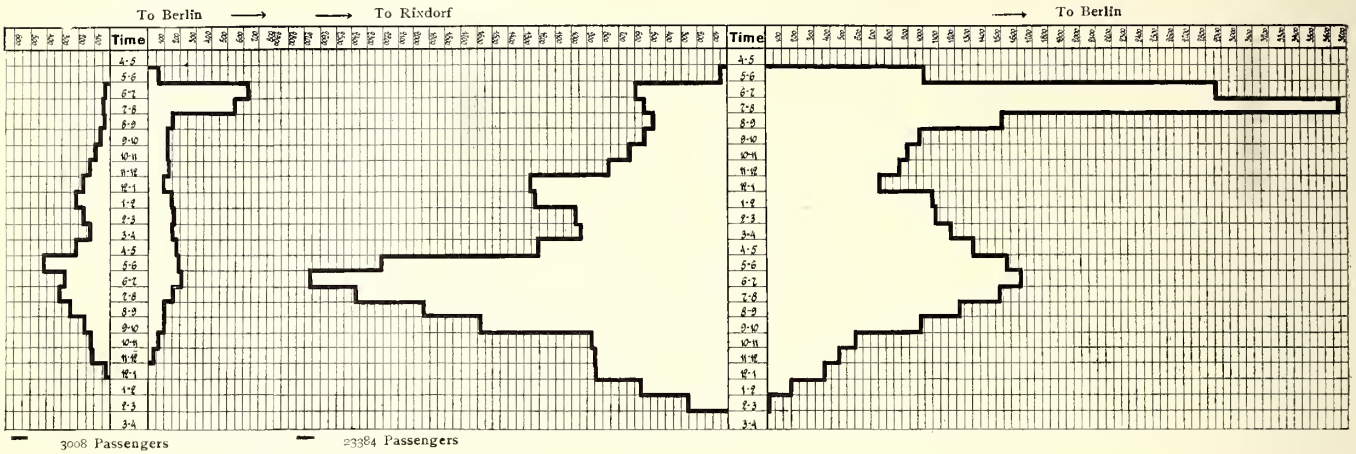
cars to each part of the city as far as possible. As a result, only about 15 per cent of the passengers transfer.

The traffic on each line is carefully and regularly charted to assist the transportation department in arranging and selecting its schedules. Typical curves used in this work and showing the relation between passengers and seating capacity are presented herewith. A striking feature of the two first

curves, both of which embrace large groups of lines, is the tendency toward equally heavy travel in opposite directions during the same hours. This, of course, is the usual characteristic of traffic in a radial city. An exception to this rule is afforded in Berlin by a strictly working-class district like Rixdorf. As shown by the third curve, the morning and evening peaks occur in opposite directions, corresponding to the movements of the workmen to and from their places of employment

in the STREET RAILWAY JOURNAL of May 19, 1906. All of the types of records mentioned have been prepared by A. Stavenow, traffic manager of the Grosse Berliner Strassenbahn. Mr. Stavenow is planning to exhibit enlarged models of these and other Berlin transportation statistics at the World's Fair to be held this year at Brussels.

Since 1901 the standard cash fare on most of the lines of the parent company has been 10 pf. (2½ cents) and on a few

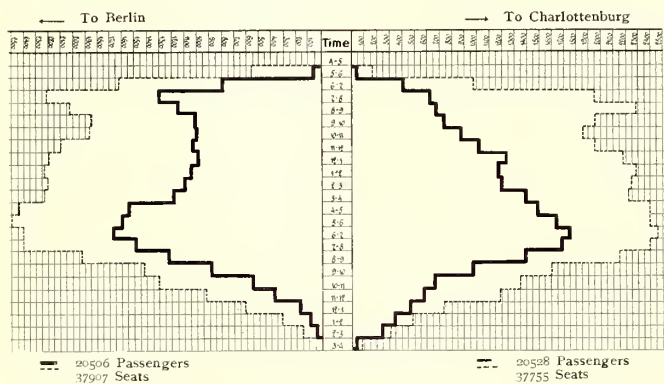


Berlin Traffic Conditions—Unbalanced Morning and Evening Peaks on the Rixdorf Lines.

Each community around Berlin is of such individual character that the traffic development of one of its lines is a good index to the growth of the others. This peculiarity is illustrated by the two sets of Rixdorf traffic curves presented in the fourth series of curves. The lines serving each district usually converge at some important point before spreading out again.

The records presented are only a part of the data which the traffic manager compiles to assist him in his work. In addition to the usual records of the receipts, expenses, car-miles, passengers, etc., for each line, the transportation department keeps daily records of the temperature and weather conditions in Berlin, and these are also charted daily and by months. As shown in the last diagram, which is for January, 1908, there

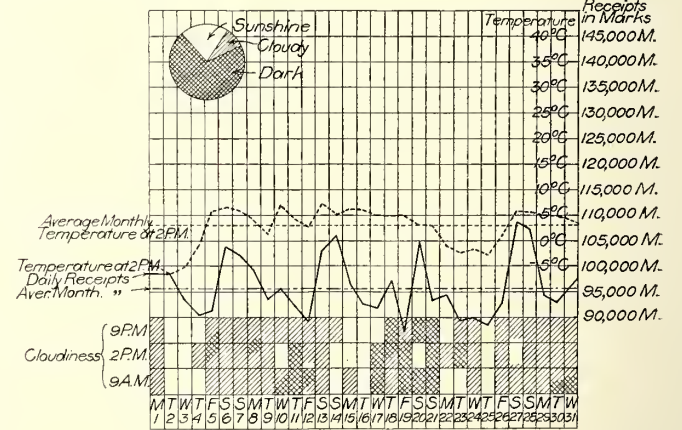
extensions 15 pf. (3¾ cents). No free transfers are issued except on a small part of the Charlottenburg system, but as previously noted, the arrangement of routes permits 85 per cent of the passengers to reach their destination for one fare on one car. The highest fare charged on any line interconnected with the suburban system is 20 pf. (5 cents). One child under six years of age is carried free if attended by an adult, but a full fare is charged for each additional child. Workmen's tickets, good for one ride each working day, are sold for 50 pf. (12½ cents), and for two rides each working day for 1 M. (25 cents) a week. School tickets are issued for children up



Berlin Traffic Conditions—Chart Showing Relation Between Passengers and Seating Capacity in High-Class Residential District of Charlottenburg

is kept a monthly and daily record of the weather, temperature and receipts. Friday is usually the poorest day for traffic; Sunday is usually the best except in winter, but also the most uncertain. To develop the faculty of rightfully predicting what schedule to put in force on Sunday, the traffic manager has each of his five assistants telephone him at noon every Sunday his estimate of the day's receipts. At the end of the year a prize is awarded to the man who has most closely predicted this important point.

Another ingenious annual record for the entire system consists of a map of the city on which are placed strata of papier-mâché of a thickness corresponding to the density of travel. Such a device shows very effectively the distribution of traffic along the different streets. One of these maps was illustrated



Berlin Traffic Conditions—Method of Charting Temperatures, Receipts and Weather; Chart Showing Record of January, 1908

to and including the sixteenth year. These tickets cost only 3 M. (75 cents) a month, and are good over two lines; every additional line costs 1 M. extra. Monthly unlimited ride tickets are also sold for the convenience of steady riders who use the cars more than twice a day. A ticket good only on one line costs 7.70 M. (\$1.925), whereas two rides a day for a month of 31 days would cost 6.20 M. (\$1.55). The length of an average ride on a purely city line like Schöneberg-Alexander Place is about 4 km (2.48 miles) in winter and 3.38 km (2.1 miles) in summer; the average fare per passenger-kilometer is 2.15 pf. (0.86 cents per mile) in winter and 3.63 pf. (1.45 cents per mile) in summer. The fares to an outlying amusement section like Tegel are much less. The Tegel average passenger ride is 5.56 km (3.44 miles) in winter and 6.22 km (3.85

miles) in summer, all for the 10-pf. fare; the corresponding costs per passenger-kilometer are 1.67 pf. (0.67 cents per passenger-mile) and 1.52 pf. (0.6 cents per mile). The average length of ride throughout the main system on Saturday, Nov. 7, 1908, was 3.45 km (2.14 miles), and the average receipts per passenger-kilometer 2.62 pf. (1.05 cents per passenger-mile). About 25 per cent of the total mileage is made by trailers. In 1908 the operating cost per motor-car-kilometer was 27 pf. (10.8 cents per motor-car-mile), and the cost per trailer-kilometer was 13 pf. (5.2 cents per trailer-car-mile.).

ANNUAL MEETING OF CENTRAL ELECTRIC RAILWAY ASSOCIATION

The annual meeting of the Central Electric Railway Association was held at Columbus, Ohio, on Jan. 27. About 150 members and guests were present. The next meeting will be held at the Oliver Hotel, South Bend, Ind., March 24. The following officers were elected to serve during 1910: President, George H. Whysall, Columbus, Marion & Bucyrus; first vice-president, Arthur W. Brady, Indiana Union Traction; second vice-president, W. S. Whitney, Ohio Electric Railway; members of the executive committee—from Indiana: A. A. Anderson, C. L. Henry, H. A. Nicholl, C. D. Emmons, J. H. Crall; from Ohio: E. F. Schneider, F. D. Carpenter, S. D. Hutchins, C. M. Payton, F. W. Coen; from Kentucky: M. J. Insull; from Michigan: F. W. Brown and J. F. Keys.

Three special cars carried parties to Columbus from Terre Haute, Ind., and from Toledo and Cleveland, Ohio. Arthur A. Anderson, the retiring president, was in the chair. He first called upon Secretary Neereamer to read the minutes of the previous meeting. These were approved.

G. H. Kelsay, Indiana Union Traction Company, presented the report of a committee which had been appointed at a previous meeting to consider the recommendation made for the establishment of working relations between the Central Electric Railway Association members and a centralized testing organization. An abstract of the report presented by Mr. Kelsay follows:

Your committee appointed to report on a paper presented at the November meeting at Indianapolis by John G. Callan, who is associated with Arthur D. Little, Inc., on the subject of "A Centralized Testing Organization," met in Indianapolis on Jan. 9. The paper was very interesting and called particular attention to the vital subjects of the choice of fuel, specifications for purchase of coal, boiler and furnace tests, fire room practice, lubricating oils and lubricated parts, involving the subject of bearing metals. The subject of specifications and inspection, covering material and equipments, was discussed.

The discussion of this paper merited a great amount of detail consideration, which would require more time than was at the disposal of the committee. It appears to the committee that the question of obtaining better materials and equipment by the aid of tests, specifications and practical service experience is not being as carefully and systematically conducted by various railway companies as it should be, and that more attention to these matters would result in a very greatly reduced operating cost. This association with practically its present organization is in a position to furnish to its member companies a great deal of information as to the merits of various materials and equipment which are required. The traction lines operated within the territory covered by the Central Electric Railway Association have among their operating forces men fully competent to supply information about a large part of the various equipment and materials used. This, if properly collected and distributed, would be of great benefit to the association members. Very few, if any, traction companies employ men competent to make chemical determinations, or have at their disposal apparatus for making physical determinations. It is the opinion of your committee that there is a class of determinations which the railway companies, individually or as an association, could very profitably have furnished them by

a testing organization, competent chemists or physicists, which would prove of very great value.

We believe that specifications for the purchase of practically all the materials desired could be drawn up and used by member companies and be just as practical as the present standard specifications for drawbars, journal boxes, car axles, etc.

It is, therefore, the recommendation of your committee that the association could profitably collect and distribute information relative to the merits of various materials and equipment, and could have supplied to the association members chemical and physical tests. Further, there could be referred to a committee, either the present standardization committee or another specially appointed committee, the work of supplying specifications for the purchase of various materials. If the above recommendations can be carried out, it is the opinion of your committee that the association members would receive great benefits by its efforts.

The practicability of having the secretary of the Central Electric Railway Association act as a collector and distributor of reports of tests and of specifications was discussed by several members.

H. A. Nicoll, Indiana Union Traction Company, did not believe that the proposed method of furnishing the secretary's office with copies of tests would be highly successful, because there might be a lack of interest displayed by a great many of the members. F. D. Carpenter, Western Ohio Railway, emphasized the need for a more free exchange of ideas among the various railroad companies.

Mr. Kelsay thought that much test information, especially that from service tests, which was the most valuable, would readily be furnished by the department heads of the railways. This would do away with the necessity for subscribing to a central testing bureau; providing, of course, that the secretary's office was equipped to handle the clerical work. There were a number of chemical and physical determinations which, when once made, could be put on record in the secretary's office, where they would be available for any member. On motion, the recommendations made in Mr. Kelsay's report were referred to the incoming executive committee.

CHARGES FOR INTERCHANGING EQUIPMENT

On Nov. 18 the following committee was appointed to investigate the necessity for changing the rules for making charges for interchanged equipment: H. A. Nicholl, chairman; C. D. Emmons, A. A. Anderson and W. S. Whitney.

Mr. Nicholl read the report of this committee, an abstract of which follows:

The committee decided to recommend that all charges for freight and passenger equipment remain as at present, with the exception that the charges for freight equipment should be amended to read:

"Over 100 miles at 3 cents per mile. The above rates to be for each 24 hours or fraction thereof."

Also, as the official classification covers the movement of passenger and freight cars on their own wheels, and stipulates the price per car-mile for handling same, that the members of this association, operating under the rules now in effect, file with the Interstate Commerce Commission an exception to the official classification covering the movement of cars on their own wheels. This recommendation refers particularly to the last three paragraphs of the rules as now in effect, which provide for a charge per car-mile, if used as a motor car of 25 cents, and if used as a trail car of 20 cents.

The report of the committee was accepted and its recommendations adopted.

STREET PAVING

A paper, entitled "Notes on Street Paving," by Thomas McMath, civil engineer, Indianapolis Traction & Terminal Company, was read by Rodney Hitt, associate editor, *ELECTRIC RAILWAY JOURNAL*. This paper will be found on page 236 of this issue.

G. J. A. Paul, Mahoning & Shenango Railway & Light Company, told of the experience which his company had had with

various kinds of pavement. During the last two years 8 miles of track had been relaid and the street surface paved with sheet asphalt, brick and blocks filled with grout or asphaltum. The city of Sharon would not permit any pavement to be laid unless the spaces between the blocks were filled with asphaltum. Three miles of track had been laid with this type of pavement recently, and Mr. Paul had not found the use of asphaltum to be satisfactory, because it worked out from between the blocks, got onto the rail, and made the track slippery. Sheet asphalt had not been satisfactory when laid directly against the rail.

Mr. Paul spoke of embedding ties in cinders and concrete. Whether or not this should be done depended largely on local conditions. On one street in Sharon the ties had been embedded in white slag cinders. This foundation had become so solid that it was necessary to chisel and blast it out when renewals had to be made. Notwithstanding the firmness of the foundation, every tie was rotten. The moisture had followed the rails down to the ties, which had absorbed it and decayed. Ties which were embedded in concrete had a life of about five or six years. Mr. Paul stated that blast furnace cinders which were granulated by pouring into water to cool formed a very hard roadbed, but did not protect the ties from decay.

INSPECTION OF ROLLING STOCK

A paper entitled "The Daily Inspection and Upkeep of Rolling Stock" was read by H. H. Buckman, master mechanic, Louisville & Northern Railway & Lighting Company. This paper was printed in the ELECTRIC RAILWAY JOURNAL of Jan. 29, page 193.

Mr. Anderson called attention to the common difficulty experienced in getting carmen to give serious attention to reports of defects in equipment. It was very desirable to get the transportation and mechanical departments to work in harmony in the reporting and repairing of defects. One way to place the responsibility for errors, which Mr. Anderson had found to be satisfactory, was that of using defect reports in duplicate. One copy of the report was kept by the motorman and the other sent to the shop with the car. If the repair of the defect had not been made the motorman had his duplicate report, which could be used in checking up the mechanical department.

L. M. Clark, Indianapolis Traction & Terminal Company, told of his system of inspection and repair records. A complete history of each car, so far as the mechanical department had anything to do with it, was exhibited by these records. The system of blanks also included a pull-in report. At the end of each month a general report was tabulated, which showed the number of pull-ins at each car barn and the ratio of pull-ins to the number of cars operated from that barn. These reports were posted in the barns in such shape that the record for the current month might be compared for the same month of the two previous years. This plan had materially assisted in reducing the number of pull-ins.

W. E. Rolston, Cleveland, Southwestern & Columbus Railway, said that when the cost of maintenance and the life of equipment were considered, it would readily be seen that considerable improvement might be made. A few years ago, when new cars were purchased, it was the practice to let those cars go for two or three years without very close attention, because they were new and did not need thorough maintenance. That practice now was obsolete. It had been found best to give new cars as thorough inspection and repairs as older ones; especially was this true of the car bodies. If a car body was varnished every 13 or 14 months, the expense for such work would be a minimum. On the other hand, if the car exterior was neglected for two or three years, then a thorough painting would be necessary. The cost of revarnishing as compared with the cost of repainting was as one to four.

Mr. Rolston held that the electric railways did not systematize their maintenance of equipment departments as thoroughly as should be done. More care should be taken in the choice of employees for special work. A system of advancement should be followed in the shops, as was done in the power houses. Mr. Rolston proposed the following plan of promotion



Group Picture of Delegates and Guests at Annual Meeting of Central Electric Railway Association

for repair shop employees: An inexperienced new employee would first work as a helper on the truck repair gang. The members of this gang would be paid a rising scale of wages, according to the time of their service. From the truck work the new employee would be advanced to work in the armature pit. Next, he would work at truck inspection and brake adjustment, and then be advanced to electrical equipment inspection. The man who had charge of the inspection of controllers and cables should be the best paid inspector. In following out such plan each man should be held responsible for some certain part of the work, and in this way there would be no shifting of responsibilities.

The inspection of brakes meant even more than the reduction of accidents due to faulty brake equipment. If the brakes were set too tightly then the drag would increase the load on the motors. If they were adjusted too loosely, then the motorman would undoubtedly reverse his motors to make quick stops and put the blame on the poorly adjusted brakes. The reversal of the motors, which Mr. Rolston said was done often, worked a hardship on the electrical equipment. Mr. Rolston said that on a road of sufficient size it would be an excellent plan to put one man in entire charge of the air-compressor motors. This man would then assume the responsibility. A testing rack should be installed and extra compressor motors should be purchased, so that no car need be held in for lack of an air-compressor set.

Mr. Rolston did not favor furnishing the car crews with stereotyped defect cards. If this was done, good judgment might not be exercised in reporting defects, and so unnecessary inspection work might result. The motormen on his road did not make any report if the car was in good condition. He favored regular and complete inspection by the mechanical department, rather than the placing of much trust in the reports made by the motorman. He would use the motorman's defect report only to check the other inspection.

George H. Whysall, Columbus, Marion & Bucyrus, told of duplicate car defect reports which had been used on the Columbus, Delaware & Marion Railway with good success. One copy was turned in to the mechanical department with the car, and the conductor turned in the other report with his trip-sheet.

Mr. Paul said that on the Mahoning & Shenango lines the motormen also made duplicate car-defect reports. The original was sent to the superintendent's office and the duplicate to the car house. If the motorman claimed that no attention had been paid to a trouble which he had reported, then the superintendent could place the responsibility. This method had largely prevented the incorrect reporting for defects. During the last six months but one motorman had claimed that no attention had been given to a defect which he had reported. On inquiry it was found that this motorman's original report was unintelligible.

R. C. Taylor, Indiana Union Traction Company, described in brief the system of car maintenance records in effect on that road. (See ELECTRIC RAILWAY JOURNAL, April 4, 1908, page 538.) A summary of the defects found on each car was tabulated yearly. Mr. Taylor described a "fault slip" carried by all officials of the Indiana Union Traction Company. Whenever a defect was noted a slip was used to inform the mechanical department.

On motion the secretary of the association was instructed to ask each member company for a complete set of his car maintenance and inspection blanks.

E. C. Spring described the scheme of defect slips and car-books used on the Dayton, Covington & Piqua line.

F. E. Cole, Louisville & Southern Indiana, called attention to the need for having statements and records which might be made useful in defending damage suits. He received daily a statement of the condition of each car, where it was located and what work had been done on that car. On the last day of each month a report was prepared which showed the number of defects repaired on each car during the month. To simplify the records, a numerical index for all troubles ordinarily found

was used. On the back of the barn foreman's daily report 125 troubles were listed and numbered. This key was used by the shopmen in their reports. In the monthly summary each car was listed and opposite its number were the key numbers of the defects or troubles which had been found. This showed to the superintendent whether there was an abnormal number of troubles of one kind on any one car or class of cars.

H. A. Nicholl said that the Indiana Union Traction Company had had considerable trouble in keeping the extra parts and fittings on its cars. When a car was transferred from one barn to another and when the crews were changed frequently it became almost impossible to place the responsibility for the loss of small fittings. During the last year the company had lost nearly 150 camp chairs, some large easy chairs, and even the rear door of a car had been taken away. Mr. Nicholl said that his road had as yet been unable to put into effect a system of records which would show just when supplies or small parts were lost.

Mr. Anderson told of a scheme used by the Indianapolis, Columbus & Southern for preventing the loss of incandescent lamps. Two racks were placed in each car. Each of these would hold four lamps. One of the racks was painted black,

the other red. When the car was in the barn at night the lamp inspector filled the red rack with four good lamps. The other rack was left empty. If any lamp became unusable while the car was in service, the crew replaced it with one of the four good lamps and put the poor lamp in the black rack. This scheme required that there always be a total of four lamps in the two racks, and it had served to prevent the loss of lamps.

Mr. Cole said that the Louisville & Northern Railway & Lightening Company required its motormen and conductors to return old material before new

parts or supplies would be issued to them. All small parts were stenciled with the car numbers. If an employee could not find an old part to exchange for a new one, he was required to present himself at the office before he could get an order for the renewal.

F. A. Bundy, Ohio Electric Railway Company, thought it would be impossible to get any system of inspection which would prevent the loss of small parts unless the men were educated to take pride in their cars. Hearty co-operation also would assist very greatly in reducing the little troubles between the car crews and the shopmen.

When questioned, R. C. Taylor said that the possibility of a fire being started by a trolley wire coming in contact with a car heater chimney had effectively been prevented by the use of a fiber insulating section which was inserted in the stove-pipe.

Mr. Rolston, speaking of abuse of equipment in general, thought that cars would be maintained in much better condition if the transportation department would endeavor to let the same men run the same cars as much of the time as was possible. This also would largely prevent the loss of supplies from the cars, because the element of pride would enter. If it were possible to arrange the runs in an ideal way, so that

Div.	Date	190
ORIGINAL	Motorman	No.
Car No.	Time taken	M.
Taken from	No.	
Delivered to	No.	at M.
Condition of Motors		
Controllers		
Brakes		
Trolley Poles, Wheels, Bases, Rope, Etc.		
Lamps		
Steels, Doors, Glass, Etc.		
Other Complaints		
Signed	No.	
<small>NOTICE--This blank must be filled out at the END OF EACH RUN, by motorman, and delivered to Dispatcher. Dispatcher will send Original to the Gen. Sup't. Duplicate to Car Barn ON SAME DATE AS THEY ARE HANDLED IN.</small>		
<small>607 General Steamship Co., Phil. Jan. 14, 1900, Jan. 6, 1902.</small>		

Mahoning & Shenango Railway Defect Card

the men would always have the same cars to operate, then the cost of regular maintenance would be reduced from 25 to 30 per cent.

AFTERNOON SESSION

President Anderson called the meeting to order after luncheon, at 2:15 p. m. Hon. C. C. Williams, ex-judge of the Common Pleas Court, of Columbus, Ohio, read a paper on "The Method of Procedure When a Person Refuses to Pay Fare for Self or Child." An abstract of this paper will be found on page 237 of this issue. There was no discussion on the paper, but a vote of thanks was tendered to Judge Williams for his able presentation of the subject which had been assigned to him.

COMMISSIONER GOTHLIN'S ADDRESS

Hon. O. P. Gothlin, member of the Railroad Commission of Ohio, made an informal address to the association on the subject, "The Railroad Commission and Its Relation to Interurban Roads." He prefaced his remarks by stating that what he had to say was not intended to refer to the good or bad practices of any particular interurban road in the State of Ohio, but that he wished to outline if possible his own personal views on some practices which he had observed and some theories which he held regarding the operation of an ideal interurban railway.

The management of an electric railway company has a dual responsibility, to the public and to the stockholders. Whenever these two responsibilities apparently conflict and it became a question of deciding between the interests of the public and the owners of the property, it was evidence of something wrong in the management, because the speaker believed that a railway company which had any excuse to be in existence could prosper and at the same time give fair treatment to its patrons. An electric railway company owed to the public good service and safe operation at prices for the transportation it sold which would afford a fair return on the honest investment in the property. This implied the use of all necessary safety appliances, and, of still more importance, the selection of capable officers and competent men to run the cars. A company is criminally negligent if it employs men who, by reason of their experience or habits, are unfit to operate cars.

Interurban roads operate cars at very high speeds, and the speaker raised the question whether they did not require block signals quite as much as did the steam roads. He also urged the managers to caution their motormen to run around curves at moderate speed. Reckless running, in his opinion, had been responsible for many accidents which had been declared unaccountable.

The Railroad Commission of Ohio had recently given much attention to the question of derails at grade crossings of steam and electric lines. A derail is intended to insure running over grade crossings at moderate speed. Some accomplish this purpose and some do not. The commission favored a type of derail located on the inside rail and having a sharp curve outward. Unless a car is running at very high speed, when it strikes an open derail of this type it will not turn over. The parallel guard rail used with some types of derails would not accomplish the desired end of preventing a car from running on to the intersecting tracks after it had been derailed. The commission advocated the use of a signal at each derail, consisting of a red and white disk and a lamp at night.

Under the existing law in the State of Ohio, an electric railway company crossing a steam railroad siding track is under the same obligation to protect its own cars as when crossing a main track of a steam railroad. The speaker did not think that this was a just requirement since frequently as many as 30 or 40 cars per day were operated over the electric railway tracks, and possibly only three or four trains per week on the steam railroad siding. He believed that in cases of this kind the responsibility for protecting the crossing should be placed on the company which operated the fewest trains.

Mr. Gothlin advocated the use of trolley guards at crossings with steam railroad tracks. Many crossings were from 75 ft.

to 100 ft. long, and intersected from six to eight main tracks of steam railroads. The conductor of the car is usually required to cross the tracks in advance and remain at the derail switchstand just at the time when the car is in the most dangerous position. The speaker then briefly referred to the recent conference of the commission and the interurban railway managers in Ohio, which resulted in the adoption of a standard code of rules.

Mr. Gothlin said that he thought few managers of interurban railways realized fully their possibilities as common carriers. Many of the companies had been spending money in purchasing connecting lines and in building extensions, but he believed that the same amount of money spent on the proper improvements to existing lines would net far larger returns. Freight traffic had been neglected largely because no adequate terminal facilities had been provided. The merchants were anxious to ship freight by the electric lines, but without freight houses in the cities and towns of sufficient size to provide reasonable storage capacity, the electric lines could not hope to get their fair share of the freight business. The merchants would not permit their teams to stand around idle while waiting for an opportunity to load directly into cars standing on a side track or on one of the main streets. There was a large field in the transportation of through freight which as yet had been undeveloped. The speaker called attention to the possibilities of developing traffic in the smaller towns along the line which, in many instances, have been neglected by the traffic department after the first novelty of travel over the electric lines had worn off.

Most of the freight carried by the electric lines at the present time, Mr. Gothlin pointed out, was hauled in single cars. He believed that if adequate transportation facilities were provided, trains of from 6 to 10 cars could be hauled at a very much lower cost per ton. The express business, he thought, had also been neglected. A much higher revenue could be derived from carrying express and package freight combined with a collection and delivery service than from an ordinary freight service. The public is willing to pay well for rapid transportation of packages and perishable goods, and the speaker thought that a profitable business could be built up along these lines.

The passenger service on interurban roads was frequently unbalanced and out of proportion to the traffic. Mr. Gothlin cited a hypothetical interurban line running between a terminal city, A, of 200,000 inhabitants and a terminal city, B, of 40,000 inhabitants. The cars were run through from A to B and the same service was given in and out of A and B, whereas B had only one-fifth the population of A. In other words, the service to and from B was more than adequate and the service to and from A less than was required. Many interurban lines also maintain the same frequency of service throughout the day, whereas it was well known that the maximum travel took place between 6 and 9 a. m. and 4 and 6 p. m. The speaker thought that through service and local service ought to be separated and that each should be given the attention it deserves. Referring to suburban traffic, Mr. Gothlin thought that a railway company could derive relatively more revenue from this source of traffic than from any other. The travel is regular and can be calculated in advance, so that the service can be adjusted in almost exact proportion to the requirements.

The traffic department of an interurban road makes the rates and prepares the tariffs. This is a most difficult task, and the Railroad Commission of Ohio appreciates all the difficulties. It is willing to give every assistance possible in the preparation and filing of tariffs. The temptation in making rates is always to make the rates higher on the profitable parts of the road, in order to recoup losses involved in handling traffic over the unprofitable parts of the system. Mr. Gothlin condemned any system of rate making which favored one community with low rates at the expense of another community which was given high rates, where the cost of service was no more.

The hostility of the steam railroads to the electric railways was unjustifiable, in the speaker's opinion, and he believed that ultimately interchange of business, but not necessarily interchange of equipment, would be compulsory. A steam railroad has no right to establish low rates on the parts of its system which compete with interurban roads. The commission recently had an exhaustive hearing on a matter involving this point. The Hocking Valley Railway established very low rates between the points where it competed with the Scioto Valley Traction Company. It was willing to stand the loss due to the low rates because it could make up the deficit on other parts of its system by putting into effect excessively high rates. The isolated interurban road could be ruined financially by such competition, but public policy demands that such unfair methods should be prohibited.

The question of what constitutes a fair return to the railway company depended on the honest value of the investment in the railway company's property. Recent statistics of the financial condition of the interurban railways in Ohio showed that the average capital liabilities per mile of track were \$82,000. Of this amount \$32,000 represented bonds and \$50,000 represented stock. The speaker believed that the actual value on which rates could be equitably based was far less than \$82,000 per mile in most cases. Regulation of the financial operations of railway companies was quite as necessary as regulation of the operation of their property. Only honest obligations should be sold to the public.

Commissioner J. C. Sullivan followed Mr. Gothlin and referred briefly to the necessity which led to the adoption of a standard code of interurban rules in Ohio. The commission and the managers of the interurban railways worked in entire accord, and he believed that the adoption of these rules would be satisfactory to all interests concerned. The commission was doing all in its power to prevent accidents on both the steam and electric roads and while it was not issuing formal orders, it was offering suggestions which in most instances had been followed with good results. He emphasized particularly the importance of retaining in the service old and experienced men who possessed good judgment and who could be depended upon to operate their cars safely under the most trying conditions.

A vote of thanks was offered to the railroad commissioners of Ohio for the interest they had manifested in attending the meeting and as an expression of appreciation of the co-operation which the commission has been giving to the electric railway companies in the State in promoting better and safer train operation.

Owing to the lateness of the hour, the reports of several of the standing committees were referred to the incoming executive committee of the association with the understanding that they were to be presented at the next meeting to be held in South Bend.

The secretary then read his annual report which was printed in the *ELECTRIC RAILWAY JOURNAL* of Jan. 29, page 190. The following statement of finances of the association which was not included in the report published last week was read by the secretary:

The receipts and disbursements to Dec. 31, 1909, were:

RECEIPTS.	
Cash on hand.....	\$325.21
Received from railroad and member companies.....	2,976.34
Received from supply men.....	480.00
Associate membership.....	9.00
Stationery and printing.....	2,006.15
Advertising.....	212.00
	\$6,008.70
DISBURSEMENTS.	
Salaries.....	\$2,719.62
Traveling expenses.....	129.00
Stationery and printing.....	1,903.06
Postage.....	190.00
Telephone and telegraph.....	61.17
Office incidentals.....	38.50
Advertising.....	86.00
Taxes and insurance.....	9.03
Express.....	17.62
Office fixtures.....	47.99
Rent.....	429.50
Cash on hand.....	427.39
	\$6,008.70

The following is a statement of assets and liabilities of the association on Jan. 22, 1910:

ASSETS.	
Cash on hand Jan. 1, 1910.....	\$427.39
Receipts since Jan. 1.....	1,090.79
Due from railroads.....	536.89
	\$2,054.98
LIABILITIES.	
Operating expense for January.....	\$325.00
Surplus.....	1,719.98
	\$2,054.98

A. A. Anderson, the retiring president, made a few brief remarks in which he complimented the association on the good work which had been done during the year and thanked all the members for the co-operation which they had given him during his term of office. The election of officers then followed and Mr. Whysall, the new president, was escorted to the chair. He thanked those present for the honor conferred upon him and expressed his intention to do all in his power to carry on the good work to which the association was pledged. The meeting then adjourned.

MEETING OF CENTRAL ELECTRIC TRAFFIC ASSOCIATION

The Central Electric Traffic Association held a meeting at the Southern Hotel, Columbus, Ohio, on Jan. 26, the day preceding the annual meeting of the Central Electric Railway Association. At the conclusion of the meeting, A. L. Neereamer, chairman of the association, when asked by a representative of the *ELECTRIC RAILWAY JOURNAL* for an account of the business transacted, made the following brief statement:

"The meeting was called to check rates. There were represented in person or by proxy 41 lines. The annual report of the chairman (see *ELECTRIC RAILWAY JOURNAL* of Jan. 29, page 190) was read and approved and ordered spread on the minutes. A. L. Neereamer was unanimously re-elected chairman. The next meeting will be held in Dayton, Ohio, Feb. 19, at which time matters pertaining to freight and express tariffs will be considered."

AVERAGE HAUL AND CRITICAL HAUL

L. H. Parker, of Stone & Webster, writing in the *Public Service Journal* regarding "The Average Haul and the Critical Haul on Electric Railways," says in part:

"According to the annual report just published, during 1909 the Boston Elevated system carried nearly 281,000,000 revenue passengers and ran about 51,000,000 revenue miles. Assuming that the average haul was 3 miles with an average of 40 seats per car, there were 843,000,000 passenger-miles and 2,040,000,000 seat-miles. The ratio of passenger-miles to seat-miles was 41.4 per cent. During the rush hours on certain lines the ratio of passenger-miles to seat-miles was, no doubt, nearer 200 per cent, while on late trips on certain suburban lines it was doubtless nearer zero per cent. The operating expenses, taxes, interest on funded debt, depreciation, rentals of subways, and guaranteed dividends on stocks of leased lines amounted to about \$13,650,000, or nearly 26.8 cents per car-mile or .67 cent per seat-mile. If the yearly seating factor was 41.4 per cent, then one passenger-mile cost .67 cent divided by .414, or 1.62 cents, or the average journey of 3 miles cost the company 4.86 cents for which it received 5 cents, leaving .14 cent available for return on such part of the investment as is represented by capital stock of the company. The 'critical haul' would be equivalent to 5 cents divided by 1.62 cents or approximately 3.09 miles."

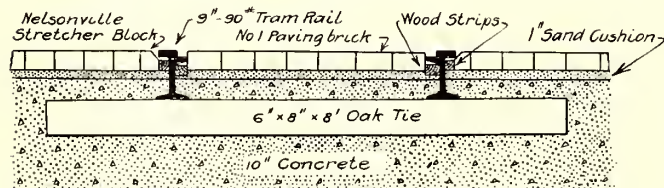
With the February number of the *Electrical Record* Albert Spies retires from the editorship of that publication, to become the managing director of *Foundry News*, a new illustrated monthly publication devoted to the foundry arts, with offices in the Hudson Terminal, 50 Church Street, New York. *Foundry News* will make its first appearance in April.

NOTES ON STREET PAVING*

BY THOMAS B. MCMATH, CIVIL ENGINEER, INDIANAPOLIS TRACTION & TERMINAL COMPANY

The pavement between street railway tracks is subject to destructive conditions not encountered in ordinary street paving. The concentrated wheel loads of the modern cars distort and deflect the rail. This breaks any contact between the pavement and the rail and permits the entrance of water into the foundation of the pavement. Heavy, stiff rails with good fastenings and solid ballast reduce the deterioration of the paving, but the vibration of the rail cannot be wholly eliminated.

During the past year several features of track paving have been studied in Indianapolis. The reconstruction of tracks in the business center of the city afforded an opportunity of trying some new methods. About 1000 ft. of double track on Pennsylvania Street between Washington and Ohio Streets were rebuilt, using every care to make the work as permanent as possible. Nine-inch girder tram rail weighing 90 lb. per yard was laid on 6-in. x 8-in. x 8-ft. white oak ties spaced 2 ft. apart center to center. The sub-grade was excavated to a depth of 10 in. below the bottom of the ties and rolled until solidly compacted. The track was raised on blocking to the proper grade and aligned, after which the excavation was filled with Portland cement concrete to within 5 in. of the top of the rail. The concrete was allowed to set 10 days before the brick paving was laid on a 1-in. sand cushion. At the street intersections where vehicular traffic could not be kept off, the bricks were filled with asphaltum filler, but the balance of the paving was grouted with a wash of Portland cement, every effort being made to completely fill all joints. The new features of this track construction are the increased thickness of the concrete base un-



Cross Section of Track Construction with Brick Paving

der the ties and the use of beveled-edge Nelsonville stretcher bricks on the outside of the rails, as shown above.

Objections may be raised to the use of stretcher bricks outside of the rails on the ground that they might start the formation of a wheel rut along the rail. The beveled stretcher bricks in combination with the wood strip under the head of the rail are intended to keep the rail from direct contact with the brick, reduce the effect of vibration and prevent the paving outside of the rails from being crushed down by wide-tread wheels.

Asphaltum filler has been used on large areas of brick paving in Indianapolis. It has certain advantages in cases where vehicular traffic cannot be kept off the pavement for sufficient time to permit cement grout to take a complete set. Several brands of asphaltum and coal tar pitch fillers have been used under conditions which will make it possible to obtain data at a later time as to their relative merits. About 8000 sq. yd. of brick track paving were laid with asphaltum filler during 1908 and an adjoining stretch of track was grouted with Portland cement. As both stretches of paving are subjected to very heavy traffic they were laid with great care. At the present time both are in excellent condition, but the lapse of time will enable a direct comparison of results to be made.

The wear on brick pavement begins by the breaking off of the corners of the bricks at the joints and this continues until the bricks resemble cobblestones. The use of bricks with rounded or beveled corners is a mistake. Paving bricks should have as sharp corners as possible and an effort should be made to completely fill the joints with grout. Ordinary methods of

grouting are the ruin of brick paving and an extra 5 cents per square yard spent in good grouting is the best investment on the job. The best pavement is always that which has been most carefully grouted. The following method of grouting is suggested: Mix cement and sand in equal quantities in a box, always using a measured amount of sand, cement and water. After thorough mixing dump the batch on the surface of the pavement and with a rubber squeegee instead of a broom sweep the grout diagonally across the joints. After the first sweeping go over the surface again and repeat the operation until all joints are full and the grout has taken its initial set.

The price paid for ordinary paving brick is probably too low. Smaller bricks of more uniform structure and burn than those commonly used are preferable. Bricks should be very carefully inspected and possibly 40 per cent of the bricks now classed as No. 1 quality should be rejected. If smaller bricks were used those rejected for paving could be sold for building purposes, thus protecting the manufacturer against loss by excessive culling. Inspection for quality while the bricks are being laid is unjust to both the manufacturer and the consumer, as the eye can detect only faults in size, color and perhaps absorption of water. Many bricks which would be satisfactory are rejected and many defective bricks are scattered throughout the pavement. The inspector should have an opportunity of judging the quality of the bricks from their position in the kiln.

A better market for second-class bricks will have to be found before the manufacturer can be expected to grade closer or else the price paid for first-class bricks must be higher. Both the manufacturer and the consumer should be insured against the expense of freight, unloading, hauling and storage on rejected brick.

Up to the present time no granite or stone block pavement has been used in Indianapolis. The traffic on several streets now paved with brick is so heavy that a block pavement is needed. The street railway company has 8000 sq. yd. of stone block pavement now under construction on Kentucky Avenue south of White River. The block selected is from quarries located 60 miles east of Pittsburgh, Pa., and is known as Ligonier block. It is a very tough limestone. The blocks are laid on a concrete foundation and the joints are filled with pitch. The pitch to be used will be Hydrolene 80 per cent and residuum oil 20 per cent. The stone blocks are smoothly cut and the pavement will not be materially rougher than brick. The blocks do not glaze or get slippery under traffic. They will eventually cobble if exposed only to horse travel, but if laid smooth they will remain so under wheel traffic, if fully grouted.

The secret of a good block pavement is in the cutting of the blocks with smooth faces and square edges. The blocks must be laid close with the joints filled with filler. If the pavement be made as smooth as brick the noise will be obviated largely and the pavement will continue smooth even when worn by traffic. For railway track paving, stone block has the great advantage that the paving can be replaced after making track repairs at small expense and the general condition of the street is not impaired as in asphalt or brick surface.

The maintenance of track and paving always presents the difficulty that minor repairs to the track cannot be made without a large expense for paving. In other cases reconstruction of the paving cannot be made because the condition of the track will not justify it and enough money to rebuild both is not available. A worn-out pavement on a street with a track two-thirds worn out presents a difficult problem. There should be some cheap pavement invented to use for such short time work. This problem is frequently presented on interurban lines in small towns in which ordinary T-rail construction should be paved. The success of pavements of the bitulithic class seems to indicate that something can be expected in this direction.

Assuming that the track roadbed is substantial enough to serve for a foundation, if a 4-in. or 5-in. layer of bituminous macadam could be cheaply laid and cheaply and easily repaired by ordinary section men it would solve this trouble. One asphalt contractor suggests a layer of clean macadam laid and rolled in place with a light roller, then poured with hot asphalt;

*Abstract of a paper presented at the annual meeting of the Central Electric Railway Association, Columbus, Ohio, Jan. 27, 1910.

this to be followed with a layer of $\frac{1}{4}$ -in. stone, also poured with hot asphalt then coated with sand and cement and rolled with a heavy roller.

With this method no elaborate plant would be required. A closed heating kettle of two tons capacity with a hand agitator can be purchased for \$700 and the grading of the macadam can be cheaply done. It has been estimated that such a pavement could be laid at 50 cents per square yard, and subsequent patching could be done by section men at the same cost. This would give a pavement suitable for streets with light traffic where the traffic largely avoids the car tracks. The cost of maintenance would be so small that it could be neglected.

The need to-day, for small towns, is a cheap yet reasonably durable pavement that can be repaired when necessary by ordinary labor with a small expenditure for plant. The macadam country road fails under automobile traffic. The need is now for a cheap cementing material.

THE METHOD OF PROCEDURE WHEN A PERSON REFUSES TO PAY FARE FOR SELF OR CHILD*

BY C. C. WILLIAMS, OF THE COLUMBUS (OHIO) BAR

The subject of this paper may be viewed from two standpoints. The first has to do with the naked legal rights of the parties. The other affects questions of policy in the handling of the traveling public by the railroad companies.

In considering the question of the legal rights of the parties and the examination of precedents, it may be of interest to note the decisions of the courts regarding steam as well as electric railroads. In the State of Ohio legislation has kept separate and distinct the provisions relating to street railroads and those affecting steam roads. In one case the Supreme Court has said, "The statutes as to railroads do not apply to street railroads unless made to do so by clear reference." But the law affecting passengers and the general public, or either, so far as the payment of fares, or failure to do so, is concerned, must rest upon the same principle. There is no reason why the same general rule applying to the treatment of passengers upon steam roads and those traveling and refusing to pay fare upon steam roads should not apply to persons similarly situated when traveling upon electric or street railroads.

A carrier of passengers has the right to make reasonable regulations for the management of its business. This may include provisions for the protection of its rights and property, as well as for the comfort, order and safety of its passengers. These would also include rules as to the paying of fare or the producing of a ticket. The carrier may require those desiring to become passengers to procure tickets before entering the train, or upon failure to procure tickets to pay a greater fare. It may require the delivery of the ticket or fare before entering the vehicle. The pay-as-you-enter electric cars are operated by virtue of this right. Where the carrier has made suitable provisions and accommodations for enabling the traveling public to comply with its reasonable rules, it has the right to insist upon their being observed. But how may it enforce these regulations? When it comes to a refusal to pay fare the answer is simple. If the person has entered the vehicle he may, upon such refusal, be expelled therefrom.

It is well settled that the carrier has the right to expel from its cars persons who refuse to pay fare or to furnish a ticket for their transportation, and this is the usual and reasonable remedy. Public carriers, whether steam roads or electric roads, are not eleemosynary institutions, but are supposed to be operated for the profit of those owning the stock and bonds of such companies, subject, of course, to such regulations as may be necessary for the proper care of the general public.

A sufficient opportunity should be given the person after he has been admonished that he will be expelled if the fare is not

paid, to produce the fare and comply with the regulations of the carrier. The failure to produce the ticket or to pay the required fare may be due to some fault of the ticket agent or other employee of the company, but the courts have recognized the fact that it is impossible for the conductor to investigate and determine the rights of the passengers complaining, and therefore have recognized the propriety of the regulation requiring the payment of the fare by the passenger and the submission of his grievance to the proper officer of the company. If fare has been unfairly exacted the passenger has redress.

The method of procedure, then, when a person refuses to pay fare is expulsion. But what is to be done when an adult person is accompanied by a child? If he has refused to pay his fare and it becomes necessary to expel him, the child in his charge should also be ejected, unless the child's fare has been paid and the child is of sufficient age to travel alone. In the latter case the carrier would be justified in permitting it to remain if the person in whose charge it had been so desired.

Public carriers have the right to prescribe such reasonable regulations as they may deem proper for determining the age at which a child shall pay fare, and to fix a lower rate of fare for children under a certain age than for those over that age and for adults. Usually, children of the age of those required to pay half-fare are accompanied by adult persons.

What shall the carrier do when a person in charge of a child refuses to pay its fare and the child is within the age prescribed for the collection of fares? A person in charge of a minor child is responsible for its care, and the penalty for a refusal to pay for its trip may properly fall upon such person. And this is equally true whether the person in charge has or has not paid his own fare. It is important that the carrier, through its employees, should not exceed its authority at such a time, or to do what otherwise might be lawful in an unlawful or careless manner.

In Ohio the Supreme Court has clearly defined the duties of a railroad company under such circumstances, and the rights of the adult and the child who may be accompanying such adult. The Ohio rule is clearly laid down in the following language of the court:

"When a person having in charge a child of sufficient age to require payment of fare, takes passage on a railroad, such person becomes liable for the payment of the child's fare, and upon refusal to pay both may be ejected from the train at the next station.

"When such person has paid fare or purchased a ticket which is taken up by the conductor, such conductor must, before ejecting such person and child, return or offer to return to such person the unused value of such ticket or fare over and above the fares of both for the distance already traveled.

"If the ticket is such that a stop-over may be had thereon, the conductor may tender a stop-over check instead of money, but to retain the ticket and expel the parties from the train renders the company liable in damage."

It will be observed that under the above rule it makes no difference whether the person having the child in charge has paid his own fare or not, provided he neglects and refuses to pay the fare of the child. Both may be ejected from the train for such refusal. In Maryland, Minnesota, California, Pennsylvania, Illinois and several other States substantially the same general rule has been announced by the courts, and wherever there has been an expression on the subject the courts have conformed practically to the same rule. Some of them have not announced the duty of the company as to returning a fare. But the courts would hardly permit, on the one hand, the expulsion of a passenger before he has reached the point to which he has paid without returning to him the unearned portion of his fare, nor, on the other hand, require the company to pay back such part of the fare as had already been earned. The Maryland Supreme Court has even held that a passenger, being responsible for the fare of a child under his charge, may be ejected for refusal to pay such fare, though he has paid his own fare and though he himself is a minor.

*Abstract of a paper read at the annual meeting of the Central Electric Railway Association, Columbus, Ohio, Jan. 27, 1910.

The subject of this paper contains the words, "The Method of Procedure." If we are to gage the conduct of the officers of a company by the commonly accepted views of the general public, or of sensational newspapers, there is but one conclusion; namely, that the railroad company will exercise every legal right which it possesses, and hence the person and child will both be summarily ejected.

But what other course is left for the carrier which will protect it against imposition? A Pennsylvania court has announced the rule that the company had no lien upon the person of a passenger for fare. And it is no great satisfaction to arrest a dead beat for defrauding the company out of a fare when no recovery can be had of the fare and the company is simply put to the annoyance of the arrest and prosecution. Unquestionably, a traction company or any public carrier not only has the right to but should eject the passenger who refuses to pay his fare or the fare of one who is in his custody and care.

In the exercise of its right of expulsion great care must be used that the passenger and child are ejected in a lawful manner. In the Ohio case before cited, the Supreme Court announced the rule applying in the case of steam railroads, and in the speaker's judgment this is the law of Ohio which the court would recognize in the case of an electric or interurban road. The court held that the parties might be ejected from the train at the next station. It would seem from this that the court may have had in mind both the convenience of the company, in not being required to stop until it reached a regular stopping point, as well as the comfort of the passenger ejected, in not requiring him to be ejected in some out of the way place. But in the case of interurban roads, we often have stops at very short intervals. The courts would probably hold that a public carrier was not exercising ordinary care if it were to eject a passenger at some lonely or out of the way place, and especially if the person were to be ejected at night. The proper course in such a case would be to carry the person or persons to some suitable stop, where they could be expelled from the car with due and reasonable care for their safety. If they were to be expelled in some dangerous or lonely spot, where, perhaps, the only apparent means of reaching houses on the public highway would be by following upon the tracks and right-of-way of the company, and if any accident should occur under such circumstances the court doubtless would look upon such an expulsion as an act for which the company might be held accountable, and the circumstances warrant a jury in increasing the measure of damage which might be assessed by reason of such injury.

Another feature to be considered in determining the method of procedure under consideration is the manner in which passengers may be expelled from a car. Very much has been written upon this subject, but it all may be summed up in a very few words. A train crew may exercise such force as may be necessary to accomplish the purpose sought. In the exercise of this force too much stress cannot be laid upon the fact that great care should be taken not to use greater force than shall reasonably be necessary. The passenger whom it is proposed to eject may be boisterous and profane, but that fact affords no warrant for coarse language or rough treatment on the part of the trainmen. Nothing will arouse sympathy, either of the passengers on the car at the time of the expulsion or a jury in case the matter becomes a subject of litigation, as certainly as will coarse language or rough and boorish treatment on the part of the trainmen. Fortunately, traction companies have been so careful in their selection of suitable employees that complaint of such misconduct is almost unheard of.

In conclusion, a public carrier should not hesitate to properly enforce its rights in the collection of its fares, even, when necessary, to the expulsion of persons of whom such fare is not paid. But in the exercise of this right good judgment should be used, and the fact should not be lost sight of that a wrongful or brutal expulsion of a passenger may work far greater injury to the company than the fact that the passenger

has been allowed to remain upon the car without the payment of his fare. The trainmen should be properly cautioned in this regard and instructed that an intelligent and discreet dispatcher stands ready in case of an emergency to advise them as to the course to be pursued.

INVESTIGATION OF SNOW FIGHTING FACILITIES

An investigation was held before the Public Service Commission of the First District of New York on Jan. 19, 1910, regarding the facilities of the Brooklyn Rapid Transit Company for protection against severe snowstorms. William McCarrroll represented the commission, with G. H. Backus as counsel. The Brooklyn Rapid Transit Company was represented by W. S. Menden, assistant general manager.

H. L. Coyne, assistant engineer in the bureau of transportation of the commission, said that during the severe storm of Dec. 25 and 26, 1909, he had ascertained as nearly as possible how long each line was closed to service. For instance, service was discontinued on the Avenue C line for 63 hours, on the Bay Ridge line totally for four hours and partially for 26 hours, and the Bergen Street line totally for 15 hours and partially for 41 hours. Service was also abandoned temporarily over the west end elevated line between Ulmer Park and Coney Island and over the Sea Beach line south of Twenty-second Avenue. The trunk lines of the surface system were all kept open, but service over them was somewhat irregular.

C. W. Wilder, acting electrical engineer for the commission, said that the total snow-fighting equipment of the Brooklyn Rapid Transit Company consisted of 40 snow sweepers and 26 snow plows, with approximately 400 miles of line to be kept open in snowstorms. He contrasted this equipment with that of the Boston Elevated Railway operating 417 miles of line and having available 307 snow plows and seven snow sweepers; the Metropolitan Street Railway, New York, with 130 miles of track and 70 sweepers and five snow plows, and the Third Avenue Railroad, New York, with 76 miles of track and 15 snow sweepers. The plows of the Metropolitan Street Railway, he explained, were used only when a line was completely blocked. Assuming that the Brooklyn Rapid Transit Company operated its 400 miles of track and maintained a schedule of 8 m.p.h., it could cover its tracks once in 45 minutes with the snow machines. The Metropolitan Street Railway was able to cover its tracks every 14 minutes at the 8-m.p.h. schedule, and the Third Avenue Railroad every 30 minutes at the same schedule speed. The Union Railway, with conditions similar to Brooklyn, could cover its tracks every 45 minutes, while the Boston Elevated Railway could cover its tracks every 9 or 10 minutes. Mr. Wilder had lived in Boston and thought climatic conditions there were worse than in New York, but that vehicle traffic was heavier in New York than Boston. While he had no figures on the amount of snow precipitated on Dec. 25 and 26, it seemed to Mr. Wilder that the storm of Dec. 25 and 26 was the most severe during his experience in New York, which dated from 1900.

In reply to a question by Mr. McCarrroll as to how far the equipment of the Brooklyn Rapid Transit Company was adequate and what the company was prepared to do to prevent a repetition of the conditions which prevailed on some lines on Dec. 25 and 26, Mr. Menden said:

"The question of whether equipment of this kind is adequate for the purposes for which it is intended is necessarily determined in each locality by previous experience. The fact that in one section of the country a railroad has a certain number of sweepers and snow plows per mile of track cannot be taken as a criterion for another locality. It appears from our experience in previous years, and the recent storm of a few days ago, which was more severe in the amount of snow that fell than the storm of Dec. 25 and 26, that our equipment was sufficient to take care of these storms if gotten out in time. As Dec. 25 was a holiday and a Saturday and the following day was a

Sunday, it was very difficult to secure men for service during the storm, which started about 8 p. m. In addition, the violence of the storm was underestimated, based on the previous weather report, and the equipment was not operated over our lines early enough for the storm which developed. Moreover, many men were not at home and those who were at home made every possible effort to stay there—a combination which caused delay until the lines were tied up. We have no reason to feel that our equipment is not adequate for our needs at the present time."

Mr. Menden said that no means had been taken since the storm to increase the snow equipment of the company, but that it was proposed to equip some flat freight cars with snow plows for fighting snow drifts and reconstruct the present snow equipment by reinforcing the car bodies. The successful operation of elevated trains on the surface was a question of protecting the particular location where the tracks were below the adjacent surface and the remedy was either to construct a snow fence or put cars on one track to act as a snow fence during a storm and operate over the other track. It was not a question of equipment.

In conclusion Mr. Menden said:

"Inasmuch as the recent storm was the worst we have had in quantity of snow in the last four years, and the company was able apparently to take care of that storm satisfactorily, we believe that our equipment is sufficient. Really, that is what determines the question. The number of sweepers per mile of track is not a fair guide as to whether your equipment is adequate. It is a question of whether you can keep your line open. We have a lot of other equipment we use in case of a snowstorm which other companies do not have. We have a very heavy ash car which we operate on certain lines which cleans the snow to an extent which permits passenger traffic. There are a number of considerations which apply to Brooklyn that do not apply to other cities."

The hearing was then closed.

On Jan. 20 an investigation was held before Commissioner McCarroll regarding the facilities of the Richmond Light & Railroad Company for taking care of traffic during severe snowstorms. Arthur Dubois represented the commission as counsel. A. H. Larkin represented the company. Mr. Dubois offered in evidence the monthly meteorological summary of the New York Weather Bureau for December, 1909, with special reference to the snow precipitation on Dec. 25 of 8.8 in. and on Dec. 26 of 1.3 in. He also offered in evidence the weather maps of the bureau for Dec. 25 and 26, showing the meteorological conditions throughout the country.

T. J. Mullen, superintendent of the Richmond Light & Railroad Company, said that the company had three Brill sweepers and a Taunton plow available for keeping lines open and that the Staten Island Midland Railway had one McGuire sweeper and one Taunton plow. There were approximately 61 miles of railroad in the two systems. Service over several lines was abandoned temporarily during the storm. The snow equipment of both companies was used on both lines, and was concentrated in severe storms in keeping open the lines of heaviest traffic.

F. E. Ferris, assistant engineer of the commission, testified regarding conditions on the lines of the company on Dec. 27 and 28 as reported to him by inspectors for the commission. H. C. Leonhardi, an inspector of the commission, also testified regarding conditions as he found them following the storm.

In conclusion, Mr. Mullen said that the storm of Dec. 25 and 26 was the most severe during his service with the company, which dated from 1905, and that it was one with which it would have been impossible to cope no matter how much snow equipment the company had. As soon as the character of the storm was apparent, the company sent employees in wagons to various parts of Staten Island to hire men to assist in fighting the storm, but they were unable to enlist the services of more than 120 men, whereas 500 or 700 were required.

The hearing was then closed.

COMMITTEE MEETINGS IN NEW YORK LAST WEEK

On Wednesday and Thursday, Jan. 26 and 27, a number of meetings were held in New York of the American Street & Interurban Railway Association and its affiliated associations. All of these sessions were held at the headquarters of the association, 29 West Thirty-ninth Street.

The following committees met at some time during the three days:

- Executive committee, American Association.
- Committee on public relations, American Association.
- Committee on Interstate Commerce Commission affairs, American Association.
- Committee on compensation for carrying United States mail, American Association.
- Committee on revision of associate membership, American Association.
- Executive committee, Accountants' Association.
- Committee on a standard classification of accounts, Accountants' Association.
- Executive committee, Claim Agents' Association.
- Committee on subjects, Claim Agents' Association.
- Executive committee, Transportation & Traffic Association.
- Committee on city rules, Transportation & Traffic Association.
- Executive committee, Manufacturers' Association.

There was also a meeting of the representatives of the various State and sectional associations, followed by a joint meeting of these representatives with the committee on public relations of the American Association. Reports of the meetings of the executive committee of the Claim Agents' Association and of the classification committee of the Accountants' Association were published last week. Brief statements of the meetings of the other committees follow:

COMMITTEE ON SUBJECTS

The meeting of the committee on subjects of the American Association was attended by Arthur W. Brady, chairman; C. S. Sergeant, W. J. Harvie, H. S. Swift, R. I. Todd and E. C. Carpenter. The subjects selected for the 1910 convention will be announced by the secretaries of the several associations.

MEETING OF REPRESENTATIVES OF STATE ASSOCIATIONS AND COMMITTEE ON PUBLIC RELATIONS

The meeting of the committee on public relations of the American Association was attended by C. Loomis Allen, chairman; Hon. W. Caryl Ely, Frank Hedley, Arthur W. Brady, Thomas N. McCarter, Gen. George H. Harries, E. C. Foster, W. G. Ross and P. F. Sullivan. After a discussion of the general work of the committee, a joint meeting was held with the representatives of the State and sectional associations who were in attendance. Invitations had been sent by the association to each of the State railway associations of which it had record to send representatives to attend the meeting. Those present were: W. D. Wright, New England Street Railway Club; A. H. Ford, Alabama Light & Traction Association; D. A. Hegarty, Arkansas Association of Public Utility Operators; R. S. Goff, C. S. Clark and E. S. Wilde, Massachusetts Street Railway Association; H. E. Weeks, Iowa Street & Interurban Railway Association; A. W. Brady, Central Electric Railway Association; Duncan McDonald, Canadian Street Railway Association; E. F. Peck, C. Loomis Allen and J. H. Pardee, Street Railway Association of the State of New York; C. L. S. Tingley, Pennsylvania Street Railway Association.

At the joint meeting the question of a closer affiliation of these local bodies was thoroughly considered, and it was decided to present a resolution to the executive committee of the American Association to the effect that the presidents of these sectional and State organizations should be appointed members of the committee on public relations of the American Association.

COMMITTEE ON UNITED STATES MAIL

The committee on compensation for carrying United States mail was represented by: R. S. Goff, chairman; C. L. S. Ting-

ley, J. K. Choate, A. R. Piper and Edgar S. Fassett. After full discussion of this subject, the committee decided to prepare an inquiry to member companies embodying four questions, replies to which would show the actual conditions of this class of service throughout the country.

COMMITTEE ON INTERSTATE COMMERCE COMMISSION

The committee on Interstate Commerce Commission affairs, American Association, was represented by: Gen. George H. Harries, chairman; F. R. Ford, C. S. Sergeant, F. W. Brooks, and G. O. Nagle. This committee considered in detail the work coming within its jurisdiction, but no definite action was made public.

COMMITTEE ON REVISION OF ASSOCIATE MEMBERSHIP

The meeting of the committee on revision of associate membership, American Association, was attended by: T. N. McCarter, chairman; James F. Shaw, Gen. George H. Harries, W. Caryl Ely, H. R. Goshorn, C. Loomis Allen and Robert N. Wallis. Different plans looking toward a revision of the conditions of associate membership were presented, but the subject will be given further consideration before any announcement of definite suggestions will be made.

EXECUTIVE COMMITTEE, AMERICAN ASSOCIATION

At the meeting of the executive committee of the American Association on the afternoon of Jan. 28 there were present: James F. Shaw, chairman; A. W. Brady, T. N. McCarter, Gen. and R. I. Todd. Past-Presidents Sergeant, Vreeland, Lang and Ely were also in attendance.

The executive committee received and discussed the reports of the chairmen of the various committees of the American Association which had meetings on the morning of that day. In addition, the matter of the location of the 1910 convention was taken up. Invitations had been received from Saratoga Springs, Niagara Falls, Portland, Ore., Toronto, Toledo, Atlantic City, Rochester and St. Louis. The president was authorized to appoint a special committee of three members to decide upon the time and place for holding this convention. The names of the gentlemen to be appointed will be announced later. They will take up the matter in connection with a corresponding committee to be appointed by the Manufacturers' Association.

The matter of insurance, as embodied in the report of the committee on insurance to the 1909 convention and various developments since that time, was given consideration. In this connection a resolution passed by the Central Traction & Light Bureau was presented reading as follows:

"Whereas, the Central Traction & Light Bureau desires to establish and maintain harmonious and mutually helpful relations with the owners of classes of property which it is called upon to consider, and

"Whereas, it is desirable at all times that there should be a method provided whereby organizations of property owners may communicate and consult with the committees of the Central Traction & Light Bureau.

"Resolved, that we respectfully request the American Street & Interurban Railway Association to appoint a committee empowered to confer with the above-mentioned bureau or its committees from time to time, and to present to and discuss with the bureau matters of mutual interest."

The chairman of the committee on associate membership, H. H. Adams, then presented a report and stated that 119 associate members had been enrolled since the beginning of the fiscal year. The membership of the association at this date was shown to be as follows: Active membership, electric railway companies, 335; associate membership, individuals, 934.

This statement shows a net increase over the corresponding period of the previous year in active membership of 44 companies and in associate membership of 428 individuals.

The chairman of the committee on education, Prof. H. H. Norris, was also present at the meeting and entered into the discussion of the report of that committee to the 1909 convention.

The matter of the secretaryship of the American Association was brought up. The resignation of B. V. Swenson, presented in January, 1909, was accepted and H. C. Donecker was appointed to that office. A biographical sketch of Mr. Donecker appears in the personal column of this issue of the ELECTRIC RAILWAY JOURNAL.

EXECUTIVE COMMITTEE, ACCOUNTANTS' ASSOCIATION

At the meeting of the executive committee of the Accountants' Association the following members of the committee were present: H. S. Swift, chairman; A. S. Michener, N. E. Stubbs, H. E. Weeks, Robert N. Wallis, W. J. Tharp, Robert Morrison, Jr., and C. S. Mitchell. The following, who are members ex officio, were also present: F. E. Smith, H. L. Wilson, W. F. Ham, William H. Forse, Jr., and W. B. Brockway. A number of topics proposed for papers for the next annual meeting of the association were considered, and it was decided that it was advisable to have papers presented that would take up some of the topics outlined as follows: Development of the theory underlying the principles of the standard classification of accounts; methods of determining overhead charges, such as expenditures for organization, engineering, interest and taxes during construction, etc.; accounting for freight and express business; methods of collecting and auditing revenues from various types of prepayment cars; construction expenditures and records. It was also suggested that data be collected as to the practice of various companies in handling payrolls. It was the idea that a symposium might be prepared presenting the practice of companies in various respects and that data could be added from year to year to the information obtained in the beginning.

It was announced that W. M. Steuart, chief statistician, Bureau of Manufactures, United States Census Bureau, will present a paper concerning the census report on electric railways. It was the plan to have this paper presented at the last annual meeting of the association, but the census figures were not in final shape and the paper was deferred for that reason until 1910. N. E. Stubbs, auditor, United Railways & Electric Company, Baltimore, Md., will take the place on the joint committee on shop accounts left vacant by the resignation of C. L. S. Tingley. It is expected that this committee will continue its work during the present year. Secretary Weeks was appointed a committee of one to prepare a circular soliciting blanks to supplement the collection of forms of the association.

EXECUTIVE COMMITTEE OF THE TRANSPORTATION & TRAFFIC ASSOCIATION

At the meeting of the executive committee of the Transportation & Traffic Association there were present: R. I. Todd, president; H. C. Page, N. W. Bolen, G. W. Parker, J. N. Shannahan, Dana Stevens and J. W. Brown. The personnel of the committees of the association for the coming year with the topics to be discussed by them at the 1910 convention were considered. After the appointment of the different committees, the names of the members will be announced in this paper. It was also decided to appoint a special committee to consider the subject of schedules and time-tables, and present a report on this subject at the 1910 convention.

COMMITTEE ON CITY RULES

At the meeting of the committee on city rules, Transportation & Traffic Association, there were present: R. E. Danforth, chairman; D. A. Hegarty, Henry Bullen and L. H. Palmer. The amendments to the code of rules adopted at the Denver convention were discussed. Upon motion the chairman was instructed to prepare a bulletin to be sent to the member companies suggesting certain minor changes which it is desired to make in the code, together with the committee's reasons for making such changes.

GENERAL CONFERENCE ON FRIDAY

The meetings were closed with the general conference on Friday, which held an executive session open only to the delegates present. These were well-attended and enthusiastic meetings.

THE BANQUET

The sessions of the mid-year meeting of the American Street & Interurban Railway Association closed with a banquet Friday evening at the Knickerbocker Hotel, tendered to the association by the Manufacturers' Association. About 350 delegates and guests were present. The room was effectively decorated with flags of the three nations represented by the association—the United States, Canada and Mexico. After the dinner Charles C. Castle, who presided, announced that owing to illness Joseph R. Ellicott, president of the Manufacturers' Association, would not be able to preside. In a short speech he then introduced Charles C. Peirce of Boston, who acted as toastmaster of the occasion. Mr. Peirce then introduced W. Caryl Ely, who, he said, had something of interest to the members of the association to announce.

Mr. Ely spoke about the services rendered to the association by the retiring secretary, B. V. Swenson, and described the way in which the work of the association had increased from the time of the reorganization in 1905 and the appointment of Mr. Swenson to the present. In behalf of Mr. Swenson's friends in the association, he then presented Mr. Swenson a large chest of table silver. Mr. Swenson acknowledged the receipt of this

tion which will permit that remedy to be applied. Law and custom have combined to prescribe the service that the railways shall perform for a rate of fare of 5 cents established as the American standard under conditions so utterly foreign to the present-day situation as to make any comparisons ridiculous. With the short haul, cheap equipment and low operating costs prevalent in the early days, there undoubtedly was a fair margin of profit. Gradually, as the towns and cities grew in population, came extensions of the railways, and there insidiously crept in an increasing length of ride for that standard fare. The railways made no complaint, perhaps with the idea that the length of ride was not an important factor in the profit-earning capacity of the road, and that the passenger could be carried just as cheaply five miles as two miles.

"Other motive powers then developed. The first was the cable, entailing great expense upon many of the railways of the country if they were to be kept well in advance of the progress of the cities. With the increased speed which the new motive power permitted came further extensions and relief was provided for the congested districts of our busy cities, whose people were thus given an opportunity to live in localities at once cheap in rental cost, easy of access and healthful and life-giving in atmosphere. Then quickly followed the advent of



Guests at the Banquet of the American Street & Interurban Railway Association

gift, saying that it was with great regret that he had resigned from the office of secretary of the association, and expressed his sincere thanks for the cordial spirit of helpfulness and co-operation which he had received from all the members in carrying on his work as secretary of the association.

The next speaker was James F. Shaw, president of the association, whose toast was "The Association."

After expressing the thanks of the association to the Manufacturers' Association for the courtesies extended by it during the mid-year meeting, and for other co-operation carried on for many years, Mr. Shaw said:

"To-day we have listened to able addresses, discussions have developed, old hopes have revived and new ideas have been brought forth, and if each one of us will return home resolved that this meeting shall be epoch-making in our effort to secure an honest return on an honest investment, we shall not have spent our time in vain. Means of reaching this goal of fair return are patent to all of us—an increased rate of fare, the abolition or curtailment of the transfer privilege, or freedom from taxation; any of them would tend to bring this about. The possibility of reducing operating costs may be eliminated, as their tendency, for obvious reasons, is to increase. The difficulty, therefore, does not rest in the specification of the remedy, but wholly and absolutely in the development of a condi-

electricity, and with the immediate popularity of this new tractive force came the abandonment of the comparatively new and costly cable equipment and the substitution of the electric motor. This necessitated enormous investment in first cost and subsequently as replacement cost, as the inadequacies of the system developed and were overcome. Larger cars and improved roadbeds became necessary because of the increase in the number of passengers carried, and the outlying districts were brought into still closer touch with the business sections. The average distance a passenger is carried was constantly increasing. The operating cost was also growing greater, not alone because of the longer ride, but also because of the ever-increasing costs of material and labor. The unit of fare, however, has remained the same, for we still have with us that American standard, with the margin of profit fast disappearing or wholly extinct. Consolidations were then promptly effected on the theory of probably advantages in economical operation, and with them came the evolution of that fascinating adjunct, the free transfer. With the American standard unit of fare still intact, rides of 10 to 20 miles were now possible.

"A few years passed, and then the warning signs of the deterioration of present equipment and the need of more modern types; then the realization, as a shock to most of us, that in our proffers of service to the public we had passed be-

yond the mark where return was possible or provision for extensive replacements or improvements were practicable. Capital must see at least a reasonable chance for profit before it can be expected to invest, and with our transportation companies already selling to a great proportion of its passengers a service at far below its actual cost, and with a clamorous public demanding an even lower rate of fare or the entire confiscation of our properties, capital immediately closed the door. Then came stagnation in an industry in whose vitality every citizen is interested.

"I have thus briefly reviewed the progress of electric railways to show how a situation has been produced where the service rendered is far in excess of the compensation paid. Obviously, we should next take up the question of how the remedy can be obtained. It is evident that no remedy is possible unless it receives the sanction of the public. In other words, it would not be practicable to obtain the enactment of legislation providing the remedies which are necessary without the full indorsement of the public. Even if our State and municipal officials were fully convinced that an increase of fares, or a curtailment of transfers, or a reduction of taxation, was entirely fair and justified by existing conditions, they would hardly dare officially to advocate such measures unless these views were also held by their constituents. The remedy, therefore, will have to come ultimately from the public.

"To my mind, an important part of the work of this association, and one in which all who are in any way connected with our business should be vitally interested, is that of bringing the public to a better realization of the actual conditions which confront us. We should explain the large first cost, the conditions surrounding the business in its early stages, the great additional outlay required as the art developed, and the improvements which have been made to provide comfortable and rapid transportation. I am only one of many within our organization who believe that with these matters clearly explained we can safely trust the American people to deal fairly and honestly with us in all matters affecting our future. The money actually invested in the electric railway business does not yield anywhere near so large returns as those obtained in other industries. To illustrate, in Massachusetts, where the restrictive laws of the State prevent any possible issue of stock and bonds over the value of the property, the return on the total capital invested in street railways in 1908 was only a little more than 5 per cent. This return is but little larger than the interest on deposits paid by savings banks. So long as this condition exists, what inducement is there for investment in electric railway properties? A recent calculation shows that the average net return from manufacturing industries during 1905 was 15.1 per cent, and from agriculture 9.8 per cent.

"Railway investors should have as fair a return on their investment as investors in other industries, and should not be expected to sell their product without a reasonable profit. Our friends of the daily press can be of invaluable service to both the public and the electric railway corporations in bringing about a better understanding on the part of the people of the real condition of affairs. Street railway men have nothing to conceal, and welcome an impartial examination of their business. The public desires good service, and the street railway companies wish to give it. It is a self-evident fact that no street railway company can be successful which does not give good service, and that it can be successful only when it receives a fair price for the transportation which it has to sell.

"A great many of the newspapers have shown that they possess a knowledge of the facts, and in a number of communities there have been evidences of a change of sentiment on the part of the public toward the railway corporations. But a beginning only has been made. For instance, probably on account of an improper understanding, a misguided public recently defeated a long established and well conducted electric railway company in its efforts to obtain an extension of its franchises, which are to expire 16 years hence, in order that it might refinance immediately on a reasonable basis. I refer to the election recently held in Kansas City, where the company

offered to accept a franchise providing for a lower rate of fare and many other terms advantageous to the city, but the measure was defeated by a large majority in a heavy vote.

"The chief argument which seemed to influence the voters was that it would be better to wait until the franchise was nearer its expiration. But the officials of the Kansas City railway company were wise and far-sighted in taking the matter up at this time. Certain issues of bonds were near their maturity and it was possible to issue new bonds on the present franchise only on terms disadvantageous to the company and therefore indirectly injurious to the public. It is doubtful whether the citizens of Kansas City will ever have offered to them again as favorable conditions as in the ordinance submitted, because all the tendencies in recent years have been toward increased fares on account of the increased costs of operation.

"It would be unfortunate if the situation now in Kansas City should lead to a repetition there of the long continued negotiations in Chicago and the deplorable state into which the railways were allowed to lapse because of their inability to secure necessary funds for their rehabilitation.

We have, as another illustration, the purgatory which the people of Cleveland have had to endure because of ex-Mayor Johnson's political methods which have only recently been discredited at the polls by a disgusted population. The contest was attended by much discomfort and expense to the patrons of the railway and distinguished by a convincing exhibition of the infeasibility of carrying passengers at the low rate of fare proposed by him. The citizens of Cleveland have learned, through their long struggle of eight years, the lengths to which unfair agitation against railways can be carried, and have experienced all the annoyance that accompanies such an agitation. In this case, as in all others that have come under my observation, poor service must necessarily follow too low a fare.

"A short statement concerning the situation of the Metropolitan Street Railway Company in this city may be interesting to you. Notwithstanding the fact that this company is located in the largest city in the United States and also that its gross earnings are approximately \$13,000,000 annually, the company falls far short of earning a reasonable return upon a low estimate of the cash replacement cost of the property. The actual net return shows only between 3 and 4 per cent on what it would cost to reproduce this property, not taking into consideration the expenditures for organization and obsolescence.

"The operating expenses in New York are naturally very high, owing to the fact that the congested streets require slow time and consequently more cars. With the increasing congestion of the city, the company has been obliged gradually to reduce the average schedule speed of its cars, which is now about 6 m.p.h. So that you may all realize how serious this is, I might say that every reduction of a half mile per hour in average speed of these cars means a loss of half a million dollars per year in the net receipts of the company. Moreover, the earnings per car mile are little, if any, higher than in many cities of less population. Again, the carrying capacity of the system has now been nearly reached, as the cars on the main avenues are operated about as closely together and at as high a rate of speed as is consistent with the prevailing conditions. The additional transportation required by the city will have to be provided through new subways. Hence, there is not the same hope of increasing the traffic on the Metropolitan system as exists on the lines in most other cities.

"The solution of the difficulties in New York might come, then, in either one of two ways—material reduction in cost of operation or material increase in average fare. Since investigation has shown, however, that the operating expenses cannot be reduced sufficiently to produce a reasonable return on the cash investment in the Metropolitan property, relief must come from increased earnings through a higher rate of fare or a revision of the present transfer system; even an abolition of the franchise taxes would not be sufficient to produce the desired result. This view of the situation was confirmed in an address before the City Club of New York by Wm. M. Ivins, then special

counsel for the Public Service Commission of the First District. The conclusions which would seem to be derived from Mr. Ivins' statement are that neither the city nor a private corporation could expect to operate the system under the present restrictions and regulations without a large annual loss.

"I have touched on the foregoing as being excellent examples to put before the general public. We have not the time to discuss the actual cost per passenger on the systems mentioned, the length of ride, the point at which this ride becomes unprofitable to the company, the proportion of short and long distance hauls and the rate of return involved, but I think that a study of statistics of this nature properly and consistently kept in the public eye would eventually work the revolution that means so much to the street railway business.

"Our association is a most important medium for the collection and dissemination of this information. With its facilities for obtaining data of this kind and with the support of the member companies, we can carry on a vigorous and open campaign toward securing an enlightened public knowledge of the urgent needs of the business in which we are engaged. The Railway Business Association, whose president will speak to you to-night, has, in its short career, done a remarkable work for the steam railroads in appealing against restrictive and unjust legislation. Members of this organization are scattered throughout the country and the individual element in it is the one that carries on the work.

"We have fortunately in our association two classes of membership: the active or company members, and the individual or associate members. The latter can do for the electric railway business what the members of the Railway Business Association are doing for the steam railroad enterprises. Our associate membership at this date is composed of nearly 1000 members, but the extent of the business warrants at least 5000 members, and I hope that every man here to-night will go away prepared to support this work and, so far as possible, see that before another year passes our membership shall have been increased materially. With so large a number of working associate members in the field, determined to do their share of the work, we can spread the doctrine in which we all firmly believe in, that the education of the people by our people will lead to such changes as will give to the people the best service attainable.

"Complete recognition of the situation and active co-operation on the part of those interested in one way and another in this great industry will insure to the world the devotion of this great utility to the service of man and, at the same time, secure to those who furnish the capital for the active conduct of the business a fair and proper return."

The next speaker was George A. Post, who spoke on the subject of "Railways, Public Opinion and the Equipment Industries." Mr. Post said that in many respects the problems confronting the electric railway companies of the country were similar to those before the steam railroads. He referred to the large number of persons whose livelihood directly and indirectly depended upon the prosperity of the steam and electric railways. This number includes not only those who are directly employed by the companies, but those who manufacture equipment consumed by the railway companies. Senseless agitation against these corporations immediately closes the purses of capitalists to extensions and improvements. He believed that if each person who was thus interested in railways should make a little effort to counteract harmful and erroneous impressions in regard to them, beneficial results would follow.

John W. Griggs, ex-Attorney-General of the United States, was the next speaker. Mr. Griggs congratulated the railway managers that the trend of popular discontent against railway companies was now passing away. He referred to the present objects of unpopularity, the milk trust and the meat packing houses, and then called attention to the largely increased cost of living in all directions except that of transportation.

Charles W. Colby, Ph.D., professor of history at the McGill University, Montreal, closed with a speech on the subject,

"Apropos of Canada." He spoke of the excellent electric railway system in Montreal, and to the popularity in the United States of the pay-as-you-enter design of car, which was originated that city. He also said there was an absence in Canada of agitation for fares less than 5 cents.

ANNUAL REPORT OF PENNSYLVANIA RAILROAD COMMISSION

The report of the Pennsylvania State Railroad Commission for the year ended Dec. 31, 1909, is devoted in part to the affairs of electric railways. An abstract of the discussion regarding street railways, touching the questions of service, particularly in Pittsburgh, and the rates charged for freight and express business, follows:

"There has been a great increase in the number of complaints against street railway companies, the majority of them based on lack of sufficient accommodation for patrons during the rush hours of the day.

"At the present time the attention of the commission is particularly occupied with the situation in Pittsburgh, where the conditions are made more difficult by reason of the topography of that locality, and the congestion of its general business within prescribed limits.

"The complaint which was made by the council of that city was practically disposed of upon a recommendation by this commission made pursuant to an investigation conducted under its supervision by an expert in that business. It subsequently transpired, however, that that recommendation proved inadequate, particularly in view of increase in business upon the revival of trade, and the complaint was renewed by the present Mayor, Mr. Magee. The commission visited Pittsburgh, now enlarged by consolidation therewith of Allegheny, made a personal inspection of the situation, and held a public hearing upon the question. The commission was soon convinced that greater transportation facilities than those at that time afforded were required to at all reasonably meet the legitimate demands of business, and consequently made then a recommendation that all the cars of the railway company available for the purpose should be immediately put into operation, and that the new cars which had been ordered but not yet received should follow in operation as soon as received and equipped, to the extent necessary to provide, as far as possible, the facilities demanded.

"The commission then also announced that it would appoint an expert to supervise and observe for a time the routing of the cars and study the complexity of the situation, and report to this commission what measures, in his judgment, he thought advisable to recommend for further relief. It is believed that the final result may prove satisfactory to all parties.

"A question which promises to become important and fruitful of more or less difficulty is that of freight and express rates on trolley lines. Because of the difficulty of determining a proper basis upon which legitimate freight rates can be based in the case of steam railroads, and the lack of any extended experience with such matters on the trolley lines of the State, it can but be naturally expected that upon the introduction upon the latter of the carriage of freight and express matter, there will be, in the absence of any legislation controlling the matter, very great divergence of opinion and consequent dissatisfaction respecting any rates that any such lines may put into effect. Several complaints have already been made as to charges made for such service, and the difficulty experienced by the commission in these cases, without any precedent or statutory provision to guide it, proves that upon the increase of such business these questions will be numerous and perplexing. Most of the roads have no equipment for this special service, and as yet it is only an incident of their ordinary passenger business, with which, under present circumstances, it more or less interferes. With these difficulties portending, it is nothing more than reasonable to expect that the trolley lines will realize that their safety and protection

depend upon the establishment of rates which will be recognized as fair and equitable for the service rendered."

In its discussion covering accidents, the commission recalls that in its last annual report it "recommended an act designed to prevent trespassing on the private rights of way of steam and electric railways, but without avail. Unless these rights of way are to continue to be highways of slaughter, it is imperatively necessary that some provision be made to prevent trespassing upon such rights of way. It is much to be desired that the public should take cognizance of the great destruction of life annually occurring on our railroads, and be aroused to demand the enactment of some preventive measures.

"It is believed that all serious accidents both on steam and trolley roads were promptly reported to the commission in accordance with its requirements, and in 44 of the cases, where the circumstances seemed to warrant it, the commission conducted a special investigation of the facts, in which investigations the very cordial assistance of the companies was rendered. In all cases where the responsibility was traced and the responsible party ascertained, and survived, proper discipline was imposed."

No accidents occurred on 47 of the electric lines during the year.

Regarding the transportation of passengers on the front platforms of electric cars the report says: "The commission has steadfastly adhered to its recommendation eliminating the carriage of passengers on the front platform of the cars of electric railways, and insisted upon its observance. This recommendation was made with the consent and by the advice of the officials of these railways and admitted by them to be a wise and provident measure. In some localities difficulty has been experienced in its enforcement, and in all cases the officials of these railways did not manifest the earnestness in efforts for its enforcement that was reasonably expected of them. It is thought that now, however, this recommendation is very strictly enforced, but should the commission be advised of its wilful violation in any locality, it will endeavor to correct that situation. The necessity for the observance of this recommendation has been proved by fatal accidents to passengers carried in violation of it, and the diminution of accidents on the lines of those companies where the order has been enforced, even to a limited extent, indicates that it is a proper precautionary measure for both the public and the companies to observe. It is the opinion of the commission that this recommendation would be more valuable, if it were made applicable to both platforms and also to the running boards, but neither public sentiment nor the attitude of street railway officials seems favorable to such action at this time."

In its concluding remarks the commission says regarding new legislation:

"Either that portion of section 17 of the act creating this commission, which purports to bestow upon it some control over the increase of the capital stock or indebtedness of posed in the commission's last report should be passed, or else the amendment to the act approved on Feb. 9, 1901, proposed in the commission's last report should be passed, or similar legislation enacted. The provision in the act creating this commission is wholly ineffective under the present statutory provisions for procedure by stockholders when such increase is proposed to be made. This is a matter of comparative indifference to the commission, and attention is called to it here only for the purpose of advising the public that if it wishes the commission to exercise any such authority, additional legislation is required.

"It is a pleasure to the commission to again record its gratification at the ready acquiescence in its recommendations by the common carriers of the State. This action on their part evinces a disposition to assist in creating a better public sentiment, and one calculated to contribute not a little to the successful conduct of the great industrial and transportation interests of the State."

THE LOSSES OF CLEVELAND IN STREET RAILWAY WAR

A paper on "The Street Railway Situation in Cleveland" was read before the meeting of the National Municipal League, at Cincinnati, on Nov. 18, 1909, by Warren S. Hayden, of Hayden, Miller & Company, bankers, of Cleveland. The author, after giving the history of the controversy between the city authorities and the Cleveland Railway Company, discusses the question whether the results secured are worth the price paid. Mr. Hayden says on this subject:

"For the purpose of discussion it is assumed that the direct and early result will be the enactment and acceptance of the ordinance now being completed by Judge Tayler. The ordinance fixes the initial fare at 3 cents with 1 cent for a transfer without rebate. A scale of rates is provided, according to which the rate shall be changed as may be necessary to return the agreed interest, and no more, upon capital value. Every test made in Cleveland tends to show that 3 cents is not enough to pay interest on capital. It is probable, therefore, that before long the fare will go to the next higher rate. At that rate the cheapest journey possible will cost $3\frac{1}{2}$ cents, and for comparison that rate is taken as that which people will pay for a long period. It was said in 1901, and the newspapers printed it, that if given 25-year franchises the railway companies would accept a ticket rate of seven for a quarter, making the cost of the cheapest journey 3.57 cents. If this statement was true, eight years of fighting have beaten down the fare 0.24 cent a journey. However, the companies did not formally propose a ticket rate of seven tickets for a quarter in 1901, and perhaps they would not have done so. Late in 1906 the railway company did formally propose a ticket rate of seven for a quarter, so that, as far as the rate of fare is concerned, it is proper to consider whether the last three years of strife are justified by a gain of 0.24 cent in the cost of the journey. The answer, of course, depends on what the war has cost the city, and that subject will be considered before the end of this discussion.

"Included in the direct result is the establishment for Cleveland of the principle of service at cost. Whether that principle is the best for the public is fairly debatable, but it cannot be debated here. As carried out in the Tayler plan, it is acceptable for Cleveland in the circumstances now existing there. However, it probably would not be seriously contended that mere approval of this principle by the public makes the war worth while. The estimated cash benefit of the application of this principle of service at cost is 0.24 cent a journey, or \$1.46 a year for the shop-girl making the round trip from home to work on each of the 305 working days.

"One writer says that Mayor Johnson 'has aroused in Cleveland a civic sense. He has made the people realize that the affairs of the city are their affairs.' If this is true, this civic sense is a result of the war, for the mayor's activities and the war are almost identical. Cleveland was well reputed for civic sense for some years before 1901. It is true, though, that since that date there have been new currents of popular feeling and that the mayor is responsible for them. He pitched his tent upon the sand lots; pointed to the railway company; talked of 'intrenched monopoly,' 'special privileges,' 'an arrogant corporation'; promised '3-cent fare and universal transfers' and proclaimed the overwhelming power of the people. It was not service at cost—that is reasonable if not expedient—but '3-cent fare and universal transfers,' the feasibility of which in Cleveland no man knew or could know. Hatred and greed were stirred, then consciousness of power aroused. Unless there is a quick sense of duty to use power righteously, consciousness of power is vicious. So pleasant a phrase as 'civic sense' should connote public duty as well as public power, but the 'civic sense' aroused in Cleveland by Mayor Johnson is to be reckoned in the price paid and not as part of the good obtained.

"The price paid is the cost of the war, and, of course, cannot be exactly expressed. In making up the total for an industrial community of 500,000 people account must be made of

years of delay in the reduction of fares; industries sent and kept away from Cleveland by supposed hostility to capital at the city hall; hindrance to extension of plants through lack of car service; neglect of public improvements because the war absorbed attention and energy. Worse than the money cost are items of another sort. Malignant envy has been fostered among humble folk. Among the better-to-do, men of mind and conscience have doubted the good intention of the city government and feared its policies. Hatred has divided classes and invaded neighborhoods and even families. It is not extravagant to say war when these things are considered.

"The result is not worth the price. It was right that the railway company be denied a franchise until, for good service, it was willing to take a very moderate return upon its capital. To reach such agreement, intelligence and firmness were necessary, but a sensational raid, to say nothing of protracted war, was not justified. Since the railway company's offer of 1906 nothing has been gained which is worth a fraction of the cost.

"When all is said the best result is peace, and peace is so welcome that it is almost possible to forget that, but for war, there is always peace. In all these years, Cleveland has gained in wealth and population, and an era of peace will show how much more she might have gained."

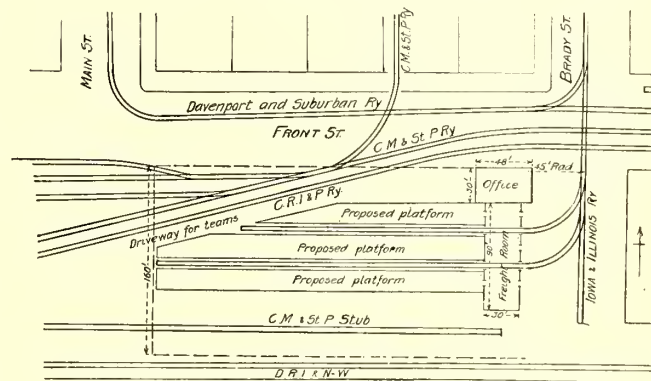
NEW FREIGHT TERMINAL OF THE IOWA & ILLINOIS RAILWAY

The Iowa & Illinois Railway has just secured a valuable freight terminal property in Davenport, Ia. This property, including an office building and warehouse, was occupied originally by the Burlington, Cedar Rapids & Northern Railway (now a part of the Chicago, Rock Island & Pacific system), under a right granted to it by the City of Davenport. Recently the property reverted to the city, and as the city authorities were desirous of encouraging the establishment of adequate freight and passenger terminals for interurban roads, the use of the property vacated by the steam road was offered to the Iowa & Illinois Railway Company on satisfactory terms.

A map of the property offered to the electric railway company is presented. The block of land and the buildings shown thereon, except such portions of the land as now are occupied by steam railway tracks, is leased to the Iowa & Illinois

based on the assumption that eventually three companies will jointly occupy the property.

The block of land on which the property stands is 160 ft. x 320 ft., and is bounded on the north by Front Street and steam railroad tracks owned by the Chicago, Milwaukee & St. Paul Railway and the Chicago, Rock Island & Pacific Railway; on the east by Brady Street, along which connecting tracks from the new station to the Iowa & Illinois line have been built; on the south by the Mississippi River and the Davenport, Rock Island & Northwestern tracks, and on the west by Main Street. A loop track of the Davenport & Suburban Railway extends along Front Street and is connected with the Iowa & Illinois track at the corner of Front and Brady Streets. According to the terms of the lease, the Tri-City Railway Company, of Rock



Plan of Davenport Freight Terminal

Island, Moline and Davenport, has made the necessary track connections to the depot. The expense for making the connections between the tracks of the Tri-City Railway Company and the buildings, together with the cost of the entrances to the buildings, was rather large for an interurban railway company doing the amount of freight business now conducted by the Iowa & Illinois Railway. This latter company, however, has borne the entire expense with the understanding that it is shortly to be relieved of one-half of the amount by the entrance of another interurban line.

The track work, including connecting curves and tracks along the loading platform space, has all been built at this time, although it is not yet required. The present buildings will suffice to handle the business now offered, and with the entrance of other interurban roads it is expected that long loading platforms and freight sheds will be built between two tracks which extend the full length of the property. When the terminal is thus fully utilized the freight station building on it will be used partly as an office and partly for the storage and care of perishable freight. It is anticipated that future development may make it advisable to use this station as a central interurban passenger depot for all lines entering the city.



Davenport Freight Station of the Iowa & Illinois Railway

Railway Company by the City of Davenport during the life of the interurban company's franchise and for any renewal thereof, with the distinct understanding that the property may be used jointly by any other interurban railway entering Davenport. In the provision for joint use it is stipulated that any expense to the Iowa & Illinois Railway for the construction of tracks, rehabilitation of the building and ground upon which it stands, shall be equally apportioned among the companies which may in the future enjoy joint use of the property. The Iowa & Illinois Railway now pays only a proportional rent,

When the Iowa & Illinois Railway first started handling freight there was some uncertainty about the profits to be derived from the business, and therefore both the freight and passenger business was handled in one small room at 117 Brady Street, Davenport. The freight business grew to such an extent that more space was soon required, and the original waiting room was given up wholly to freight, and a passenger waiting room established at 217 Brady Street. The business continued to grow and freight handling in Davenport soon became expensive, because it was necessary to load and un-

load the cars on the streets, without any platforms or other freight-handling conveniences. The new freight terminal greatly increases the facilities for handling the freight business, and a favorable effect upon the traffic already has been noted.

As a part of its publicity work the railway company has had a large sign painted on the south end of one of the new



Sign on End of Davenport Freight Station

freight buildings. This sign exhibits the initials of the railway. It can be seen from across the Mississippi River at any point in Rock Island from which the building itself can be seen. Acknowledgment is made to P. P. Crafts, general manager of the Iowa & Illinois Railway Company, for information used in preparing this article.

HANDLING INTOXICATED PASSENGERS IN BOSTON

During the past few weeks considerable interest has been manifested by the public in the work of the Boston Elevated Railway Company in handling intoxicated passengers. Attention was called to this problem by the decision issued recently by the Massachusetts Railroad Commission in connection with a complaint originating in Worcester regarding conditions in that city. The decision of the commission was published in full in the *ELECTRIC RAILWAY JOURNAL* of Jan. 1, 1910. This problem is not a new one in Boston, and for several years the company has been giving it careful consideration.

About three weeks ago the company inserted the following notice in each of its cars, for the purpose of informing the traveling public what had been accomplished in the matter and of stating its attitude upon the question:

"**DRUNKEN AND DISORDERLY CONDUCT**

"During the past two years the company has caused to be brought before the courts 1770 persons for drunken or disorderly conduct upon the company's cars. It is the company's intention to continue to endeavor to put a stop to such drunken and disorderly conduct. Accordingly the company has requested the co-operation of the public authorities, and now requests, also, the co-operation of its patrons, to whom drunken and disorderly conduct must be offensive.

"Boston Elevated Railway Company."

President William A. Bancroft, of the company, sent a letter on the subject to the Mayors of Cambridge, Somerville, Everett, Malden, Medford and Newton, chairman of the Chelsea Board of Control, and Selectmen of Arlington, Belmont, Watertown and Brookline, and the police commissioner of Boston stating that it was preparing the foregoing notice for display in its cars, and calling upon the municipal authorities for support, particularly in the matter of police assistance. The letter said, in part:

"The Boston Elevated Railway Company desires to do all that it reasonably can to prevent drunken and disorderly passengers riding upon its cars. The matter is perhaps more com-

plex than appears at first thought, and we believe can only be successfully accomplished by the co-operation by the public authorities, the public and the company.

"We respectfully request that such assistance be rendered to the employees of the company by the public authorities of your city as seems proper under circumstances as they arise.

"The company has instructed its employees to allow no passenger who is visibly intoxicated to board its cars or to enter its subways or elevated stations. It is well known, however, that persons who are not visibly intoxicated may enter the cars or stations, and during the time spent upon the car become unfit to be transported so far as the other passengers of the company are concerned.

"Having this in mind, we respectfully request that you make such arrangements as to you may seem best, to detail officers to ride upon the cars of the company and that they ride far enough to assure themselves that no drunken or disorderly person is upon the car.

"In case any person is intoxicated or disorderly at the time the officer is upon the car, the employee may eject such passenger and the officer may properly make an arrest.

"This request is made of all the cities and towns wherein the company operates, and with the vigorous assistance of all, it is believed the end sought may be accomplished."

The attitude of the company was received favorably, and to a considerable degree the police authorities have co-operated in the work of keeping drunken patrons off the cars. Such police assistance as has been accorded, however, has not proved sufficient to entirely meet the situation, as the number of officers made available for this work has been rather limited, especially in Boston. The company feels that the moral effect of the presence of an officer upon its cars or property is a most powerful deterrent of drunkenness and disorderly conduct, but in order to handle the situation better the plan was adopted for three recent Saturday nights of placing about 120 experienced men, both motormen and conductors, at strategic points on the system and instructing them to co-operate with the crews of the cars in service in the removal or suppression of intoxicated patrons. Police officers also boarded the cars in and near the saloon districts and facilitated the work. The following special notice was issued to surface-line employees:

"**SPECIAL NOTICE TO EMPLOYEES OF SURFACE LINES.**

"The attention of conductors and motormen is called to the efforts of the company to prevent drunken and disorderly conduct on its cars.

"Police officers of the city of Boston will assist conductors and motormen by boarding cars on Saturday night, Jan. 15. No fare will be collected from policemen so boarding.

"All uniformed employees of the company riding on the cars, whether in charge of the car or not, are expected to assist if necessary.

"Be governed by Rule 110.

"C. S. SERGEANT, *Vice-President.*"

RULE CONCERNING DISORDERLY PASSENGERS

Rule 110, from the company's rules and regulations for surface line employees, reads as follows:

"Disorderly Passengers.—(a) Passengers will be ejected from a car only as a last resort, when all other means have been tried and have failed, and when the conductor is positively certain that he is in the right.

"(b) Persons who are visibly intoxicated must not be allowed to board the car. If, however, such a person has entered the car without his condition being noticed, he may, if his condition is not offensive, and if he remains orderly, be carried to his destination. If this is done, care must be taken to see that he does not get off the car while it is in motion, and when leaving care must be taken to see that he is entirely free of the car before it is started. Should his condition be complained of as offensive by other passengers in the car, or should his conduct become disorderly, he must be treated according to paragraph (c). In case of complaint, care must be taken to secure name and address of party or parties complaining.

"(c) Any person who is complained of by other passengers as being personally offensive, and who is, in the judgment of the conductor, actually so, must be quietly asked to leave the car. Should he object or resist, he must be treated as a disorderly person according to paragraphs (e) and (b).

"(d) Do not make an ejection of a passenger for non-payment of fare or the tendering of the wrong transfer, but, after using all reasonable efforts to collect proper fare, secure, if possible, the name and residence of such person, together with names of several witnesses, and report the facts on day card and to inspector or starter at end of trip.

"(e) Disorderly conduct consists of offenses as stated in paragraphs 'a' and 'b'; violent or unseemly actions, quarreling or fighting and of abusive, threatening, profane or indecent language. In all such cases the conductor must avoid exciting or aggravating passengers, and shall quietly and civilly request the disorderly person to discontinue such conduct. Should this be of no avail, the car must be stopped at a street corner if possible, or where it is safe to alight, and the person asked to get off. Should such person refuse to do so, and a policeman be within call, the latter must be called and asked to make the removal. Should no policeman be within call, or should he, if called, refuse to remove the disorderly person, the motorman must be called on and the person ejected. See that the person ejected is in a safe place.

"(f) In cases of ejections no more force must be used than is necessary to remove the person from the car. No blows must be struck nor weapons used by either conductor or motorman, except in absolute defence of themselves or their passengers, and, under all circumstances, care must be taken for the safety of the passengers. In case the person voluntarily leaves the car or shows that he is willing to do so, no hand must be laid on him, except to assist him in case he is unable to get off without assistance.

"(g) In all cases of ejection the conductor has entire charge and responsibility and must use care and judgment to see that only offending persons are ejected. The motorman shall at all times aid the conductor when called on to do so or when he sees, hears or knows that his aid is required.

"(h) In case of ejection, a full report must be made out, same as in accident cases. Equal care must be taken to obtain names and addresses of witnesses (particularly name and number of police officer, if assisting in ejection), and if there are no passengers on car, call motorman to assist and witness the ejection."

Between 200 and 300 persons have been either refused admittance to the company's subway, tunnel and surface cars or stations or removed from its property on each of the Saturday nights in which the experienced employees have been placed on the system to supplement the work of the men on the cars. The company's campaign has received much favorable newspaper comment.

HINTS FROM A CONDUCTOR

It is well to have a regular time fixed for the lighting of all tail lights at the different car houses. Orders could be posted up somewhat as follows:

November, December, January and February, 4 p. m.

March and October, 5 p. m.

April and September, 6 p. m.

May, June, July and August, 7 p. m.

DATING SHOPMEN'S BADGES

One of the large railway companies dates its shopmen's badges, so that their use is limited to a certain year. Thus all badges issued during 1909 were stamped with the words "Good during the year 1909." These badges were called in on Jan. 1, when others for the new year were issued.

DANGER SIGNS FOR GATES

Another company has embossed on the glass of all of its cars the following notice, "Don't lean against the gate. It is dangerous. The hand rail must be kept free for the use of passengers entering or leaving the car."

EXPERIENCE OF AN APPRENTICE IN BOSTON

Although the Boston Elevated Railway Company has never established an apprentice course for students it is known that the officers of the company are very much interested in the subject of training men for the service and that at least one man has taken what has practically amounted to an apprentice course on that system. The general plan to be followed was outlined by Gen. William A. Bancroft, president of the company, and was begun four years ago, or before the plan of apprentice courses had been discussed at conventions of the American Street & Interurban Railway Association. The previous training of the apprentice consisted of a first-class education and a course in civil engineering at a large technical school. In addition he had spent his summer vacations working for steam railroads in this country and Mexico in the engineering and maintenance of way departments. This had given a general training in the importance of personal effort, accuracy, reliability and the handling of labor to the best advantage. The necessary qualification of good general health was also brought to the work.

The first position, that of conductor, was secured through the regular channel of the employment department and after passing the various examinations as to health, eyesight, hearing and mental capacity in a satisfactory manner, the man was assigned to a division. Aside from the president and vice-president of the road, no one with whom he came in contact during his term of service on the cars was familiar with his aims. He was left to make his own way and was neither helped nor hindered by special attention or consideration.

As is the custom on the Boston Elevated he was assigned to a regular conductor, who was old in the service and had been chosen as an instructor of new men on account of his especial ability in training men to serve the company with common sense and loyalty. After two weeks service with this man, he was assigned to each line of the division in turn, under the care of a regular conductor, so as to become familiar with the routes. Then he was examined on the rules and, having passed satisfactorily, was assigned to the extra list where he remained for three months. Aside from the fact that his record was fairly free of discredits, his term of service was not at all different from that of hundreds of promising young men in the car service.

Having become familiar with the hours of work, rates of pay, and general trials of a conductor, the young man was transferred to a distant division and trained as a motorman. He had an opportunity to run cars of all classes and was given every opportunity to do snow work. Special care was taken that his hours of work were not different from those of the other men and he took his regular turn at early and late extras. During the six months spent on the cars a two-day lay-off was requested and granted. This was the only break in regularity of service.

The next position was in the carhouse as a pitman and the work was the maintenance and repair of cars. He acted as helper on truck work, carpenter work, replacing of armatures, gears and wheels, and finally as inspector of cars. Opportunity was given for a change of work upon becoming familiar with each branch, but this was given only as it is to every employee. Hours of work and pay were those of his companions and absolutely no distinction was made in his favor.

After four months a transfer was made to the track department, and he was set to work with a wheelbarrow carrying bags of cement. After several days of this he was promoted to mixing the concrete used in track construction and later to work in the trench putting this concrete in place and tamping. The next step was to lay paving stone and grout it in. After a period spent on general track maintenance, such as the repair of joints and special work and planking of bridges, he was taught to lay ties and rails, bond joints and put on fish plates and finally to spike rail and line and surface track. Having shown some ability the foreman put him in charge of several men placing tie plates and later in charge of 20 or

more men cleaning up the street after the work was finished. Progress was rapid for a short time and he was about to be made a sub-foreman after six months in the track department when he was transferred to the wire department. Here he passed through all branches, beginning as a helper in the overhead feeder work. He was soon transferred to work aloft and became proficient at stringing heavy feeders and making joints and connections. He was given an insight into submarine cable laying and also the installation of submarine compressed air pipes.

The next thing taken up was the pulling of feeders and return wires into conduits and the splicing of lead covered cable. Some time was spent at night work on the maintenance and repair of trolley wire and overhead work, as well as the installation and repair of electric track switches. After a few weeks' work at connecting up switchboards he was placed in the testing crew and became familiar with the layout of underground feeders throughout the city, as well as the methods of testing for leaks and damaged cable. The term of service in the wire department was completed with a position as inspector for the company on some conduit work and interior wiring of a power station. Practically every detail of wire work had been placed before him and every opportunity was given to become familiar with the installation, operation and maintenance.

His next move was to the armature room of the department of rolling stock and shops. Here he became familiar with the different types of motors in use and learned to work on all sorts of repair jobs, both on armatures used in car motors and on the large machines in the power stations. Some five months was spent mastering this line and he was subject to call for night snow work during this time.

The next place to which the young man was assigned was the power station, where he was put at work on the maintenance of boilers and automatic stokers. His work consisted in replacing boiler tubes and grate bars, cleaning tubes and mud drums and general repair work on the boilers, economizers, pumps and piping. After becoming familiar with this he was put in the engine maintenance crew and later on the maintenance of generators and wiring. Some work was done as an oiler and later as a helper on the switchboard. He was then placed in the office as clerk with charge of the stockroom and correspondence, as well as payrolls, etc. Later he helped on tests of coal and water and of draft. On the whole, the course in the power station was very thorough and while time was somewhat limited, the opportunity was unlimited and the chance to profit through actual work was great.

The next place was at the company's car shops, where he was put at work rewiring cars and connecting controllers. An opportunity for observing cars under construction was not possible, as no new work was in progress, but he was assigned to do considerable work on repairing and rebuilding cars. Some time was spent in the paint shop and he worked successively at cleaning, scraping, burning off, sand papering, painting and varnishing.

A two weeks' vacation was given after this work to visit other cities and observe their methods of operation and also their shops. A report of these observations was submitted.

Upon his return he was put in the office of the general storekeeper, where he had a chance to fill each position successively while the clerks took their vacations. He was next placed in the bureau of purchase and given an opportunity to become familiar with prices and with purchasing conditions and procedure. The same opportunity of filling different positions on account of vacations was gained in this office. The next step was to a division office, where he made a long stay and got a knowledge of office work and of timetables and all records and correspondence.

This practically ended the course and he then entered the transportation department and was prepared to bring to this position a knowledge of the men and the conditions under which they worked. He had spent three years making a study of the road and was helped in every way possible to get a grasp of the large problems, as well as a thorough knowledge

of detail. The course as carried out in this particular case was of great value to the student and probably not without some benefit to the company, even during the term of instruction, as he was at all times encouraged to send in recommendations for changes which would benefit the service or would save money in operation.

VALUATION OF BROOKLYN RAPID TRANSIT SYSTEM

The hearing in the case before the New York Public Service Commission, First District, involving a tentative valuation of the physical property of the Brooklyn Rapid Transit Company in connection with the petition for a 5-cent fare to Coney Island, was resumed on Dec. 28. T. S. Williams, vice-president of the company, testified.

Mr. Williams had made a thorough study of the capital actually expended upon the Brooklyn Union Elevated Railroad and its constituent companies during the entire history of the properties. He had ascertained as closely as possible from the books of accounts and records of the various companies now comprising the elevated system, and also the construction contracts wherever ascertainable, what capital had actually been expended in the construction and development of the properties. His idea was to ignore the issues of stocks and bonds as far as possible, and to ascertain exactly what cash had been expended upon the properties. It was not possible always to determine what amount of securities had been issued as the equivalent of cash. It might be said that the present capitalization of the Brooklyn Union Elevated Railroad, of which about \$29,000,000 of securities were issued upon the inception of the company for properties acquired under foreclosure, represented capital actually expended by the corporation, but, as had been pointed out in a previous investigation by the commission, there was an actual reduction of capitalization in the formation of that company.

The total actual cash expenditure on account of capital requirements was \$30,258,568.92. In addition, there were many other items strictly the equivalent of cash, and some other items, a large part of which were undoubtedly the equivalent of cash. The total of items equivalent to cash was \$23,794,802.55, or a total of certain cash and items equivalent to cash of \$54,053,371.47. The witness said it would appear as if practically all the items under the head of equivalent to cash were justifiable, with possible reductions in the case of the issue of certain stocks. Elimination of these stocks, a total of \$11,673,600, left a total of capital expenditures of \$42,379,771.47. In reaching this amount every item that could be questioned as being properly chargeable as a cash item had been omitted.

The capital stock of the company is \$18,000,000, divided between \$5,000,000 preferred and \$13,000,000 common, and the bonded indebtedness is \$16,000,000, with an additional \$7,000,000 assumed in the acquisition of the Kings County Elevated, a total of \$23,000,000. In the year ended Dec. 31, 1908, the earnings after deduction of taxes and expenses were \$2,112,821.95, or a trifle less than 4 per cent on the total of capital actually expended, \$54,053,371.47, and less than 5 per cent on the total as reduced to \$42,379,771.47. The earnings for a series of years prior to that time were very much smaller.

The cost of acquiring to-day the right-of-way or the right to operate from property owners for the 300,000 lineal ft. of easements of this company would probably be not less than \$8,000,000 or \$9,000,000, and probably would prove to be considerably greater.

SUPERSEDED EQUIPMENT

In the figures of values as given, the witness had included some expenditures for property that had been superseded. When electric cars were substituted for locomotives the cost, except the scrap value of the locomotives, was charged to capital; but at the same time part of the cost of the electric cars had been charged against income, so that a portion of the obsolescence had been made good. In the case of this particular company Mr. Williams thought there had not been any material obsolescence which had not been more than made good

by the enhancement in value of the remainder of the property or by direct charges to income. The real estate was, of course, much more valuable now than when it was purchased. The cars had been rebuilt and were substantially as good as new.

Discounts on securities charged to property account aggregated \$3,088,000. That amount was less than 10 per cent of the actual cash investment and a very much smaller percentage of the entire amount of capital expended. It was a very small item for an enterprise of that size and that uncertainty, as elevated railroads during the initial 14 or 15 years were notoriously unsuccessful financial enterprises. Many of the securities were placed above par.

G. H. Backus, assistant counsel for the commission, asked Mr. Williams whether it had been the custom of any of the companies at any time to charge items to capital account that should properly have been charged to operating expense. The witness said that had undoubtedly been true of all corporations in greater or less degree, but that as nearly as he had been able to ascertain from the books of the old elevated companies, they were unusually conservative and moderate in such charges.

Responding to a question by Commissioner McCarroll, the witness said it was his recollection that the easements, of which he estimated the cost to reproduce at between \$8,000,000 and \$9,000,000, actually cost about \$3,000,000, but a great many consents were given in the early history of the railroad, when people were anxious to have the property built and were willing to assist the company in getting easements.

Under cross-examination by Scott MacReynolds, complainant in one of the cases involved, Mr. Williams said that many old cars were re-equipped for electric operation, and part of that expense was charged against income and the remainder against capital. The replacements of rail on the elevated structure, when heavier types were installed, were charged to a large extent to capital account.

The hearing was closed, subject to the call of the commission.

BEARING COMPOSITION AND LUBRICATION ECONOMIES

A railway which uses the same tin base metal for armature and journal bearings has found the following composition to be satisfactory for both classes of bearings: Tin, 96 parts; aluminum, 8 parts; copper, 4 parts. New ingots and scrap removed for the first time are used exclusively for the armature bearings. After the armature bearings wear out the metal is remelted for journal bearings and for journal-bearing liners until it is finally scrapped. No mileage records are kept of the life of the journal bearings, but in motor bearings this babbitt metal has shown a life of 48,000 miles.

This company reclaims oil and waste in its shops with a turbine cleaner made by the Oil & Waste Saving Machine Company. Cotton waste, after leaving the machine, is washed in a solution of caustic soda and soap, while the wool waste is par-boiled. The machine was installed three years ago and has cost nothing for maintenance. It has cut down the consumption of wool about 70 per cent and of cotton about 50 per cent.

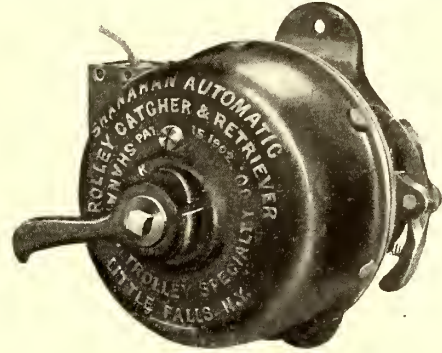
Gearing is being successfully lubricated with Whitmore's gear composition and is saving about \$100 per car a year in gear and pinion wear alone. After eight months' service a gear thus lubricated showed but 0.004 in. wear and its pinion 0.007 in. wear.

A bill has been deposited for introduction into Parliament next session by the North & South Shields Electric Railway for the revival of power for the construction of the railway under the Tyne between North and South Shields. A grant for this work was originally made in 1902 and revived in 1906. It is now proposed that the land necessary for the scheme be purchased within two years of the passage of the act.

IMPROVED TROLLEY RETRIEVER

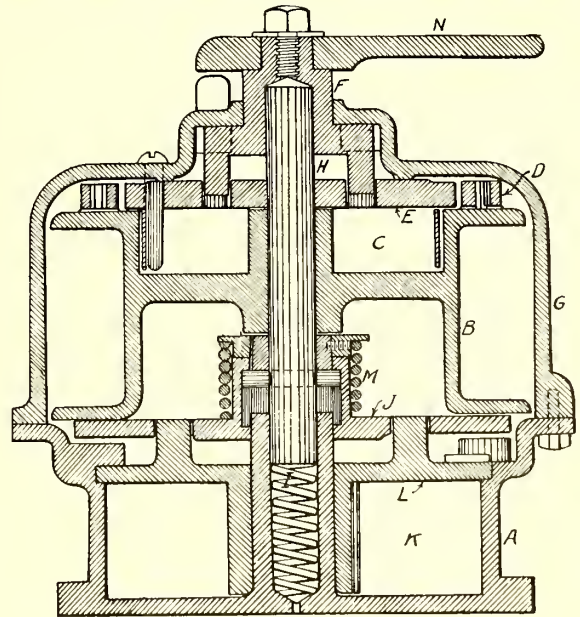
The Shanahan Trolley Specialty Company, Little Falls, N. Y., makes a trolley retriever which, during six years of continuous service on several prominent roads, has been found to be suitable for interurban work because of its heavy construction. Although the first retrievers manufactured gave successful results, the company has continued to improve the device in the details of the construction and the methods of manufacture.

A feature of this retriever is that it has a very heavy adjustable spring. This permits the pole to be pulled down instantly



Trolley Retriever Complete

against heavy tension without injury from violent strains. An idea of the retriever's quick action may be obtained from the fact that on a central New York interurban line it retrieved successfully when the car was moving at 60 m.p.h. without allowing the pole to strike the first span after the wheel left the wire. As the sections on this road are 80 ft. long, it follows that the retriever operated successfully in less than one second. The retriever enables the trolley pole to go through places with limited clearances because the pole can be adjusted for pull-down from 2 ft. to 6 ft. The heavy retriever spring will prevent any rebound or teetering after the pole has been



Section of Trolley Retriever

pulled down. The retriever is easily reset by the conductor and acts with equal certainty in all kinds of weather. It is large enough for any size of trolley rope.

The construction details of the retriever are shown in the accompanying drawings. A, the lower part of the case, locks in the base with a small lever attached to the rear car-dash. B is a reel upon which is wound the rope connected with the pole. The flat coil spring which revolves this reel and keeps the rope taut is in the space marked C. When the pole leaves

the wire, the wheel revolves rapidly, thereby causing the centrifugal dogs *D* of the reel to fly out and engage in the ratchet plate *E*. The plate then revolves and carries with it the crown fork *F*, which causes it to go down the inclined cams located in the top of the upper case *G*. This action releases the shaft *H*, which, moving laterally on account of its compression spring, *I*, carries the plate *J* along with it. When the retriever is set, plate *J* is engaged in the lower case *A* and when the shaft *H* carries this out, it engages immediately with the lugs in the reel, thereby causing the latter to revolve and pull down the pole. The heavy retriever spring is in the space *K*; its outer end is attached to the case *A* and its inner end is connected by a lug to the ratchet hub and plate *L*. The lugs on *L* are always engaged in the plate *J*. *M* indicates the spring which pushes off the plate *J* from the reel into engagement with the case *A* when the retriever is set. The handle for setting the retriever is marked *N*. By swinging the handle around against a stop, the shaft *H* is forced down through the turning of crown *F* on the cams.

AUTOMOBILE TOWER WAGON IN MINNEAPOLIS

A recent addition to the equipment of the overhead department of the Twin City Rapid Transit Company, of Minneapolis, Minn., is an automobile tower wagon. The accompanying engraving from a photograph shows this wagon with the tower in the running position. The body, engine and running gear were built by the Robinson-Loomis Motor Truck Company, of Minneapolis, while the tower and its operating mechanism were designed and built by the railway company. The height of the tower when lowered into the running position is 12 ft. 4 in. above ground, which gives ample clearance for passing under railroad viaducts. A novel feature in connection with the mounting of the tower is the provision for rotating both the elevating platform and the tower on the base which is supported on the automobile body. The platform may be raised to a



Twin City Automobile Tower Wagon

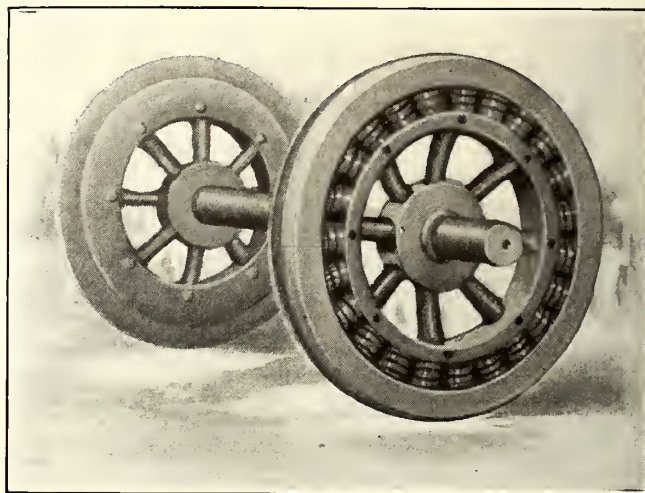
height of 20 ft. above the ground and both tower and platform revolved to a position at right angles to the body of the truck. In this position cars may be operated on the adjoining track.

The motive power equipment of the automobile tower wagon is a two-cylinder, two-cycle, 30-hp gasoline engine which is geared to a maximum speed of 20 m.p.h. The wheels are 32 in. in diameter and have solid tires 3½ in. in diameter in front and 4 in. in diameter in the rear. The total weight of the wagon and tower without supplies is 4800 lb.

This automobile equipment is kept in the same emergency station with the horse-driven tower wagons and with it an emergency crew may answer night calls promptly. The automobile equipment takes the place of one tower wagon in the daytime and is ready for service any time at night. It is capable, therefore, of doing as much work as two teams. This motor-operated tower wagon has been in service since June 24 and has operated very satisfactorily.

SPRING WHEEL FOR ELECTRIC CARS

One of the tramcars in daily service in Glasgow, Scotland, has been fitted with a new type of spring wheels made by the North British Locomotive Company, of Glasgow. The wheel consists of a steel tire, a spoke center and rim and 23 coil



Spring Wheel for Electric Cars

springs interposed around the wheel close together between the rim and the tire. The springs are under considerable initial compression, but are not fastened to either the rim or the tire. They are retained in place by inner and outer keeper rings bolted to the rim, and thus combined adhesion to the rim and the tire is sufficient to prevent the former from slipping appreciably with respect to the latter. Under the action of a jolt due to an inequality in the surface of the track, however, the rim moves downward under the compression of the lowest springs and creeps past the ends of the springs, which at that instant have their axes horizontal. As the wheel continues to revolve, this creep adjusts itself. It is claimed that this construction removes all lateral stresses from the springs when in a horizontal position, and for this reason greatly prolongs their life.

A FLEXIBLE AXLE TRUCK

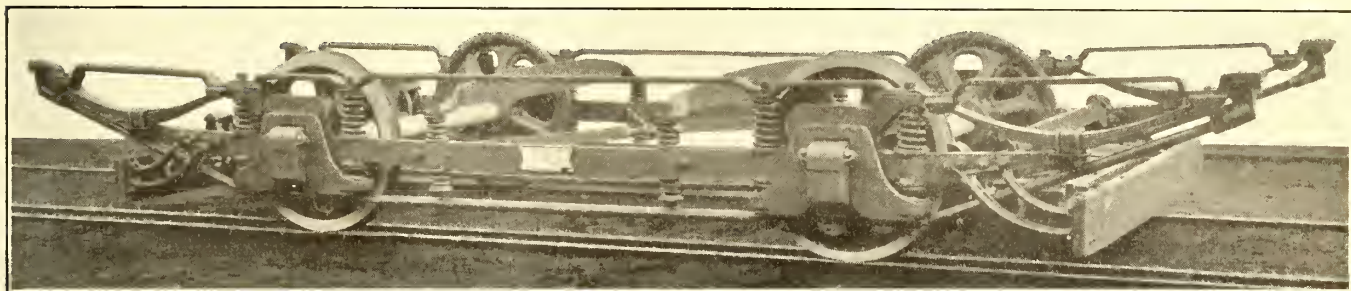
The United Electric Car Company, Ltd., Preston, Eng., has recently brought out the four-wheel single truck with flexible axles as shown in the illustration opposite. The new truck is intended to meet the requirements with respect to long wheel-base trucks besides decreasing the track and rolling stock maintenance on lines with sharp curves. The company recommends this style of truck for 6 ft. or any other wheelbase, as the flexible axle feature is considered just as important with a short wheelbase as with a long one.

The truck is designed to utilize the same springs, spring seats, etc., at present in use on most British four-wheel trucks, and thus avoid the necessity of carrying duplicate sets of stock for repairs and renewals. The end body bearing springs can either be of the semi-elliptic standard type or the special auxiliary support leaf spring as used on the Preston compensating truck. The journal box is self-contained and fitted with a loose yoke which bears on the top of the box and carries the truck suspension springs ordinarily cast as one with the journal box.

This yoke is tied across the bottom by a cast steel distance piece. It will be seen that the standard arrangement for sup-journal box yoke from the top of the journal box (the bearing (8 ft.) wheelbase shown on this truck.

It is asserted that owing to the manner of suspending the journal box yoke from the top of the journal box (the bearing of which can either be placed directly in the center or at one side to give steadiness to the truck) and the lateral clearance allowed between the frame and yoke, the action of wheel

engine, the use of which eliminates numerous valves, gears and chains. The main engine bearing is 1 3/8 in. x 4 1/2 in. in size, and the other bearings are proportioned with a view to durability. As the cylinder head and crankcase joints are accurately seated, no packing which might blow out is required. This prevents the loss of compression and the waste of oil. The ignition is made by jump spark and dry cells. The Schebler carbureter is used. Starting, stopping and coasting are controlled by throttle, spark and compression relief levers. By



Flexible Axle Single Truck

flanges when entering or leaving a curve is accomplished without causing oscillation of the car body and superstructure.

The wear between the wheel flanges and the rails is also reduced as they are not called upon to overcome the inertia of the fully loaded car. When the truck is rounding a curve the action on the suspension springs is such that the tendency is to cause the car body and truck to adjust themselves to the normal position immediately the wheels leave the curves and enter the straight track. As the action at this point is spring-controlled, no appreciable oscillation is set up between the car body and truck.

Excessive pounding at rail joints is overcome by the extended spring support given to the truck where it is carried on the journal box yoke. The majority of trucks at present in operation are carried at this point on springs suspended from journal boxes at not more than 13-in. centers; in the present truck, however, this dimension is increased to 22-in. centers, a most important point. The extended spring action is also increased by the equalizer action of the yokes carrying these suspension springs.

GASOLINE MOTOR INSPECTION CAR

Burton W. Mudge & Company, Chicago, are placing on the market a new gasoline motor car known as the "Adams" inspection car, designed especially to meet the requirements of

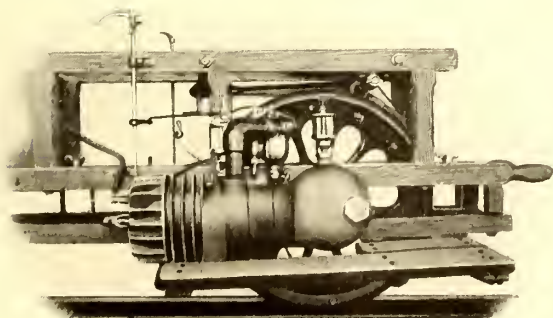
leaving the compression relief valve closed the lever can be used as a brake for stopping the car. The batteries, spark coils and switch and the repair tools are kept in a box which is built in the frame of the car. This box also serves as a locker.

The frame of the car is composed of six white ash sills which are well braced and bolted. The wheels have M. C. B. treads and flanges and wood centers. The car complete weighs 270 lb. and is balanced so well that one man can handle it easily. The car can be furnished in any desired color. It is geared for a maximum speed of 30 m.p.h. It is stated that 1 gal. of gasoline will propel the car from 70 to 90 miles, depending on the weather conditions.

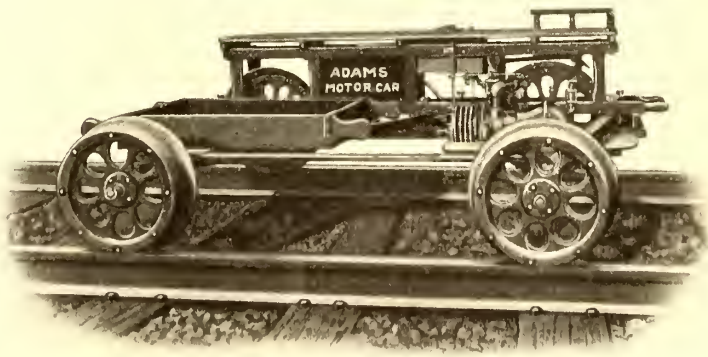
ELECTRIC RAILWAYS IN AND AROUND LOS ANGELES, CAL.

An interesting description of the electric transportation lines of Los Angeles and surrounding territory was published in the special Jan. 1 issue of a daily paper of that city. The articles on the constructional and operating features of the Huntington System of electric railways and the Los Angeles-Pacific Company occupy three closely printed pages. Some descriptive features of general interest contained in these articles are given below.

The Huntington System, comprising the lines of the Pacific Electric Railway and the Los Angeles Interurban Railway com-



Engine Mounted on Car



Gasoline Motor Inspection Car

severe service for railway construction and operation. The construction is such that dirt and grit are excluded from the working parts, and by the same means the lubricant is retained within the cases. This car is of the four-wheel type, but if desired the fourth wheel can be disconnected and the car may be used as a three-wheeled speeder. The motive power is furnished by a two-cycle, air-cooled, reversible, direct-connected

panies, which are under one management, the Los Angeles & Redondo Railway Company and the Los Angeles Railway Company operate a total of 90.4 miles of track. The territory served by these lines was shown in the ELECTRIC RAILWAY JOURNAL for Oct. 2, 1909. The present article emphasizes the substantial part which H. E. Huntington and his associates have played in assisting the rapid growth of Southern California.

Attention is called to the complimentary remarks paid the Huntington System by members of the Massachusetts Street Railway Association tourist party which visited Los Angeles in October.

The Pacific Electric Railway opened its first line in March, 1902, with 75 miles of track. In less than eight years 525 miles of additional track have been laid. Los Angeles, with a population of 350,000, has 26 trolley-line routes centering in the business district, over which are dispatched daily 1418 interurban trains. On the three Pasadena routes alone 303 trains are operated each day. The Pacific Electric Railway has 491 large passenger cars and 574 freight cars. In the busy season 25 carloads of berries are brought into Los Angeles daily by electric cars, and as many as 120 cars of lumber, fruit, garden truck, milk and crushed rock are frequently carried across the city in a single night. Statistics show that the tourist travel in Southern California has increased in about the same ratio that the trolley system has been extended. The city of Long Beach has grown in a few years from a hamlet resort of 2700 people to a substantial business town having 30,000 inhabitants.

The Pacific Electric Railway is now four-tracking its Pasadena short line and contemplates extending to Long Beach its southern 14-mile four-track entrance to Los Angeles. The newspaper article compliments Joseph McMillan, general manager of the Pacific Electric Railway, for the important part which he has played in effecting the excellent operating organization of the road. The company maintains an aggressive passenger department, of which D. A. Munger is general agent. This department includes an agent in New York City, a Los Angeles agent, three traveling agents and 33 station agents. The traveling agents meet special tourist parties when they are 300 or 400 miles distant from Los Angeles, and arrange for special car service over the electric lines, which reach all the points of interest.

As an index of the capacity for handling heavy traffic, the following is given:

"On a recent occasion an excursion service was given to Arcadia, 18 miles from Los Angeles, which included 80 large interurban cars per hour, carrying an average of 145 people per car. Cars are chartered for 8 to 12-hour trips. The Pacific Electric Company has several private cars fitted elaborately, each of which luxuriously accommodates 75 passengers, and affords an ideal sight-seeing privilege. 'Tilton's Trolley Trip' carries the tourist 100 miles over the Pacific Electric lines for \$1.

"A unique feature for the convenience of parties traveling in private Pullman cars is the 'parking side tracks,' where parties desiring to live in their cars are accommodated. The cars are connected with sewer and water services and ice and bathing suits are furnished. Electric locomotives handle the Pullmans in trains from point to point to suit the wishes of owners. The Postal Telegraph Company has offices in all the Pacific Railway depots. Western Electric telephone sets are installed at depots and in booths along the line, and are used for dispatching trains."

The Los Angeles-Pacific Company is referred to as follows:

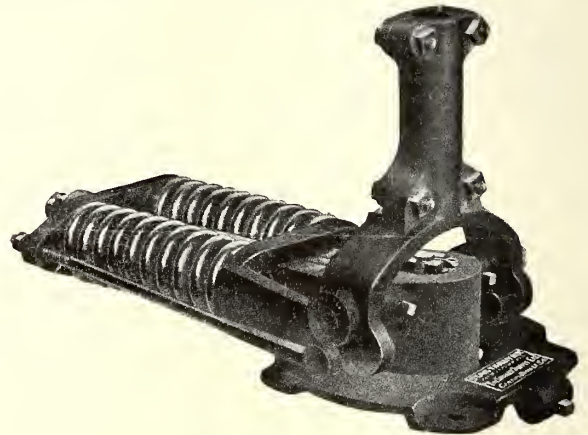
"The Los Angeles-Pacific Company serves a large territory to the west and southwest of Los Angeles. On its Palms division are frequently run trains of four or six cars every seven minutes, and between Hollywood and Los Angeles its trains are regularly made up of two and three cars. The speed of these trains frequently exceeds 60 m.p.h.

This company has six routes between Los Angeles and the beaches over which it operates through interurban trains. The regular schedule for through trains to the beaches is as follows: One train on the Palms line every 20 minutes; one train on the Sawtelle line every 30 minutes; one train on the Hollywood line every 30 minutes; one train on the Redondo line every 30 minutes, and one train on the Westgate line every hour. On the old Santa Monica branch of the Southern Pacific Railway, cars run from Santa Monica to Port Los Angeles every 30 minutes, but from Ivy to Santa Monica the service is principally made up of special trains. The frequency

of trains, however, is increased on all the above routes as the traffic requires. The traffic between Los Angeles and the beach resorts is exceptionally heavy on Sundays and holidays. Frequently the service on the Palms line, which carries the greater portion of the holiday travel, is increased to one train of four to five cars every 7½ minutes regularly. Perhaps no other road in the West has undergone such a general reconstruction and thorough improvement as the Los Angeles. A detailed description of the rehabilitation work of this company was presented in the *ELECTRIC RAILWAY JOURNAL* for Oct. 30, 1909, page 930.

FRICTIONLESS TROLLEY BASE FOR CITY CARS

The Trolley Supply Company, Canton, Ohio, announces that since it placed on the market the "Peerless" roller-bearing frictionless trolley base for high-speed cars, it has had demands from its customers for a similar frictionless base suitable for city cars. The company has met these requests by its new "Star" trolley base shown in the accompanying illustration. It is a description of this rehabilitation work of this company was presented in the *ELECTRIC RAILWAY JOURNAL* for Oct. 30, 1909, page 930.



Frictionless Trolley Base

The new base is made to be absolutely frictionless in both the horizontal and vertical planes. The same roller bearing is used as in the company's other bases, the rolls being eight in number and fully ¾ in. in diameter, to insure long life. The principal advantages asserted for this base are that it maintains absolutely uniform tension against the wire, permits the wheel to adhere more closely to the wire, requires no oil, and is dust proof.

REDUCING THE FIRE INSURANCE RATE

During the last year the Coney Island & Brooklyn Railroad has spent about \$5,000 in improving the insurance risk on its various properties. Most of this work consisted in the renewal of all lighting circuits in the car houses, conduit being installed wherever the wiring needed protection; the placing of lights in the housings of the chemical extinguishers; the closing up of partition walls and walling up of unnecessary windows in some places, and last, but not least, the thorough removal from all properties of inflammable rubbish. The result of these changes has been a most gratifying series of reductions in the fire insurance rate, as will be noted from the table below.

	Amount Insurance.	Average Rate.	Premium.
Previous to July 10, 1908.....	\$1,033,000	2.049	\$21,168.00
July 10, 1908.....	1,349,000	1.939	26,157.63
September 28, 1908.....	1,326,375	1.844	24,470.20
December 29, 1908.....	1,376,775	1.637	22,550.82
April 29, 1909.....	1,483,375	1.497	22,209.10
July 1, 1909.....	1,500,000	1.125	16,879.72

The Interstate Bridge Commission has recommended that the proposed bridge over the Hudson River to connect Manhattan Island and New Jersey be located at 179th Street.

ELECTRIC RAILWAY LEGAL DECISIONS

LIABILITY FOR NEGLIGENCE

Alabama.—Pleading—Passengers—Actions for Injuries—Injuries to Passenger—Negligence—Contributory Negligence—Willful Negligence of Defendant—Taking Up Passengers—Management of Conveyances—Authority of Conductor—Boarding Moving Car—Willful, Wanton or Reckless Acts—Question for Jury—Instructions.

Plaintiff's original complaint alleged that defendant was a common carrier, and that plaintiff, while a passenger of defendant, was injured, and that the injuries were caused proximately by defendant's negligence. Amended counts were filed, averring that plaintiff's injuries were proximately caused by the negligence of defendant's servant or agent while acting within the line of his employment in and about the carriage of plaintiff as a passenger, and that plaintiff's injuries were proximately caused by the willful conduct of defendant's servants or agents acting within the line of their employment in and about the carriage of plaintiff as a passenger, which conduct consisted in causing a car to be set in motion with the knowledge that plaintiff would probably be injured thereby and with reckless disregard of the consequences. Held, that the original count was in case, and those added by amendment were also in case, and constituted no departure, and were properly allowed. In an action against a carrier for injuries to a passenger, resulting from the negligence of defendant in failing to exercise all reasonable precautions against starting the cars after he had alighted on the train stopping at a siding, an amended complaint held to sufficiently allege defendant's negligence. Contributory negligence is not available against a charge of willful or wanton misconduct. Where a car stops at a place where it is customary for persons to take passage, it is the carrier's duty to use due care to determine, before moving the cars, that no person is in the act of boarding the same; and if the place is not one where it is customary to receive passengers, but the car has stopped, and a passenger receives permission of the conductor to temporarily leave the car, it is the duty of defendant's servants to exercise due care to know before moving the car that the passenger is not in the act of re-entering the car, or in a position which would be rendered perilous by moving the car; but if the place where a car is stopped is not the place where passengers are received there is no breach of duty to one who is attempting to get aboard, if the car is started while he is in a perilous position, unless the servants of the carrier know that by such movement his position is rendered perilous. A conductor is the representative of the carrier in charge of a train, and controls the operation thereof, and he acts within the scope of his powers if, while stopping at a place at which it is not customary to receive passengers, he grants permission to a passenger to temporarily leave the train. It is not negligence as a matter of law for a person to attempt to board a moving car in the absence of special circumstances, such as infirmity, or being incumbered with articles, or the speed of the train. Wanton or willful misconduct of a carrier's servants can only be predicated on actual knowledge, as distinguished from a mere breach of duty that, had it been observed, would have led to knowledge on the part of the servants of the peril of the person injured, or that from reasonable appearance such person would probably be imperiled by the action which the servant was about to take. Actual knowledge by a carrier's servants of the peril of a passenger, sufficient to render the carrier guilty of wanton negligence, so as to excuse contributory negligence, need not be positively and directly shown, but may be proved by circumstances from which such knowledge is a legitimate inference. Evidence in an action against a carrier for injuries to a passenger held sufficient to make the question of the wanton conduct of defendant's servants excusing contributory negligence one for the jury. In an action against a carrier for injuries received while plaintiff was attempting to board a car, there was evidence that plaintiff tried to catch the first car, and was injured by the last car catching his leg. Held, that a request to charge that plaintiff cannot recover unless the jury are satisfied that, when the train was signaled to go forward, plaintiff was in the act of boarding

the car and was injured by the train starting while he was in that position, was properly refused as disregarding the inference from the evidence that the car was in motion when plaintiff undertook to board it, and as disregarding the duty resting on the conductor to know before causing the train to be started that plaintiff was not in the act of getting aboard thereof, provided the permission had been granted to plaintiff to leave the car temporarily, as claimed by him. (Birmingham Ry., Light & Power Co. v. Jung., 49 S. Rep., 434.)

Massachusetts.—Discovery—Statutory Provisions—Interrogatories—Subject-Matter of Examination—Carriers—Injuries to Passengers—Evidence—Admissibility—Carriage of Passengers—Care Required—Instructions—Burden of Proof.

Under Rev. Laws 1902, c. 173, §63, providing that a person interrogated before trial shall not be obliged to answer a question disclosing the manner in which he proposes to prove his case, a defendant in a personal injury action is not compelled to disclose in advance its theory of the accident, or to state the facts derived from investigation on which it will rely to establish its defense.

The fact that a car jumped a switch on being replaced after its derailment at the switch, injuring a passenger, is inadmissible as evidence of an admission by the carrier that the passenger had been injured through its negligence.

An instruction, in an action for injuries to a passenger by the derailment of the car, that the carrier was bound to use the highest degree of care for the safety of its passengers consistent with the practical operation of the road, and that if the jury found that the accident would not have resulted, had greater care been taken to examine the switch at the place of the derailment of the car, the passenger was entitled to recover, was erroneous, because it subjected the carrier to a greater liability than the law imposes.

Where, in an action for injuries to a passenger by the derailment of the car, the carrier gave evidence from which the jury could find that it had used due care in the construction, equipment, and maintenance of the railway, the burden of proof was not shifted, but remained on plaintiff to establish the carrier's negligence on all the evidence, of which the presumption of negligence on proof of the derailment and injury formed only a part.—(Carroll vs. Boston Elevated Ry. Co., 86 N. E. Rep., 793.)

Massachusetts.—Municipal Corporations—Use of Streets—Contributory Negligence—Passing Vehicles—Actions—Questions for Jury—Appeal and Error—Presumptions—Sufficiency of Instructions.

There is no absolute rule of law requiring one about to alight from a street car to look up and down the street before alighting to prevent injury from passing vehicles.

Under Rev. Laws, c. 54, § 2, requiring a driver of a vehicle passing another vehicle traveling in the same direction to drive to the left of the middle of the traveled part of the way, if defendant was attempting to pass to the right of a street car from behind, when he collided with plaintiff, who was alighting from the car, the jury might find that defendant's conduct was such negligence as plaintiff was not required to anticipate.

In an action for injuries caused by colliding with plaintiff as he was alighting from a street car, whether plaintiff was guilty of contributory negligence, and whether defendant's negligence caused the injury, held for the jury.

In an action for injuries caused by defendant's negligence, though requested instructions, which were properly refused on other grounds, had a material bearing upon the issue of defendant's negligence, where the instructions given on that question were not complained of, it will be assumed on appeal that they sufficiently covered the question.—(McGourty vs. De Marco; O'Connor vs. Same, 85 N. E. Rep., 891.)

Missouri.—Carriers—Injuries to Passengers—Defective Platforms—Negligence—Question for Jury—Contributory Negligence—Action—Petition—Obligation of Conductor—Infants—Contributory Negligence.

Whether a carrier failing to maintain a guard rail at the end of a platform used to receive and discharge passengers was negligent, authorizing a recovery for injuries

to a passenger falling from the platform while alighting from a car, held, under the facts, for the jury.

A passenger may rely on the promise of the conductor that he will let the passenger off at a designated place where passengers are regularly received and discharged, and he need not give notice by ringing the bell of his wish to leave the car at such place.

A petition in an action for injuries to a passenger while alighting from a moving car which alleges that the conductor promised to let him off at a designated point, that the speed of the car was checked as it approached the point, inducing the passenger to believe that the conductor was about to stop the car, and that the passenger was in the act of alighting when the car was started at an accelerated speed, throwing him from the car, charges every negligent act on the part of the conductor as to stopping and starting the car at that point.

A conductor accepting the notice of a passenger to stop the car at a designated point for him must without further notice signal the motorman to stop the car at the designated point, and must see that the passenger is afforded an opportunity to alight in safety.

A minor is only required to exercise that degree of care which is expected of one of his age, experience and capacity.

Whether a minor is guilty of contributory negligence in failing to exercise the degree of care which is expected of one of his age and capacity is for the jury, unless the only conclusion that can reasonably be drawn from the evidence is that he was guilty of contributory negligence.

Whether a boy 12 years old was guilty of contributory negligence while alighting from a moving car, held, under the facts, for the jury. (*Moeller vs. United Rys. Co. of St. Louis*, 112 S. W. Rep., 714.)

Missouri.—Carriers—Injury to Passenger—Pleading—General Negligence—Question for Jury—Liability for Negligent Act.

A petition, alleging in general terms that defendant's servants negligently operated the street car on which plaintiff was a passenger, and as a result of such negligence it ran against a wagon in the street and plaintiff was thereby injured, charges general negligence and is sufficient.

Where the evidence shows that plaintiff was a passenger on an open street car, and that the conductor, while on the running board on the side of the car, in attempting to swing around a passenger in collecting fares, struck a wagon near the track, causing it to swerve so as to throw the pole of the wagon into the car and against plaintiff, and that the car was running at the rate of 14 or 15 miles an hour, the question of defendant's negligence was for the jury.

No liability is incurred by negligent acts, the results of which are beyond any reasonable expectation. (*Monday vs. St. Joseph Ry., Light, Heat & Power Co.*, 119 S. W. Rep., 24.)

Missouri.—Trial—Instructions—Assuming Facts—Street Railroads—Collision with Vehicle—Action for Injuries—Misleading Instructions.

In an action for injuries caused by a collision between a wagon and a street car, a portion of one of plaintiff's instructions read: "And that said injuries to the plaintiff, if any, were caused by the carelessness and negligence of the defendant either by failure of the motorman in charge of said car to keep said car under such control that it would not run into and upon the said wagon in which plaintiff was seated, or by the failure of the motorman in charge of said car to check the speed of or stop said car, and thereby avoid running into the wagon in which plaintiff was seated, when he saw, or by the exercise of ordinary care ought to have seen, that said wagon was in a situation where it was liable to be run into by said car, unless the speed of said car was checked, or it was stopped before it collided with said wagon." Held erroneous, as assuming that defendant was negligent either in failing to control the car or check its speed or stop it.

In an action for injuries in colliding with a street car, an instruction for plaintiff stated that, if plaintiff was negligent in driving along defendant's west-bound track, "then he cannot recover herein, and your verdict should be for the defendant." In the next sentence it proceeded: "But if you further find and believe from the evidence that plaintiff was in a position of peril," and that defendant's serv-

ants saw him and could have stopped, etc., "and carelessly and negligently failed to do so, then you will find for the plaintiff, and not for the defendant, notwithstanding the said negligence of the plaintiff in driving along the west-bound track of the defendant." Held contradictory and misleading. (*Gessner vs. Metropolitan St. Ry. Co.*, 112 S. W. Rep., 30.)

New York.—Street Railroads—Collision—Contributory Negligence—Burden of Proof.

One suing a street railway company for injuries in a collision with a street car while driving along the track must, to recover, present evidence from which it is proper to infer that he exercised reasonable care for his own safety.

One familiar with the operation of cars in a street drove his team on one of the parallel tracks at a place where the street was wide enough to permit a wagon to pass on either side of the tracks. He drove along the track, without making any effort to ascertain whether a car was approaching. There was no evidence that it was necessary for him to occupy the track. Held insufficient as a matter of law to show freedom from contributory negligence essential to a recovery.

One driving along a street railway track in a street sufficiently wide to permit a wagon to pass on either side of the tracks must exercise reasonable care, and use his opportunities for looking and listening for the approach of a car, and he cannot rely wholly on the motorman giving him warning of his approach, since the motorman is not bound to presume that persons will drive on the track without exercising some degree of care, and since he has the right to assume that the right of way will not be blocked, and that one driving on the track will leave it in time to avoid a collision. (*Paladino vs. Staten Island Midland Ry. Co.*, 111 N. Y. Sup., 715.)

New York.—Street Railroads—Private Right of Way—Premises—Right to Occupy—Persons Near Track—Injury—Negligence—Contributory Negligence—Error in Judgment.

Defendant operated its street cars and trains over a space known as "Railroad Avenue," which, while not a street, was used as such with defendant's knowledge. A platform had been built, partly by defendant and partly by plaintiff's employer, between defendant's tracks and a brewery, on which plaintiff was accustomed to unload beer barrels, which he was doing at the time of the accident, having first driven his team adjacent to the platform and turned the horse and wagon, as he believed, into a place of safety. Plaintiff was injured by one of defendant's trains being backed along an adjoining track, by the step of one of the cars striking the hub of one of the wheels of plaintiff's truck and shoving it over on him. Held, that plaintiff, in using the space, was not a mere licensee, but a person rightfully there, and to whom defendant owed the duty of ordinary care.

Where defendant's motorman, while changing a train from one track to another, operated the same backward over a part of defendant's right of way, which defendant knew was used as a public street, and in so doing ran against plaintiff's truck and injured plaintiff, and if the motorman had been in the front car he would probably have seen the dangerous proximity of plaintiff's wagon to the track, such facts justified an inference that the motorman was negligent.

Plaintiff drove his horse and wagon into a space between a platform and a street railway track to unload, and cramped his wagon so that, as he supposed, the horse and wagon were in a place of safety. He made no further observations for 10 minutes before the wagon was struck by an approaching car and pushed against plaintiff, causing his injury. Held, that plaintiff's mistake in judgment, if any, or the fact that a slight movement of the horse brought the wheel too near the track for safety, did not establish plaintiff's contributory negligence as a matter of law. (*Obenland vs. Brooklyn Heights R. Co.*, 111 N. Y. Sup., 686.)

New York.—Damages—Personal Injuries—Profits—Evidence.

Plaintiff in an action for injuries testified that he was an employing tailor, having a stock of cloth and materials;

that he paid rent for his store and gave his personal attention to the business, cutting, trying on, taking orders, and giving out work; that his average profits were \$40 a week; and that he was absent from his business five weeks. There was no evidence of the cost of the rent or the amount of capital invested. Held, that the evidence related to profits, and not to the value of plaintiff's personal services, and was therefore too speculative and conjectural to form a basis of recovery for loss of earnings. (*Gottheim vs. Nassau Electric R. Co.*, 111 N. Y. Sup., 678.)

CHARTERS, FRANCHISES AND ORDINANCES

New York.—Street Railroads—Construction of Franchise—Switches and Extensions—Injunction—Tearing up Street for Street Railroad—Evidence—Connection with Interurban Line—Rights and Authority of Village Trustees.

A franchise gave the right to build a street railroad on B. street to its intersection at right angles with C. street, and thence north thereon, but no part of the route was to be west of the center of line of C. street and the center line of the road was to coincide with the center line of the street, though necessary switches were permitted. It was sought to connect the tracks at the street intersection with a private right-of-way extending westerly from the westerly line of C., the north and south street near the northerly line of B. street. Held, that, while the point where the movable rails of the diverging tracks would connect, it would be a switch as ordinarily understood, from that point, and especially from the point where the proposed diverging tracks separate from the present tracks to the west line of C. street, it was an extension of the line, but that, whether it was a switch or an extension, it would run to the west of the track on C. street, and was therefore outside the limits of the franchise.

That defendant street railroads undertook under cover of night to lay tracks is convincing proof that they then supposed that they had no lawful right to tear up the street at the place in question, and that they then believed they were laying an unauthorized extension, and not a mere switch.

Laws 1890, p. 1084, c. 565, § 4, subd. 5, giving any railroad the right "to cross, intersect, join or unite its railroad with any other railroad before constructed at any point on its route," authorizes a connection of roads which do not in fact intersect, but come so near together that it becomes desirable, as where two interurban street railroads are within about 300 feet of each other.

Where connection is proposed to be made in a village street between interurban lines for the purpose of exchanging cars, the village trustees have the right to participate in determining the place and manner of making the intersection, though they would have no right to impose unreasonable or unusual conditions, or conditions intended to defeat or prevent it.—(*Village of Waverly v. Waverly, S. & A. Traction Co. et al.*, 116 N. Y. Sup., 1074.)

New York.—Eminent Domain—"Compensation"—Easement in Street—Elevated Railroad—Right to Maintain—Consent—Estoppel—Appropriation of Street—Release—Title Acquired—Property Subject to Appropriation—Streets—Remedies of Owners—Injunction—Rights in Streets.

An instrument, executed by an owner of a lot extending to the center of the street in front thereof, by which he consents to the maintenance of an elevated railroad in the street, and operation thereof "as the same is now constructed without compensation therefor," and releases all claim arising from the maintenance of the structure and the operation of the railroad "as now constructed and operated," is more than a mere license, and is effective at least as an estoppel for any compensation that might be awarded in condemnation proceedings, "compensation" being the word used in Const. 1894, art. 1, § 7, regulating the taking of private property, and, as used in the consent, indicating a continued invasion of the abutting owner's rights in the street without payment therefor.

A mere abutter on a street has only an easement in the street; and, when he gives a consent for the construction and maintenance of an elevated railroad in the street he releases so much of the easement as is interfered with by the railroad.

Where an abutting owner owns the fee of the street in

front of his land, a railroad constructing and maintaining an elevated railroad in the street takes from him an easement in the land in the street.

The easements of a mere abutter on a street, and the rights of an abutter owning the fee of the street in front of his premises, are within the constitutional protection, and neither can be acquired by a railroad company, except by the procedure prescribed by the Constitution, unless the owner voluntarily seeks redress in equity.

One suing to enjoin the maintenance of an elevated railroad in the street in front of his premises, and for damages for past maintenance, is entitled to no greater relief than he would obtain in proceedings to condemn the property for the construction and maintenance of the elevated railroad.—(*Smith v. Brooklyn Union Elevated R. Co. et al.*, 85 N. E. Rep., 1100.)

Texas.—Street Railroads—Use of Streets—License or Consent of Municipality—Nature and Extent of Rights in Streets—Erection of Electric Wire Poles—Municipal Corporations—Use of Streets—Electric Wires.

Where, at the time of the adoption of a city ordinance conferring on a street railway authority to use certain streets upon which to construct a street railway system, it was not known where the railway's power house would be located, and the ordinance did not require the railway to construct the plant on any of the streets over which such use was granted, the express authority carried with it the right to make use of such other streets for the transmission of electric power as was essential to the enjoyment of the authority expressly granted.

Where a city ordinance granted a street railway authority to erect a system of overhead wires for the purpose of conducting electricity to operate motors, and "to properly cross from such electric current generating station as may be required * * * they are hereby authorized to erect poles to place the wires upon," etc., and at the time the ordinance was adopted the location of the generating station had not been determined, the railway was authorized to erect its wires over such streets as might be required to properly conduct the current from the power plant to the motors, although the streets so selected were not any of those designated, for the construction of the railway system.

A city has the right to permit the use of its streets for the erection of poles and feed wires for use in connection with a street railway system.—(*Beaumont Traction Co. v. Brock et al.*, 106 S. W. Rep., 460.)

Wisconsin.—Eminent Domain—Compensation—Amount—Nature and Extent of Right Taken.

St. 1898, sec. 1863a, confers on an electric railway the right of eminent domain, makes applicable the statutes relating to the exercise of that right by a railroad, but provides that the right shall not extend to the condemnation of rights in a street. Laws 1899, p. 537, c. 306, Laws 1901, p. 686, c. 465, and Laws 1905, p. 912, c. 497, in amendment of sec. 1863a, so modify the restriction with reference to streets that, where the use of a street has first been granted by franchise, the right to condemn may be exercised; and it is also provided that such a corporation shall have the power to lay out its right of way, not exceeding 100 ft. in width, etc., and that it may acquire by condemnation such property as may be necessary, and that where it has constructed its railway on a street under a franchise it shall not, during the franchise, abandon any part of the railway in the street. St. 1898, sec. 1836, relating to commercial railroads, recognizes that the exclusive use of a street is not acquired by condemnation, but that other uses continue impaired only so far as necessary. A petition filed by a street and interurban railway stated that it was desired to condemn all the rights which would entitle abutting owners to damages by reason of the construction of the double-track railway authorized by petitioner's articles of incorporation. Prior to the petition a franchise had been granted to operate a street railway in the street wherein it was sought to condemn. Held, that the effect of the condemnation proceedings was the acquisition by petitioner of a right of way for its interurban railway and of a perpetual interest, subject to the duty to continue the street railway service, and not merely of a right to run interurban cars over the tracks of the street railway, and that damages to abutting owners were to be estimated accordingly.—(*Marsh v. Milwaukee Light, Heat & Traction Co.*, 114 N. W. Rep., 804.)

LONDON LETTER

(From Our Regular Correspondent)

A recent report by Peter Fisher, of the Dundee Municipal Tramways, on the conditions governing the operation of the Perth Tramways appears to show that it is a mistake for municipalities like Perth to operate their own tramways. The Perth Tramways were electrified five or six years ago and have not been a success financially. Finally it was decided to have Mr. Fisher report regarding the operation of the system. Briefly, Mr. Fisher recommended that cars should be operated on Sunday; that a more frequent service should be established, and that the operating staff should be reduced. He disapproved the introduction of halfpenny fares. In Mr. Fisher's opinion, the staff should be reduced about 50 per cent. Other recommendations are largely of local interest. Mr. Fisher approved the granting of season tickets to the heads of the various municipal departments and to the corporation employees; he advised against issuing season tickets to ordinary passengers.

Reference was made recently in this letter to the proposed consolidation of the Baker Street & Waterloo Railway; the Charing-Cross, Euston & Hampstead Railway and the Great Northern, Brompton & Piccadilly Railway, all of which operate underground railways composing the Underground Electric Railways Company of London, which was formed by the late Chas. T. Yerkes. The bill to effect the consolidation, which has been published, proposes that the consolidation shall take effect on July 1, 1910, the new company to be known as the London Electric Railway. The capital of the London Electric Railway will be divided into £3,150,000 of 4 per cent preferred stock and £9,450,000 of common stock and an amount of perpetual 4 per cent debenture bonds which, with the debenture bonds now issued by the three companies, will total £4,200,000.

F. A. Cortez-Leigh, for many years a member of Lacey, Sillar & Leigh, London and Manchester, consulting engineers, has severed his connection with that firm and has assumed the duties of chief electrical engineer of the London & North-Western Railway. Lacey, Sillar & Leigh have carried out many important contracts for electric traction and electric lighting in England and abroad. Mr. Leigh's appointment with the London & North-Western Railway was necessitated because that company is building an electric railway from Watford to its main station at Euston in London, and as the engineering work is well advanced, consideration must be given to the electrical equipment of the line, which is to be partly on the surface and partly underground. The London & Northwestern Railway is undoubtedly the most important railway in Great Britain, and has, perhaps, better train service than any other railway in Europe. Should the electric railway now under construction prove a success, further electrification will follow, so that Mr. Leigh is carrying out work of great interest.

The electrification of the London, Brighton & South Coast Railway between London Bridge and Victoria stations, about which so much has been written, is proving successful from a financial point of view. The company states that traffic on the electrified line has shown an improvement as compared with the returns on the same section before electrification. The company is preparing to increase the train service, and other railways which are interested in the experiment will doubtless electrify some of their branch lines.

It is proposed to build an electric railway between Wimbledon and Sutton which would connect with the London & South-Western Railway and pass through Morden, Cheam, Merton and Carshalton to Sutton, where a junction would be made with the Croydon and Epsom line of the London & Brighton Railway.

Dick, Kerr & Company have made excellent progress with the electrification of the York Tramways, and the section from Nessgate to Fulford has been formally opened by the Lord Mayor, following an inspection by Lieut.-Col. Von Donop, chief inspector of the Board of Trade, who expressed himself as well satisfied with the construction of the lines. York is a picturesque city, and one of the few

remaining cities in Great Britain surrounded by walls, and much interesting work was undertaken in connection with the tramways to preserve the architectural features of the city. The city wall arch over Leeman Road was raised 3 ft. to provide headroom for the electric cars. The old material was used in replacing the arch, so that its appearance remains unchanged. The York system comprises four routes, with the railway station as the center—Fulford, Dringhouses, Acomb and Haxby Road. It is anticipated that the Dringhouses route will be ready for opening by March 1, 1910. The Haxby Road route, from the cocoa works to the center of the city, is in course of construction and the Acomb route will follow. The permanent way, which is narrow gage, follows the specifications made by the city engineer. Overhead trolleys have been adopted, but in all the narrower thoroughfares obstruction by standards has been avoided by the suspension of the trolley wires from the houses on each side of the street. The cars are double-deck, open-top cars with an 8-ft. wheel base, York being one of the first places to adopt the new system of a long wheel base on single trucks. The cars are also fitted with a new kind of destination indicator, which shows where the car is from, in addition to where it is going. The laying of cables has been carried out under the direction of J. W. Hame, the city electrical engineer, who has been appointed general manager of the tramways. The total cost, including necessary street improvements, is about £140,000.

With the exception of the amalgamation scheme in London, comparatively few measures of interest have been prepared for introduction into Parliament. The various tubes in London are applying for rights to make minor improvements in the service, and a few corporations are asking for powers for extensions, perhaps the most important being the Bradford Corporation, which proposes to construct tramways which will involve an expenditure of about £80,000. Leeds is promoting a bill for the use of the trackless trolley. In connection with the underground railways, perhaps the most important bill is the act of the Charing-Cross, Euston & Hampstead Railway for permission to construct an extension at its Charing-Cross terminus to connect with the Baker Street & Waterloo Railway at its Embankment station, and with the District Railway at its Charing-Cross station. This is an important and difficult piece of work and will probably take five years to complete. Powers are desired to increase the capital of the company £400,000. This addition will be extremely useful, as the Charing-Cross, Euston & Hampstead Railway comes to a dead-end at present, and passengers who wish to transfer to the Bakerloo Railway have to come to the surface at Charing-Cross and walk to Trafalgar Square, where there is a station of the Bakerloo Railway. Similarly passengers who desire to proceed east or west must walk to the Charing-Cross Station of the Metropolitan District Railway. These stations are about 200 yds. distant.

The second annual report of the London Traffic Branch of the Board of Trade was issued during January, and reference to it was published in last week's issue. Sir Herbert Jekyll states that the work of the traffic branch has hitherto been confined within narrow limits owing to the smallness of the staff, but the increase which has now been authorized will enable the board to undertake new duties, including the investigation of special subjects which the Royal Commission on London Traffic indicated as calling for detailed inquiry. The question of arterial roads, which will involve the examination of an area of 700 square miles with regard to its topographical features, distribution of population, etc., will be studied. The report deals very fully with tramways versus motor omnibuses, and also takes up the subject of the use of trailers in connection with the London County Council Tramways and the running of through cars. It also takes up the question of the undeveloped electrical schemes which have received the sanction of Parliament, including the Euston-Watford Railway, previously referred to in this letter. The competition of tramways and railways and the question of the electrification of steam railways are carefully investigated. The housing problem, the regulation of street traffic, fares, etc., all come in for minute attention, making the report one of peculiar interest to all interested in the solution of the problem of transportation in large cities.

A. C. S.

News of Electric Railways

Transit Affairs in New York

The Interborough Rapid Transit Company has begun the work of lengthening its station platforms so that they will accommodate 8-car local and 10-car express trains. The station at which work is in progress is at 116th Street on the Lenox Avenue division.

By adopting a report presented by Commissioner William McCarroll, the Public Service Commission has indicated that it will grant the petition of certain property owners in Brooklyn for the construction on the assessment plan of the proposed Livonia Avenue extension of the Eastern Parkway subway in Brooklyn. A necessary consequence of this action will be the formal laying out of a rapid transit route for this line. As soon as that is done the route will be sent to the Board of Estimate and Apportionment for its approval, and, if approved, the commission will push forward the early construction of the road.

More than 50 new steel cars which will be used in the tunnel traffic are now in every-day use on the Long Island Railroad and a second instalment is expected very soon. By the time the tunnels are ready for operation 140 of these new steel cars will be placed on the road and the number will be increased as the necessity arises. It is said now that the tunnel may be placed in service before the summer, which was the time set some months ago by the officers of the company for beginning service.

William May Wright, Charles S. Foote and Rudolph Block, commissioners appointed by the Appellate Division of the Supreme Court, have filed a report to that court recommending the double-deck form of construction for the Lexington Avenue subway, which is a part of the Broadway-Lexington Avenue subway system as planned by the Public Service Commission. The original plan involved the building of four tracks substantially upon the same level. This plan was approved by the Appellate Division, but on the recommendation of Henry B. Seaman, chief engineer, the Public Service Commission decided to change this plan to a double-deck road upon the portion of the routes beginning at or near Houston Street and thence extending northerly under Broadway to a point near East Ninth Street, thence through private property to Irving Place, and thence northerly under Irving Place, Gramercy Park and Lexington Avenue to 103d Street, and from 113th Street to the Harlem River.

On Jan. 28, 1910, the Public Service Commission received Max E. Schmidt, president of the Continuous Transit Securities Company; Robert Walker, president of the Rock Island Railroad, and Stuyvesant Fish, representing the Continuous Transit Securities Company, to urge the construction of a moving platform in New York. The commission originally selected a section under Broadway from Tenth Street to Forty-second Street as the best site for trying the proposed plan. The former Board of Estimate, however, suggested that a crosstown line be constructed under Thirty-fourth Street within First and Tenth Avenues. No action on the proposal has been taken since the organization of the new Board of Estimate in January, 1910.

The Board of Estimate of New York has authorized the payment of \$31,000 asked by the Public Service Commission for the construction of a Bronx Park terminal station for the east branch of the subway at 181st Street.

Plans for Causeway Street Station Under Consideration at Boston

The Massachusetts Railroad Commission is considering plans recently filed with the board by the Boston Elevated Railway for the construction of an elevated station for surface cars in Causeway Street, opposite the North Union Station, Boston. The company plans to build a station of the double-platform type with inside east and westbound tracks to accommodate car service to and from Boston via the East Cambridge extension now under construction; to provide easy access to the North Station railroad terminal,

and to improve the facilities for passage between the North and South Stations via the Atlantic Avenue shuttle trains.

The plans provide for a platform about 450 ft. long and 12 ft. wide on the north side of Causeway Street, immediately in front of the North Station, with an entrance gallery and lobby connecting with a passageway 14 ft. wide leading into the midway of the railroad terminal, with entrance and exit connections to points at the street level in front of the cab stand of the terminal. The easterly half of the platform is paralleled by a spur track connecting with the Atlantic Avenue elevated line, and will be used for the reception of passengers to and from the South Station. A connection is to be provided with the present bridge between the North Union Station and the North Station of the elevated system. On the south side of Causeway Street will be built an elevated platform about 235 ft. long, and from 8 to 18 ft. wide, to be used as a stopping place for inbound cars via the East Cambridge extension. A 12-ft. passageway will be built between the east and westbound platforms, and no stairways are planned to and from the sidewalks.

The design of the Causeway Street station will shorten the distance which passengers will be obliged to walk in passing between the North and South stations, provide quicker connections between the East Cambridge car service and the North Station, facilitate transferring between East Cambridge and Atlantic Avenue points, and relieve the platform and passageway areas of the present North Elevated station, facilitating the handling of traffic to and from the Washington Street tunnel. A desirable separation of traffic is expected to follow the establishment of the Causeway Street station, although stairway connections between all three stations will tie them together from the operating standpoint. A number of special track changes will be made at the intersection of Canal and Causeway Streets in connection with the construction of the new station. The East Cambridge surface cars will enter and leave Boston via an elevated structure for double-track service carried across the Charles River Dam to the Lechmere Square district.

Cleveland Traction Situation

At the meeting of the City Council of Cleveland on Jan. 27, 1910, the rule of "silence gives consent" was adopted toward the request of Warren Bicknell, receiver of the Municipal Traction Company, for authority to continue to operate routes on which franchises expired on Jan. 27, under the conditions in force on the lines of the Forest City Railway, which included a fare of 3 cents and a charge of 1 cent for a transfer which is rebated when the transfer is collected. Newton D. Baker, city solicitor, said that if no objections were made the company would have the right to operate until the Tayler grant is submitted to the voters for approval.

A resolution was adopted at the meeting of Jan. 27 requesting Judge Tayler to authorize the re-establishment of through routes on the Superior Street and Detroit Street, Payne Street and Bridge Street, Central Street and Denison Street and Euclid Avenue and West Fourteenth Street lines. These routes were divided at the Public Square on account of the difference in the fares, but the change in fare just made would enable the receiver to operate them as through lines again. Mr. Bicknell has been busy with criminal cases in Toledo for some time and has not had an opportunity to take up these matters.

An effort is being made by some of the councilmen to prevent the interurban cars from coming to the Public Square, because of the congested condition of that district at certain hours.

Mayor Bachr has approved the plan of voting on the grants made the Cleveland Underground Rapid Transit Company, notwithstanding the fact that the City Council has repealed the grants.

Former Mayor Johnson, who left Cleveland shortly after the settlement of the street railway controversy is ill at his

apartment in the Prince George Hotel, New York, N. Y. While visitors to Mr. Johnson are refused admittance it is said that he is not too ill to look after his personal affairs.

Association Meetings

Massachusetts Street Railway Association.—Boston, Mass., Feb. 9.

Central Electric Traffic Association.—Dayton, Ohio, Feb. 19.

New England Street Railway Club.—Boston, Mass., Feb. 24.

Street Railway Association of the State of New York.—Rochester, N. Y., March 1 and 2.

Central Electric Accounting Conference.—Fort Wayne, Ind., March 12.

Central Electric Railway Association.—South Bend, Ind., March 24.

Missouri Electric, Gas, Street Railway & Water Works Association.—Jefferson City, Mo., April 14, 15 and 16.

Iowa Street & Interurban Railway Association.—Sioux City, Ia., April, 1910.

Legislation Favored to Authorize Municipalization in Toronto.—The City Council of Toronto, by a vote of 18 to 4 has decided to seek legislation to enable the city to purchase the Toronto (Ont.) Railway.

Restaurant for Employees of the Twin City Rapid Transit Company.—The Twin City Rapid Transit Company, Minneapolis, Minn., has opened a restaurant for its employees in its car house in East Seventh Street, St. Paul, Minn., where sandwiches and other edibles will be sold to the men at cost. If the restaurant proves to be a success the company will provide restaurants at some of its other car houses.

Municipal Ownership Proposed in Tacoma.—The City Council of Tacoma, Wash., voted on Jan. 19, 1910, in committee of the whole to recommend the passage of an ordinance to submit to the people at the spring election a proposal to issue bonds to the extent of \$1,000,000 to build and equip an electric railway system. Power to operate the line could be secured from the municipal lighting station of the company now under construction, according to the plan.

Bonds Authorized for Municipal Line in San Francisco.—In accordance with the vote at the election held at San Francisco on Dec. 30, 1909, as noted in the *ELECTRIC RAILWAY JOURNAL* of Jan. 8, 1910, page 84, the Board of Supervisors of San Francisco has unanimously approved the plan to sell \$2,020,000 of municipal securities for equipping the Geary Street, Park & Ocean Railroad with electricity and operating it as a municipal enterprise.

Dinner of Stone & Webster Officers in Northwest.—A dinner of the officers of the companies in Washington controlled and operated by Stone & Webster, Boston, Mass., was held at the Hotel Butler, Seattle, Wash., on Jan. 13, 1910. Jacob Furth, president of the Seattle Electric Company, acted as toastmaster. Addresses were made by Judge Peter Grosscup; E. E. Potter, manager of the Seattle Electric Company, and R. T. Laffin, who is connected with the Stone & Webster interests in the Northwest in an expert capacity. Mr. Laffin discussed more particularly the suggestion of Mr. Potter that a club be organized among the Stone & Webster interests in the Northwest.

Meeting of Engineers' Society of Western Pennsylvania.—The thirtieth annual meeting of the Engineers' Society of Western Pennsylvania was held in the society rooms in Pittsburgh on Jan. 18, 1910. E. K. Morse, who succeeded to the presidency of the association on the death of G. T. Barnsley in October, 1909, presided. The annual report of the board of direction, including the reports of committees, sections and the treasurer, was read. The membership of the society on Dec. 31, 1909, was 835. The following officers were elected for the ensuing year: E. K. Morse, president; J. O. Handy, vice-president; A. E. Frost, treasurer; A. R. Rayner, Willis Whited, directors. The annual banquet of the society was held on Jan. 29, at 6 p. m., in the Fort Pitt Hotel.

Canadian Electric Railways.—The report of the Department of Railways and Canals of the Dominion of Canada gives the total mileage of the electric railways as 988 miles of main track. The paid-up capital of these lines was \$91,

604,989 and the gross earnings \$14,824,936, an increase of \$817,887 over the previous year. The net income of the various roads aggregated \$4,716,308, or 5 per cent on the capitalization. The electric railways carried 314,026,671 fare passengers and 81,670,945 transfer passengers on 3544 cars. The total car mileage was 60,152,846, of which 737,720 was in the carrying of mails, freight and express traffic. There were in 1909 10,557 employees of electric railways, 603 more than in 1908, and their wages amounted to \$6,761,281. During the year 11 passengers, seven employees and 50 other persons were killed and 1303 passengers, 218 employees and 618 others were injured in accidents on electric railways.

A. S. M. E. Dedication of Thurston Memorial Tablet.—The monthly meeting of the American Society of Mechanical Engineers for February will be devoted to the dedication of a bronze memorial tablet to Dr. Robert H. Thurston, the first president. All associates and former students of Dr. Thurston are earnestly invited to attend these exercises. The dedication will take place on the evening of Feb. 8, 1910, at 8:15 p. m., in the Engineering Societies Building, 29 West Thirty-ninth Street, New York. Among those who will participate are Prof. John E. Sweet, who was closely associated with Dr. Thurston in the organization of American Society of Mechanical Engineers; Colonel E. A. Stevens, a prominent representative of the Stevens family, founders of Stevens Institute; J. G. Schurman, president of Cornell University; Prof. Albert W. Smith, Dr. Thurston's successor as director of Sibley College, and William Kent, consulting engineer. It is expected that Mrs. Thurston will attend. Dr. Alex. C. Humphreys, president of Stevens Institute, will be the chairman. The memorial to be unveiled is the work of Herman H. McNeil, a former student and personal friend of Dr. Thurston. It is a replica of the memorial tablet presented to Sibley College, Cornell University, by alumni and students of the university.

Examination for Position of Junior Railway Engineer, New York Commission.—The New York Civil Service Commission will hold an examination on Feb. 26, 1910, to fill the position of junior railway engineer with the Public Service Commission of the First District of New York. Those who desire to take the examination must secure a blank from the State Civil Service Commission, Albany, N. Y., and execute and file it with that body on or before noon on Feb. 19, 1910. The examination is described as follows: "Junior Railway Engineer, Public Service Commission, First District. Salary, \$1,201 to \$1,800 per annum. The duties are to inspect the power houses and equipment of subway, elevated and street railways, and of electric companies in New York City. Candidates must be graduate electrical or mechanical engineers and have had at least one year's practical mechanical or electrical experience, or offer four years' practical mechanical or electrical experience with railroad, street railway or electric companies. Subjects of examination and relative weights: Theoretical and practical questions relating to the construction and operation of power house and railway equipment; measurements; standards, and other pertinent subjects, 5; experience and personal qualifications, 3; education, 2."

LEGISLATION AFFECTING ELECTRIC RAILWAYS

Illinois.—Up to Jan. 22 no bills have passed both houses of the Illinois General Assembly, which met in extraordinary session on Dec. 14, 1908, except the appropriation measure to pay the expenses of the legislators and the other employees. The question of primary legislation has occupied the attention of the members of the Legislature very largely. The Senate has passed a municipal government bill, but that measure is awaiting action in the House. The Senate has also approved a few minor measures, but the question of deep-water waste and other important legislation has received very little consideration.

Maryland.—Both houses of Legislature reassembled on Jan. 25. The two most important bills to come before the Legislature were then being engrossed. One of these is the public utility bill drawn by Attorney-General Straus at the suggestion of Governor Crothers. According to the rules of both the Senate and the House a bill must be engrossed three times and in the case of the utility bill this engrossing is a tedious and costly operation, as the measure consists of about 40 printed pages.

Financial and Corporate

New York Stock and Money Market

February 1, 1910.

The condition of the stock market during the last week has been unsatisfactory and almost alarming. There is a widespread feeling of uneasiness over the attitude of the Federal authorities toward corporations, and at every suggestion of a rally there has been a flood of selling orders. Traction shares have suffered a decline, principally Interborough-Metropolitan preferred and Third Avenue.

The money market is playing no part in the present disorder. Money continues plentiful and cheap. Rates to-day were: Call, 2 to 2 3/4 per cent; 90 days, 4 per cent.

Other Markets

In Philadelphia, trading in Rapid Transit has been light, and in other tractions almost nothing. Prices, however, have not sagged as much as might have been anticipated.

In Boston, trading has continued in Massachusetts Electric shares but prices have remained practically unchanged. There has been some dealing in Boston Elevated.

In the Chicago market traction issues have been neglected. Series 2 of the Chicago Railways has been in the market to some extent.

In Baltimore, as usual, there have been no traction securities sold except the bonds of the United Railways.

At the auction of securities last week the following were sold: 100 shares Brooklyn City Railroad at 197; \$20,000 Second Avenue Railroad 5 per cent bonds at 47; \$25,000 Metropolitan Street Railway refunding 4 per cent bonds at 25.

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

	Jan. 25.	Feb. 1.
American Railways Company.....	217 1/2	218
Aurora, Elgin & Chicago Railroad (common).....	*62	a61
Aurora, Elgin & Chicago Railroad (preferred).....	*93	a92
Boston Elevated Railway.....	132 1/2	132
Boston & Suburban Electric Companies.....	*16	a16
Boston & Suburban Electric Companies (preferred).....	*76	a76
Boston & Worcester Electric Companies (common).....	a11	a11 1/2
Boston & Worcester Electric Companies (preferred).....	45	44
Brooklyn Rapid Transit Company.....	71 1/2	72 1/2
Brooklyn Rapid Transit Company, 1st pref. conv. 4s.....	83	83 1/2
Capital Traction Company, Washington.....	a135	a134 1/2
Chicago City Railway.....	185	*185
Chicago & Oak Park Elevated Railroad (common).....	*2	*2
Chicago & Oak Park Elevated Railroad (preferred).....	*10	*10
Chicago Railways, ptcptg., ctf. 1.....	a105	a109
Chicago Railways, ptcptg., ctf. 2.....	a30	a30 1/2
Chicago Railways, ptcptg., ctf. 3.....	a17	a17
Chicago Railways, ptcptg., ctf. 4s.....	*9 1/2	*9 1/2
Cleveland Railways.....	*91 1/2	*91 1/2
Consolidated Traction of New Jersey.....	a77	a77 1/2
Consolidated Traction of New Jersey, 5 per cent bonds.....	a106	a105
Detroit United Railway.....	*63	*63
General Electric Company.....	150 1/2	152
Georgia Railway & Electric Company (common).....	105 1/2	105
Georgia Railway & Electric Company (preferred).....	a88	a88
Interborough-Metropolitan Company (common).....	20 1/4	20 3/8
Interborough-Metropolitan Company (preferred).....	55	52
Interurban-Metropolitan Company (4 1/2s).....	80 1/2	80 1/2
Kansas City Railway & Light Company (common).....	*36	a30 1/2
Kansas City Railway & Light Company (preferred).....	*70 1/2	*70 1/2
Manhattan Railway.....	136 3/4	*136 3/4
Massachusetts Electric Companies (common).....	a18	a17 1/4
Massachusetts Electric Companies (preferred).....	a81	80 1/4
Metropolitan West Side, Chicago (common).....	a17	a17
Metropolitan West Side, Chicago (preferred).....	a54	a56
Metropolitan Street Railway.....	*21	*21
Milwaukee Electric Railway & Light (preferred).....	*110	*110
North American Company.....	76 1/4	*76 1/4
Northwestern Elevated Railroad (common).....	a18	a18
Northwestern Elevated Railroad (preferred).....	a68	a68
Philadelphia Company, Pittsburg (common).....	a50 1/2	a50 1/2
Philadelphia Company, Pittsburg (preferred).....	a45 1/4	a46
Philadelphia Rapid Transit Company.....	a25 1/2	a26 3/4
Philadelphia Traction Company.....	a88	a89
Public Service Corporation, 5 per cent col. notes.....	*100 3/8	*100 5/8
Public Service Corporation, etc.....	a106	a106
Seattle Electric Company (common).....	*115	a115
Seattle Electric Company (preferred).....	*104 1/2	a104 1/2
South Side Elevated Railroad (Chicago).....	a54	a53
Third Avenue Railroad, New York.....	15 1/2	10 3/8
Toledo Railways & Light Company.....	11	*11
Twin City Rapid Transit, Minneapolis (common).....	111	112 1/2
Union Traction Company, Philadelphia.....	50 1/4	a51 1/2
United Rys. & Electric Company, Baltimore.....	a13 1/2	a13 1/2
United Rys. Inv. Co. (common).....	a33	*33
United Rys. Inv. Co. (preferred).....	a56 1/2	61
Washington Ry. & Electric Company (common).....	a10	a8 1/2
Washington Ry. & Electric Company (preferred).....	a88 5/8	a88 1/4
West End Street Railway, Boston (common).....	a95	a93
West End Street Railway, Boston (preferred).....	*106	*106
Westinghouse Elec. & Mfg. Company.....	71	*71
Westinghouse Elec. & Mfg. Company (1st pref.).....	120	*120

a Asked.

* Last Sale.

Massachusetts.—At a recent hearing by the committee on metropolitan affairs, Chairman George G. Crocker, of the Boston Transit Commission, stated the time has arrived when the railroads must consider the electrification of their suburban service. Mr. Crocker said that \$600,000 per year was lost in switching trains at the Boston North and South stations. The railroads should report upon the problem by the coming fall. A bill has been introduced requiring railroad corporations within the metropolitan district of Boston to operate their trains by electricity, subject to such conditions as may be established by the Railroad Commission. A bill has been introduced making it illegal for municipal authorities to grant a street railway location at one side of any highway within 1 mile of the center of any town of less than 5000 inhabitants. A bill has been introduced upon petition of Fred H. Smith, treasurer of the Massachusetts Street Railway Association, in the form of an additional amendment to Sec. 103, Ch. 463, Acts of 1906, and provides that the commission, in authorizing the issue of any bonds under this section, may prescribe the minimum price at which such bonds shall be sold, and may modify the price from time to time as conditions require. A bill has been introduced to prohibit the further construction of elevated railways in Boston. A bill introduced authorizes street, electric and elevated railways to carry baggage, express matter and freight subject to the regulations of the Railroad Commission.

New Jersey.—The Legislature met for a brief session on Jan. 17 and then adjourned for a week out of respect to the memory of a former Governor, George T. Werts, who died on Jan. 17. Mr. Scharf of Bergen has introduced a public utilities bill which will increase the Board of Railroad Commissioners from three members to five members, the new board to be known as the Railroad and General Utilities Commission. The salary of each commissioner will be fixed at \$5,000. The total expenses of the body will be limited to \$50,000 annually. If the measure is passed, the board will have general supervision over all public utility corporations and will hear complaints on all cases relating to service, rates, discrimination, carelessness and equipment of any public utility corporation, appeals from the finding of the commission to be made to the Supreme Court. Mr. Sullivan has introduced as a substitute for Mr. Pierce's public utility bill of last year Mr. Martin's bill of 1908-09, which would confer rate-making powers on the commission. This measure was drawn according to the terms of the public service commission law of New York. Senator Gebhardt has also announced a public utility bill which provides for the appointment of a board of five commissioners with a term of five years each. This bill would repeal the Railroad Commission Act and is somewhat similar to the Gebhardt bill of 1909.

New York.—Investigation into the acts of Mr. Allds will probably be protracted indefinitely and may interfere seriously with the work of the present session. Governor Hughes has announced the resignation of Thomas M. Osborne as a member of the Public Service Commission of the Second District and has appointed John M. Carlisle to succeed him. The Governor has also reappointed Martin S. Decker as a member of the Public Service Commission of the Second District and Milo Roy Maltbie as a member of the Public Service Commission of the First District. The appointments have been confirmed by the Senate. Louis H. Hahlo, assistant corporation counsel of New York, is engaged in drafting the enabling act necessary to put into effect the constitutional amendment adopted in November, 1909, to exempt from consideration, in arriving at a determination of the city's debt limit, such bonds for public improvements as are self-supporting. On Jan. 1, 1910, the city had a working margin, inside its debt margin, of \$44,000,000, of which it was the intention of the administration to reserve \$25,000,000 for use in building subways, the other \$19,000,000 being for other public improvement. On July 1, 1910, as a result of the increased valuation of real estate, the debt limit will further increase \$26,000,000, and that amount will be available for public improvements other than subway and rapid transit measures, thus bringing the total for public improvements of that class up to \$44,000,000, with about \$125,000,000 to use for subways or other rapid transit plans.

Annual Report of the South Side Elevated Railroad

Gross earnings of the South Side Elevated Railroad of Chicago in the year ended Dec. 31, 1909, were \$2,234,972, a decrease of \$7,718 or 0.3 per cent from the previous year. Expenses were lower last year than in the preceding year, however, and net earnings from operation in 1909 showed an increase, therefore, as compared with 1908, of \$40,394, or 6 per cent. Earnings for three years compare as follows:

Year ended Dec. 31:	1909.	1908.	1907.
Gross earnings.....	\$2,234,972	\$2,241,690	\$2,105,193
Operating expenses and taxes.	1,523,954	1,571,066	1,459,740
Net earnings.....	\$711,018	\$670,624	\$645,447
Interest and rentals.....	453,080	436,620	205,939
Net divisible income.....	\$257,938	\$234,004	\$439,508
Dividends.....	76,723	409,187
Surplus.....	\$257,938	\$157,281	\$30,321

As indicated by these figures, there was a decline in traffic which was slightly larger than the reduction in gross earnings, amounting to 0.63 per cent. Of the total operating expenses during the year, \$746,575 or 33.4 per cent, was required for conducting transportation. The maintenance expenditures amounted to 12.6 per cent of gross earnings, divided as follows: Maintenance of way and structure, \$126,575 or 5.7 per cent of gross; maintenance of equipment, \$156,150 or 6.9 per cent of gross.

Charles V. Weston, the president, in a statement to stockholders at the annual meeting, said in part:

"The surplus from earnings for the last year was \$257,938.40, equal to 2.52 per cent on the outstanding capital stock, as compared with 2.27 per cent for the previous year.

"The number of passengers carried during the year was 42,722,624, as compared with 42,994,610, a decrease of 271,986 passengers, or 0.63 per cent.

"The fixed charges last year increased \$16,460, for the reason that the rental for that portion of the leased road extending from Indiana Avenue and Fortieth Street to the Stock Yards and Packingtown did not begin until April, 1908. With this increase the maximum fixed charges have been reached.

"The increases in the amount of net earnings and surplus are due entirely to improvements in operation that have been introduced, which have resulted in greater efficiency of service, as well as in saving of expense, although there was a substantial increase in wages to trainmen and some other of the employees.

"The structures, equipment and other property have been maintained throughout the year to the highest standard of efficiency. All of the GE-57 motors, the first electric motive machinery acquired by the company, have been rebuilt in the company's shops, and the machines are now in as good operating condition as when newly installed, 12 years ago.

"By the introduction of certain new methods of conducting work and rearrangement of the occupation of the space in the shops, the efficiency of the shop force has been materially increased and the cost of doing the work has been reduced. Besides keeping the entire rolling equipment up to the highest standard of efficiency, 138 cars were put through the shops last year for general overhauling, as compared with 116 cars during the previous year, an increase of 19 per cent in the output of the shops.

"The elevated railroads of this city are still operating at great disadvantage during the hours of maximum traffic on account of limited facilities offered by the short platforms at the loop stations in the downtown district. Although there has been considerable change in public sentiment in favor of lengthening the platforms at those stations, to provide for a more rapid and efficient service on the loop during the rush hours, the city authorities have not seen their way clear to grant permission to complete the building of the platform extensions which was begun several years ago. All of the steel work for the extension of these platforms is in place at nearly all of the stations, requiring only the floors to be laid and the safety railings to be placed to make the extensions available for use. The property adjacent to the stations has already suffered all the inconvenience possible from the construction of platform extensions without gaining any of the benefits of increased traffic which will come from their use when com-

pleted. It is hoped that permission for their completion will be forthcoming during the current year, so that the elevated lines will be able to serve their patrons better, provide for increasing business and relieve the hardships suffered by a patient public.

"In regard to the proposition from a committee, looking toward the leasing of various elevated railroads of this city, I wish to say that the gentlemen never submitted an offer which your directors felt they could consistently place before the shareholders of your company and recommend its adoption. At the termination of the negotiations, during which only the rate of rental to be paid by the leading company was considered, nothing was left in the way of the committee to make further suggestions in regard to the leasing proposal. No renewal of negotiations has been undertaken, to this date.

"The condition of your company may be summarized as follows: The physical property is in first-class condition of repair. The company has no floating indebtedness other than its current expenses. It had cash on hand amounting to \$620,984 on Dec. 31, 1909, and you may confidently expect a steady and continuous improvement in the affairs of your company, as evidenced by the result of the operations during the last fiscal year.

"The consideration of the question of dividends, you may rest assured, will be taken up by your directors as soon as may be consistent with conservative and prudent business management."

Sale of Third Avenue Railroad

By order of United States Circuit Court, Jos. P. Day & Company, auctioneers, will offer the property of Third Avenue Railroad for sale at the county court house in New York on March 1, 1910. The property to be offered for sale includes power houses, equipment and depots, and following stocks and bonds: 20,000 shares Union Railway; 16,711 shares Forty-second Street, Manhattanville & St. Nicholas Avenue Railroad; 11,287 shares Dry Dock, East Broadway & Battery Railway; 76 shares Kingsbridge Railway; 5000 shares Westchester Electric Railway; 2483 shares Southern Boulevard Railway; 12,000 shares Tarrytown, White Plains & Mamaroneck Railway and all bonds, stocks, mortgages and notes and other securities now in possession of the Central Trust Company, New York, N. Y., as trustee, and being the stock and other securities described in the mortgage. No upset price is fixed, the court reserving right to reject any bid. Bidders must deposit \$200,000 cash.

Brooklyn (N. Y.) Rapid Transit Company.—At the annual meeting of the stockholders of the Brooklyn Rapid Transit Company on Jan. 28, 1910, Bernard Gallagher was elected a director for two years to fill the vacancy caused by the death of E. H. Harriman, and C. D. Meneely, for many years secretary and treasurer of the company, was elected a director for one year, to succeed the late William Seibert. The directors whose term of office had expired were all re-elected.

Chicago & Southern Traction Company, Chicago, Ill.—The Western Trust & Savings Bank, Chicago, Ill., as trustee for a note of \$300,000 applied to the Circuit Court of Chicago on Jan. 24, 1910, for the appointment of a receiver for the Chicago & Southern Traction Company on the ground of insolvency. An order was also asked to restrain the company from paying alleged indebtedness to the Detroit & Toledo Construction Company.

Cleveland (Ohio) Railway.—Thomas P. Schmidt has been elected a director of the Cleveland Railway to succeed S. T. Everett.

Columbus Railway & Light Company, Columbus, Ohio.—The annual meeting of the stockholders of the company was held on Jan. 25, 1910. The report of the company for the year ended Dec. 31, 1909, was presented and showed gross receipts of \$2,577,202, as compared with \$2,281,951 for 1908; net earnings, \$1,287,069, as compared with \$1,096,347 for 1908; other income, \$17,866, as compared with \$18,795 for 1908; charges and depreciation, \$1,044,582, as compared with \$968,018 for 1908; dividends paid, \$125,000, as compared with

\$100,000 for 1908; surplus, \$135,352, as compared with \$47,124. The directors and officers were re-elected.

Chicago, Joliet & St. Louis Electric Railway.—The Chicago, Joliet & East St. Louis Electric Railway, which was incorporated in Springfield, Ill., on Dec. 16, 1909, with \$100,000 of authorized capital stock, as noted in the *ELECTRIC RAILWAY JOURNAL* of Dec. 25, 1909, page 1277, has increased its capital stock to \$7,000,000 to control and finance the Joliet & Southern Traction Company, the Bloomington, Pontiac & Joliet Electric Railway and the Chicago, Joliet & Central Illinois Railway, which aggregate 226 miles of line and extend from Chicago south to Bloomington, Ill., where connection is made with the lines of the Illinois Traction System. The Chicago, Joliet & East St. Louis Electric Railway has placed at par with a stock bonus of 25 per cent in its own stock, first mortgage 5 per cent gold bonds, of two of the controlling properties, namely, \$250,000 of Joliet & Southern Traction Company dated Jan. 2, 1907, and \$100,000 of Bloomington, Pontiac & Joliet Electric Railway dated Sept. 1, 1905, both of which issues are guaranteed principal and interest by the Chicago, Joliet & East St. Louis Electric Railway. The officers of the Chicago, Joliet & East St. Louis Electric Railway are: H. A. Fisher, president; S. A. Spry, vice-president; John M. Raymond, vice-president; John K. Newhall, secretary; Lee D. Fisher, treasurer and chief engineer; F. E. Fisher, general manager.

Lake Shore Electric Railway, Cleveland, Ohio.—The plan for refinancing the Lake Shore Electric Railway by the exchange of old preferred stock for a new issue of \$1,000,000 first preferred 6 per cent cumulative stock and \$2,000,000 of 5 per cent non-cumulative preferred stock in accordance with the plan outlined in the *ELECTRIC RAILWAY JOURNAL* of Jan. 8, 1910, page 86, was approved at the annual meeting of the company on Jan. 25, 1910. The officers and directors of the company were re-elected.

Metropolitan Street Railway, New York, N. Y.—On Jan. 29, 1910, the Morton Trust Company, the Guaranty Trust Company of New York, and others, parties to the various suits against the Metropolitan Street Railway, and Adrian H. Joline and Douglas Robinson as receivers of the Metropolitan Street Railway, were given one week by Judge Lacombe in the United States Circuit Court in which to file briefs on the following motions: (1) For the payment of special franchise taxes amounting to \$5,408,000 and Federal corporation taxes. (2) For the separation of the Fourth, Eighth and Ninth Avenue lines from the Metropolitan Street Railway. (3) For instruction in reference to payment for repairs to the tracks and equipment of the New York & Harlem Railroad (Fourth Avenue line).

Ocean Shore Railway, San Francisco, Cal.—F. S. Stratton, receiver of the Ocean Shore Railway, appeared recently before Judge Van Fleet of the United States Circuit Court for instructions regarding his management of the affairs of the company. Judge Van Fleet stated that he would not make any orders for expenditure of money until a committee of engineers reported upon the conditions and requirements, and announced that he would appoint one engineer and allow the bondholders and Mr. Stratton each to suggest another member. E. J. Pillsbury for the bondholders suggested Virgil Vogue. Mr. Stratton submitted the names of E. L. Dillman and W. D. Nicholson. Judge Van Fleet stated that it was to the best interests of all to operate the road. Exception to the plan to appoint a board of engineers was taken subsequently and the court postponed consideration of the subject.

Toledo Railways & Light Company, Toledo, Ohio.—August Ropke, Louisville, Ky., has been elected as an additional member of the board of directors of the Toledo Railways & Light Company and J. K. Secor, who has been a member of the board of directors, has been elected to the executive committee of the company.

Toledo, Bowling Green & Southern Traction Company, Findlay, Ohio.—The Toledo, Bowling Green & Southern Traction Company has filed a mortgage at Findlay to secure an issue of \$500,000 of 5 per cent bonds due in 1935. The mortgage is in favor of the Union Savings Bank & Trust Company, Cincinnati, Ohio, and covers all the property of the company and the Toledo Urban & Interurban Railway.

Traffic and Transportation

Increase in Wages for Subway and Elevated Employees in New York.

T. P. Shonts, president of the Interborough Rapid Transit company, New York, N. Y., announced on Jan. 27, 1910, an increase in the wages of the employees of the subway and elevated divisions of the company, effective on Feb. 1, 1910, in accordance with the following schedule:

OCCUPATION.	YEARS OF SERVICE.	PRESENT RATE PER DAY.	NEW RATE PER DAY.
Conductors	1	\$2.10	\$2.25
"	2	2.25	2.30
"	3	2.40	2.40
"	After 3	2.50	2.50
Trainmen	1	1.80	1.90
"	2	1.90	2.00
"	3	2.00	2.10
"	4	2.00	2.15
"	After 4	2.00	2.20
Gatemen	1	1.70	1.80
"	After 1	1.80	
Ticket agents	1	1.90	2.00
"	2	2.10	2.10
"	3	2.25	2.25
"	After 3	2.25	2.30
Platform men	1	2.00	2.10
"	After 1	2.10	2.20
Train clerks	1	2.10	2.25
"	2	2.25	2.50
"	After 2	2.40	2.50
Hand switchmen	1	2.20	2.40
"	2	2.40	2.50
"	After 2	2.50	2.60

The advance in wages will increase the expenses of the company about \$160,000 a year. This is the second general voluntary increase made to its employees by the Interborough Rapid Transit Company since January, 1907, and makes an aggregate annual increase in wages since January, 1907, of \$660,000.

The company also announced that it has under construction recreation rooms at the terminals for the convenience of its employees which will be provided with conveniences for furnishing the men with their meals at cost and that it is considering the question of inaugurating a pension fund for employees upon a basis that will enable the company to take care of its pensioned employees without any expense to the men. The increase in wages will directly affect more than 6000 employees.

Excess Fare Upheld in New York

In a decision rendered on Jan. 30, 1910, the Public Service Commission of the Second District of New York sustains the legality of the practice of railroad companies in collecting a 5-cent excess fare for passengers not holding tickets on interurban and other trips where tickets are required, and the issuance of redeemable receipts therefor. The commission rules that the companies should allow three months from date of issue for redemption of the ticket. The decision was made in the complaint of James Morris, Albion, N. Y., against the Buffalo, Lockport & Rochester Railway. In the opinion, which was prepared by Commissioner Decker, the commission rules:

"An interurban railroad is entitled to make proper regulations for the collection of its fares and requiring a passenger at a ticket station to purchase a ticket for delivery to the conductor, with provision in case of failure for collection of an excess charge of 5 cents to be refunded at any ticket office upon demand is reasonable.

"Where an interurban electric railroad has provided a sufficient number of ticket stations properly distributed along its line, with numerous stops at non-ticket points to take on and discharge passengers, and where the percentage of unredeemed duplex receipts for required excess cash fares is small, showing that convenient opportunities for redemption of duplex receipts exist and are actually used by passengers paying the excess fare, the exaction of a 5-cent excess fare with redeemable duplex receipt issued thereon is not unreasonable or unjust.

"A time limitation for redemption of duplex excess fare receipts should be sufficiently long to cover inadvertent omissions to promptly present the duplex receipts for redemption. Respondent's time limitation of 30 days for redemption of its duplex excess fare receipts held unreason-

able and unjust, and such time limitation to be reasonable and just should not be less than three months from the date of issue, and should be plainly shown upon respondent's duplex receipts."

Vestibule Law Declared Unconstitutional in Texas.—The Court of Appeals at Galveston, Tex., has declared unconstitutional the vestibule law passed by the twenty-eighth Legislature of Texas.

Service Recommendation by Utilities Commission in Kansas City.—The recommendations of the Utilities Commission of Kansas City regarding changes in the schedules and methods of operating several lines of the Kansas City Railway & Light Company, Kansas City, Mo., have been referred by the City Council to the committee on streets, alleys and grades.

Ware & West Brookfield Street Railway, Secures Freight Rights Between Gilbertville and Springfield.—The Selectmen of Gilbertville, Mass., have voted to grant the Ware & West Brookfield Street Railway, Ware, Mass., the right to carry freight between the Ware and Hardwick town line and Gilbertville. The company now has right to carry freight in all the towns between Gilbertville and Springfield.

Subway Service Hearing Postponed.—The hearing before the Public Service Commission of the First District of New York which was set for Jan. 27, 1910, was postponed until Feb. 1, 1910, to give the transportation department of the commission additional time in which to tabulate the results of observations made by the inspectors of the commission. It was announced by counsel for the commission that joint observations of the traffic in the subway had been made by the representatives of the commission and of the company, and that data covering these observations would also be introduced before the commission.

Joint Use of Equipment Approved in New York.—The Public Service Commission of the Second District of New York has approved of the joint use by the Hudson Valley Railway, Glens Falls, N. Y., of its cars and electric locomotives and the steam locomotives and freight cars of the Greenwich & Johnsonville Railroad of the railroad track now built between the plant of the Standard Wall Paper Company on the westerly side of the Hudson River in Saratoga County and the plant of the Iroquois Paper Company on the eastern side of the Hudson River in Washington County, proper rules for the safe operation of the track in question having been submitted and approved by the commission.

Indiana Commission Refuses to Authorize Interurban Railway to Collect Excess Fare.—The Railroad Commission of Indiana has refused to authorize the Muncie & Portland Traction Company, Portland, Ind., to charge an excess fare when passengers who board trains at stations neglect to purchase tickets. The company complained that it had recently been annoyed by passengers tendering bills of large denomination in payment of fares on the cars. As noted in the *ELECTRIC RAILWAY JOURNAL* of Jan. 22, 1910, page 167, the Attorney-General of Indiana recently expressed the opinion to the Railroad Commission that the cash fare and the ticket fare on interurban railways in Indiana must be the same. The Railroad Commission says that the question of what constitutes legal tender in the matter of the payment of a fare is a question for the courts to decide.

Complaint Against Service in Rochester.—H. H. Edgerton, Mayor of Rochester, N. Y., has asked the Public Service Commission of the Second District of New York to conduct an inquiry into street railway operating conditions in Rochester similar to that conducted by the commission in Schenectady recently, and recommend changes which in the opinion of the commission will relieve congestion and work to the benefit of the public. In his letter to the commission, which was dated Jan. 24, 1910, Mr. Edgerton gives the following causes of complaint against service in Rochester: 1. Inadequate car service on nearly every line in the city, to provide comfortable and convenient transportation, especially during the rush hours. 2. Confusion and inconvenience caused by the near-side stop, and transfer regulation, recently put in operation by the company. 3. Congestion of cars on Main Street which seriously interferes with car movement and vehicle traffic.

Personal Mention

Mr. Fred M. Hawes has resigned as claim agent of the Middlesex & Boston Street Railway, Newtonville, Mass.

Mr. Martin S. Decker has been reappointed as a member of the Public Service Commission of the Second District of New York by Governor Hughes for the full term of five years.

Mr. Milo Roy Maltbie has been reappointed as a member of the Public Service Commission of the First District of New York by Governor Hughes for the full term of five years.

Mr. J. J. Sullivan, president of the American Railways, Philadelphia, Pa., has been elected president of the Johnstown (Pa.) Passenger Railway to succeed Mr. T. C. du Pont.

Mr. W. H. Zimmerman, formerly manager of the Michigan Power Company, Lansing, Mich., has been retained by the Michigan Railroad Commission as consulting engineer.

Mr. J. W. McNeely, trainmaster of the Paducah (Ky.) Traction Company, has been appointed to the newly-created office of superintendent of transportation of the company, which will include the duties formerly performed by him and an extension of his authority to the shops of the company.

Mr. Theodore B. Comstock has been retained as consulting engineer to the Public Utilities Commission of Los Angeles, Cal. Mr. Comstock was formerly president of the University of Arizona and at one time was connected with the department of geology at Cornell University. For some time he has acted in the West in an independent consulting capacity.

Mr. Stuart O. Winch, who has been connected with the Templeton Street Railway, East Templeton, Mass., for several years as engineer of the company's power station, has been appointed superintendent of the company to succeed Mr. J. H. Hamilton, who resigned recently. Mr. Winch will continue in the capacity of engineer of the company's power station.

Mr. Arthur L. Linn, Jr., has been appointed assistant auditor of the New York Central & Hudson River Railroad, New York, N. Y., and auditor of subsidiary lines, effective Feb. 1, 1910. Mr. Linn will also continue to exercise supervision over the accounts of the various electric railway and lighting properties controlled by the New York Central & Hudson River Railroad.

Mr. Garrett T. Seeley, who has been second vice-president and assistant to the general manager of the South Side Elevated Railroad, Chicago, Ill., has been elected second vice-president and general manager of the company, effective on Jan. 28, 1910. Before he had the duties of assistant to the general manager assigned to him Mr. Seeley was engineer of maintenance of the company.

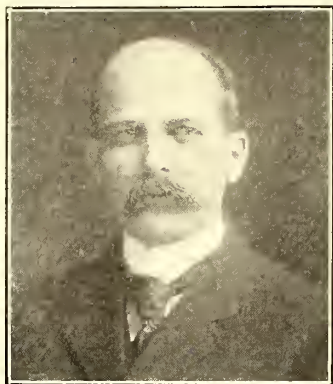
Mr. John N. Carlisle has been appointed a member of the Public Service Commission of the Second District of New York by Governor Hughes, to succeed Mr. Thomas M. Osborne, whose resignation is announced elsewhere in this issue. He will serve out Mr. Osborne's term of office, which expires on Feb. 1, 1911. Mr. Carlisle is a resident of Watertown, N. Y., and is a practising attorney.

Mr. Charles M. Durell has been appointed superintendent of the Biddeford & Saco Railroad, Biddeford, Me., to succeed the late W. A. Worthing. Mr. Durell has been connected with the Biddeford & Saco Railroad for 12 years. He served the company at first as a conductor. Subsequently he acted for seven years as car house foreman. For the last six months Mr. Durell has been acting superintendent of the company.

Mr. W. F. Bay Stewart, whose retirement as president of the York (Pa.) Railways was announced recently in the *ELECTRIC RAILWAY JOURNAL*, will continue his connection with the company as a director and as a member of the executive committee of the company. Mr. Stewart declined a re-election as president at the termination of his term of office owing to the pressure of outside duties and his desire for more leisure.

Mr. H. E. Huntington, president of the Los Angeles Railway and the Pacific Electric Railway, Los Angeles, Cal., was given a loving cup recently by the employees of the Los Angeles Railway as a token of their esteem. On one side of the cup is the inscription: "Presented to Henry E. Huntington by the conductors and motormen of the Los Angeles Railway Company, Jan. 1, 1910." On the opposite side is engraved the picture of a pay-as-you-enter car.

Mr. John F. Collins, whose appointment as assistant general manager of the Toledo Railways & Light Company, Toledo, Ohio, was announced in the *ELECTRIC RAILWAY JOURNAL* of Jan. 29, 1910, had under his jurisdiction as general manager and superintendent of the Saginaw & Bay City Railway & Light Company and general manager of the Saginaw Valley Traction Company, Saginaw, Mich., more than 50 miles of city and interurban electric railway, including the systems in Saginaw and Bay City and an interurban railway connecting the two cities.



J. F. Collins

The operation of the company in each of these cities is separate and distinct and separate offices are maintained in each of the cities. Mr. Collins was previously connected with the Toledo Railways & Light Company as manager of railways of the company, with authority over the city lines and those of the Maume Valley Railways & Light Company, and is thoroughly familiar with the operating problems with which the Toledo Railways & Light Company is confronted. The Toledo system consists of more than 100 miles of city and suburban railway, and the company furnishes current for light and power. As previously stated, Mr. Collins expects formally to assume his duties about April 1, 1910.

Mr. Thomas M. Osborne has resigned as a member of the Public Service Commission of the Second District of New York to devote his time to strengthening the Democratic Party in New York along the lines laid down by the Democratic League. Mr. Osborne has become a member of the commission since it was created in 1907. He was born in Auburn, N. Y., in 1859, and was educated in the schools at Auburn, at Adams Academy, Quincy, Mass., and at Harvard, from which he graduated in 1884. After his graduation from college Mr. Osborne became a clerk in the farm tool factory of his father at Auburn, and later became president of the company which operated the factory. He has always been active in public affairs and was Mayor of Auburn from 1902 to 1905.

Mr. H. A. Fabian, assistant to Mr. Charles S. Mellen, president of the New York, New Haven & Hartford Railroad and the Central New England Railway, has been appointed manager of purchases and supplies of the New York, New Haven & Hartford Railroad, the Central New England Railway, New England Navigation Company, the Connecticut Company, the Rhode Island Company, the New York & Stamford Railway and the Housatonic Power Company, with offices in the South Station, Boston, Mass. As manager of purchases and supplies, Mr. Fabian will report to the president and have full authority over all purchases and matters pertaining to the testing, care and distribution of materials and supplies of every nature. Purchasing agents, general storekeepers, engineers of testing, fuel and supply agents will report to and receive instructions from him. Mr. Fabian's appointment becomes effective on March 1, 1910.

Mr. L. R. Grant has been appointed superintendent of equipment of the Seattle (Wash.) Electric Company. From 1902 to 1904 Mr. Grant was employed by the Boston & Northern Street Railway, successively as clerk in the transportation department, rodman on surveys, timekeeper in the engineering department and chief clerk in the department of motive power and machinery. In 1904 he accepted

a position in the power department of the Tacoma Railway & Power Company, Tacoma, Wash., and remained with that company until April, 1905, when he became secretary of the Puget Sound Company and the Tacoma Industrial Company, acting as superintendent of the three lighting and power systems controlled by those companies. In the summer of 1908 Mr. Grant was appointed assistant superintendent of transportation of the Seattle Electric Company and continued in this office until January, 1910, when he was appointed superintendent of equipment of the company in charge of the maintenance of the rolling stock.

Mr. John T. Horton, chief claim clerk of the Norfolk & Western Railroad, Roanoke, Va., has been appointed general freight agent of the York (Pa.) Railways. Mr. Horton was born in England 45 years ago. After completing his education he spent two years with the London & Northwestern Railway and eight years in mercantile business. He came to America in 1883 and entered the employ of the New York Central & Hudson River Railroad as a clerk at Columbus, Ohio. In 1885 he entered the employ of the Norfolk & Western Railway and after holding various positions in the freight department, he became foreman of the warehouse. He served the Norfolk & Western Railway for eight years. In 1893 Mr. Horton was appointed assistant general freight agent of the Michigan & Lake Superior Company. In 1896, he became connected with the electric railways at Columbus, Ohio, controlled by the Appleyard syndicate as assistant agent and later was promoted to general freight agent, which position he held for two years. After resigning from the Appleyard properties, Mr. Horton reentered the employ of the Norfolk & Western Railway as chief claim clerk. Mr. Horton will organize the freight system of the York Railways along the lines of steam railroad practice.

Mr. H. C. Donecker, who since January, 1908, has acted as office manager of the American Street & Interurban Railway Association, has been elected secretary of the association to succeed Mr. B. V. Swenson, who resigned



H. C. Donecker

some time ago to become connected with Mr. Barron G. Collier. During his connection with the association as office manager, Mr. Donecker has become familiar with the work and requirements of the association, and is well qualified to succeed Mr. Swenson. Mr. Donecker has long been connected with the electric railway industry in the manufacturing, operating and engineering fields. His first business association with the industry was in 1890, with the Johnson Company, Philadelphia and Johnstown, Pa., later the Lorain Steel Company. Four years later, or in 1894, he became associated with ex-Mayor Johnson of Cleveland and his brother Albert L. Johnson in the construction and operation of the Nassau Railroad, Brooklyn, N. Y., and in 1899 entered the employ of the St. Louis (Mo.) Transit Company under Mr. J. J. Colman, general manager of the company. In 1900 Mr. Donecker became connected with Col. Giles S. Allison of the Security Register Company, St. Louis, Mo., with whom he remained until 1906, when he entered the employ of Ford, Bacon & Davis, New York, N. Y., where his work was largely the compilation and classification of electric railway financial statistics. The experience acquired by Mr. Donecker in the various branches of electric railway work in which he has been engaged will prove of value to him as an officer of the American Street & Interurban Railway Association.

OBITUARY

A. E. Sternberg, who was secretary of the Houston (Tex.) Street Railway from 1872 to 1878, is dead.

Construction News

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

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

RECENT INCORPORATIONS

***Baltimore & Pennsylvania Railway, Reisterstown, Md.**—A bill has recently been introduced in the Senate to incorporate the Baltimore & Pennsylvania Railway to build an electric railway from Reisterstown to Hanover, Pa. Capital stock, \$600,000. Incorporators: James H. Wilson, Jacob H. Sherman, Jacob A. Frederick, Newton S. Watts and William T. Deitrich. Permission is given the incorporators to acquire the franchise of the Hempstead & Manchester Railway.

***Bolivar-Wellsville Railway, Bolivar, N. Y.**—Incorporated in New York to build an electric railway, 19 miles long, from Bolivar to Wellsville. Franchises have been applied for in the towns through which the line will pass. Incorporators: Benjamin F. Patterson, Brooklyn; C. M. VanCuren and A. J. Matson, Bolivar.

***Catskill (N. Y.) Traction Company.**—Incorporated in New York to construct an electric railway from Hudson River dock in Catskill through Catskill, Jefferson, Leeds and South Cairo to Cairo. Capital stock, \$200,000. Directors: F. N. Dubois, John H. Story, Catskill; John C. Conway, Brooklyn and L. G. Hechinger, East Orange, N. J.

***Hood River Light & Power Company, Hood River, Ore.**—Incorporated in Oregon to build an electric railroad from the mouth of the Hood River to a point in the Mount Hood district. Capital stock, \$2,000,000. Incorporators: J. D. Wilcox, W. Minor and R. Smith, all of Portland.

***Scranton & Binghamton Traction Company, Scranton, Pa.**—Application will soon be made for a charter to operate a railway from Binghamton, N. Y., to Scranton, Pa., a distance of 62 miles. It is stated that the Northern Electric Street Railway, Scranton, which now operates 19 miles between these two places, will be acquired and form part of the through line. J. K. Griffiths and C. H. Campbell are interested. George R. Bedford, Wilkes-Barre, is solicitor.

***Logan Rapid Transit Company, Logan City, Utah.**—Incorporated to build an electric railway in Logan City. Capital stock, \$100,000. Officers: David Eccles, president; Robert Anderson, vice-president; Joseph Quinney, Jr., secretary and treasurer.

FRANCHISES

Oakland, Cal.—The Southern Pacific Company has applied for a 50-year franchise to construct and operate an electric railway from Albany to Berkeley as part of its present interurban railway system between Berkeley and San Francisco. [E. R. J., Jan. 8, '10.]

Washington, D. C.—A bill has been introduced in the Senate granting the Washington, Spa Springs & Gretta Railroad a six months' extension of time in which to complete the line in the District of Columbia.

Virginia, Minn.—The City Council has granted a franchise to W. M. Prindle, Duluth, for the construction of an electric railway in Virginia. The railway is to be extended to Eveleth and Gilbert. [E. R. J., Nov. 6, '09.]

St. Joseph, Mo.—J. H. Van Brunt has applied to the County Court for an extension of the St. Joseph & Savannah Railway's franchise from the local company's present terminus above Krug Park to the Andrew County line. The company proposes to build a 15-mile interurban railway from St. Joseph to Savannah. [E. R. J., Oct. 16, '09.]

***Bolivar, N. Y.**—C. M. Van Curen and Benjamin F. Patterson, representing the Bolivar-Wellsville Railway, have applied to the Board of Trustees for a franchise to build a street railway in Belleville which is also to extend to Wellsville, 19 miles. The rights-of-way have nearly all been secured.

***Newbern, N. C.**—Application has been made to the Board of Aldermen by W. S. X. Taylor and A. E. Stevens for a franchise for an electric railway to connect Newbern and Trenton, a distance of 18 miles.

Bryan, Ohio.—The City Council has recently granted the Fort Wayne & Toledo Electric Railway, Harlan, Ind., a franchise to construct an electric railway in Bryan. This is part of a plan to build an interurban railway which will connect Bryan, Ohio and Fort Wayne, Ind., via Hicksville, Farmer and William Center. R. T. Bastress, Harlan, general manager. [E. R. J., Sept. 23, '09.]

Beaver Falls, Pa.—The Borough Council has granted a 40-year franchise to the New Castle & Beaver Valley Street Railway to build a street railway through certain streets of Beaver Falls. Construction will begin within six months. This is part of a plan to connect New Castle and Beaver Falls. [E. R. J., Oct. 16, '09.]

***Provo, Utah.**—Jesse Knight has applied to the Council for an electric railway franchise in Provo. It is said to be the intention to build the line from Payson through Provo to Murray.

Aberdeen, Wash.—The Grays Harbor Interurban Company has applied to the County Commissioners for a new 50-year franchise for the construction of an interurban railway through Chehalis County to connect Montesano and Aberdeen. Eldredge Wheeler, Montesano, is interested. [E. R. J., Jan. 1, '10.]

***Centralia, Wash.**—Application has been made to the County Commissioners by the Tenino Light, Power & Water Company for a franchise to build an electric railway from the county line north of Centralia via Centralia to Chehalis.

TRACK AND ROADWAY

Highland Pacific Railway, Lakeport, Cal.—This company announces that all arrangements have been made for the sale of bonds for the construction of the 70-mile electric railway which will connect Santa Rosa, Lakeport and Upper Lake. A. Dickinson, president. [E. R. J., Nov. 13, '09.]

Pacific Electric Railway, Los Angeles, Cal.—Press reports quote H. E. Huntington as saying that this company will at once sell \$300,000 of its bonds and with the available funds will build from Pomona to Ontario. A new route has lately been surveyed from Pomona to Corina. It is expected that cars will be running from Pomona to Los Angeles by June 1. [E. R. J., Jan. 29, '10.]

***Monrovia, Cal.**—Press reports state that Henry Bolaski is interested in a plan to build a street railway in Monrovia.

***Porterville, Cal.**—It is stated that R. D. Laidlaw, Los Angeles, and associates propose to build an electric railway from Porterville to Tulare, Poplar, Woodville, Springville and Globe. A location survey has been completed and profile maps have been drawn of the proposed line. The line will be about 87 miles long. It is said that ample power will be available from the water rights now controlled by those promoting the railway project. H. H. Holley and S. E. Henley are also interested in the company.

San Diego, El Cajon & Escondido Railway, San Diego, Cal.—It is stated that this company has begun work on the construction of its proposed electric railway in San Diego and extending to Escondido. Two years is given for the completion of the enterprise. [E. R. J., Nov. 27, '09.]

Southern Pacific Company, San Francisco, Cal.—Jere Burke, representing this company at a recent meeting of the Oakland Council, stated that the corporation would probably run an interurban service out of Oakland through San Leandro and Hayward to San José. Three different possible routes have been gone over in past several months by surveyors of the company. [E. R. J., Jan. 8, '10.]

San José (Cal.) Railroad.—The stockholders of this company, which recently merged the street railways in San José, have decided to issue bonds to the amount of \$1,500,000, the proceeds of which are to be used for improvements to its system. It is stated that the First Street line will be entirely reconstructed.

***San Rafael, Cal.**—It is said that a project is being considered by the Chamber of Commerce for the construction of an electric railway from Ross Valley through San Rafael to McNear's Point. E. B. McNear and D. W. Martens are interested.

Idaho Falls (Idaho) Electric Railway.—A. V. Scott states that work will begin about April 1 on the projected railway

which is to connect Idaho Falls, Lincoln, Ammon, Iona and Heise. Capital stock, \$1,000,000. Officers: J. L. Milner, Idaho Falls, president; F. L. Cleveland, Pittsburgh, Pa., vice-president; H. S. Sewell, Idaho Falls, secretary, and A. V. Scott, Idaho Falls, treasurer. [E. R. J., Jan. 1, '10.]

Mascontah-Belleville Traction Company, Belleville, Ill.—This company has filed for record at Belleville a 25-year mortgage in favor of the Illinois State Trust Company of East St. Louis as trustee to secure an issue of \$150,000 of 5 per cent bonds. This company proposes to build an electric railway from Mascontah to Belleville. [E. R. J., May 15, '09.]

Union Elevated Railway, Chicago, Ill.—This company advises that it will place contracts during the next six weeks for the reconstruction of 4 miles of single track. F. J. Guernsey, purchasing agent.

Hammond, Chicago Heights & Southern Traction Company, Chicago, Ill.—Official announcement is made that this company has begun work on its 16-mile railway from Hammond to Lansing. Repair shops will be located at Lansing. Headquarters, 1145 First National Bank Building, Chicago. The company will purchase power and operate six cars. Capital stock, authorized and issued, \$500,000. Bonds, authorized, \$250,000. Officers: William S. Reed, president; Joseph Orr, vice-president; Alfred Van Steenberg, secretary, and E. R. Davis, treasurer. [E. R. J., Jan. 22, '10.]

Southern Traction Company of Illinois, East St. Louis, Ill.—This company has filed with the city clerk of East St. Louis a bond for \$10,000 as a guarantee that the line will be in operation in East St. Louis by July 1. The line when completed will connect Belleville and East St. Louis. About 15 miles are under construction. William E. Trautman, president. [E. R. J., Jan. 8, '10.]

Winona Interurban Railway, Warsaw, Ind.—This company on Jan. 25 completed track-laying on the gap between Mentone and Chile, 24 miles. The company already has 25 miles in operation from Goshen to Warsaw and 20 miles in operation on the Peru division. Passenger and freight service will be installed between Warsaw and Peru when the ballasting is completed, which will be about Feb. 15.

***Charles City, Ia.**—It is stated that C. W. Hart, Charles City, has offered to subscribe \$100,000 toward the construction of a street railway in Charles City if an additional \$100,000 is subscribed by the people of Charles City. It is planned to have the interurban line reach about 40 miles of the surrounding country.

***Boothbay Harbor, Maine.**—It is reported that plans are being considered for the formation of a company to build an electric railway which will connect Boothbay Harbor and South Newcastle, a distance of 10 miles. Among those interested are Amos F. Gerald, Fairfield, and Luther Madocks, Boothbay Harbor.

***East Grand Forks, Minn.**—It is reported that C. H. Anderson, East Grand Forks, is interested in a plan to establish an electric railway between Grand Forks and Oslo.

Detroit, Lansing & Grand Rapids Railway, Detroit, Mich.—It is announced that this company has surveyors at work on the proposed electric railway which will connect Farmington and Lansing. They expect to complete their work by March. The railway will connect with the Detroit United Railway at Farmington, thus making a direct electric route from Detroit to Lansing. [E. R. J., Dec. 18, '09.]

***Asbury Park, N. J.**—It is stated that H. W. Leland is obtaining right of way to construct an electric railway from Cookman Avenue to the west side of Asbury Park to Asbury Avenue and from Colt's Neck and Jerseyville to Freehold.

Caldwell, N. J.—A temporary organization for the purpose of operating a street railway in Caldwell equipped with the Edison storage battery cars has been effected by the selection of William Shears as president; Wilbur B. Guild, vice-president, and John J. Ottenheimer, secretary. [E. R. J., Jan. 29, '10.]

Millville (N. J.) Traction Company, George Wood, president, it is stated, will build a railway to Port Norris, pro-

viding the residents along the route will subscribe to \$75,000 worth of stock at 5 per cent interest. The stock of the Millville Traction Company is to be merged with the new line.

Manhattan Bridge Three-Cent Line, Brooklyn, N. Y.—The Public Service Commission has set Feb. 9 as the date for a hearing on the application of the company for a certificate of public convenience and a necessity for the construction of a street railway to connect with each end of the Manhattan Bridge and through Canal Street to the Hudson River, a distance of about 5 miles. John C. Bracknridge, vice-president. [E. R. J., Jan. 15, '10.]

Elizabeth (N. Y.) Terminal Railway.—This company is making progress toward the construction of its railway between Elizabethtown and Westport. General bids are being received, and the contract for the entire work, it is said, will be let within 10 days. The company will have a hearing before the Public Service Commission at Albany Feb. 7, when application will be made for authority to issue its stock and \$150,000 30-year 6 per cent gold bonds. [E. R. J., Jan. 22, '10.]

Rockland Railroad, New York, N. Y.—The Public Service Commission of the Second District has authorized this company to execute a mortgage upon all its property for the sum of \$3,000,000 securing an issue of 5 per cent 50-year gold bonds for the same amount and allowing the issuance at the present time of \$2,350,000 of such bonds. Bonds are to be sold at not less than 85. The company is authorized to issue at the present time \$1,050,000 of common stock, of which \$415,700 of the stock is to be issued in payment for all preliminary expenses in connection with the promotion of the railway in Rockland County, which is to be 49 miles long. The proceeds of the balance of the stock and the bonds authorized are to be used for the construction of the line. The remainder of the bonds and the balance of the authorized stock shall not be issued except upon further order of the commission. [E. R. J., Nov. 20, '09.]

Union Traction & Terminal Company, Marshfield, Ore.—This company advises that it has started construction work on its projected electric railway between Marshfield and North Bend. Power plant and repair shops will be located at Marshfield. Capital stock, \$100,000. Officers: J. M. Blake, president; G. W. Kaufman, vice-president; Robert O. Graves, secretary, all of Marshfield. [E. R. J., Jan. 1, '10.]

Portland Railway, Light & Power Company, Portland, Ore.—This company announces that work will begin soon on a 4-mile branch from West Oregon City to Oswego. It will be an extension of the Willamette Falls Railway running south from West Oregon City past Willamette. It is reported that the company will build a bridge across the Willamette River at Rock Island and build an electric railway into the New Era, Molalla and Marquam country. [E. R. J., May 20, '09.]

Clarion & East Brady Electric Railway, Clarion, Pa.—This company has completed the final surveys and will award contracts early in the spring for the construction of a 13-mile railway which will connect Clarion and East Brady via Reidsburg and Philipston. At Reidsburg connection is made with the Franklin & Clearfield branch of the New York Central & Hudson River Railroad and at East Brady the Allegheny Valley Railroad is reached. Geo. E. Arnold, Clarion, president. [E. R. J., Sept. 4, '09.]

Pittsburgh (Pa.) Subway Company.—This company, which is seeking a franchise from the city for the construction of an underground electric railway system, has deposited with the city a bond of \$100,000 as a guarantee to carry out its project. The franchise ordinance was introduced in the Council last April. [E. R. J., March 27, '09.]

Aberdeen (S. D.) Street Railway.—At a recent meeting of the stockholders of this company it was decided to proceed at once with the construction of the 4-mile street railway in Aberdeen. Charles N. Herreid, general manager. [E. R. J., Dec. 4, '09.]

San Angelo (Tex.) Street Railway.—This company expects to build about 4 miles of new track this year, but has not decided when contracts will be placed. Samuel Crowther, president.

Ogden (Utah) Rapid Transit Company.—This company has taken steps toward completing the electric railway between Ogden and Brigham City. The railway is in operation between Ogden and Hot Springs, half way to Brigham City, and about 12 miles remain to be completed. Joseph West, chief engineer.

Sheboygan Light, Power & Railway Company, Sheboygan, Wis.—This company expects to build 1 mile extension to its city lines, and also double-track some of its present city mileage. Ernest Gonzenbach, president.

SHOPS AND BUILDINGS

Washington, Baltimore & Annapolis Electric Railway, Washington, D. C.—This company is preparing plans for the erection of a two-story brick and reinforced concrete terminal station on West Lombard Street, Washington. The dimensions of the structure will be 80 ft. x 170 ft. The lower floor will be divided into two sections, one for freight and the other for cars. The building will also contain offices, repair shop and sand and track pits.

Winona Interurban Railway, Warsaw, Ind.—This company expects to place contracts during the next four weeks for the purchase of tools and the erection of new repair shops.

Gulfport & Mississippi Coast Traction Company, Gulfport, Miss.—Contracts have been awarded by this company for the erection of a car house. W. F. Gorenflo, Gulfport, purchasing agent.

Interborough Rapid Transit Company, New York, N. Y.—This company will build a two-story wing to its car house at Lenox Avenue and 148th Street, to be used for a recreation hall for its employees. The annex will be built of concrete and will be 85½ ft. x 62 ft. The estimated cost is \$30,000.

Warren & Jamestown Street Railway, Warren, Pa.—The Public Service Commission of the Second District of New York has closed upon its records the complaint of the residents of Fentonville, Chautauqua County, against this company as to the need of a waiting room and platform at that place, the offer of the company to erect a station having satisfactorily disposed of the complaint.

POWER HOUSES AND SUBSTATIONS

San Francisco, Oakland & Son José Consolidated Railway, Oakland, Cal.—This company has recently purchased a 5000-hp Hamilton Corliss cross-compound engine and a 2700-kw, 600-volt, d.c. General Electric railway generator.

Great Falls & Old Dominion Railway, Washington, D. C.—This company announces that it expects to purchase a 750-kw turbo-generator set. Theodore J. Kink, chief engineer.

Pittsfield (Mass.) Electric Street Railway.—This company has ordered from the Warren Steam Pump Company, Warren, two condensers for installation in its power plant in Pittsfield.

Rochester Railway & Light Company, Rochester, N. Y.—The Allis-Chalmers Company is installing two hydraulic turbines in the power station of the Rochester Railway & Light Company. One machine has a capacity of 900 hp and the other 2100 hp.

Sandwich, Windsor & Amherstburg Railway, Windsor, Ont.—This company advises that it expects to construct a new power station. Orders have been placed for two 500-kw, d.c., Canadian General Electric alternators and two 750-hp Goldie-McCulloch Corliss engines. James Anderson, general manager. [E. R. J., Dec. 4, '09.]

West Penn Railways, Pittsburgh, Pa.—This company expects to increase the capacity of its Greene Junction power station by the installation of two 12,000-hp turbo-generators. H. F. Barnard, Pittsburgh, purchasing agent.

Virginia Railway & Power Company, Richmond, Va.—This company has awarded a contract to the Westinghouse Electric Manufacturing Company for a 6000-hp turbo-generator. When installed the plant will have a capacity of 24,000 hp.

Sheboygan Light, Power & Railway Company, Sheboygan, Wis.—This company expects to purchase an 800-kw low-pressure steam turbine and condenser. Ernest Gonzenbach, president.

Manufactures & Supplies

ROLLING STOCK

Municipal Traction Company, Cleveland, Ohio, will soon buy 250 new cars.

Old Colony Street Railway, Boston, Mass., has purchased eight 14-bench and eight 12-bench open cars.

Humboldt Transit Company, Eureka, Cal., has ordered four cars from the W. L. Holman Car Company, San Francisco.

Central California Traction Company, San Francisco, Cal., has placed an order with the W. L. Holman Car Company, San Francisco, for four cars.

Ferrocarriles, Urbanes de Jimenez, Jimenez, Estado de Chihuahua, Mex., will buy 16 pairs of standard-gage wheels with journal boxes for horse cars.

Portland (Me.) Railroad has ordered three 28-ft. closed cars mounted on Brill 27-G trucks and two 12-bench open cars mounted on Brill 39-E trucks from The J. G. Brill Company.

Hummelstown & Campbellstown Street Railway, Hershey, Pa., has contracted with The J. G. Brill Company for one 30-ft. semi-convertible car to be mounted on Brill 27-G trucks.

Boston & Northern Street Railway, Boston, Mass., has placed an order with The J. G. Brill Company for 32 14-bench and eight 12-bench open cars to be mounted on Standard trucks.

Emigration Cañon Railroad, Salt Lake City, Utah, has ordered one 35-ton electric locomotive from the Westinghouse Electric & Manufacturing Company, which will be delivered in 90 days.

Metropolitan Street Railway, Kansas City, Mo., reported in the *ELECTRIC RAILWAY JOURNAL* of Nov. 27, 1909, as being in the market for 50 cars, providing a franchise extension was granted, will not buy cars.

Ottawa (Ont.) Electric Railway has placed an order with the Ottawa Car Company for two 21-ft. vestibuled city cars and with the Preston Car & Coach Company for three 35-ft. vestibuled open interurban cars.

Columbia Electric Street Railway, Light & Power Company, Columbia, S. C., will buy either two or four pay-as-you-enter cars in February. That some cars would be bought was mentioned in the *ELECTRIC RAILWAY JOURNAL* of Dec. 25, 1909.

Whatcom County Railway & Light Company, Bellingham, Wash., reported in the *ELECTRIC RAILWAY JOURNAL* of Dec. 18, 1909, as receiving bids on three 46-ft. cars, will order these cars through Stone & Webster Engineering Corporation.

Union Traction Company, Sisterville, W. Va., reported in the *ELECTRIC RAILWAY JOURNAL* of Nov. 27, 1909, as contemplating the purchase of several cars, has ordered two 33-ft.-4-in. closed cars and one 15-bench open car from Jewett Car Company, Newark, Ohio.

Virginia Railway & Power Company, Richmond, Va., has purchased 20 32-ft. closed pay-as-you-enter cars from The J. G. Brill Company. That these cars would be bought was mentioned in the *ELECTRIC RAILWAY JOURNAL* of Dec. 11, 1909. General Electric motors were ordered for use on these cars.

Dominion Power & Transmission Company, Hamilton, Ont., reported in the *ELECTRIC RAILWAY JOURNAL* of November 20, 1909, as contemplating the purchase of 10 cars, has purchased this number of double-truck pay-as-you-enter cars from the Ottawa Car Company to be mounted on Brill 27-G1 trucks.

Los Angeles-Pacific Railroad, Los Angeles, Cal., mentioned in the *ELECTRIC RAILWAY JOURNAL* of Oct. 30, 1909, as contemplating the purchase of a large number of motor cars for use on the Santa Monica branch of the Southern Pacific Railroad, has placed an order with the American Car & Foundry Company for 125 all-steel car bodies to be mounted on Baldwin Locomotive Works' trucks. The cars will be equipped with GE motors and Westinghouse brakes and compressor sets.

Detroit (Mich.) United Railway has just placed orders for the following equipment: 75 double-truck city cars with platform arrangements for pay-as-you-enter operation and 14 interurban cars. The Niles Car & Manufacturing Company will build the interurban cars and 25 of the city cars. The other 50 city cars will be built by the G. C. Kuhlman Car Company. The 75 new city cars will have the following dimensions: Length of body, 31 ft. 3 in.; length over bumpers, 42 ft. 3 in.; width over all, 8 ft. 6½ in. The bodies will each be mounted on two Standard Type O-50 trucks with 5-ft. wheel base. K-35 General Electric control will be used with two Westinghouse 310-C interpole motors. The 14 new interurban cars will be of two sizes. Four will have the following dimensions: Length over end panels, 36 ft. 2 in.; length over bumpers, 46 ft. 4 in.; width over all, 8 ft. 8½ in. Baldwin M.C.B. Class 78-22-A trucks; four Westinghouse No. 310-C interpole motors and General Electric K-36-B control were specified. These cars will be used for short interurban runs. The other 10 large interurban cars will have the following characteristics: Length over end panels, 41 ft. 10½ in.; length over bumpers, 52 ft. 7½ in.; width over all, 8 ft. 8¾ in. Baldwin M.C.B. Class 78-25-A trucks, four Westinghouse No. 317 interpole motors and General Electric K-36-B control were ordered. All the new interurban cars will have Peter Smith hot water heaters, upholstered seats and toilet rooms. Report of this contemplated purchase was made in the *ELECTRIC RAILWAY JOURNAL* of Jan. 22, 1910.

TRADE NOTES

Indian Refining Company, Inc., Cincinnati, Ohio, has appointed J. V. Smith manager of its department of railway lubrication. Mr. Smith was formerly with the Galena Signal-Oil Company as salesman for five years.

Catalogs Desired.—G. D. Ellsworth, purchasing agent of the International Railway, Buffalo, N. Y., is revising his catalog file and would appreciate the receipt of recent issues of catalogs covering goods used by the company.

Baldwin Locomotive Works, Philadelphia, Pa., received the following truck orders during January: Lehigh Valley Transit Company, 36 motor trucks; Portland (Ore.) Railway, four motor trucks; Standard Roller Bearing Company, two motor trucks; Oregon Electric Railway, 10 motor trucks.

National Brake Company, Buffalo, N. Y., announces the appointment of S. A. Benedict to look after the interests of the company in the territory west of Buffalo. Mr. Benedict was for six years secretary of the J. P. Devine Company, Buffalo, N. Y., and is well known throughout the electric railway field.

Columbia Machine Works & Malleable Iron Company, Brooklyn, N. Y., has opened an office in the Hudson Terminal Buildings, 50 Church Street, New York, N. Y., for the convenience of patrons. The main office of the company will remain as hitherto at the works in Brooklyn, to which all communications should be addressed.

C. P. Nachod, general manager of the Nachod Signal Company, Philadelphia, Pa., will deliver a lecture on the evening of Feb. 17, 1910, before the Franklin Institute on the subject "Electric Railway Signaling," with particular reference to a contact system which will be exhibited at the time. Electrical engineers and others interested in electric railways in the vicinity and visitors to Philadelphia are cordially invited to be present.

Warren Ross Lumber Company, Jamestown, N. Y., handles mahogany and cherry lumber for trolley cars. The company makes a specialty of catering to the requirements of car building companies and electric railways and carries on hand at Jamestown, N. Y., a large and complete assortment of cherry. It is well equipped to supply this material for the interior trim of electric railway cars. The company is also a direct importer of mahogany and carries a very fine selection in stock.

Norman C. Hayner Company, Rochester, N. Y., received a letter under date of Jan. 29, 1910, from the purchasing agent of the Cleveland, Painesville & Eastern Railroad, Willoughby, Ohio, saying that that company had used the

Hayner germicide Killitol since October, 1909, and that it had proved very satisfactory. Killitol is applied twice a week in the toilets of the company's interurban cars and the floors of its regular passenger coaches and its baggage cars, and no trouble has been experienced with bad odors since its use was commenced.

F. A. Hall, who for the last 12 years has been manager of the chain block and hoist department of the Yale & Towne Manufacturing Company, New York, N. Y., with works at Stamford, Conn., has resigned to become vice-president and treasurer of the Cameron Engineering Company, of Brooklyn, N. Y. Mr. Hall's successor with the Yale & Towne Manufacturing Company will be R. T. Hodgkins, who for several years has been his chief assistant, and who is thoroughly qualified to perform the duties of the position. In his new connection Mr. Hall expects to make a specialty of trolleys and appliances for overhead handling of materials, and in connection therewith, to make use of the Yale & Towne blocks and hoists, with the sale of which he has so long been prominently identified.

ADVERTISING LITERATURE

Liberty Manufacturing Company, Pittsburgh, Pa., is mailing a postal card calling attention to its Cyclone tube cleaners.

Kelman Electric & Manufacturing Company, Los Angeles, Cal., is distributing bulletin No. 6 on high-voltage, disconnecting switches made for 10,000 volts to 80,000 volts with a current-carrying capacity of 100 amp to 300 amp.

Calendars for 1910 have been received from Henry W. Brooks, Jr., & Company, of New York, certified public accountants, and from Frank Ridlon Company, Boston, dealers in and manufacturers of street railway apparatus and supplies.

Western Electric Company, Chicago, Ill., has issued a booklet in which is described the manufacture of lead-covered cable in the large and well-equipped cable plant of the company. Illustrations are presented of a storm-proof, 600 pair of B. & S. gage, paper-insulated, lead-covered Western Electric cable, the manufacture of telephone cable, and the Hawthorne works of the company.

Holland Trolley Supply Company, Cleveland, Ohio, has issued a striking four-page illustrated pamphlet describing its well-known trolley specialties which include ball-bearing trolley bases, harps, wheels, anti-friction pin plate for trolley bases, sleet cutters, sleet wheels, trolley poles, trolley and bell cord, etc. The company has also issued a pamphlet regarding its new trolley grease, which, it asserts, will permit a trolley wheel to run seven to 10 days without inspection or relubrication.

W. J. Jeandron, New York, N. Y., sole agent in the United States for Le Carbone carbon brushes, has issued a 50-page booklet in which the history of the Le Carbone brush is reviewed and data given about the brushes for traction service, compressor motors, stationary generators and motors, etc. Classification of the brushes has been made as to low, medium and high conductivity. The company also calls attention to its Le Carbone carbon packing rings for high-speed engines.

Deming Company, Salem, Ohio, has issued an attractive and useful pocket diary for 1910 bound in leather. It bears the title "Every Day's Doings" and the Deming phrase "When water flows up hill." Aside from the diary, there are a number of pages of maps and useful statistical matter. The 10 pages devoted to descriptions and illustrations of Deming pumps for all purposes are very interesting and contain information about machinery of this kind which adds greatly to the value of the publication.

Stromberg-Carlson Telephone Manufacturing Company, Rochester, N. Y., has issued Bulletin No. 1001, dated January, 1910, entitled "Despatchers' Signals for Electric Interurban Railroads" which contains a description of the company's telephone despatching signals for electric interurban railways and an article on their value. A feature of the publication is a double-page illustration showing an open view of the despatcher's office equipment, the intermediate station equipment and the terminal station equipment, also a closed view of the despatcher's office equipment, the intermediate station equipment and the terminal equipment.

