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ZONES OF TRAFFIC DENSITY

The existence of a district of extreme traffic density just outside of the main business center of Chicago is pointed out in a report of the Board of Supervising Engineers, Chicago Traction. This situation undoubtedly exists in a smaller degree in several other cities. In Chicago the traffic movement is mainly between three outlying sides of the city and a congested retail center. The heart of this center is bounded by the Union Elevated loop. Beyond the union loop there is a second boundary line on two sides of the city, which is formed by the Chicago River. Beyond the river and extending in fact in a line practically around three sides of the city there is a string of railroad passenger and freight terminals and tributary trackage. Close to the railroad property, partly within and partly beyond, there is a wholesale and smaller retail district to which the board points as a traffic district of importance. For the proper care of this traffic the board recommends that short lines be operated. These lines can avoid the most congested center and provide for traffic which now uses the cars that go to and from that center. The natural criticism of this suggestion, from a traffic standpoint, is that cars which are not operated to the terminal are always boarded by some passengers who want to go there. It is scarcely practicable to avoid the operation of some short lines, but the more of such lines there are operated, the more passengers there are likely to be who will object when they are required to transfer. Objections are stronger if passengers who boarded a car when seats were plentiful are asked to change to another car at a point where seats are scarce. The interference at street crossings in Chicago is very serious and, as it now unduly impedes the progress of cars, even if the suggestion of the board is adopted as a temporary expedient, the final solution will not be found until a terminal subway is built.

THE NEWARK TERMINAL REPORT

We confess that we cannot see the force of the arguments presented by Dr. Delos F. Wilcox in his Newark report against the proposed interurban terminal station at Newark. He lays great stress upon through routing and distributed terminals. But Newark is unfortunately situated for through routing. Most of the streets in the older part of the city are very narrow, and as the railroad tracks and yards constitute a serious menace to the maintenance of a regular schedule on the east the schedule of the west or suburban routes would suffer. On the other hand, the proposed suburban and interurban terminal station, which is one block north of Market Street, will effect the removal of many of the cars from this thoroughfare. Such a step, all observers agree, is absolutely essential to any form of relief. The present congestion is indicated by the fact that the rush-hour schedule calls for the passage of 528 cars per hour past the Market and Broad Streets crossing. The proposed terminal, whose selected site is close to the business center of Newark and only one block away from the Hudson & Manhattan terminal, should greatly relieve this condition. At the same time it should prove as convenient to suburban and interurban passengers as similar terminals have at Indianapolis, Denver, Milwaukee, Vancouver and other cities. The railway company is certainly vitally interested in the reduction of street congestion, and its carefully considered plan for doing so should receive greater weight than one which confessedly has been prepared after a superficial examination. The city should co-operate rather than oppose this measure of reform.

EASING THE CONDUCTOR'S LOAD

In these sweltering summer days, when the rush period extends from early morning to late night, every possible means should be used to ease the work of the conductor. It is he who literally must bear the impact of a none too patient public and politely answer the exasperating and frequently needless questions of passengers, many of whom ride infrequently except during warm weather. Among the many good qualities which are necessary to make up an efficient conductor none, perhaps, is more apparent at this time of the year than good nature. Nevertheless, the railway management can do something to ameliorate his annoyances. Its good will can be shown by permitting both the motorman and conductor to wear suitable warm weather uniforms, and in cases of long runs, by furnishing opportunity for a drink of ice water at the terminals where the men have no time to leave the cars. It can also find a large field for more positive good by relieving the conductor of unnecessary questions on the part of passengers. For instance, many queries would be avoided if the route and destination signs were as comprehensive as suggested in a

recent editorial in this paper. Many more questions would disappear if the important transfer regulations were impressed upon the passenger, say, by means of a prominent vestibule sign, on or before paying fare. On a certain route in one large city, where parts of two lines are operated over the same tracks, at least a score of testy debates occur daily because many passengers do not know before boarding the car that each line grants transfers only to certain of the intersecting routes and not to the others. In this case, an expenditure of \$50 for signs at the more important interchange points would relieve the local conductors of a good share of their worries without prejudice to the legal standing of the company's transfer rules.

RECEIVERS' CERTIFICATES

A suit between the Farmers' Loan & Trust Company and the Père Marquette Railroad about to be taken to the United States Supreme Court on a writ of certiorari brings up a question of very great importance to holders of bonds of companies that get into financial stringencies. This question is whether receivers' certificates should be issued to pay for new construction as distinguished from the conservation of the property as it stands until a reorganization can be effected, and also whether receivers have authority to raise money by means of such certificates for expenditures that should be met out of current income and to devote the income to the payment of interest on the bonds, thereby preventing the trustees from taking possession of the property. As a financial matter, the use of receivers' certificates is of great moment to bondholders, as they are usually considered to be a prior lien. Practically, the court has power to place them ahead of one mortgage or behind another, as the case may require, to obtain a market for them, but usually the bondholders' mortgage is deposed to make room for the certificates. The bondholders' security is thus reduced and the value of the bonds diminished. On the other hand, to conserve the property in the case of a long receivership so as to have the bondholders' security unimpaired, it is often necessary to issue certificates to make repairs. But to provide for betterments, extensions or any reconstruction beyond what is necessary for such preservation and thereby to charge the railroad and its appurtenances with liens which are to supersede older ones without the consent of the holders of these is apparently to exceed the receivers' authority. In like manner for receivers to meet expenditures by means of such financing instead of from income means that indirectly they are providing for the payment of interest by an issue of certificates which become a lien prior to the mortgage, or, in other words, its lien would be displaced by new obligations on the mortgaged property for the purpose of paying interest on the bonds and preventing the property from rightly passing to the mortgagee.

The difficulty in these cases is that it is not easy to draw the line between necessary repairs and new constructions or extensions and to determine to what extent expenditures would have been made from current earnings so as to conflict with interest payments if the certificates had not been used. Facts have varied in the several cases decided, and

as a legal point the question is still open, for the courts have practically unlimited authority and have exercised it in different ways.

Another disturbing factor to the unanimity of decisions has been the spread of the public service commission idea. These bodies are disposed to make varying orders requiring railways, including those in receivership, to build extensions and increase facilities for the public benefit, and the courts are in general reluctant to oppose them. It would be an important step if the public service commissions would adopt some uniform system in regard to the permitting or requiring of such certificates, and also if the Supreme Court in the Père Marquette case would lay down a decision that would serve as a good precedent in making a line of demarcation beyond which receivers cannot go, or else state definitely the power of the bondholders to block such issues through withholding their sanction.

MR. MELLEN'S RESIGNATION

The resignation of Mr. Mellen as president of the New York, New Haven & Hartford Railroad was brought about by public criticism and is a tribute to the power of that force in corporate affairs to-day. From a financial standpoint the New Haven system expanded too rapidly, but in the main it has been the public that got the real benefit of the improvements made on the property. Much of the development work on the lines has been electrical in nature, and we are foremost to recognize the technical and public value of Mr. Mellen's policy in these respects and to give due credit to him and to those whom he associated with him to carry on this work. The New Haven policy has been in advance of, not behind, the times in its electrical progress, and its initiative sets a standard for the other steam railroads of the country. Whether, at the time these results were conceived, they could have been accomplished with any other than a daring financial policy to support them we do not know, but it is certainly very doubtful if they would have been undertaken had the financial policy of the company continued in that conservative state in which Mr. Mellen found it when he went with the property.

Mr. Mellen's ideas for physical development were large and broad and creditable. Much of the criticism that was directed against the property did not represent wholesome public opinion, but was founded on political and personal grounds. The real public did not take the trouble to analyze the motives of some of those who attacked the property. The demoralization that resulted was effective in ridding the railroad of its executive and in creating agitation that will be extremely difficult to overcome in the future, but so far it has not destroyed the largeness of conception of the plans for development to which the road is committed. We trust that electrical progress will continue in spite of a change in administration and that in time to come Mr. Mellen will receive full technical and public credit for the wonderful physical rehabilitation for which he was directly responsible. If he erred in disregarding public opinion owing to the training of earlier years, this was but an incident, small compared with his other qualities as a great railroad executive.

STANDARDIZATION OF CAR-BODY DESIGN

Standardization of the fundamentals in car design is a problem which must be solved in the near future if the managers of the larger companies are to obtain the maximum results at the minimum cost and the operator of smaller properties is to have some sort of guide for his car purchases. On the surface, standardization in car-body design may appear ridiculous to some, yet careful consideration of the subject will develop the fact that there is no legitimate reason why standards covering the principal features in design could not be developed. Structural design in car bodies is in every way similar to the design of bridges and buildings of structural steel. In each of these two classes of structures there are certain fundamental types which, after years of experience, have been adopted generally as the most economical. Once in a while freak structures appear, but investigation will show that the purchaser has paid the manufacturer more per pound for the fabrication than would have been necessary if he had conformed to a standard type.

A careful investigation of the different types of car bodies now in use develops the fact that bodies of the same over-all dimensions and design for a similar service vary in weight more than 100 per cent. It does not require a thorough investigation to draw the conclusion that one of these designs is entirely wrong from an engineering standpoint. Whether a car body is of all-steel, semi-steel or all-wooden construction, under similar traffic conditions, it must conform to certain standards as regards loading per square foot of floor area. Recently the question has been raised as to what consideration should be given to the body design in taking care of impact loads coming from collisions. Some engineers have taken the stand that this precaution is unnecessary, a collision being an extraordinary occurrence, and experience with accidents of this character in the modern light-weight car has shown that certain damage results regardless of whether impact is taken into consideration in the design or not. If this is true, it certainly is not economical to add this additional weight to a car body when as a factor of safety it has little value.

A satisfactory solution of the problem of standards in car-body design could without doubt be brought about by the appointment of a committee from the American Electric Railway Engineering Association to investigate the subject thoroughly. Tests as to the load capacity of certain designs could be investigated in engineering test laboratories, both as to uniform and impact loads, and actual service tests could be made on properties where car bodies of the same over-all lengths were required to meet service conditions. Certainly car-body section dimensions could be standardized, except where the track centers in city streets interfered. The best arrangement of the members in underframes could be selected as a result of tests, whether they are designed to carry the load equally on all sills, on center sills only or on a combination of the two with side girders up to the belt rail. There can be but little doubt that the problem is a pertinent one which should not be left to the whims and fancies of the inexperienced engineer. Managers, master mechanics and manufacturers alike are continually raising the question of standardization, and no

definite move has been made. We believe the time now is ripe for concerted action and hope that the Engineering Association will see fit to appoint a committee of the best talent in the country to make a thorough investigation of standardization of car-body design and report its recommendations.

THE INTERSTATE STREET RAILWAY

Various expedients have been adopted by some of the railways to remove their affairs from the jurisdiction of the Interstate Commerce Commission. These have followed the lines of legal dismemberment of properties, or the actual abandonment of sources of business, and hence of revenue, which would have constituted interstate commerce, and would therefore have made the companies subject to the interstate commission. The courts, however, have not always held the opinion of the authority of the interstate commission that which it has itself maintained.

The recent decision of the United States Supreme Court in the Omaha & Council Bluffs Street Railway Company case, for instance, does not follow the lines of policy that have been laid down by the Interstate Commerce Commission in its treatment of street railways. The attitude of the Interstate Commerce Commission has been that a carrier which transported passengers or freight from a point in one state to a point in another state thereby engaged in an act of interstate commerce and was therefore subject to the law governing interstate commerce.

The Supreme Court makes a distinction between a street railroad organized as a street railroad company to carry passengers as part of the street traffic of a community and a railroad constructed on private right-of-way and extending on to connections with other companies and thus providing long uninterrupted avenues of traffic for both passengers and freight. It holds in effect that while a movement of a passenger on a street railway within the limits of a general community composed of several distinct municipalities may be a movement from one state to another this is not interstate commerce in the meaning of the act; that is to say, that the daily community traffic between home and work is not the one against which Congress sought to legislate.

The court recognizes the fact that interurban development introduced a class of line distinct from the street railway, but it does not discuss this question, holding that the case before it is not one involving that issue. Most of the electric lines which have been held to be subject to the authority of the Interstate Commerce Commission are interurban, and probably few would come within the characterization of street railroads as defined in this decision.

There are, however, some lines which are engaged in the same class of business as the Omaha & Council Bluffs properties, whose routes connect groups of communities that are interdependent industrially and socially, although in separate States. Unless there are particular circumstances which relieve such lines from the scope of the decision of the court in this case, the effect of the decision should be to release them from a jurisdiction of the Interstate Commerce Commission to which they have been ruled to be subject in the past.

Repair Shop Practice at Portland

The New Shops of the Portland Railway, Light & Power Company, of Portland, Ore., Are Unusually Well Equipped for the Manufacture of Repair Parts as Well as for Carrying on Routine Repair Work for the Rolling Stock—A Comprehensive System of Records Is Maintained

BY F. P. MAIZE, MASTER MECHANIC PORTLAND RAILWAY, LIGHT & POWER COMPANY

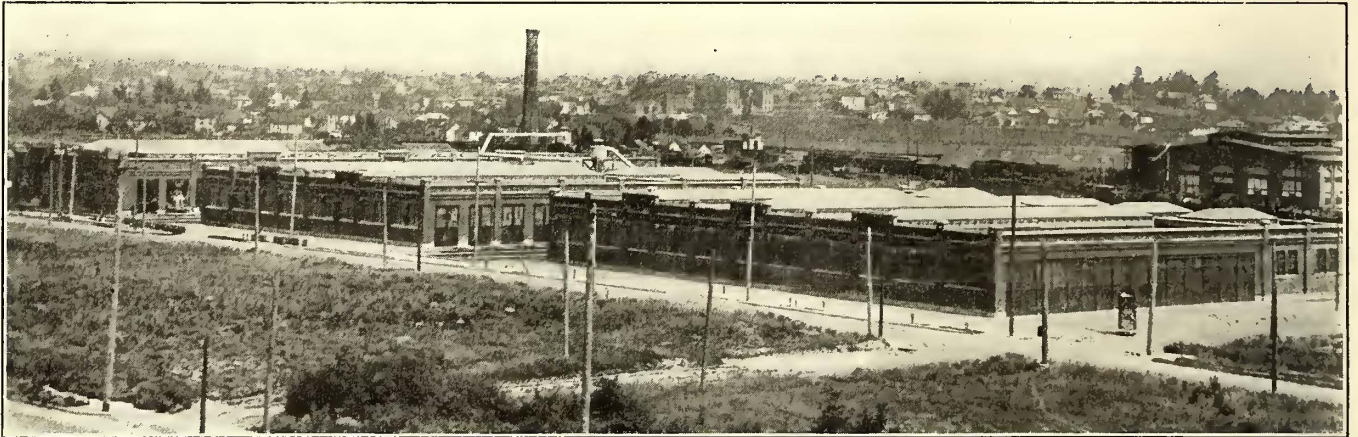
The Portland Railway, Light & Power Company operates the street railway lines in the city of Portland, Ore., together with a number of interurban lines extending to the surrounding towns. The normal traffic requirements keep approximately 550 cars in service, the number varying according to the season, over some 285 miles of track. In addition the railway hauls from 100 to 200 freight cars a day and interchanges with the steam roads which handle foreign cars. There are six large electric locomotives for carrying on this work as well as for the regular freight traffic of the company. A small "rip track" is provided for making general repairs on this freight-car equipment.

For handling the motor-car equipment there are four carhouses situated in different sections of the city, one large repair shop, one small shop for repairing freight cars and a small iron and brass foundry. The carhouses are known

motor is changed and the damaged motor is sent back to the shops for repair. No general overhauling or heavy repair work is done at the carhouses, as cars are overhauled on the mileage basis at the Center Street shops, and only light repairs and changing of parts which may burn out in the meantime are allowed at the carhouses. All cars have a seven-day inspection at the carhouses, and when the mileage has reached the limit the cars are called in to the Center Street shops for general overhauling.

MAIN REPAIR SHOPS

The Center Street shops, which were occupied for the first time last October, are made up of a group of four main buildings as shown in the accompanying layout. One of these buildings contains the motor and truck department, air room, armature room, machine shop and blacksmith shop. Another contains the carpenter and mill



Portland Shops—General View Showing Truck Shop, Carpenter Shop and Paint Shop

as "Piedmont," "Savier" and "Ankeny," which accommodate narrow-gage cars, and "Selwood," which accommodates standard-gage cars. All of the eastern and northwestern sections of the city have narrow-gage track, 3 ft. 6 in. between rails. The southwest section has the standard 4-ft. 8½-in. gage. The carhouses are fairly well distributed in the four sections of the city.

Each carhouse is equipped with a wheel grinder for grinding wheels under the cars, a screw car hoist with swinging crane for changing wheels, emery wheel, grindstone and small power drill press. On account of the distance to and from the shops, it was found more economical and quicker to change armatures and wheels, controllers and small parts at the carhouses instead of taking them to the shop. In many cases it is necessary when a car comes in about noon with a grounded armature to change the armature so that the car will be ready for the run that same night.

All work of fitting up and repairing parts, such as turning armatures, fitting bearings, general repairing, controllers, circuit-breakers, contactors, etc., is done at the Center Street shops, and parts are distributed every day by delivery car, which exchanges the repaired part for one that is out of order. Carhouses are not allowed to change an armature in the box type of motor, but a complete motor is furnished, and in case of any trouble the whole

rooms, and a third contains the paint shop. The fourth building, just completed, is the storehouse.

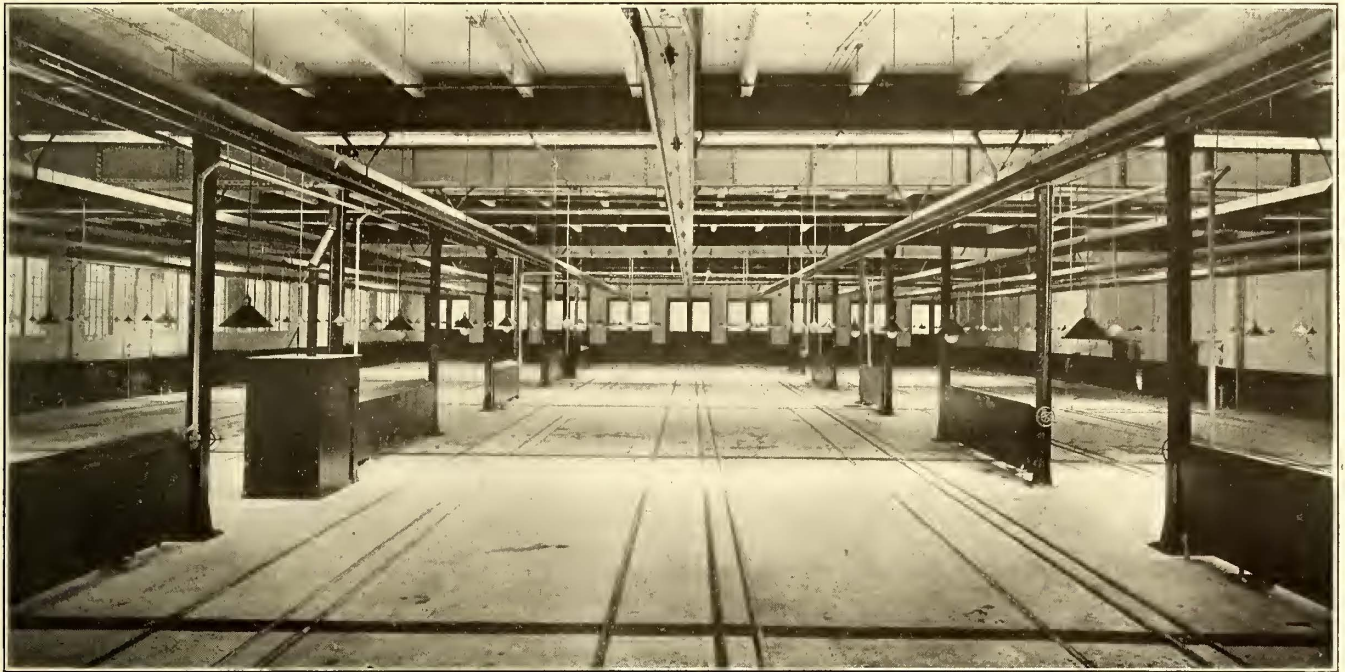
The accompanying illustration of a corner of the armature room shows the small cabinet with testing outfit and also the overhead cranes used for putting armatures on horses for repairs. All of the armatures are kept on small wagons so that they can be hauled from the armature room to the motor shop by one man. After they reach the armature room and motor shop they are handled exclusively by cranes. The tests applied to armatures are a 1200-volt to 2400-volt break-down test, a transformer short-circuit test, a leakage test and a bar-to-bar short-circuit test. The fields are tested with a transformer test and measured with a Leeds & Northrup special machine. The armature room is equipped with the usual banding machine, lathe for turning commutators and boring bearings, etc. All armatures are finished in the armature room, ready to put in the motors.

The machine shop is equipped with lathes, planer, drill presses, shapers, molding machine, turret lathe, circular cold saws, bolt cutters and all tools necessary to make up a general machine shop. This machinery is necessary on account of the company's policy of manufacturing most of its own repair parts. A large part of the track special work is also made in the machine shop and cast in the company's own foundry.

The illustration of the blacksmith shop shows the hammers and forging machine, as well as several of the fires. This shop is equipped with the Buffalo down-draft system, having direct-connected motors to blowers as well as to suction fans. There are six Buffalo down-draft forges and three air forges, as well as an oil forge for case-hardening and melting babbitt.

men overhaul the trucks. The motors are then replaced on the trucks and receive a running test after they have been put under the car. An inspector also tests them out in the yard before they leave the works.

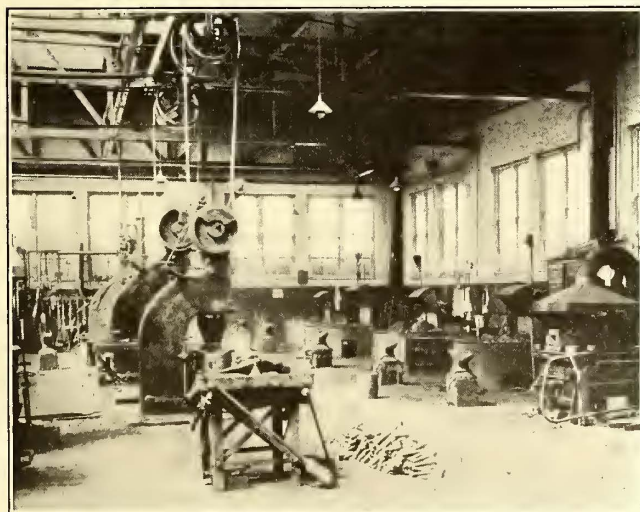
At one end of the motor and truck shop is the wheel shop. This contains one axle lathe, two wheel presses, one 100-ton and one 300-ton; one Niles wheel-boring ma-



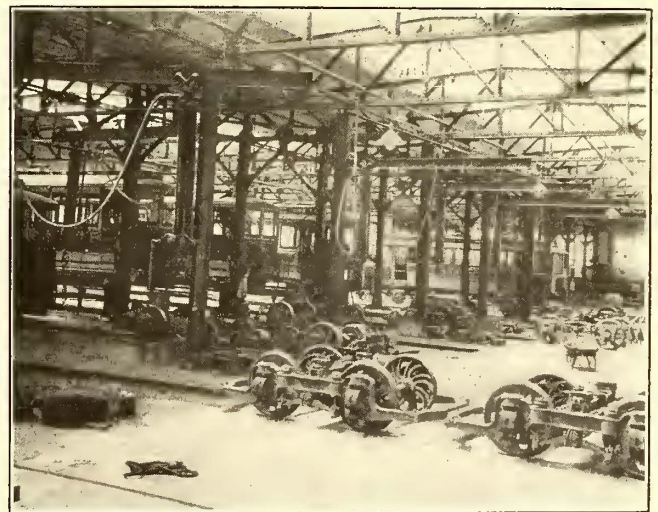
Portland Shops—Interior View of Paint Shop Showing Track Arrangement for Standard and Narrow-Gage Cars

The main truck and motor shop adjoins the machine shop and armature room. Each pit in the shop is equipped with a home-made screw hoist for hoisting car bodies, as well as a swinging and traveling crane with air hoist attached. All cars brought in for overhauling are taken into this shop. The body is raised off the trucks with the

chine and one Niles 42-in. steel tire lathe. There is also a wheel grinder for grinding flanges. All flat spots are ground out at the carhouses underneath the cars, but it is often found that wheels with chipped flanges can be re-ground when the flanges are deep and then can be used over again.



Portland Shops—Power Hammers and Down-Draft Forges in Blacksmith Shop



Portland Shops—View in Truck Shop Showing Cranes and Air Hoists for Handling Truck Parts

screw hoist and the truck run from under the car with its own motors. The controller for running the motor which operates the screw hoist has a double-throw switch, and current can be thrown into a bus line which has taps along the side of the pit so that the crew can plug in and run their trucks out from underneath the car by power. The motors are then taken off and overhauled while two

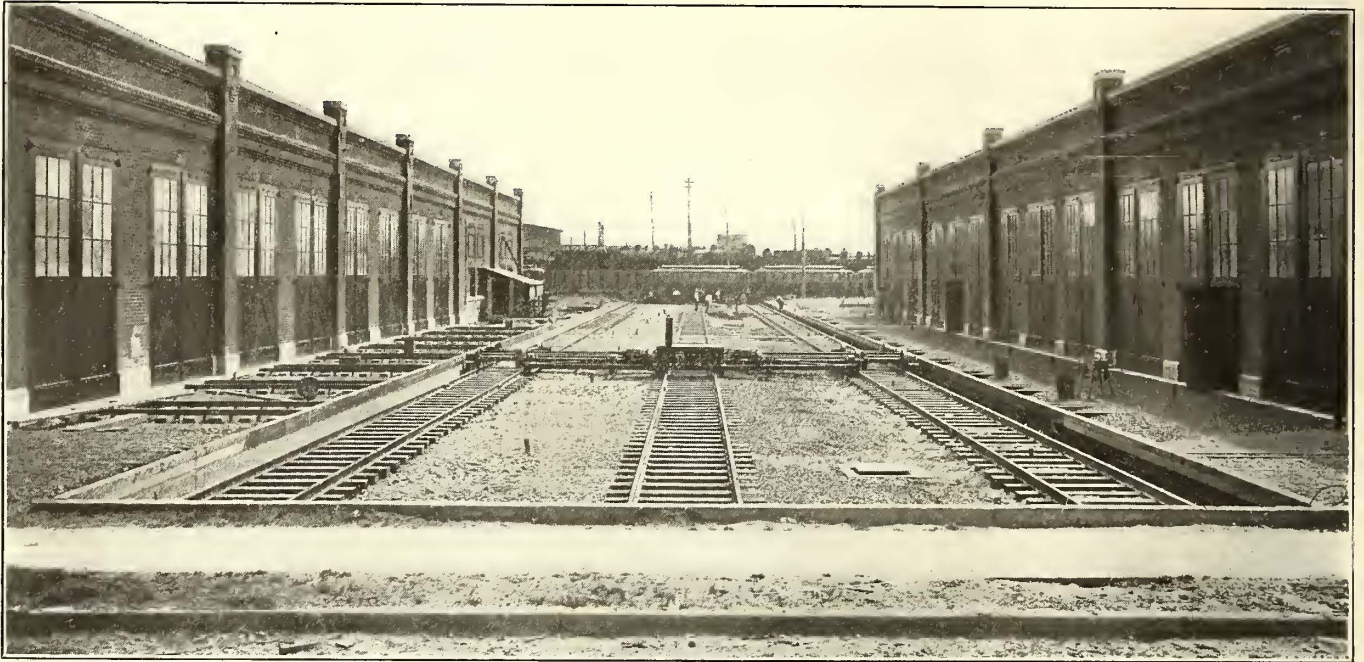
The carpenter shop is situated next to the machine shop and separated from it by a transfer table, as shown in the illustration on page 132. This building is of the same design as the main room in the carpenter shop. All of the shops are equipped with three-rail tracks as shown in the interior view of the paint shop, so as to accommodate both standard and narrow-gauge cars. The mill room and car-

penter shop, which is partitioned off from the erecting shop, is equipped with all necessary tools for building cars and is situated over a basement so that all machinery (such as motors, pulleys, belts, etc.) can be placed in the basement.

Shavings are taken away from the machines by a blower system and are blown over to the fuel room at the boiler house.

EMPLOYEES' ASSOCIATION

In June, 1912, the men of the mechanical organization decided to form an association for the benefit of the employees in this department. Since this organization has been effected it has brought the employees in closer touch with the officials of the company and enabled them to bring their grievances before them, so that all little differences have been settled satisfactorily to both employ-



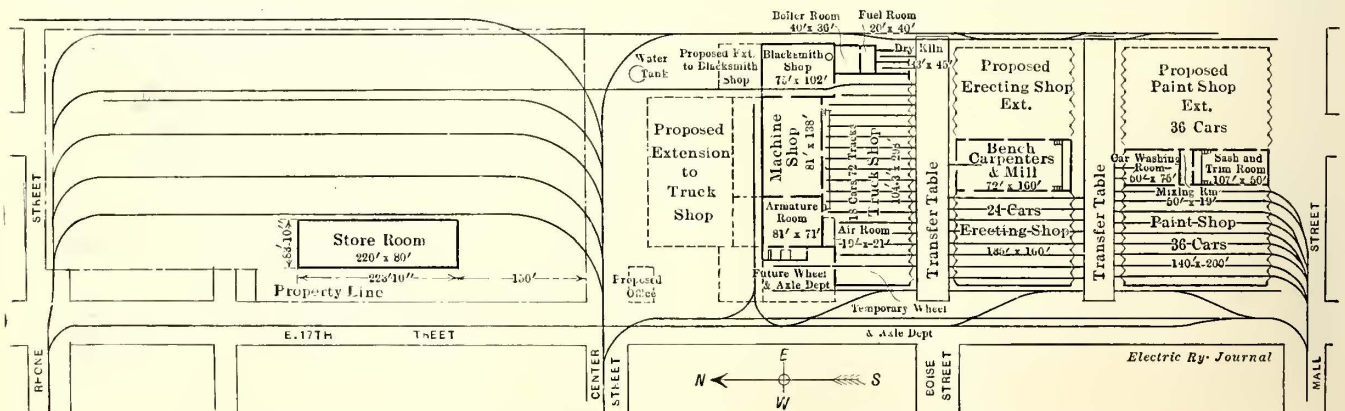
Portland Shops—Transfer Table Between Carpenter and Paint Shops

In each of the buildings there is a balcony, on which are the toilets and lockers for the men, and throughout the shops the company has installed sanitary drinking fountains at convenient points.

Next to the carpenter shop and also separated from it by a transfer table is the paint shop, with tracks running all the way through and connecting with curves to the outside, as shown in the general layout. On one side of the paint shop is a small storage room for paints and the sash room. The layout of the buildings is such that additions can be made to the erecting and paint shops.

ees and company, and a spirit of co-operation has developed which is a benefit to both. During the hard winter of 1912-13 the association was able to do very good work, as there was much sickness and it was necessary to look after a number of families whose main support had been withdrawn.

The men have their meetings once a month in the association hall, one section of which is shown in the illustration on page 134. This hall is equipped with a kitchen for serving refreshments, and a short entertainment is given and light refreshments are served at each meeting.



Portland Shops—General Layout Showing Arrangement of Buildings and Tracks

The shops are equipped with sprinkler system throughout, as well as necessary hose and fire extinguishers. A number of fire hydrants are scattered along the outside of the building for outside protection, and there is in addition a hose house. This has automatic opening doors and is near to the office so that it can be put into action at a moment's notice.

The members have also had several dances and entertainments during the winter.

As the Center Street shops are in a section of the city that is not built up, it is impossible to get meals anywhere near the shops, so the association obtained permission to use the kitchen as well as the utensils and has hired help to serve dinner for about 150 men each day. These meals

are furnished at cost, and only the best of food is served. They have proved a great convenience.

The association also has a loan department for the benefit of members. In case of sickness in the family or other cause that necessitates a loan for a short time, a member can borrow from \$5 to \$100 for six months. This, it is found, keeps the men from the "loan sharks" when they are in hard circumstances.

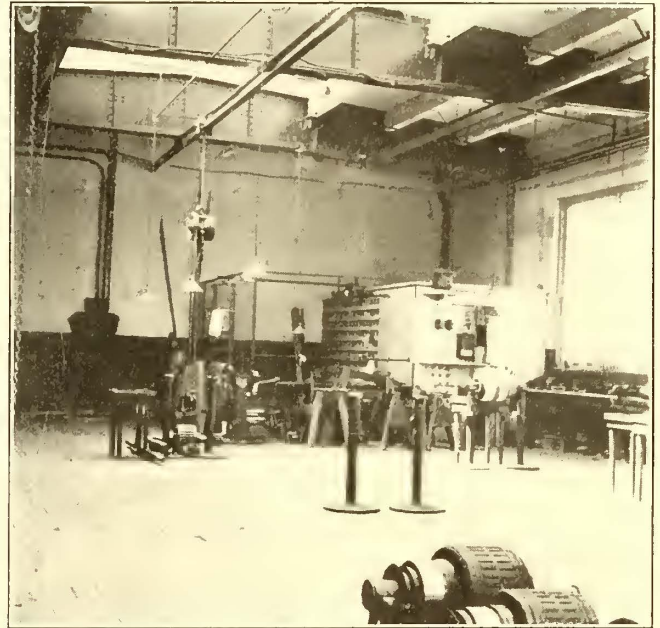
MECHANICAL DEPARTMENT RECORDS

The clerical force of the mechanical department consists of a chief clerk, reporting to the master mechanic; a statistical clerk, an equipment mileage clerk, a car record clerk, a cost clerk, a pay roll clerk, a stenographer, two shop clerks and one carhouse clerk, all reporting to the chief clerk.

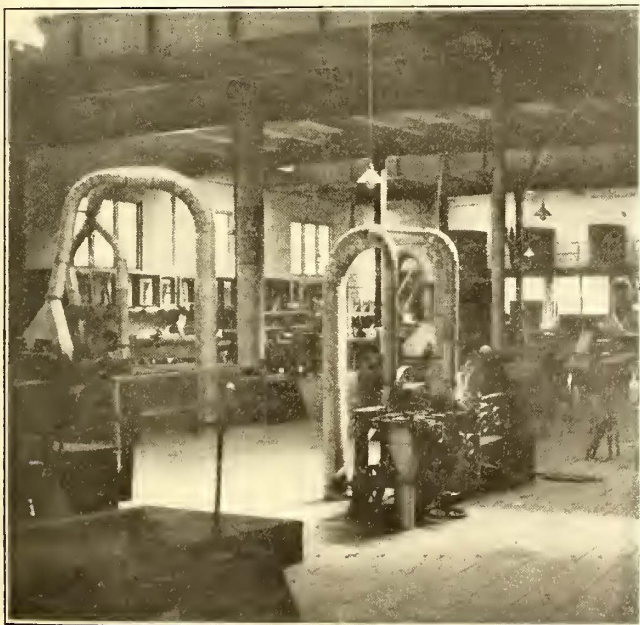
All work performed at the shops and carhouses, including changes of parts of equipment, repairs of all kinds, wheels ground, cars overhauled and cars painted, are recorded by the shop clerks on the daily shop report sheet. Parts of equipment, such as armatures, wheels, compressors, controllers, fields, gears and pinions, are numbered individually and are identified by their number on the shop report. This report is turned in each day to the car record clerk, who enters the report in full on the car record card, of which there is one for each car owned. The report is then given to the equipment mileage clerk, who enters the changes on the individual record of parts of equipment, of which there is one sheet for each numbered part in use by the company.

Mileage is computed for each car daily from the conductor's trip sheets and is entered daily on the car mileage card, of which there is one for each car operated. When any part is reported as removed from a car, the mileage of that part since it was placed in the car is taken from the car mileage card and entered after the record on the equipment record sheet for that part, and it is included in the monthly report showing the average mileage of parts repaired. When the part is removed from a car and reported

can determine the relative merit of different grades of material without considering the confusing element of personal opinion. These records are also used to determine when a car is due for a general overhauling. At present the company is overhauling cars on a basis of 60,000 miles. When the car mileage card shows that a car has attained that mileage, a tab is placed on the mileage card for that



Portland Shops—Armature Room with Traveling Hoists and Cabinet for Testing Outfit



Portland Shops—View of Wood Mill Showing Balcony for Lockers at Right-Hand Side

as scrapped, the mileage is computed as above, the equipment record sheet is removed from the live files, and the mileage of the part is included in the monthly report which shows the average mileage of all of the different parts scrapped in the operation of the line.

By referring to these records and reports, the master mechanic can locate the principal sources of trouble and

car and marked with the date. The car is then called in as soon as possible and overhauled.

The accounting for the system is taken care of by the accounting department at the general office under the direct supervision of the auditor. The system of accounting, however, does not give sufficient detail to enable the master mechanic to keep in close touch with the costs in the shops, and it was found necessary to install a supplementary accounting system in the master mechanic's office. A system of shop orders was established, by means of which the cost of different jobs or on different cars can be segregated by the cost clerk and reported to the master mechanic as soon as the work is finished.

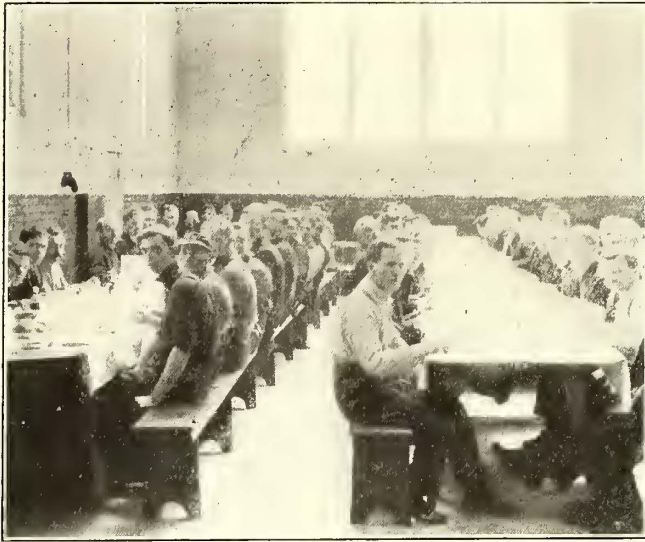
Shop orders are issued for cars overhauled and painted and for repairs due to collisions. When a car comes to the shop for any of these reasons a shop order is made out addressed to each of the foremen who will work on the car, and all work performed on that car is charged to the same number. The shop order is divided into different classes by the addition of a letter—i. e., "a," indicating work on the car body; "b," work on trucks; "c," work on motors, etc. This applies both to labor and material charges. Shop orders are also issued for the manufacture of material used in maintenance work.

The time card used is a combination clock record and daily work report and furnishes the record from which the pay rolls are prepared and the distribution is made to the various maintenance accounts and work orders. These cards are made out by the employees in detail, showing exactly the work performed during the day, including the car number where work was done on a car and the shop order number. The cards are punched in in the morning and at noon, and they are punched out at night. They are then left in the racks where the night watchman collects them and replaces them with new cards. The next morning the time is entered in the time book, and the cards are then turned over to the pay roll clerk, who verifies the shop order numbers and enters the proper charge, as indicated

by the work performed, in the charge column. He then enters the rate of pay on the card and makes the extensions. The cards are then turned over to the cost clerk, who enters the code numbers used in connection with the Hollerith system. Requisitions for material used the previous day are brought to the cost clerk before being

investigation of any excess charges. At the end of the month the charges on all shop orders for cars are totaled up, and the figures thus obtained are included in the monthly report on operating expenses.

The costs on grinding wheels and changing armatures, also on cars washed at the carhouses, are taken direct from



Portland Shops—Shopmen at Noonday Meal



Portland Shops—A Corner of Association Hall

sent to the accounting department, and he verifies the charges and enters the code numbers.

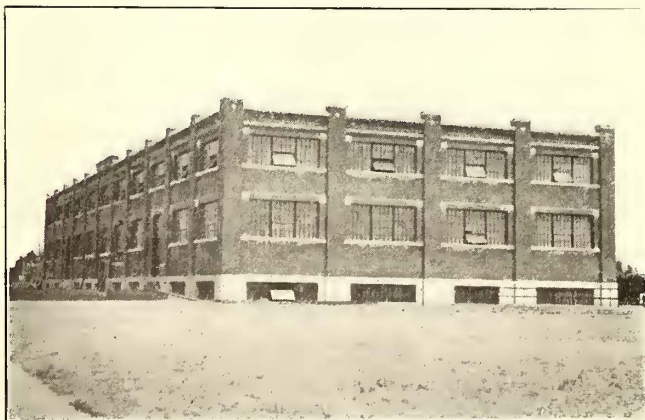
As the company uses the Hollerith tabulating machines, described in the *ELECTRIC RAILWAY JOURNAL* for May 10, 1913, page 853, both time cards and requisitions are sent to the Hollerith machine clerk at the general office and cards are punched to correspond. After these cards are punched they are run through the sorting and tabulating machines and a report is made up and sent back to the cost clerk, showing the totals charged to each shop order, maintenance account or work order. This is further divided according to code numbers to show the department where the charges originated and the class of work—i. e., overhauling, painting, maintenance, manufacturing, construction, etc. The cost clerk then enters these amounts on a cost data sheet.

As each foreman finishes his work on a car he turns in his shop order to the cost clerk, marking thereon the date

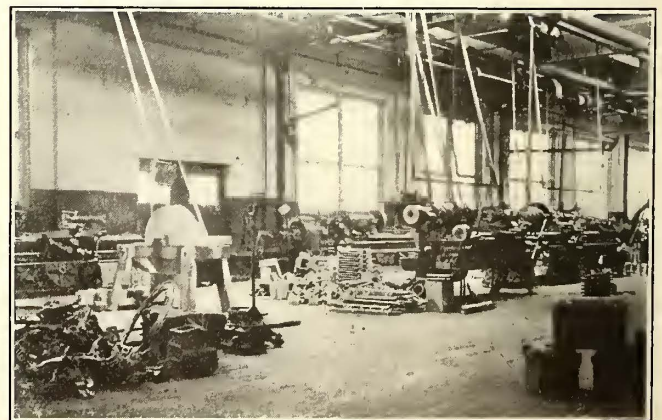
the time cards. At the end of the month these costs are compared with the report showing the number of armatures changed, wheels ground and cars washed, and a unit cost is obtained.

MANUFACTURING RECORDS

For material manufactured in the shops for supplies the following system is used. The storekeeper puts in an order on the regular purchase requisition, sending a copy to the purchasing agent and the original to the master mechanic, specifying on the order that the material is to be manufactured by the mechanical department. Upon receipt of this order, properly approved, the cost clerk issues a shop order on the foundry, machine shop or blacksmith shop as the case may be. Charges are made on the time cards and requisitions as explained heretofore. As soon as the shop order is completed the manufactured articles are turned in to the storekeeper, who receipts for them on the shop order blank. This shop order is then turned in



Portland Shops—Exterior View of Storehouse on East Seventeenth Street



Portland Shops—Manufacturing Department in Machine Shop

of completion. As soon as all the orders are turned in, the car is reported "O. K." to the carhouse to which it is assigned, and it is taken away. The cost clerk then closes the shop order, totals up the cost sheet, and transfers the totals to the permanent card record. This record is then turned over to the master mechanic for examination and

to the cost clerk. All charges are totaled by the Hollerith machine clerk and are entered by the cost clerk on the manufacturing data card.

When completed, the shop order is closed up, the card is totaled up and the totals transferred to the permanent record sheet. Successive reports for the same article are en-

tered on the same sheet, thus giving a comparison of the cost of manufacture at different times. The cost clerk then reports to the stores department, giving the total charges against the shop order and the cost per piece. This cost is then entered in the stores department as the price of the article.

Statistics in the form of monthly reports to the general manager are compiled from the different records, showing work performed in the shops during the month, including both maintenance and construction; showing mileage made by cars and parts of equipment, and showing the reasons for increases or decreases over the same month in the preceding year. The data secured from the different reports are shown also in the form of graphic charts. These are made up from month to month during the year and show the maintenance charges to the different accounts, the mileage of different parts of equipment and other data of interest.

The master mechanic keeps in close touch with the work going on in the department by means of a daily report compiled by the statistical clerk and placed on the master mechanic's desk at 8.30 o'clock each morning, showing the bad-order cars at the carhouses, cars returned to service on the previous day, the number of wheels ground, and the number of pull-ins for the previous day, with the cause assigned for each. Each carhouse foreman also submits a daily report of cars inspected, by whom inspected and the number of cars washed.

MERIT AND DEMERIT SYSTEMS APPLIED TO MANagements

Since the original promulgation of the Brown merit system as applied to employees, it has had a constant development, and refinements have been introduced on the different roads. The advocates of the system are many, but until recently no definite proposal had been made to apply the system to the managements of the companies. Nevertheless, this idea was suggested and elaborated in a paper read before the National Municipal League in Los Angeles last summer, and the paper is now available in printed form. It is entitled "A Suggested Sliding Scale of Dividends for Street Railways, Determined by Quality of Service."

The author, James W. S. Peters, Kansas City, Mo., who believes that street railway companies should be liberally rewarded when they provide good service, suggests that if 6 per cent on capital investment is a "fair and reasonable" return for the interest on the capital and hazard of the enterprise, 25 per cent ought to be added for "perfect" service. This means, however, 100 per cent efficiency, which the author sorrowfully considers will never in practice be obtained. Hence, for the perfect management $7\frac{1}{2}$ per cent return would be permitted, with graded returns of 7 per cent to the management with 90 per cent efficiency, $6\frac{1}{2}$ per cent to the management with 80 per cent efficiency and a reduction of $\frac{1}{2}$ per cent in permitted return with each 10 per cent drop in the quality of the service.

Of course a system of this kind requires a systematic method of grading managements, but Mr. Peters is prepared to show that this is not so difficult a problem as might appear at first sight. Briefly, he proposes to divide the service into five parts and suggests the following divisions and their relative importance: First, operation and management, value 40 per cent; second, maintenance of plant against depreciation and obsolescence, value 20 per cent; third, economy and efficiency of management, value 15 per cent; fourth, safety and comfort of the traveling public and of the citizens, value 15 per cent; fifth, accuracy and publicity of accounts and system in preserving the funds intact, value 10 per cent. In turn, the author believes that each of these divisions should be further subdivided to assist in establishing an accurate standing of the different managements and suggests the following schedule:

A. Service in management and operation; value, 40 per cent.	100
Up-to-date equipment	100
Extensions	25
Transfer regulations	25
Shelter stations	75
Running of cars	100
Speed of cars	50
Ventilation of cars.....	50
Lighting of cars	100
Seats	100
Frequency	100
Courtesy of employees to public.....	100
B. Service of maintenance of plant against obsolescence and depreciation; value, 20 per cent.	
Repair of tracks	75
Repair of cars	100
Repair of overhead equipment.....	50
Repair of power plants.....	100
Repair of car barns and other buildings.....	50
Repair of tools	25
Insurance premiums	20
C. Service as to economy and efficiency; value, 15 per cent.	100
Economy in purchase of supplies.....	100
Economy in use of supplies.....	100
Economy in schools of conductors and motormen.....	50
Economy in contracts	75
Economy in supervision, administration, etc.....	100
Economy relative to employees.....	25
Economy to prevent accidents.....	75
Settlement of damage claims	50
Interest on balances.....	50
D. Service in safety and comfort of general passengers; value, 15 per cent.	
Noise	50
Dust	50
Ventilation	50
Repair of pavement	100
Distance between tracks.....	25
Fenders and wheel guards.....	100
Location of tracks as to curb.....	25
Watchmen at crossings	75
Headlights	25
Relocation of tracks for comfort of street traffic.....	25
Gongs	25
Cars passing each other.....	20
Smoke from powerhouse	20
Treatment of persons injured.....	75
E. Service in accounting and preservation of funds; value, 10 per cent.	100
Public reports	100
Segregation of accounts.....	75
Integrity of funds	50
Preservation of records.....	25
Simplicity of bookkeeping.....	50
Integrity of capital account.....	100
Traffic statistics	100
Distribution of labor accounts and overhead charges.....	75
Car value costs.....	100

The author admits that the responsibility for grading the managements on this suggested plan is large and that it would be well to have the work in each department done by committees composed of experts on the subjects considered, their conclusions to be subject to review by a single public service commission. Any citizen, however, should be permitted to register complaints, either with the original committee or the sub-committees, and the hearings on these complaints should be open to the public and press. Mr. Peters is still in doubt as to whether all of the bonus in the way of increased dividends permitted for good management under this graded system should be allowed as an increased reward to the capital invested or should be shared in part with the employees of the corporation, who would be responsible, at least in part, for the good results obtained. On the whole, however, he concludes that at least two-fifths of the reward should go to the employees and that at the end of the fiscal year this amount should be prorated among them, from the president to the day laborer, in proportion to the amount of salary received by each during the year.

Mr. Peters is certainly entitled to the credit of originality for his suggestion.

Proposals are requested until Aug. 27, 1913, for building an electric tramway, estimated cost \$45,775, in the suburbs of Vigo, Spain. If successful in bidding against La Compania Anonima Tranvias Electricos de Vigo the concessionaire must pay \$682 for the project with interest of 5 per cent from the date the project was filed. The concession and construction of an electric tramway from Reus to Tarragona, Province of Tarragona, Spain, has been awarded to Mariano de Cárcer, owner of the approved project. The rolling stock is to comprise at least four electric cars, ten trailers, five electric freight cars, twenty trailing freight cars, and ten flat cars. The contractor may be addressed in care of La Jefatura de Obras Públicas de la Provincia de Tarragona, Tarragona, Spain.

Fifth Annual Convention of the Pacific Claim Agents' Association

A Full Report of the Session of the Pacific Claim Agents' Association, Held in Vancouver Under Auspices of British Columbia Electric Railway

The Pacific Claim Agents' Association this year held its annual convention in Vancouver, B. C., on July 10, 11 and 12, as guests of the British Columbia Electric Railway. Abstracts of some of the papers presented at these meetings were published in last week's issue of the *ELECTRIC RAILWAY JOURNAL*, and additional ones are produced elsewhere in this issue.

At the opening session of the association on the morning of July 10, Mayor Baxter of Vancouver, made an address of welcome on behalf of the city and spoke in high terms of the work claim agents could do in bringing about harmony between their companies and the public. The object of claim agents should be, he said, to settle claims, not to fight them.

F. R. Glover, of the board of management of the British Columbia Railway, welcomed the delegates on behalf of the only electric railway outside the United States which is connected with the association. He stated that his company had a remarkably low record of claims in proportion to earnings. In fact, he thought it was possibly the lowest on the coast.

In the address of the president, next on the program, George Carson spoke of the beneficial effects he had noted as the association became more unified. He also said that the index bureau which was established a year ago had proved useful in the work of exposing fraudulent claimants and that probably the number of subscribers to the bureau would be doubled within the next twelve months. In further reviewing the work of the association within the past year, Mr. Carson emphasized the fact that the conviction of the notorious Myrtle Johnson had been secured largely through its efforts.

In the report of the secretary-treasurer it was noted, among other matters, that in the large number of cases where information was secured regarding professional fraudulent claimants, circular letters were sent to all association members advising them of the circumstances.

E. H. Odell, of Tacoma, whose membership in the association had been terminated by virtue of his retirement from service with the railway company, was elected an honorary member by unanimous vote.

The convention program committee had selected and assigned a number of topics in such a way that on each subject independent papers were prepared by several members. Thus, on the subject "Required Legislation for the Modification of Court Procedure in the Trial of Personal Injury Cases," papers were prepared by Harrison Allen, attorney Portland (Ore.) Railway, Light & Power Company; C. H. Winders, attorney Northern Pacific Railway, Seattle, Wash., and A. J. Falknor, attorney Puget Sound Traction, Light & Power Company, Seattle, Wash.

"Workmen's Compensation and Insurance Laws" was the subject of papers by H. K. Relf, claim agent Spokane, Portland & Seattle Railroad, Portland, Ore.; E. H. Odell, Tacoma, and J. T. Rupli, assistant claim agent Puget Sound Traction, Light & Power Company, Seattle, Wash.

On the subject of "The Value of Safety Committees, How They Are Organized and Put to Work," George Carson, claim agent Puget Sound Traction, Light & Power Company, Seattle, Wash., and T. G. Aston, claim agent Washington Water Power Company, Spokane, Wash., read papers.

Papers were read on "The Value of an Index Bureau in

Dealing with Fraudulent Claims," by B. F. Boynton, claim agent Portland (Ore.) Railway, Light & Power Company, and S. A. Bishop, claim agent Pacific Electric Company, Los Angeles, Cal.

Papers were also prepared and read on "The Unreported Accident or Blind Case," by J. H. Handlon, claim agent United Railroads of San Francisco, and C. F. Young, Puget Sound Traction, Light & Power Company, Seattle, Wash. Most of the papers mentioned in the last three paragraphs were the ones abstracted in last week's issue of the *ELECTRICAL RAILWAY JOURNAL*.

During the session devoted to papers and discussion on workmen's compensation matters, there were present at the convention F. L. Daggett, J. F. Gillies and A. B. Ernst, of the Industrial Insurance Commission of the State of Washington, who took part in the discussion of the papers. Mr. Daggett also read a paper explaining the working of the workmen's compensation law in the State of Washington. It was pointed out that this State had taken a pioneer position in the establishment of insurance laws for workmen.

By request from the Chairman of the Industrial Insurance Commission, it was voted to supply the commission with ten printed copies of the minutes of the convention.

Mr. Handlon suggested that a very beneficial preventative effect might result from advertising the work of the index bureau. Acting on his suggestion, it was voted to have made, for use in the offices of members, small metal placards bearing the words "Members of the Pacific Claim Agents' Association, and Subscribers to the Pacific Claim Agents' Index Bureau."

Spokane, Wash., was set as the place of meeting for the convention in 1914. The following officers were elected for the year 1913-14; President, J. B. Handlon, United Railroads of San Francisco; first vice-president, T. H. Aston, Washington Water Power Company, Spokane, Wash.; second vice-president, A. M. Lee, Northern Pacific Railway, Seattle, Wash.; third vice-president, G. N. Smith, Oregon-Washington Railroad & Navigation Company, Portland, Ore.; secretary-treasurer, E. H. Odell, Tacoma, Wash.; executive committee, W. H. Moore, San Diego Electric Railway, San Diego, Cal.; H. C. Winsor, Tacoma Railway & Power Company, Tacoma, Wash.; A. E. Beck, British Columbia Electric Company, Vancouver, B. C.; H. K. Relf, Spokane, Portland & Seattle Railroad, Portland, Ore.; T. A. Cole, Los Angeles Railway Corporation, Los Angeles, Cal.; S. A. Bishop, Pacific Electric Company, Los Angeles, Cal.

The convention entertainment program was in charge of A. E. Beck, of the legal department of the British Columbia Electric Railway, who had prepared a schedule of sightseeing for the ladies of the party during each morning and afternoon. On Thursday evening an informal banquet at the Hotel Elysium was attended by about fifty members and guests. Messrs. Carson, Daggett, Odell, Faulkner, Handlon and others spoke, emphasizing the fact that the Pacific Claim Agents' Association recognized no international line and looked forward to a greatly increased scope of activity.

Friday afternoon the association members and guests visited New Westminster, whence they went by boat to the mouth of the Fraser River and visited the salmon canneries then in operation, returning to Vancouver by special

car over the lines of the British Columbia Electric Railway. The business of the convention was concluded Saturday morning, and the afternoon was devoted to a trip by launch to the Lake Buntzen plants of the British Columbia Electric Railway.

LEGISLATION CHANGING COURT PROCEDURE IN THE TRIAL OF PERSONAL INJURY CASES.

BY C. H. WINDERS, ATTORNEY NORTHERN PACIFIC RAILWAY,
SEATTLE, WASH.

In my opinion there should be additional legislation, or a repeal of existing statutes, giving to trial courts the same right as is now possessed by federal courts to comment in appropriate cases upon the weight to be given to certain classes of testimony, to restrict the appeal by unbridled argument to the passion and prejudice of the jury, and to require higher qualifications for trial jurors.

But something more than mere legislation directed towards a modification of court procedure is needed. Continuous frauds in the nature of personal injury and damage suits are being perpetrated upon public service corporations, and the almost uniform prejudice that pervades the minds of a jury in the trial of an injury case arises largely not from want of legislation but from the fact that the courts refuse to enforce rules, laws and canons of ethics which are already in existence and in theory are supposed to be observed. What we need is legislation that will give us more intelligent and fearless judges, men of experience who are not only well versed in the law and possessed of common sense and judgment, but courageous in giving effect to the law and present rules of procedure without fear of newspaper criticism or of their political future.

A fair trial in cases of disputed questions of fact rests and always will rest largely with the trial court. No remedial legislation can be passed that can interfere to any considerable extent with the broad discretion so vested. The abuses of giving every instruction asked by either side, of straddling every question and of shirking responsibility in matters of a new trial should be corrected, and if this is done no changes in matters of procedure will be necessary. We might theorize on commissions, on the elimination of women from juries and upon many other matters, but this will get us nowhere. Existing conditions, many of which cannot be changed without constitutional amendment, are with us to stay, and relief lies only in affording protection to the courts and above all in removing them from politics.

We all recognize that a judge should enter upon his duties without the slightest obligation or feeling of obligation to any person by reason of his elevation to such position, and as long as a political campaign is necessary there is of necessity obligations which are unconsciously felt. The legislation, therefore, which in my opinion is necessary before we will accomplish any good, must be directed toward raising the standard of the men who preside at the trial of these cases, giving them a longer term of office, a higher salary, and affording protection by means of legislation against the demagogue and the editors of the yellow press who criticize every opinion which may be directed towards the protection of the property and property rights of a public service corporation.

Claim agents are busy men, and while they are ever ready to cry out against the character of men who do make the laws and against the libelous and slanderous attacks upon our judges, apparently they lack the initiative or interest to avoid this condition by getting out and sacrificing a little of their time in arousing interest in their respective communities towards the choice of men who are in fact good citizens. With such men in their legislatures it would be but a short time until laws were passed that

would afford protection to the trial and appellate courts, and without vesting the courts with any more authority and without any constitutional amendments, obtain for every litigant a fair and impartial trial.

I have found in my experience that by the close co-operation between the claim department and legal department many of the members of the profession who make a business of filing suits of doubtful character have either ceased bringing suits against our company or have been willing to take the claim agent's judgment as to the law and facts. In that way the legal department is saved from the trial of a great many more cases, and a great deal more time and expense than is necessary. This has nothing to do with legislative enactments or constitutional amendments, but in my opinion it has a great deal more to do with the accomplishment of actual results than anything that added legislation can do.

COMMISSION FOR THE TRIAL OF PERSONAL INJURY CASES

BY A. J. FALKNOR, ATTORNEY PUGET SOUND TRACTION, LIGHT
& POWER COMPANY, SEATTLE, WASH.

The principle of progress, change, improvement and betterment that underlies our law warrants a study of existing defects of trials relating to personal injury cases. It is easy to condemn the efficiency of the present jury trial. Indeed the Supreme Court of the State of Washington has, in a somewhat recent case, judicially recognized the failure in many instances of jury trials in personal injury cases, when it said: "The common law system of making awards for personal injuries has no such inherent merit as to make a change undesirable." One cannot, however, but view with gratification the progress that has been made in the past relative to trials, and whatever defects may be pointed out in the present system, one can easily recognize that law is a progressive science. When one compares ancient methods of trial with our present jury trial this progress is certainly marked. From the trial by wager of battle and wager of law in ancient time when woman was little more than a chattel we have come down through the development of the early jury trial in the hands of the English to the time when in the State of Washington women predominate on our juries and are the upholders of the "bulwark of our liberties."

Undoubtedly the present jury is the best and freest from improper influences and more nearly approximates justice in its verdicts than any jury in prior history. I believe that the average juror means to do right between the parties, and I further believe that our present jury trial with the present safeguards is about as capable, efficient and honest a jury trial as is to be hoped for under the present conditions of society. Law is a progressive science, however, and notwithstanding the good intentions, efficiency and safeguards, as said by the Supreme Court of the State of Washington, "No one knows better than judges of courts of *nisi prius* and of review that the common law method (trial by a jury) of making such awards, even in those instances to which it is applicable, proves in practice most unsatisfactory. All judges have been witnesses to extravagant awards made for most trivial injuries and trivial awards made for injuries ruinous in nature; and perhaps no verdicts of juries are interfered with so often by the court as verdicts making awards in such cases. . . . The test of reasonableness means but little to the ordinary juror."

A practice so unsatisfactory ought not to continue. A system that results in extravagant awards for most trivial injuries and trivial awards for injuries ruinous in their nature ought to be changed. The injured should receive what is justly due him, no more and no less, and if law is a progressive science it ought to progress to that point

where justice will be meted out to both parties, and if the present jury system, however sacred, however long standing, is insufficient to accomplish that end some system ought to be established that will work more substantial justice. It is but fair to say that the injured is jealous, and properly so, of the right of trial by jury. A right that has proved such a safeguard to individual rights ought to be changed or modified only after the greatest care and upon conclusive proof of the necessity for the change.

Within the past few years a law has been enacted in the State of Washington relating to master and servant wherein the servant's injuries are determined by three commissioners appointed by the governor, the majority of whom may make a decision. The plan appears to have worked out most satisfactorily. Undoubtedly more harmonious and even handed justice would be obtained in personal injury cases if all injury cases were tried by the commission, and it would probably be well and strengthening to the commission's opinion and to the public confidence therein that there should be associated with the judge trying the case two laymen, one of them a physician, the judge, of course, to declare the law, and in cases where a recovery is allowed a majority to announce a decision. Legislation expediting such trials and lessening appeals would also assist. The play of prejudice, sympathy, and any other improper influences which result in trivial awards for serious injury or extravagant awards for trivial injuries would be thereby lessened, or at least greatly minimized, and it is legislation if any with this ultimate point in view that is required out of sheer justice to all litigants in personal injury cases. Although the present jury system may be the best means yet devised of adjudicating personal injury cases, it does not entirely meet the requirements, and it is wholly unlikely that any further legislation concerning the selection or impaneling of jurors will accomplish the desired end, and justice to all litigants can only come through an experienced, honest, fearless commission such as or similar to the one outlined above.

THE WORKMEN'S COMPENSATION ACT OF THE STATE OF WASHINGTON.

BY J. T. RUPLI, ASSISTANT CLAIM AGENT PUGET SOUND TRACTION, LIGHT & POWER COMPANY, SEATTLE, WASH.

In 1911 the state of Washington passed a "Workmen's Compensation Act," which went into effect Oct. 1, 1911. This act has since been held constitutional by the Supreme Court in a decision in 1911, which said, "that the act violates no provision of either the State or Federal Constitution." In its more popular sense and practical application, the law is simply a compulsory insurance with the State by employers of employees engaged in certain kinds of hazardous work. Although this point of hazardous work is a basic one in the act, yet in specifying various kinds of workmen protected by the act, the law is very liberal in including a great many classes of workmen who in the ordinary acceptance of the word "hazardous" would be passed over, such as men engaged in jewelry making, in creamery work, printing, etc. This act provides certain, prompt and reasonable aid to the injured workman and his family or dependents, and abolishes the troublesome and annoying personal injury suits. The employer is no longer harassed by vexatious litigation arising in barrety and in its place we have the fair, certain and mutual adjustment by the state of the claims of all workmen engaged in hazardous work and injured in the course of their employment.

In addition to the forty-eight classes of industries engaged in hazardous work as defined by the act, which includes street and interurban railways, there is a class known as the elective non-hazardous industries, wherein any employer and his employees, engaged in work not deemed

hazardous, may by their joint election, filed with the commission, accept the provisions and benefits of the law. These various industries contribute to an accident fund used in the payment of claims according to the fixed schedule of distribution, a certain per cent of their pay roll, this per cent fluctuating from 10 per cent charged in powder manufacturing to 1½ per cent charged in creameries, printing, jewelry making, etc., and 1.35 per cent charged in the elective non-hazardous class.

The fund created by assessments is used entirely in payment of awards, the law requiring the state to pay the entire cost of administration. This, to my mind, is one of the strongest and most substantial features of the law. It is obvious that this farsighted and wholesome provision not only relieves the personnel of the commission from any possible criticism or suspicion in the awards and distribution of the accident fund, but is a tribute to the munificence of the state and an evidence of its good will and kindly offices in the furtherance of the welfare of both employer and employee.

The next question for consideration is when and under what circumstances a workman coming under the law is entitled to compensation. This is readily answered by the statement that any workman when injured in the course of employment, either at or away from the plant of the employer, whatever the cause of the injury may be, as long as it is not wilful, is entitled to compensation.

The amount of compensation, however, varies logically with the nature, character and extent of the injury. In the event of death a burial expense of \$75 is allowed and a sum of not to exceed \$4,000, based upon the expectancy of life, as set out in the American Mortality Table, is set aside for the widow and children under sixteen years of age and is paid in monthly allowances of not to exceed \$35. In case of temporary total disability, the awards are increased 50 per cent for the first six months of disability but in no case exceed 60 per cent of the monthly wage of the claimant. In case of permanent partial disability, a lump sum of not to exceed \$1,500 is paid, the specific amount to be determined by the commission from the maximum sum of \$1,500 for the loss of the major arm at or above the elbow, down to \$25 for the loss of the little toe.

Probably no one feature of the law has caused so much criticism as the question of the sufficiency of these awards. It is urged, and with some show of reason, that \$35 a month is not sufficient to provide adequately for a man and his family, especially if his family is large. But it was never intended by the framers of the law or its supporters, however, that the amount of awards should be equal to the earning capacity of the workman or fully support him and his family during his disability. The workman in all fairness to his employer and to himself cannot expect the employer to carry the entire burden of the cost of the accident, and although undoubtedly the employer should bear a greater portion thereof, it is only fair for the employee to contribute his mite thereto, especially when it is taken into consideration that from past experiences the majority of accidents are due primarily to the carelessness of the workmen. It might be of interest to state that the Industrial Commission in its first annual report recommended that no general increase of awards be made until the present act had been more thoroughly tested and statistics were available covering broader experience. The commission did recommend an increase in the maximum allowance to the widow and children of workmen killed, from \$35 to \$45, and also an increase to workmen totally permanently incapacitated from gainful labor.

Another feature of the law that has provoked considerable adverse criticism, especially from employees, is that it fails to provide first aid. The employer argues that at least a portion of the first aid expense should be borne by the employee in the shape of a very small assessment deducted from his monthly wage, whereas the employee is

opposed to joint contribution to such a fund, for the reason that the employer owns and operates the dangerous agencies for his own profit. Under the present law the employee has to provide his own first aid, but here again a number of employers, in their fairmindedness and generosity, not only provide first aid for the faithful workmen injured in the course of their employment, but give them continued medical aid and hospital attention, if necessary, without charge to them. And aside from this, there are formed at this time a great many of employees' hospital associations, conducted by the employers for the benefit of the employees, where medical and hospital attention is provided for a nominal sum.

A striking and wholesome feature of the law provides that in case any workman is injured because of the absence of any safeguard required by the statute or ordinance, or if a miner improperly employed is injured, the employer is required to pay into the accident fund a penalty in addition to the regular assessment. On the other hand, should the workman remove a safeguard and become injured, his award is reduced 10 per cent. This section is intended solely as an accident preventive measure and assists materially the Industrial Commission in promoting an active safety campaign on lines similar to those conducted by a number of concerns throughout the country.

Of special interest is the section of the law providing "that if the injury to the workman occurring away from the plant of his employer is due to the negligence or wrong of another not in the same employ, the injured workman, or if death result from the injury, his widow, children or dependents, as the case may be, shall elect whether to take under this act or seek a remedy against such other." Several nice questions present themselves in connection with this proposition.

For example, what constitutes an election? It seems to me a claimant should not be allowed to speculate with his claim—blow "hot and cold," so to speak. If he advisedly and in good faith files and prosecutes his claim, and the commission make an award, and he then declines to take the award, institutes suit against the agency causing the accident and loses because of contributory negligence, is he still entitled to the award of the commission? It would seem that the act was never intended to give a claimant a dual remedy with which to speculate. He has the choice in the first instance and when he has made his selection he should be bound by it.

Again, what constitutes the plant of the employer? Let us take a street car company; is it the office building, the carhouse, the work shop, the power station? Is not the street car on the street as much the plant or at least part of the plant of the employer as the above mentioned places? And does not the same argument hold good as to the teamster with his team and wagon in the street, as to the laborer who works for the contractor who is grading the street? Supposing a contractor has the contract to pave a street and it is the only work he is doing. His plant would certainly not be in the shed where the tools are kept or in his office. As a matter of fact he may not even have an office. It would seem to me a reasonable construction in such cases would be that the plant is where the work is being done.

If this, then, is the proper interpretation and the workman is injured through the agency of a third person, is he not obliged to take under the act? The law is very clear that he has the right to elect only when injured away from the plant, through the agency of a third person. Some argue that it was never intended to destroy the right of action against a third person responsible for the injury. This may have been the intent of the legislature, but it does not seem to be so expressed in the law, and only the judicial construction that we are awaiting will definitely clear up this point.

The method of procedure for the collection of compensation by workmen is really very simple. Suitable blanks for

the employer, employee, physician and witnesses are provided by the commission. After due but prompt investigation the claim is either allowed or rejected. As I understand the law, it is the duty of the physician attending the injured workman to inform him of his rights under the act and to lend every assistance in making his application for compensation, but we have let it be known among our employees that the claim department is willing at all times to fill out their blanks and advise them as to their rights, and do anything in its power to facilitate the bringing of the claims to a speedy adjustment.

Every accident to our employees, however trivial, if covered by the act, is promptly reported to the commission, and a complete record is kept of all steps in the progress of the claim. Although here and there there has been a disgruntled employee, on a whole there has been but little criticism.

COURT PROCEDURE IN THE TRIAL OF PERSONAL INJURY CASES

BY HARRISON ALLEN, ATTORNEY PORTLAND RAILWAY, LIGHT & POWER COMPANY, PORTLAND, ORE.

The actual trial of a personal injury action often consists in the mere placing on the table of the cards that the damage lawyer has stacked in advance, and it may properly be said that we have at present sufficient forms and rules of procedure for use in this. The trouble that serves as a basis for a plea of modification lies rather in the administration of the law before and during the trial. The thing most highly desired is a reform in the actions of the bench or bar in the average personal injury case.

The discussion of the subject divides itself under four heads: first, the abolition of the contingent fees; second, compulsory examination of the claimant by a board of physicians controlled by neither party; third, the abolition of the confidential relation between the physician and the patient who brings the action, and fourth, orderly procedure during the trial.

The contingent fee is a subject arising prior to the bringing of the action and has perhaps the most important bearing on the subsequent trial of the case. It is well known that most of the personal injury cases tried to-day are taken by members of the bar under a contract that the attorney is to receive a percentage of the amount recovered, if successful, and nothing if no recovery is had. Whether expressed in the contract or not, it is generally understood between the parties that the attorney shall advance the costs. Under the common law it was an offense to make such an agreement between attorney and client, and it was also unlawful for any other person to encourage another by rendering assistance in a suit. Such offenses were known as maintenance, champerty and common barratry.

It is an undisputed fact that at the present time many lawyers who make a practice of bringing personal injury actions continually violate these three precepts of the common law. They even have in their offices, or at some convenient place adjacent thereto, what are commonly known as "ambulance chasers." These men watch the newspapers, haunt the hospitals and public institutions and endeavor in various other ways to come in contact with injured persons at the very time when they are receiving first aid. Within many of our large hospitals are nurses who act as agents for personal injury lawyers in soliciting cases from the injured for a portion of the amount recovered. In extenuation of such practices these lawyers set forth the ridiculous claim that "first aid" means the contract to bring an action on a contingent fee before medical aid is rendered or any knowledge of the evidence is had.

Numerous examples of the fraudulent and illegal practices hidden under the use of a contingent fee may readily be found. The common law offenses of champerty, main-

tenance and barrety should be revived by statute in every state, for the contingent fee is an incentive to the bringing of causes which have no merit, the training of witnesses in falsehood to the dishonor of the profession, the enrichment of the ambulance chaser, and the prostitution of justice.

The second subject to be discussed is compulsory examination of the claimant by a board of physicians. Often the trial of a personal injury case is largely influenced by the failure of the jury to understand the nature of the injury. This results nearly always in an excessive verdict for the reason that the more obscure and rare the attending physician can make the case, the more it appeals to the mind of the average juror and the larger the verdict. On account of the leniency of the rules of pleading the description of the injuries contained in the complaint seldom advises what the plaintiff proposes to rely upon to prove his case. Lawyers who are employed to defend these cases often demand an examination of the plaintiff by physicians appointed by the court or selected by the defendant. This application, however, may be granted or not, at the discretion of the trial judge, and on account of the late hour at which the order is made, if at all, the story of the plaintiff has been already well rehearsed under the coaching of his private physician and the examination is often quite unsatisfactory.

It is held in some states that the defendant is not entitled to have the plaintiff examined until medical testimony has been offered in the case as to the plaintiff's condition. Even then the selection by the court of the physicians to make the examination is a problem. They are sometimes selected by the court from among the personal acquaintances of the trial judge, and may or may not be of recognized standing or skilled in the particular branch necessary to effect the capture of the malingerer. Relief from such a condition can be readily afforded by the enactment of a statute compelling every claimant to submit to a physical examination by a board of physicians who have not been selected by either of the parties. These physicians should be selected from a list of those in good standing recommended to the court by the local medical society, and the names of these physicians might be enrolled with the clerk of the court, to be selected in the same way as jurors. Or it might be left to the court to select from the list in his custody a committee of examiners who are specialists in the departments of medical science and surgery dealt with in the case. The plaintiff and defendant at the time of the trial should each have the privilege of calling to his assistance a physician to conduct the examination of the medical witnesses. This is suggested from the fact that the average attorney cannot acquire a satisfactory and enlightening technical knowledge on a subject of such complex nature as the case may disclose.

Laws have been enacted in some jurisdictions requiring as a condition precedent to any right of action that the claimant should file with the adverse party a claim giving the date, circumstances and character of the injuries received. These laws, however, generally apply only to municipal corporations. Similar statutes should be enacted having reference to all cases. Upon receiving the statement aforesaid the person liable to be sued could, at his discretion, make an application to the court for a physical examination by the board of physicians under the plan hereinabove suggested, and the defendant would thereby be protected from the blind or the fake case.

Another point of marked importance in any movement to modify the trial of personal injury claims is the abolition of the confidential relation between the physician and the patient. There is a contrariety of opinion among the courts as to the privileged communication in the trial of an action for damages, but it is generally provided by statute that the privileged communication is waived when the plaintiff takes the witness stand to testify as to his physical condition. The bringing of an action should in itself be sufficient waiver

of the privileged communication concerning the physical injury, and should be deemed a consent to the examination of the attending physician. This should be done for the purpose of enlightening the jury as to the exact injuries received and what the patient disclosed to his doctor as to the circumstances of the injury.

Important as the three points outlined above have been, however, the question of orderly procedure in court during the trial is of no less weight. The most unsatisfactory part of the practice of law and the trial of the personal injury action is the administration of the law in the trial of the case. The fault in my opinion lies largely with the judges. In the conduct of the trial, particularly where a corporation is the defendant, it is the fashion nowadays for the courts to make themselves partisan but to shirk responsibility. The law of every state provides, and rightfully, that when a case is presented that is not sufficient to be sent to the jury, the court, upon the defendant's motion, may so decide. Under conditions existing at present it has become almost impossible to induce a trial judge to do his duty in this regard. In fact, so seldom will a judge grant a nonsuit or direct a verdict that when such is done it not only is the occasion usually of public comment but is considered a justification for resolutions of condemnation by various organizations and the recall of the judge. Candidates for judicial offices now line up on the stump along with the candidate for constable and publicly announce that, if elected, they will never grant nonsuits or direct a verdict; this pledge they keep.

The members of the bar are largely to blame for existing conditions in the trial of personal injury cases; those who represent claimants in personal injury cases, for their spirit of unfairness; those who represent the public service and other corporations, on account of their cowardice. If laws were enacted through their united effort that would make the ambulance chaser a criminal, and would send the lawyer who suborns perjury to the penitentiary, and would deal summarily with the judge who forgot the square deal, then the position of claim agent would be a desirable one, and the legal department of every public service corporation would be as pleasurable as any other branch of the service.

CONTROLLING DIMENSIONS OF TROLLEY WHEELS

At the meeting of the standardization committee of the Central Electric Railway Association, which was held on May 31, 1913, and previously referred to in the *ELECTRIC*

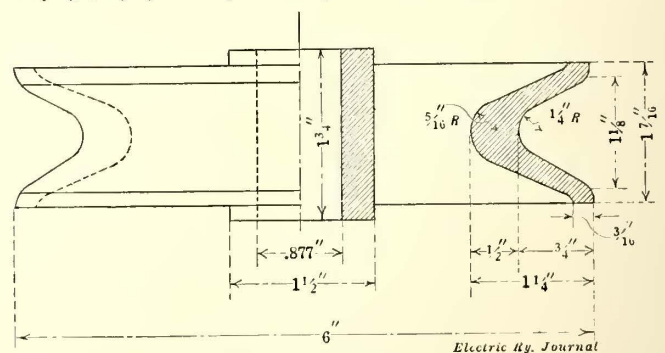


Diagram Showing Controlling Dimensions of Trolley Wheels

RAILWAY JOURNAL of July 5, 1913, one of the subjects discussed was the controlling dimensions of trolley wheels. It was voted at that time to recommend to the association that the dimensions shown on a diagram submitted by the committee be adopted as recommended practice. This diagram is reproduced herewith.

The Ohio Electric Railway, Cincinnati, Ohio, has contributed \$10,000 to the \$2,000,000 flood protection fund which is being raised through private subscription at Dayton, Ohio.

Feeder Tests on the San Diego Electric Railway

By Readings of the Current Passing Through the Automatic Sectionalizing Switches the Company Has Been Able to Determine the Adequacy of Its Different Feeders—The Apparatus and Methods Used Are Described

BY H. MACNUTT, SUPERINTENDENT OF MOTIVE POWER SAN DIEGO ELECTRIC RAILWAY

The overhead lines on the San Diego Electric Railway are sectionalized, and each section has a separate feeder from the power house, but the sections are connected at different points by automatic sectionalizing switches. The exchange of current through these switches is sometimes



Fig. 1—San Diego Tests—Flow Between Feeder 3 and Feeder 4

in one direction and sometimes in the other, the direction depending upon the location of the load. Traffic on the system is growing rapidly, and it became clearly apparent recently that some simple method of determining the increase in the loads carried by the different feeders would be very desirable as it would show which feeders should be reinforced. The plan decided upon was to conduct a series of tests to show the interchange of current through the sectionalizing switches, the voltage and the total current supplied from each feeder panel in the power house.

The tests were made with graphic recording meters and covered a period at each sectionalizing switch of twenty-four hours. With a meter in the power house indicating the total current being supplied over any feeder, the meter at the sectionalizing switch indicates the amount of current supplied to that section by another feeder or the amount which that section is furnishing to some other section and thus the distribution of the load.

The accompanying charts are typical of those obtained during the test.

Fig. 1 is a short portion of the chart obtained of the current flowing through the sectionalizing switch between Feeder 3 and Feeder 4, at the corner of University Avenue and University Boulevard. It shows an almost even

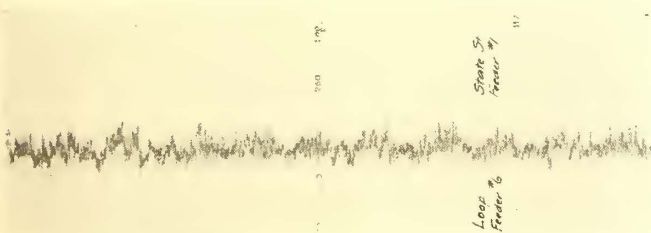


Fig. 2—San Diego Tests—Flow Between Feeder 6 and Feeder 1

exchange of current, with an average slightly in favor of Feeder 3. Fig. 2 is a short portion of another chart. This chart shows the exchange of current between Feeder 6 and Feeder 1 and indicates that the flow of current is almost continuously from No. 1 to No. 6. Fig. 3 is another chart and shows the exchange of current between Feeder 6 and Feeder 5. It indicates a large and continuous flow of cur-

rent from Feeder 6 to Feeder 5, proving that the additional copper should be supplied to Feeder 5 and not necessarily to Feeder 6, as might be inferred from Fig. 2.

Three voltmeter charts are also shown. Fig. 4 was taken at the power station while the records already described were being taken on the line and indicates a very even maintenance of potential. Fig. 5 is a record taken while the tests were being made 1 mile from the station and at the section switch between Feeders 6 and 8. The voltmeter reading shown in Fig. 6 was taken at the end

TABLE I—TOTAL CURRENT IN FEEDERS AT POWER HOUSE

Feeder Number	Maximum	Average	Minimum	Section
1	400	200	100	State Street
2	530	240	130	First and Third Streets
3	650	380	230	Fifth Street
4	350	200	150	University and Adams Avenue
5	725	350	220	Brooklyn and City Heights
6	1250	900	420	Downtown Loop
7	500	300	160	M Street
8	550	330	130	Logan Heights

of the main line between Feeders 3 and 4 and 5 miles from the station. A chart showing the lay-out of the distribution system in the city is also published. The accompanying Tables I, II and III give in a general way the results obtained.

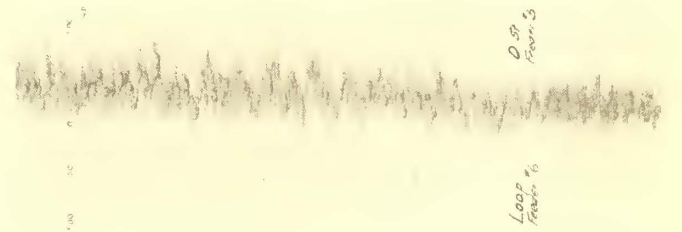


Fig. 3—San Diego Tests—Flow Between Feeder 6 and Feeder 5

The switches are numbered according to the feeders which they connect, and the order of the numbers indicates the general flow of current.

TABLE II—CURRENT THROUGH SECTIONALIZING SWITCHES

Switch Number	General Direction	Average Current	Maximum Plus	Maximum Minus	Location
16	1 to 6	+100	+310	-110	State and D Streets
62	6 to 2	+125	+340	-75	Third and D Streets
63	6 to 3	+175	+480	-75	Fifth, bet. A and B Streets
65	6 to 5	+175	+480	-80	Seventh and D Streets
68	6 to 8	+175	+550	-160	Fifth and H Streets
87	8 to 7	+25	+400	-200	Sixteenth and M Streets
45	4 to 5	+20	+200	-130	Thirtieth and Univ. Avenue
43	4 to 3	+20	+225	-225	Univ. Ave. and Univ. Blvd.
23	2 to 3	+125	+325	-175	Fifth and Univ. Avenue
34	3 to 4	+20	+130	-130	Adams Ave. and Park Blvd.

The average voltage at the power house is 600, and special attention is directed to the voltmeter chart taken at

TABLE III—VOLTAGE AT SECTIONALIZING SWITCHES

Switch Number	Maximum	Average	Minimum
16	600	585	570
62	600	580	550
63	600	575	550
65	600	575	550
68	600	570	520
87	590	550	480
45	600	550	450
43	600	540	450
23	600	550	450
34	580	500	400

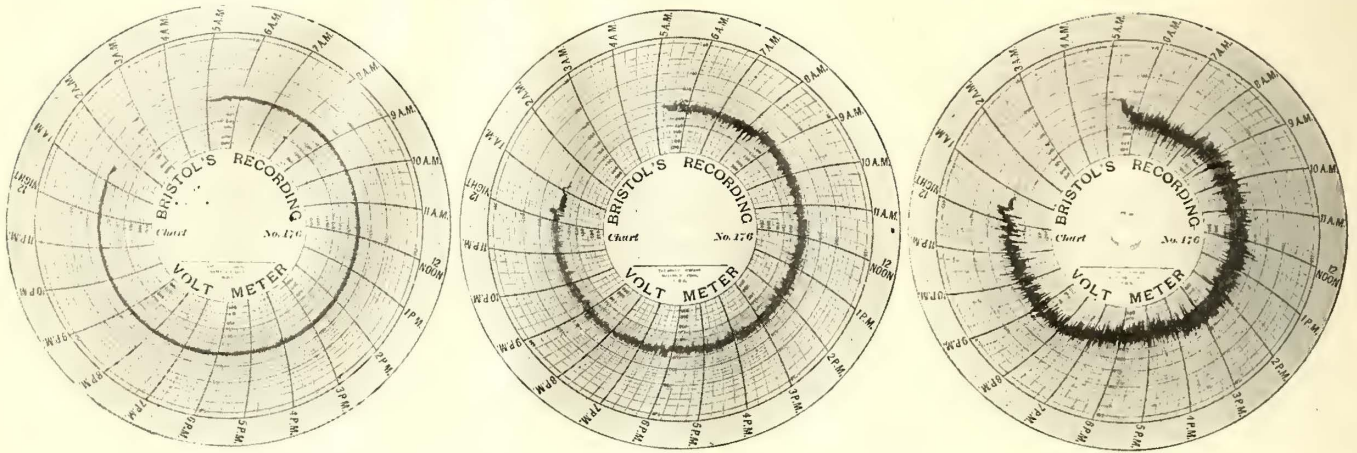
the power house (Fig. 4) and to the small voltage variation shown on it.

With this set of tests, including voltage charts at differ-

ent points in the city, the calculations for new copper to relieve the weak points may be made. As the feeders practically work in multiple because of the sectionalizing switches, the problem is one of proportioning the resistances over the two or three different circuits from the power house to the point to be relieved. The information obtained was so useful that we expect to make similar tests

SECTIONALIZING SWITCHES

The sectionalizing switches used are automatic, single-pole and solenoid-operated and were made by the General Electric Company. All parts, including contactor, relay, resistance, control switch and fuses, are mounted complete in a wooden box, ready for installation on a pole. Fig. 8 shows the connections. The switch is connected across the



Figs. 4, 5 and 6—San Diego Tests—Voltmeter Readings at Section Switches

at least once a year, and from their results to rearrange our copper if conditions change or to install additional copper where necessary.

INSTRUMENTS

For recording the current which passed through the sectionalizing switches a General Electric type C-5 curve-drawing ammeter was used. The instrument has the zero mark at the center of the scale and registers 500 amp on each side of zero. The paper, operated by clockwork, travels at the rate of 3 in. per hour. The ammeter is de-

section insulator by taps *G* and *H*. Circuit breaker *B*, when closed, energizes section *B*, and the current passes through tap *G*, switch blade *Y* and contactor operating coil *X* to the contact stud on the relay, which is then open-circuited.

When circuit breaker *C* is closed section *C* is energized and current passes through tap *H*, switch blade *Z* and relay operating coil *W* to ground, closing the relay disk *V*. This in turn completes the circuit through the contactor operating coil *X*, causing the contactor to close. This completes the circuit across the insulator, thus placing the two feeders from the power house to the switch in multiple. It will be seen that these switches are controlled from the power house and that both sides of the switches must be energized in order to close them. To open only one side

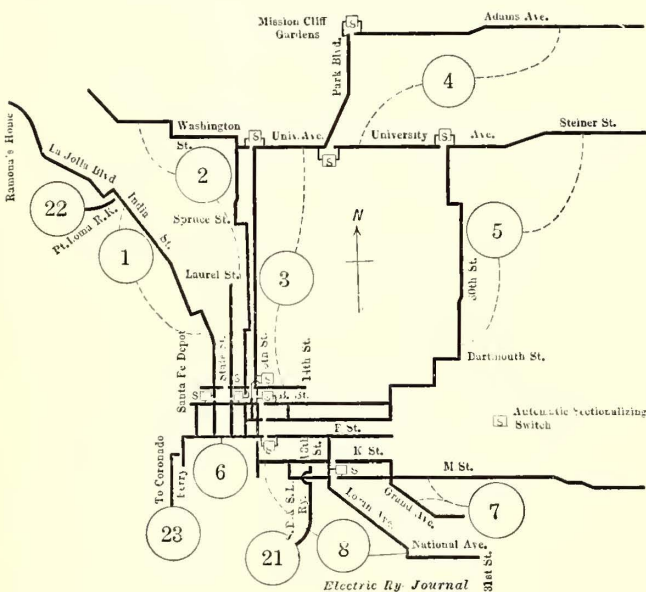


Fig. 7—San Diego Tests—Feeder Diagram Showing Location of Sectionalizing Switches

signed for use with a shunt. For convenience in handling and to prevent possible injury to the public, the instrument and all accessories were mounted on a stand and inclosed in such a way that no bare parts would be visible. For obtaining the voltage a Bristol recording voltmeter was used. In the power house a Westinghouse graphic recording wattmeter was used on the feeders to obtain the total current of each feeder.

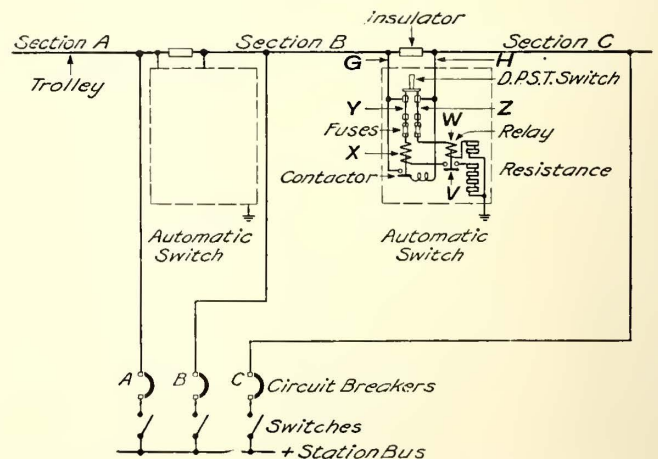


Fig. 8—San Diego Tests—Diagram Showing Connections of Automatic Sectionalizing Switches

will not open them and to close only one side will not close them.

NUMBER OF CARS ON THE SYSTEM

Table IV shows the number of cars on each route, the length of the round trip in miles, running time for round trip, headway and the average speed. This table represents the conditions during the early part of this year. The system is growing rapidly and calling for more cars,

and this is the reason that a method of calculating the service furnished by each feeder was considered especially desirable.

TABLE IV—STATISTICS OF OPERATION

Route Number	Number of Cars on Each Route	Running Time in Minutes for Round Trip	Length in Miles for Round Trip	Headway in Minutes	Ave Speed M.P.H.
1	15	90	13.56	6	9.04
2	8	80	12.58	10	9.44
3	4	80	10.13	20	7.61
4	6	60	8.44	10	8.44
5	5	100	12.41	20	7.45
6	4	40	5.14	10	7.72
7	1	20	1.98	20	5.94
8	3	45	8.30	15	11.05
9	1	20	2.21	20	6.63
10	1	20	2.21	20	6.63
Adams Avenue	3	36	....	12	....
City Heights	1	15	....	15	....
No. 1 swing	6	..	....	6	....
No. 2 swing	5	..	....	10	....

No. 1 swing cars run from Fifth and D Streets to University Avenue and University Boulevard.
 No. 2 swing cars run from Fifth and D Streets to Thirtieth Street and University Avenue.

POWER HOUSE LOAD

At the time that these tests were made, the maximum energy output during one hour was 2300 kw-hr., the average power output per hour was 1350 kw and the maximum momentary demand was 3000 kw. The average integrated energy output for a day's run of twenty hours was 27,000 kw-hr.

INTERURBAN CAR AXLES

The elimination of the failure of axles in interurban car service constitutes one of the most important problems of the time. While it is true that very few serious accidents occur through such failures, defective axles are always a source of danger. The number of axle failures in electric railway service is very large compared with that on steam railroads. This is due to the entirely different nature of the stresses to which the axles are subjected.

Not only does a defective axle endanger life and property with attendant financial loss, but service is apt to be interrupted owing to the difficulty of removing a disabled interurban car from the track. Very few electric railways are equipped with wrecking apparatus which will permit the removal of a car with a broken axle from the track, so that it must be at least partially repaired in place. That defective axles are common is illustrated by the experience of the Beebe lines in central New York, which have scrapped 124 axles in the last three years. Only three of these were actually broken, but cracks developed to such an extent as to make their further use dangerous. This is quite in contrast to the experience of the Pennsylvania Railroad and other steam roads. A few years ago a study of axle records was made at Altoona, and it was found that out of a total of 691,000 car and engine truck axles purchased by the Pennsylvania Railroad during the preceding five years only thirty-five had failed. Twenty-three of these failures were from heating troubles, while twelve were from axle defects. Attention has been recently directed to this matter by an accident on the Rochester & Eastern Rapid Railway. In this case a car was derailed at low speed and the passengers were considerably shaken up by the sudden stop.

The failures in interurban car axles generally occur on the gear end between the gear set and the wheel seat. They cannot be accounted for by the torque of the axle gear, as this is small compared with the torsional strength of the axle. The effect may be due to the vibrations set up by the gears, this being the principal additional cause of stress imposed on electric as compared with steam car axles. Whatever the cause, the effect is present in the form of minute circumferential cracks which gradually extend into the metal.

R. A. Dyer, Jr., third vice-president Syracuse, Lake Shore & Northern Railway Company, has during the past four

years made a systematic study of interurban car axles. In 1909 a lot of sixty axles of unknown specifications were purchased from a company which forged them from purchased steel. These axles have averaged 300,000 miles of severe service before being scrapped, and a number of them are still in use. They were so satisfactory that in ordering the next lot from another company the endeavor was made to secure as nearly as possible the same quality of steel. The standard specifications of the Pennsylvania Railroad for open-hearth hammered-steel axles were called for. The results were quite disappointing, as out of a lot of seventy-five only three made 300,000 miles while twenty-seven have been discarded on account of cracks found on inspection after being in service. This experience indicated that conditions in electric operation are quite different from those of the steam railroad.

In 1911 sixty carbon steel heat-treated axles, of excellent mechanical properties, were put into service. The results in this case were also disappointing. One of these axles broke in a very peculiar manner, the fracture showing that the final break occurred over an area not larger than a silver dollar, the remainder of the surfaces of the break being quite smooth. Test samples from this axle at the point of fracture showed an ultimate strength of 104,000 lb. per sq. in., 53,000 lb. elastic limit, 21 per cent elongation and 45 per cent reduction in area. On account of the danger of using these axles all of them were taken out of service and they were replaced with others having the following physical properties: ultimate strength, 75,000 lb. to 97,000 lb. per sq. in.; elastic limit, 45,000 lb. to 57,000 lb.; elongation, 23 per cent to 30 per cent; reduction, 47.5 per cent to 67.3 per cent. Although these axles showed considerable variation in physical properties, they are doing well, having made 100,000 miles with but one failure.

Experiments are now being made with special alloy steels. In the fall of 1912 sixty chrome-vanadium steel axles were put into service. These are divided into several lots having different physical properties ranging within the following limits: minimum tensile strength, 85,000 lb. to 97,000 lb. per sq. in.; corresponding elongation, 22.5 per cent; reduction, 54 per cent to 64 per cent; maximum tensile strength, 106,500 lb. to 120,100 lb. per sq. in. These axles have not been in service long enough to show failures, but they are being carefully watched. The 1913 experiment will consist of a study of eight chrome-nickel axles of quite different physical properties. One lot of four will have tensile strength of 105,000 lb. and an elastic limit of 80,000 lb., with 20 per cent and 50 per cent elongation and reduction respectively. The other lot will have a tensile strength of 90,000 lb. and an elastic limit of 55,000 lb. to 65,000 lb., with 24 per cent elongation and 60 per cent reduction.

The above axles are 6 in. in diameter and are in use on high-speed interurban cars weighing about 43 tons without passenger load. Last year a number of these cars made more than 100,000 miles each, the record being 112,700 miles. The record for one month was 11,235 miles. The axles are inspected for cracks every time they are in the shop to have wheels turned, averaging about 50,000 miles, after which length of run the wheels are removed and a thin cut is taken from the axle over the surface in which a fault is liable to develop. This cut is not more than 1/64 in. in depth. A crack is evidenced by a break in the chip and is also quite conspicuous on the fresh surface of the steel. Inspection by cleaning the surface has not been found to give satisfactory results. The cutting away of the metal at the part of the axle where it is most needed is objectionable, and Mr. Dyer proposes as an alternative a plan in which a number of very small axial V-grooves will be made of several points on the surface. The breaking of the chip will show a flaw. There may seem to be an objection to removing wheels for the purpose of inspection of the axle on the ground that they will become loose in

service. Mr. Dyer made experiments to determine whether or not this is the case. He found that there is a slight reduction in the force necessary to put a wheel back after it has been removed, but that this is not serious. For example, if a wheel requires 85 tons force to put it on the first time, 80 tons will be required the second time, 75 tons the third time, and after this the force is practically constant. This depends largely, however, on how smoothly and truly the wheel was bored.

Realizing the seriousness of the axle situation, Mr. Dyer is experimenting with a device for reducing the danger resulting from an axle break. In several cars sleeves of chrome-nickel steel 1½ in. thick and weighing about 150 lb. each have been placed on the axles and the wheels and gears mounted upon the sleeves. The sleeve is counter-bored 1/16-in. except under the wheel fit. The steel used has the following physical characteristics: Tensile strength, 129,000 lb. per sq. in.; elastic limit, 115,500 lb. per sq. in.; elongation, 21 per cent; contraction, 65.2 per cent. This is a very expensive steel, and it is quite possible that a cheaper grade would be satisfactory for the purpose. The object of the sleeve is, of course, to support the broken ends of an axle, and it is counter-bored so that a break will probably occur inside the sleeve rather than at the end. To determine the effectiveness of the device a scrapped axle was sawed through at the usual point of fracture and was equipped with the sleeve and placed in a car. The car containing it was subjected to rough handling on a test track. While the two wheels on the broken axle operated independently, there was little tendency for the axle to pull apart and the sleeve evidently performed its function in a satisfactory manner.

Whenever wheels are removed or applied a careful inspection of axles is to be made. After wheels are removed the axle is to be thoroughly cleaned and gear and wheel seats coated with kerosene. The axle is then to be carefully inspected for cracks or defects. A strong magnifying glass is to be used in making these inspections. In case there is any doubt after this inspection a hammer test is to be made. When a sprung axle is straightened, hammer test is to be made. If checks, cracks or other defects are discovered in a number of axles of a given lot, the entire lot is to be removed and scrapped.

FEATURES OF SAFETY CAMPAIGN IN MEMPHIS, TENN.

In addition to employing the usual forms of publicity and safety committees in its safety campaign, the Memphis Street Railway Company has gone a step further in requiring its men to report occurrences that might have led to accidents. Whenever anyone is apparently careless of his welfare or the protection of the property of his employer, the trainmen are required to fill in a special report form known as a "near-accident" report. Following the receipt of this report, C. B. Proctor, claim agent of the company and chairman of the safety committee, writes a letter to the firm or person employing the careless individual, advising the employer of the details of the "near-accident" and saying further: "This company is using every effort possible to prevent accidents of all descriptions, particularly between its cars and vehicles. A committee of about 100 men has been appointed whose duty is to report to the management everything coming under their observation of an unsafe or dangerous character. A report was handed to me by a member of this committee, and I write this asking your hearty co-operation, as I know you are as anxious to prevent accidents to your property as we are." This letter is signed by the chairman of the safety committee.

Replies to these letters are always forthcoming and indicate that the employers or parents of the careless person mentioned in the letter approve of the plan and appreciate the letter.

Another formality which tends to increase the efficiency of the various members of the safety committee is that all reports to the chairman are acknowledged by a form letter. Heretofore the reports from the trainmen and members of the safety committee were not acknowledged, and it was believed that they became reticent or indifferent because they did not know what was done in regard to their report after it had been received by the chairman of the safety committee. The form letter has eliminated this taciturn spirit or lack of interest on the part of the men, and all are now enthusiastic on the subject.

Accidents, like any other part of a street railway company's operation, may be classified, and special stress can be laid on those that occur most frequently. In order to study all accidents and their causes, C. B. Proctor, claim agent of the Memphis Street Railway Company, has had a comparative accident form report prepared which divides all accidents into twenty-two classifications and charges them against the different lines on which they occur. Going a step further, this form gives a record of the classified accidents for the previous year, and finally it arrives at a basis of comparison between lines and between car-houses on accidents reported per car mile.

Each class of accident has assigned to it a code number, and these code numbers are used in recording the accidents on the monthly report. The code numbers follow:

- 1—Falling, boarding or leaving open cars.
- 2—Falling, boarding or leaving closed cars.
- 3—Passengers injured due to gates or doors.
- 4—Passengers injured due to electric appliances.
- 5—Passengers injured due to derailments.
- 6—Miscellaneous accidents to passengers.
- 7—Fights and ejections.
- 8—Persons on foot, on bicycles, or riding animals, struck by cars.
- 9—Live stock struck by cars.
- 10, 11, 12—Vehicle collisions.
- 13, 14, 15—Street car collisions.
- 16—Collisions at steam road crossings.
- 17—Miscellaneous accidents to the public.
- 18—Employees injured on cars or at car houses.
- 19, 20, 21, 22—Other employees injured.

The form of report itself measures 19 in. x 19 in. and is cross-ruled. The names of the routes are printed in the left-hand vertical column and the code numbers for the class of accident in the upper horizontal columns as headings. This arrangement provides spaces for entering the number of each class of accident during the month and for the year to date. There are also columns for the car miles run and car miles per accident reported.

ANNUAL MEETING OF VIRGINIA ASSOCIATION

The annual meeting of the Public Service Association of Virginia, which is composed of a large number of street railway, electric, gas and water companies, was held at the Hotel Chamberlin, Old Point, Va., on July 18. The object of the meeting was to exchange views on matters pertaining to the operation of public utilities and service to the public in general. Among the subjects of general interest discussed were transportation, pay-as-you-enter cars, and problems of electric central stations as well as those confronting gas companies.

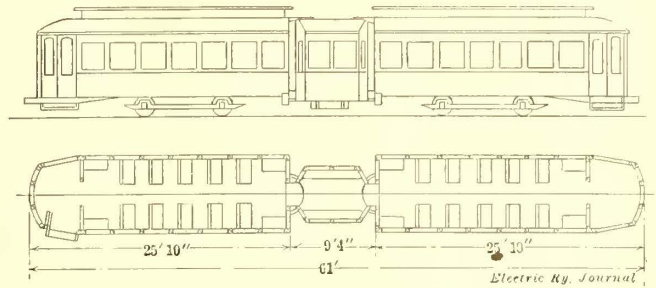
The following officers were elected: President, J. W. Hancock, manager Roanoke Railway & Electric Company; first vice-president, J. F. Rison, president Danville Traction & Power Company; second vice-president, B. B. Ferguson, general manager Portsmouth Gas Company; third vice-president, J. N. Shannahan, manager Newport News & Old Point Railway & Electric Company, Hampton; secretary-treasurer, W. J. Kehl, assistant treasurer Virginia Railway & Power Company, Richmond.

ARTICULATED CARS IN RICHMOND, VA.

The Virginia Railway & Power Company, Richmond, Va., is now building ten articulated cars at its shops on Robinson and Cary Streets in Richmond. These cars were originally 21-ft. Brill convertible cars but have been changed to the semi-convertible type and the long side steps have been removed. They are now equipped with folding doors and arranged for prepayment service with fare box stands on the rear platform. The seating arrangement consists of ten cross-seats and four longitudinal end seats in each car, with the addition of two longitudinal seats in the center passenger-carrying compartment, thus giving a total seating capacity of sixty-four passengers.

The equipment consists of Brill 21-E trucks, four GE-67 motors and K-6 controllers. The cables pass under the center of the center compartment. The car is also equipped with CP-27 air compressor with two 6-in. brake cylinders. One is located underneath at the end of each car and connects with the present hand brake levers. The car fully equipped and ready for service weighs 45,000 lb. The cost of rebuilding these cars, exclusive of the air brake equipment, is approximately \$800.

plate laps over the steel plate and is fastened to it by a bolt passing through both plates and a coil spring. This spring presses against the steel plate and the washer and nut on the bolt, thus allowing for any vertical movement of the car due to uneven track and sudden changes in grade. This radius plate is made to a radius to correspond to the move-



Richmond Articulated Car—Plan and Elevation

ment of the center compartment and it extends under the curtains, hence it closes the openings between the end compartments and the center compartment. This radius plate



Richmond Articulated Car—General View Showing Arrangement of Car

One of the novel features of this car is that the floor is built on the same plane, and there is a continuous aisle the entire length of the car. Where the end compartments are



Richmond Articulated Car—Interior View Looking Toward Center Compartment

connected with the center compartment, there is a sheet-iron radius plate connected to the end compartment by a steel plate securely screwed to the end sills. The radius

is also provided with a shield which forms a groove for the end of the plate to work in, making it impossible for passengers to stumble or strike the edge of this plate in passing from one compartment to the other.

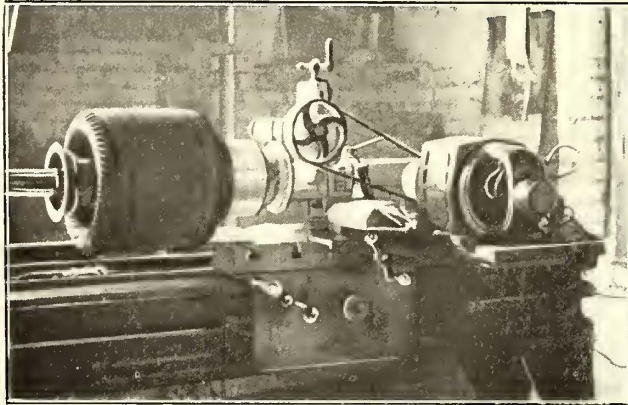
At the hood or roof of the car there is a steel plate hinged to the end compartments resting on a steel channel securely fastened to the roof of the center compartment. This prevents wear on the canvas roof and very effectively prevents rain from entering at this point. The car is provided with two trolley poles, one being hooked down in service as on double-truck cars.

There are no doors for entrance or exit in the center compartment except through the end compartments, the car being loaded and unloaded at the ends, the same as the present double-truck cars.

The Metropolitan Street Railway Company, Kansas City, Mo., has purchased two gasoline-driven portable stone crushers for crushing old brick and concrete on the streets instead of hauling it to a crushing plant. Heretofore the old material was either crushed by hand or hauled to a crusher and, when considered of no value in the new work, it was thrown away. The use of these two crushers saves transportation, and all material which can be used either in the crushed stone track foundations or in concrete is crushed for that purpose. When these crushers are not required in track repairs they are transported to the rock cuts on the company's suburban lines where they are used to crush stone for ballast.

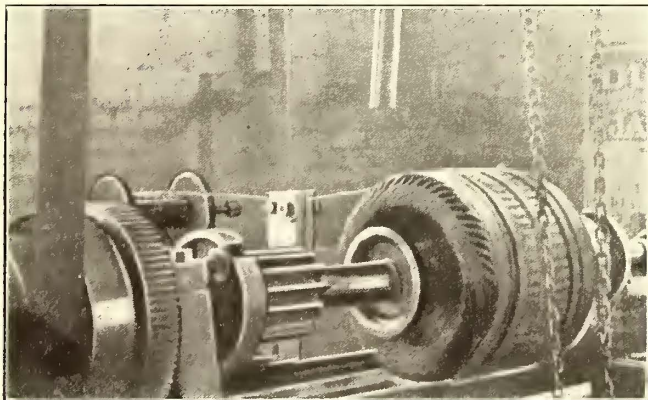
USEFUL APPLICATIONS OF AN ENGINE LATHE

On the Hudson River & Eastern Traction Company's lines the grades are severe and the motors have to be operated under arduous conditions. Hard brushes are used which keep the motors running but are hard on the commutators, and some time ago H. E. Kay, master mechanic, came to the decision that it would be desirable to slot the commutators to overcome the rapid wear.



Engine Lathe Equipped for Slotting Commutators

In consequence, a commutator slotter, as shown in the accompanying illustration, was made up in the shop from materials easily procured and at a practically negligible cost. With this Westinghouse No. 49 motors having 117 slots in the commutator can be slotted in forty minutes. The slotting equipment, which is applied to one of the standard engine lathes in the shop, consists of a piece of board bolted to the T-slots on the lathe carriage, upon which is clamped a small motor, the clamps permitting easy alignment for the belt. An iron bracket bent at right angles is bolted in the slot in the tool carriage, from which the tool post is removed, and to the vertical side of this bracket is bolted an old slide rest set vertically, thus permitting the raising or lowering of the bearing for the saw arbor, which is bolted to the old slide rest in place of the original tool post. The arbor or shaft which carries the saw is equipped with a pulley on the opposite end, and over this is run a belt to the pulley of the small motor.



Engine Lathe Equipped for Banding Armatures

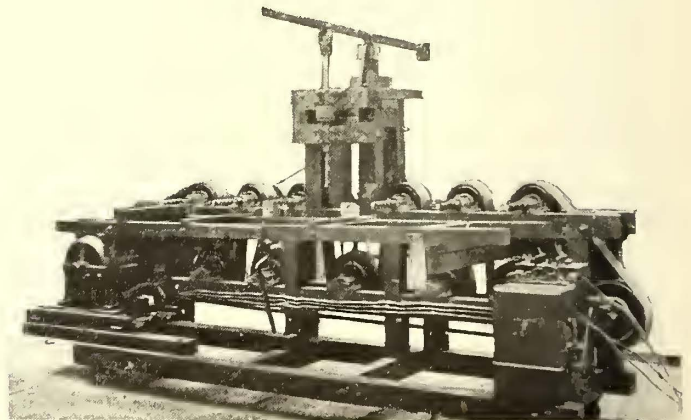
The slotter permits horizontal adjustment of the saw by moving the tool carriage of the lathe in or out in addition to the vertical adjustment obtained through the use of the vertical slide rest. It is also possible, by shifting the tail stock, to follow with the saw any segments which are not in perfect alignment with the armature shaft.

The same lathe is also used for a banding machine, as shown in another illustration, by running the lathe at the

lowest speed, or 11 r.p.m., tension being put upon the wire by means of a slotted stick of maple with bolts through the end to clamp the wire between the two sides of the slot. This stick rests against the rear of the lathe bed. The wire is carried on an ingenious home-made reel. This was cast in iron, using a bell-cord spool for a pattern. After the ends of the spool were faced off and centered a small hole was drilled through the core so that the wire could be attached when the process of winding was begun. Two $\frac{7}{8}$ -in. bolts were then pointed to match the centers in the spool ends and screwed into tapped holes in angle-iron brackets, which in turn were mounted on the wall back of the winding lathe. As the pointed bolts have set nuts to lock them after insertion in the spool center, they act as a brake to keep the spool from unwinding too rapidly, and they can be adjusted to give any desired tension.

HOME-MADE CROSS-ARM BORING MACHINE

The Nashville (Tenn.) Railway & Light Company has effected a considerable saving in the cost of cross-arms by the purchase of material for them in mill sizes and lengths. The holes for pins and lag screws are then bored in the wood mill. The machine used for this purpose was designed by G. W. Swint, master mechanic, and was built complete in the company's shops. It consists of six horizontal spindles set on 14-in. centers, with a 25-in. space



Nashville Cross-Arm Boring Machine

in the center, and one vertical spindle located in the middle of the 25-in. space. The use of fixed spindle positions is permitted by the fact that all of the company's cross-arms are standardized, two-pin and four-pin arms having the same distances between pins as the six-pin type.

The horizontal spindles are driven by a single belt which passes over the pulley on each spindle and then down around the idler pulleys between each pair of spindles, finally passing over the pulley of a $5\frac{1}{2}$ -hp motor which runs the machine. The vertical spindle is belted in the usual manner from an extra pulley on the middle idler shaft.

A cross-slide carriage is provided, and the stop for the travel is at such a point that when it is reached the cross-arm carried on it is in proper position for having the lag screw hole bored by the vertical spindle. The latter is fed down by hand.

The overhead equipment of the Turin-Modane section of the Italian State Railway system is now being erected. The three-phase locomotives to be run on this section are constructed for 25-cycle operation, and as the available power is furnished at 50 cycles, transformer stations with frequency-changing sets are being installed. These machines will be provided with heavy flywheels to reduce the peak loads on the generating station.

AMERICAN RAILWAY TOOL FOREMAN'S CONVENTION

The fifth annual convention of the American Railway Tool Foreman's Association was held in Chicago, July 22-24, 1913. During the course of the meeting a number of papers and reports of committees were read, among which were several dealing with the reclamation of scrap tool steel. In one of these a case was cited where 6500 lb. of tool steel had been purchased at an average cost of 50 cents per pound. All of this material was worked into tools, and having served the desired purpose it was found that the total weight of the parts turned in as scrap amounted to 2600 lb., 40 per cent of the original quantity purchased. At the original purchase price this had a value of \$1,300.

The tool steel was, in accordance with the usual custom divided into four grades and was stamped in accordance with the following classification. Grade No. 1 embraced all "high-speed steel," being identified by a line of red paint the entire length of bar and stored in a section painted red on the outside. Grade No. 2 embraced all the higher grade, 1.20-per cent carbon steel, from which were made taps, reamers and formed tools. Grade No. 3 was a 1.05-per cent carbon steel, from which chisels, punches, punch dies, rivet sets and shear blades were made. Grade No. 4 was a grade of 0.90-per cent carbon steel, used for tools for boilermakers, blacksmiths and trackmen.

In the plant referred to all tools were issued from the tool room and returned there when requiring attention. All lathe and planer tools were made from bars having standard dimensions, and as tools became too short or unfit for further service they were placed in a scrap bin provided for each grade corresponding to the number on the tool. When a sufficient quantity of scrap tools had accumulated they were sent to the smith shop, weighed, receipted for and placed in bins in the steel workers' section. This department was equipped with a furnace that would maintain a temperature of 2500 deg. Fahr. with a preheating chamber attached suitable for annealing purposes. There was also a 1200-lb. steam hammer for the work of the department.

When a sufficient quantity of scrap of grade No. 1 had accumulated it was placed in the preheating chamber of the furnace and allowed to heat slowly and uniformly to a dark red, or about 1000 deg. Fahr. The steel was then transferred at the convenience of the tool smith to the other chamber and brought to a bright red heat, or about 1550 deg. Fahr., and forged to the next smaller standard size. After forming and dressing for service the steel was placed in the annealing box and allowed to cool to relieve the forging strains before hardening. From 600 lb. of scrap steel thus treated there were 500 lb. of serviceable tools delivered to the tool room, at a reclamation cost of 5 cents per pound, and from the service rendered these were the equal of tools made from the original bar. Hence the reclamation value of the steel after deducting the cost of reclaiming, 5 cents per pound, was 45 cents per pound, or \$225.

Of grade No. 1, 315 lb. were also worked into cutters for Davis boring bars, to bore 7-in. wheels. After these cutters had served to the limit there remained 250 lb. of scrap steel, and this was annealed and redressed for 6½-in. cutters for boring bars of the same make at a reclamation cost of 5 cents per pound, representing a reclaimed value of \$112.50. After having served to the limit for the 6½-in. wheels there was 180 lb. of scrap, which was again redressed and used for 6-in. wheels, with a reclaimed value of \$81. After the limit in boring tools was reached, there were on hand 150 lb. of pieces 7/8 in. x 2 in. x 2½ in., which were sent to the smith shop and forged into turning tools ½ in. x 1 in. x 7 in. long, with a reclaimed value of \$56.25. Chaser dies for a 1½-in bolt cutter were annealed and reworked for a 1-in. machine at a reclamation cost of 2 cents per pound. After this service the scrap dies were worked

into tool holder bits at a reclamation cost of 5 cents per pound.

From 786 lb. of grade No. 2 scrap placed in service at an original cost of 17 cents per pound 437 lb. of scrap was reworked at a reclamation cost of 2 cents per pound, with a reclaimed value of \$65.55, the tools consisting chiefly of taps and reamers which were reduced to the next smaller size. On some taps the threads were removed and they were used for reamers. From 1147 lb. of grade No. 3 scrap, put in service at 12 cents per pound, there was reclaimed 534 lb. at 2 cents per pound, or a reclaimed value of \$53.40, the tools consisting of punches, punch dies, rivet sets and flue expander pins. These were handled by the use of a punch post and nut made to fit the spindle of a lathe. All punches were dressed to a smaller size on point. All punch dies of standard dimensions were rebored and faced to any convenient size needed. Expander pins were re-turned to next smaller size. Rivet set deformed due to drawing of the temper and losing shape in the cup were redressed, hardened and placed in service with satisfactory results.

BOLT CUTTER DIES

The committee on bolt cutter dies submitted a report containing a description of the shop practice of the National Machinery Company which stated that chasers were sent out generally with an angle or rake of 12 deg. on the cutting face. If, however, the chasers were for cutting copper, brass or the like, this angle would be zero, or would coincide with a line passing through the axis of the work. Similarly, for cutting bar iron, the angle would be 6 deg., and for threading tough steel, such as alloy steel, steel pipe, and the like, the angle was increased to 22 or 23 deg., making a "hooked" die. After this operation the chasers were stamped for size and numbered to designate their relative position in the cases and die head and then secured in the cases and placed in the die head to be "hobbed" or threaded. Before starting the hobbing operation, however, a reamer was passed through the blank chasers, removing all the surplus metal by concaving the cutting edge of the blank and leaving but about 0.001 in. to be removed by the bottom of the tap.

After being reamed, a hob or master tap was placed in the vise of the machine and run through the dies from two to five times, depending upon the size of the tap. With the large size taps the dies were generally cut in two or three passes, while with the smaller taps, which could not be subjected to such heavy strains, as high as five times were necessary. After being hobbed the chasers were removed from the cases and carefully looked over to insure the removal of all burrs. They were then hardened or tempered.

After being tempered, the throat or entrance of the die was ground on the die sharpener. In a threading die of this type the cutting was all performed in the throat and the thread was completed by the first full teeth encountered by the work, the remaining teeth merely serving to feed the work and maintain the lead. Hence it was important that the throat or entrance should have the correct angle as well as proper clearance.

When these chasers became dull they could be resharpened by being ground at the throat. The average set of chasers could be ground or resharpened from fifteen to thirty times, depending largely upon the method of grinding. It was possible to resharpen the die until but a full thread or two remained, after which the die was generally annealed and rehbbed to a larger size.

There should be ample clearance on the heel of the chaser to eliminate drag or rubbing which would produce unnecessary heating. This clearance on the die was secured by using a hob 3 per cent undersize. In hobbing with an undersize tap it was necessary to adjust the die head so that the dies would set in sufficiently so that the undersize tap cut a full thread thereon. After this hobbing was ac-

complished and the head adjusted for the full size, the heel of the die would clear the work and would not drag or rub.

FORGING MACHINE DIES

A paper on forging machine dies stated that the nature of the work to which they were put determined the material of which dies should be made. Cast iron, being the cheapest and most easily worked material, was very desirable but could only be used where the demand for product was not very great. Where many forgings were required, standard dies were of cast steel. Oftentimes the forgings might be done in such a way that more wear took place on one part of a die than on another, and in such a case sectional dies were used, made of cast iron and so designed that where the excess wear came it was borne by inserts made of tool steel. These inserts were removed when worn beyond a certain limit and replaced by others of standard size, so that the entire die did not have to be scrapped.

The material of which plungers for upsetting the stock were made depended both upon their size and the nature of their work. Nickel steel was the material to be used for heavy work, while common tool steel or special plunger steel would do for lighter operations. Where a punching operation was required, the brunt of the work should be borne by inserts made of air hardening steel. Provision had to be made in the design of dies for the overflow of excess metal when the die recess was full, and a vent should be made varying in size according to the weight of forging. This vent, of course, became unnecessary when enough pieces had been made to enable the foreman to calculate the exact amount of material required. Wherever upsetting was done by means of a hollow plunger a vent should be placed at the bottom of the recess, to allow the escape of the air which would otherwise be confined. Heating of dies from the hot stock did not affect their design. On large work so much time was consumed in heating stock that the die cooled itself. This practice would not do in the case of small dies, however, as they were worked too rapidly. There were two ways of cooling—either with a jet of water or by swabbing off the surface with oil. The former method should be avoided wherever possible as it caused the die face and plunger to check, thus decreasing their life.

This paper was accompanied by a number of photographs showing some typical forgings and the dies by which they were produced. Among these was one for the manufacture of castellated nuts in two operations. The first operation consisted in upsetting and forming the round bar stock by means of the plunger working in a recess in the dies. The first operation left the stock in the form of a hex-head bolt. The forging was completed by placing the stock in another recess where another plunger punched out the center and formed the castellation. The center which was punched out was thus used in the forming of the next nut, so that there was almost no waste. Only one heat was required for both operations.

TELEPHONE LOAD DISPATCHING AT BOSTON

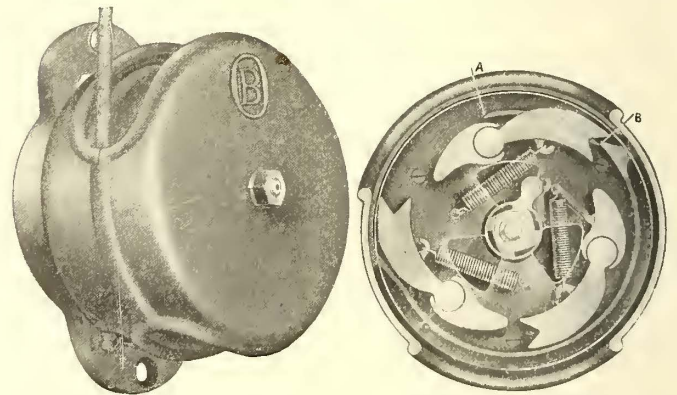
An interesting article on the use of the telephone in the operation of the power generating and distributing system of the Boston Elevated Railway Company appears in the current issue of *New England Telephone Topics*, a monthly organ published for the employees of the New England Telephone & Telegraph Company. With the installation of the new South Boston generating plant the headquarters of the power distribution service was transferred to a balcony on the third floor of the station from the former operating center at the Central power station, on Harrison Avenue. The load dispatcher uses a two-position telephone desk of the order table type, somewhat modified in design, and the desk has a capacity of forty lines, eighteen circuits at present extending to the various generating stations and substations of the system.

The usual diagrammatic method of keeping track of high-tension switches open or closed is followed, with a black-board and plugs. A log sheet is kept on which are entered hourly reports from all outside stations as to loads, equipment in use and out of commission. Complete detailed plans of all feeder circuits with the location of sectionalizing switches are on file and the issuance of emergency instructions to crews on the street and at special stations is handled from this office. The company has had practically no trouble from induced currents from its 13,200-volt system, the telephone lines being carried mainly in conduits and on poles owned by the New England company. About a year ago a new company telephone switchboard for general service was installed at its Milk Street offices, there being nearly 150 lines in service and about 6000 daily calls.

A NEW TROLLEY CATCHER

The Ohio Brass Company, Mansfield, Ohio, has placed on the market a new trolley catcher for which it has just applied for a patent. The operating mechanism, which is shown in the accompanying illustrations, consists of three dogs, mounted on the back of the reel, which are thrown outward by centrifugal force when the trolley wheel jumps.

One of the aims of the designers was to eliminate stepping up or climbing of the trolley pole after the rebound which follows the sudden stopping of a flying pole. This is accomplished by means of the guide *A-B*. One dog rides over the guide *A-B* and engages the stop at *B*. The dog which engages the stop at *B* rides over this guide and



Exterior and Interior Views of Trolley Catcher

cannot be pulled back toward the center by its spring until the rope has been wound in sufficiently to allow the dog to travel backward on the guide to the point *A*. Exhaustive service tests proved that the rebound will never be sufficient to cause this to happen. Should the trolley pole be thrown downward upon striking a cross span wire the locking dog will become disengaged and the catcher will re-operate and another dog will become engaged with stop *B*. The pole will then be held at approximately the lowest point to which it rebounds.

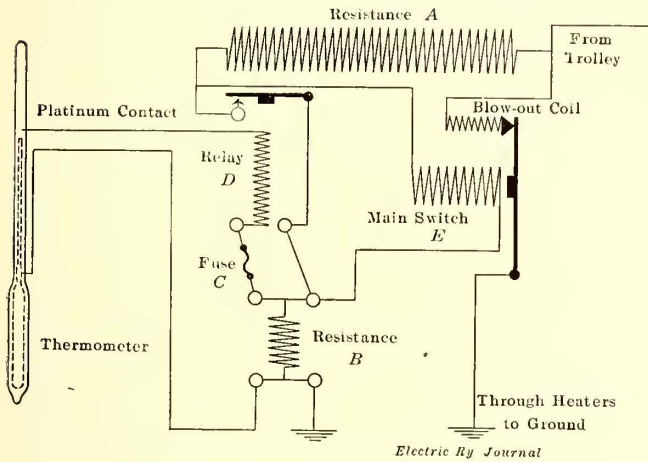
Under normal conditions these dogs are held in toward the center by rugged coiled springs, which are enameled to prevent rusting. In operation, the coiled springs are only slightly extended, insuring long life. The main operating spring is inclosed in the extreme back part of the case. All parts are made sufficiently rugged to withstand the abuse which such a device usually gets in service. The case is made of malleable iron, enameled. A large opening is provided at the bottom to drain off moisture. A separate base casting is bolted directly to the car dash, and the catcher can be quickly inserted in the base and held in place by a spring operated catch. For double-end operation a base is installed on each end of the car, and one catcher is used.

A SIMPLE ELECTRIC THERMOSTAT

The problem of heating surface cars is one which is affected by many indefinite factors. Variations in temperature are caused by the opening of doors, by the changes in the number of passengers within the car and by the variations in outside temperature. Automatic control of heaters has in consequence been generally recognized as a desirable condition if it can be obtained without

meter leaves the platinum contact, the thermometer circuit is broken, and relay *D* is no longer energized. Therefore its contacts open, breaking the shunt around the coil of switch *E*. The latter is then energized and closes, turning current on the heaters. A rise and fall of less than 1 deg. is sufficient to turn the heaters off or on as required. Tests of 100,000 contacts with a single thermometer have been made without damage of any kind and without any loss of accuracy of regulation. This is probably equal to nearly twenty years' service.

The design of the regulator has been worked out with an unusual degree of care. All parts are readily removable as they are held in place by clip contacts wherever possible, and the only contact which breaks a current of any magnitude is that of the main switch *E*. This is provided with a removable contact block and makes its connection with a most ingenious wiping motion obtained by jointing the contact arm and attaching it through a spring to the arm of the relay, thus making it slide on the contact piece after the contact is made and before the relay arm reaches the end of its stroke. The contacts of the other relay work only through a shunt and therefore do not open a full circuit at any time.



Electric Thermostat Control for Car Heaters

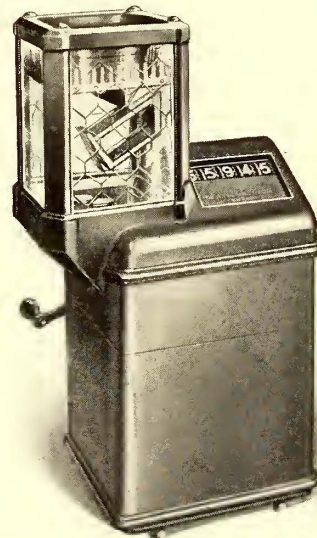
excessive complication. The reasons are, obviously, increased comfort of passengers, the elimination of disputes between passengers and conductors as to whether heaters should be turned on or off and the saving in current for the heaters which can be effected by using heat only when it is needed.

A simple thermostatic system for the regulation of electric heaters has been developed by the Railway Utility Company of Chicago in order to meet these conditions. Its action is dependent primarily upon the use of a thermometer with two platinum contact points fused into the glass by means of which the mercury column can be made to make or break a control circuit as the mercury rises above or falls below the upper platinum point. The thermometer is otherwise similar to any accurate mercury thermometer except that a special grade of glass is used for the tube so that it will not expand away from the platinum points and destroy the vacuum within the tube. For surface car service the upper point is usually set at 50 deg. Fahr., although this may be set at any desired point and may, indeed be duplicated to permit changes in the standard temperature if that should be considered necessary. This thermometer is obviously free from any tampering by car crews or passengers, as the contacts are sealed in the tube in a vacuum. This construction also eliminates all trouble from dust or corrosion on the points, and the small cross-section of the mercury column is not affected by vibration.

The operation of the control circuit is electrical throughout and is explained in the accompanying line cut. Normally current flows through resistance *A*, the magnet coil of switch *E* and resistance *B* to ground, and switch *E* is held closed. Current then flows direct from the trolley through the blow-out coil and the contacts of switch *E* and then through the heaters to the ground. As the car warms up, the column of mercury in the thermometer rises. When it touches the upper platinum contact, a current of very low voltage is shunted around resistance *B*, through fuse *C*, the coil of relay *D* and the thermometer, to ground. Relay *D* is thus energized and its contacts close. This short circuits the magnet coil of switch *E*, and that switch opens by gravity, cutting current off the heaters. When the temperature falls so that the mercury of the ther-

NEW TYPE OF FARE BOX

The accompanying illustration shows a new type of fare box which has just been placed on the market by The International Register Company, Chicago, Ill. The money-counting mechanism of this machine is the same as in the International coin register which was put out by this company last year and, as described at that time, had a complete fare register mounted on a column above the machine and connected with the money-counting mechanism.



Registering Fare Box

In the fare box the trip register, direction indicator and bell are omitted, and the totalizer is located just above the money-counting mechanism where it can be plainly seen by passengers paying fares or by inspectors entering or leaving the car. The figures are 1/2 in. high and read in dollars and cents. The fare box is mounted on brackets on the platform and counts and registers nickels, dimes and pennies. The money is deposited by the passenger in a glass-inclosed hopper where it is inspected

by the conductor, after which it falls through a trap door on a revolving pan which has a capacity of 150 fares. The coins then pass to the sorter, which sorts the money and brings it under the counting mechanism, after which it is delivered into the conductor's receptacle to be used in making change. The counting mechanism advances the totalizer 5 cents for each nickel, or 1 cent for each penny counted, or 10 cents for each dime counted.

The use of metal furniture in the offices of street railway and other public utility companies appears to be gaining favor. Furniture of this kind is not much more expensive than wooden furniture of good quality, but it is more substantial, fireproof and serves materially to reduce the rate of insurance. It is especially adapted for the storage of unimportant records.

News of Electric Railways

Strike on County Traction Company Settled and Lines Sold to New Interests

The strike on the lines of the County Traction Company and Suburban Railroad, serving suburbs of Chicago, was settled on July 18. At the same time that the settlement was made an arrangement was perfected for the sale of the properties to new interests. The properties are to be acquired by Willard M. McEwen and associates. Conferences looking to this end had been under way for several days between representatives of the former owners of the properties, the new interests and the striking trainmen. Under the arrangement for the sale of the properties it is proposed that the new interests shall acquire and operate all of the lines of both companies with the exception of the line in Evanston, Ill.

According to the terms of the settlement of the strike the employees receive an increase to the rate of wages which prevails on the Chicago lines. It was decided that the employees shall be allowed back pay from Aug. 1, 1912, at the rates paid on the Chicago lines, and that of this amount the new interests in the company shall contribute one-half and the union of the employees shall make up the balance. A special committee to be composed of the president of the local union and employees of the lines concerned will be created to discuss questions which arise between the officers of the company and the trainmen.

A tentative agreement with the men was prepared and the strike was declared off and operation of the lines, with the exception of the line in Evanston, Ill., was resumed on July 19. In some cases operation will be conducted upon temporary permits from the suburbs traversed, leaving the subject of franchises open for future negotiations. Frank L. Butler will be the general manager of the lines at present, and J. W. Whitsell will continue as superintendent. The new interests will take up the work of rehabilitation of the property as soon as suitable franchises are secured, and will construct extensions. The offices of the company have been moved to Lake Street and Cuyler Avenue, Oak Park, Ill.

Detailed Detroit Figures to the City

When it submitted its formal answer to the proposed Marx ordinance the Detroit (Mich.) United Railway offered through General Manager Brooks to open its books to the public to prove that 3-cent fares in Detroit would result in a deficit. The company has since turned over to Alfred Lucking, attorney for Mayor Marx, the detailed figures upon which the claim of a deficit and cost of extensions is based.

Fifty new double-truck prepayment cars have been put into service on Woodward Avenue to take the place of cars of an older type which will be distributed among other lines. Within another month this line will be completely equipped with cars of the new type.

Private Right-of-Way Plan Opposed in Cleveland

Residents along a part of the proposed new cross-town line at East Seventy-ninth Street have organized to oppose the plan of the company to use a private right-of-way for a part of the distance. They claim that the property is restricted by title from use for street railway purposes. Options have been obtained on property desired for a right-of-way.

The grievance committee of the Cleveland Federation of Labor has completed an investigation of complaints of motormen and conductors employed by the Cleveland Railway to the effect that they have been compelled to remain on duty long hours in order to get a reasonable day's work, and a demand has been made for a conference with Street Railway Commissioner Witt and city officials in an effort to secure better conditions.

Charles H. Clark, engineer of maintenance of way, says that much of the improvement work planned for this year will have to go over until 1914, because of grade crossing

troubles and the scarcity of labor. Some work is being done on the Euclid Avenue and other lines.

The twentieth annual outing of the Railway Employees' Beneficial Association, composed of employees of the Cleveland (Ohio) Railway, was held at Chippewa Lake on July 16. The trip to the lake was made on a special train on the Baltimore & Ohio Railroad. Prizes offered for the three employees longest in the service of the road were awarded as follows: Patrick Goff, forty-four years and seven months; John Wagstaff, thirty-seven years, and William Krueger, twenty-six years.

Omnibus Applications in New York

Four companies have applied to the Board of Estimate and Apportionment of New York City for franchises to operate bus lines in the city streets, namely: the Fifth Avenue Coach Company, the New York Motor Bus Company, the Manhattan Motor Bus Company, and the People's Five-Cent Bus Line. The first-named line has been in operation for many years. The People's Five-Cent Bus Line, which is controlled by George W. Loft and prominent bankers, proposes to charge only a nickel a ride. About twenty routes have been laid out and applied for by the People's Line. It is proposed to run two or three bus lines across the Park and one line up through it, if the necessary franchises can be obtained. The same company is also trying to obtain routes through the business and financial sections and through the residential sections well uptown. If it succeeds in securing any of the franchises sought this company says it will put in service a fleet of single-deck storage battery cars of the four-motor four-wheel-drive type which has been used with some success in trucking service in Philadelphia and elsewhere, the rights to which are controlled by the Electro-Coach Corporation of New York. These trucks are made at the plant of the Commercial Truck Company in Philadelphia, Pa. The Board of Estimate has adjourned until July 31, when hearings will be held on the applications.

At the recent session of the Legislature of New York the omnibus companies were brought under the jurisdiction of the Public Service Commissions.

Rules Concerning Overhead High Tension Wires

The Railroad and Warehouse Commission of Illinois has promulgated a set of rules governing the installation of electric wires or other forms of metallic conductors carrying electric currents over railroad tracks. These rules are as follows:

1. The trolley wire of any electrically operated railroad, crossing the tracks of any railroad shall be equipped with a trolley guard of an approved pattern, and such trolley wire shall have a minimum vertical clearance of not less than 22 ft. above the top of the rails.

2. Telegraph wires, telephone wires, or any other form of metallic conductors (except trolley wires) carrying electric current less than 700 volts, shall not be permitted to cross the tracks of any railroad under a minimum vertical clearance of 25 ft. provided such wires and conductors are suspended from messenger wires at intervals not greater than 15 ft.

3. When not suspended from messenger wires, all telegraph, telephone and other wire or cable conductors (except trolley wires) carrying less than 700 volts, and spanning any railroad tracks, shall have a minimum vertical clearance of not less than 30 ft.

4. If in crossing the tracks of any railroad with electric wires or other forms of metallic conductors carrying less than 700 volts, the conductor wires of any telegraph, telephone or electric railroad company are also crossed, the minimum vertical clearances of 25 ft. and 30 ft. above referred to shall be increased so as to give a minimum clearance of 5 ft. above the wires so crossed.

5. The minimum clearance of all metallic conductors (except trolley wires) crossing any railroad tracks and carrying 700 volts or over shall not be less than 30 ft., pro-

vided such wires or conductors are suspended from messenger wires at intervals not greater than 15 ft.

6. All electric wires or metallic conductors (except trolley wires) spanning any railroad tracks and carrying 700 volts or over shall have a minimum vertical clearance of 35 ft., when not suspended from messenger wires.

7. If in crossing any railroad tracks with electric wires or other forms of metallic conductors carrying 700 volts or over the conductor wires of any telegraph, telephone or electric railway company are also crossed, the minimum vertical clearances of 30 ft. and 35 ft. applicable to electric wires and other forms of metallic conductors carrying 700 volts or over shall be increased when necessary so as to give not less than 7 ft. vertical clearance above any wire conductors so crossed.

8. In any case, when crossing any railroad tracks where telegraph or telephone wires are crossed overhead, the electric wires or other forms of metal conductors carrying electric current shall be equipped with a slatted platform, or some other approved type of protection, suspended in such a manner that upon breakage an electric wire or metallic conductor shall not come in contact with any telegraph or telephone wires so crossed.

9. In case any such electric wire or metallic conductor crosses underneath any telegraph or telephone wire in order to cross any railroad tracks, such electric wire or metallic conductor shall be equipped with a slatted platform, or some other approved type of protection, so that upon breakage a telegraph or telephone wire shall not come in contact with the metal conductors crossing underneath such telephone and telegraph wires.

10. In any case where electric wires or other metallic conductors carrying 700 volts or over span the tracks of any railroad, each pole supporting such electric wires or other metallic conductors which may be located upon or immediately adjacent to the right-of-way of any railroad tracks crossed shall be provided with a warning sign, with letters not less than 4 in. in height reading:

"Danger—Electric wires (or cable as the case may be), _____ volts" (giving the normal voltage of each wire or metal conductor).

11. The minimum vertical clearances herein specified shall mean to be the least clearance permitted under the most unfavorable conditions with respect to loading and temperature of electric wires or other forms of metallic conductors which span the tracks of any railroad or any telegraph or telephone wires located on the right-of-way of any railroad.

12. No electric wires or any other form of metallic conductors carrying 700 volts or over shall be permitted to cross the tracks of any railroad or any telegraph or telephone wires located on the right-of-way of any railroad until plans shall first have been presented to the commission in duplicate and duly approved by it in the form of an order.

13. Whenever conditions are such as to make it desirable to use vertical clearances less than those above specified, application may be made to the Railroad and Warehouse Commission, stating reasons why it is desirable or necessary to deviate from above rules. Such application shall be accompanied by duplicate plans showing both map and profile of such crossing. If approved, the plans will be so marked, and one will be returned to the petitioner with the order of the commission.

Chicago Union Terminal Plans

The City Club of Chicago objects to the selection of John F. Wallace by the city to advise the city on the subject of railway terminals. The directors of the City Club have offered to furnish funds for an investigation by a committee of three or five engineers. It has made a formal written order to the committee on railway terminals of the City Council, in case that committee cannot secure sufficient funds for the employment of a larger number of engineers, to guarantee the payment for one member of a committee of three or for two members of a committee of five, such members to be chosen by the City Club. The club says that it objects to Mr. Wallace because he "had such special relationships with the Pennsylvania Railroad as might impair the public value of a report made by him

alone." Alderman Geiger, chairman of the committee on railway terminals of the City Council, expresses the opinion that work will be started on the passenger terminal project proposed by the Pennsylvania Lines and other companies interested with it in the proposed new Union Station before Nov. 1.

The City Council of Chicago at its meeting on July 14 referred to the committee on railway terminals the letter submitted by the City Club of Chicago urging that the city select a committee of three or five engineers instead of one engineer to advise it on the subject of railway terminals. As the committee on railway terminals will not meet until Oct. 1, the engineering investigation in the hands of Mr. Wallace will go forward.

Flood Damage Repairs on the Ohio Electric

The Ohio Electric Railway, Cincinnati, Ohio, which was the most seriously damaged of the electric roads in the State of Ohio by the March floods, is about to complete repairs which will make it possible again to resume all schedules on the system. Probably the most serious effects of the floods of March last were found between Dayton and Hamilton, Ohio, where several miles of track and a number of important bridges were washed away. By Aug. 1 this company expects to complete a temporary trestle over the Miami River on this division of the system where a permanent structure was practically destroyed. This structure will enable it to reach 4 miles of track and roadway which also was washed out by the flood. Repair work has been seriously delayed on account of failure to obtain timber to rebuild the damaged bridges. Immediately following the flood the steam roads obtained all the available bridge timber and placed large orders with the mills for rush deliveries of lumber. The electric railways not having access to timber areas or to shipments of timber over their lines found it necessary to wait until the steam roads were fully supplied.

The bridge over the Muskingum River between Zanesville and Putman, Ohio, which also was carried away by the high water, will be replaced with a temporary structure by Aug. 1. This structure is being rebuilt by the county and by a subscription given by the Ohio Electric Railway. It forms a connecting link between Zanesville and a suburban district lying west.

Public Utility Act for District of Columbia

Daniel E. Garges, acting secretary to the Public Utilities Commission of the District of Columbia, has prepared a condensed statement concerning the organization, powers and purposes of the commission. Mr. Garges' statement follows in part:

"The Public Utilities Commission of the District of Columbia was created by an act of Congress approved March 4, 1913. The commission consists of the Commissioners of the District of Columbia, the powers contained in the law being additional to their powers and duties as commissioners of the District of Columbia, without additional compensation.

"The Commissioners of the District of Columbia consist of two residents of the District of Columbia, with a salary of \$5,000 per annum each, appointed for a term of three years, and an officer of the Corps of Engineers, United States Army, detailed by the President of the United States for the duty, whose rank is above that of captain. This engineer officer receives a sufficient addition to his salary as an army officer to make it equal \$5,000 per annum.

"The term public utility as embraced in the law includes every street railroad, express company, common carrier—except steam railroads—the Washington Terminal Company, the Norfolk & Washington Steamboat Company and all companies engaged in interstate traffic upon the Potomac River and Chesapeake Bay; gas corporation, electric corporation, water power company, telephone corporation, telegraph corporation and pipe line company. It contemplates supervision over the transportation of passengers, freight or property or service from one point to another within the District of Columbia, but does not cover interstate commerce. Every public utility is required to fur-

nish adequate service and facilities, and the charges to be made by it shall be reasonably just and non-discriminatory. The commission is authorized to permit and require the joint use of tracks and appliances for a reasonable compensation.

"The commission is directed to make, as soon as practicable, valuation of all public utilities under its supervision. This valuation is to be made from three separate stand-points as follows:

"1. The amount of money expended in the construction and equipment, including the amount of money expended and to be expended for rights-of-way, or any property used in or useful to the business of the public utility and to replace all the physical properties belonging to such public utility.

"2. The outstanding stocks, bonds, debentures and indebtedness, amounts, date, to whom issued, to whom sold, the price paid in cash, property or labor, disposition of the proceeds, by whom the indebtedness is held, the amount due, the floating indebtedness and credits due other property, the judicial or other sales, property or franchises and the amounts paid, in which manner paid and the taxes paid thereon.

"3. The gross and net income of the public utility from all sources, the amounts paid for salaries to officers and the wages paid to its employees, and the maximum hours of continuous service required of each class.

"The commission also is required to keep itself informed of all new construction, extensions and additions of the property of all public utilities, and to prescribe the necessary regulations and instructions for the keeping of construction accounts, in which the law declares a distinction shall be made between operating expenses and new construction.

"A public utility, with the consent of the commission, is authorized to prescribe a sliding scale of rates and dividends according to the Boston sliding scale, or other financial device, but if such arrangement or device is found by the commission, after investigation, to be unlawful or unreasonable or unjust it is given power to cause its abandonment. The commission is further authorized to determine and order such rates, charges and regulations as may be necessary to give effect to such arrangement, with the reserved right to make other and further changes in rates, charges and regulations as it may determine to be necessary and reasonable.

"Under provision of the public utilities law, and also a law passed by Congress on the same day, known as the 'anti-merger law,' public utilities are prohibited from assigning their franchises without the approval of the commission, and it is made unlawful for any public utility to acquire the stock or bonds of any other public utility engaged in the same line of business unless authorized by the commission. The 'anti-merger law' prohibits any foreign public utility corporation, or foreign or local holding corporation or any local public utility corporation to own, control, hold or vote the stock or bonds of any public utility corporation authorized by Congress to do business in the District of Columbia, except as expressly authorized by Congress. In case a violation is claimed of this law, the allegation filed in court must show to the satisfaction of the court that the ownership includes at least 20 per cent of the capital stock of the local public utility. In case a violation of the law is proved, the court has jurisdiction in equity to dissolve any such local public utility corporation which is exercising a franchise under any act of Congress, and to require a foreign public utility corporation, or foreign or local holding corporation to sell or dispose of stock or bonds held contrary to the provisions of the law and to refrain from voting such stock or bonds.

"It is provided that the boards of directors of every public utility shall consist of not more than fifteen, nor less than seven members.

"Public utilities are prohibited from issuing evidences of indebtedness, or reserving any money, property or services in payment of the same until there shall have been recorded upon the books of the public utility corporation a certificate of the commission authorizing such issue, and the public utilities are prohibited from issuing any evidence of indebtedness, payable in more than one year from date without the authority of the commission. Public utili-

ties are prohibited from declaring any stock, bond or scrip dividend, or to divide the proceeds of the sale of any such among its stockholders. A penalty is provided for violation of this provision of not less than \$1,000 nor more than \$10,000 for each offense. The giving or acceptance of rebates also is prohibited under penalty."

Proposed High-Speed Line Between Buffalo and Niagara Falls

It is said that more than 90 per cent of the right-of-way has been secured for the Frontier Electric Railway, which proposes to construct a new electric railway from Buffalo to Niagara Falls. Harry T. Ramsdell, cashier of the Manufacturers' & Traders' National Bank, Buffalo, is president of the company, and ex-Congressman James S. Simmons, Niagara Falls, is one of the vice-presidents. Mr. Cohn of Cohn, Chorman & Franchot, attorneys, Niagara Falls, said recently that the directors of the Frontier Electric Railway have been negotiating with E. G. Connette, president of the International Railway, and the directorate of that line, for permission to use the Niagara Falls freight and passenger terminal in Niagara Falls and Buffalo. It is proposed to have cars of the new line stop between Buffalo and Niagara Falls only at North Tonawanda. At present the cars of the International Railway stop all along the line and the running time between Buffalo and Niagara Falls is almost an hour and a half. It is planned to have the cars of the Frontier line make the 22 miles in about forty-five minutes.

New Northern Ohio Cut-Off

The new cut-off on the line of the Northern Ohio Traction & Light Company, Akron, Ohio, has recently been placed in service. This is a double-track road 7½ miles long between Chittenden, just north of Cuyahoga Falls, and Fells, just north of Northfield, on what is known as the Akron, Bedford & Cleveland line. The track is laid on private right-of-way the entire distance and the actual work of construction has been in progress for two years. The new track shortens the distance between Cleveland and Akron 1 mile. The heaviest grade is one-half of 1 per cent. The right-of-way is 66 ft. wide. The business between Cleveland and Akron is heavy and the company desires to offer the best service. The schedules will not be changed, however, until the possibilities of the improvement are established. Local trains will be continued on the old section of the road.

Report on Self-Propelled Cars by Edinburgh Committee

The deputation sent by the Edinburgh Town Council to investigate the merits of self-propelled cars visited Morecambe, where cars driven by petrol engines are in operation. The members also visited Birmingham, where they inspected the Tilling-Stevens petrol-electric omnibuses. At Coventry they inspected a self-propelled railway coach built by the Daimler Company. They also examined the petrol-electric tramcars being operated experimentally by the London County Council. After a full description of the various types of cars examined, with the cost of operation, the report states that the deputation is of the opinion that the self-propelled tramcar is reliable and suitable but a little dearer in first cost. The first cost, however, is offset by substantial savings in construction of the track, absence of central generating station, absence of wires or conduits, and by the advantage that each car is an independent unit in case of breakdown. According to the report the cost of operation cannot be arrived at with exactness yet owing to the limited experience, but the guarantee of the makers would show that the vehicles can be operated in close comparison with the cable or ordinary electric tramcar. The members also state that they are inclined to believe that the petrol-electric combination is an improvement upon the direct-driven petrol engine, giving ease of locomotion, simplicity of control and drive and silence of working, and, finally, that the success already obtained with the self-propelled car justifies its introduction experimentally in Edinburgh.

President Griffith's Policies

F. T. Griffith, who on July 1, 1913, succeeded B. S. Joscelyn as president of the Portland Railway, Light & Power Company, Portland, Ore., is quoted as follows in regard to the plans and policies of the company:

"This company wants to give the best service possible to get the best results for the people and the company. We need the co-operation of the people. I want to convince residents of Portland and the territory we serve that we are doing and intend to do all we can for the prosperity and upbuilding of this community. We are going to strive to get people interested in our affairs and to know more intimately the inside workings of the public service corporations serving them.

"Portland, with its commission form of government, has adopted corporation methods. These methods will banish politics from the relations between the public service corporations and the city. Relations between public service corporations and the city should be purely business relations. Personally, I do not know intimately a single member of Portland's new commission, nor the Mayor. They start out with the confidence of the people and are entitled to it.

"We, of this company, believe that we are entitled to just as much confidence. We want an opportunity to convince the people that we are striving to serve them—that our actions are dictated only by business considerations and the welfare of the community. Another matter that I am going to give my earnest attention is the welfare of our employees. It will be our policy, so far as possible, to administer to the needs of those we employ. In exceptional cases only will we fill positions of responsibility from outside our ranks. Wherever and whenever possible we will promote our own employees to vacancies in the organization as they occur.

"There is no wastebasket in the complaint department. Every communication to the company made in good faith will receive earnest consideration. We invite our employees, too, to give us their ideas for the betterment of the service. Frequently we get some of our best suggestions, however, from outside the service. We want the people to use our complaint bureau liberally. There is no one connected with the management of this company who does not welcome suggestions."

Birmingham Strike Declared Off.—The strike against the Birmingham Railway, Light & Power Company, Birmingham, Ala., has been declared off by the men who participated in it. The collapse of the strike was referred to previously in the *ELECTRIC RAILWAY JOURNAL*.

Municipal Ownership Being Considered in Pekin.—The members of the City Council of Pekin, Ill., are considering the advisability of purchasing the property of the Pekin & Petersburg Interurban Railway and operating it as a municipal railway under the law which went into effect on July 1.

Report on Electricity for the London & Port Stanley Railway.—A. M. Warfield, who was employed by the City Council of London, Ont., as an expert to give an independent report upon the proposal to electrify the London & Port Stanley Railway has filed his report. The report of Albert Eastman, manager of the Windsor, Essex & Lake Shore Railway, on the proposal of Hon. Adam Beck to electrify the London & Port Stanley Railway, has also been submitted. Mr. Eastman was engaged by the city.

Minnesota Utilities Committee Adjourns.—The committee on public utilities of the Senate of Minnesota has adjourned to meet on Aug. 18, when a public hearing will be given to persons interested in public utilities legislation. J. M. Hackney, chairman of the committee, is quoted as follows: "The duty of our committee is to investigate the public utilities question as handled in other States and to draft a public utilities commission bill. Just how we will go about the task I am unable to say, for we have not discussed the matter since the session closed."

Installation of Fire Extinguishers Ordered.—The Long Island Railroad and the New York Consolidated Railroad have been ordered by the Public Service Commission for the First District to equip each of their electrically oper-

ated cars with one or more chemical fire extinguishers of such a type that the contents thereof cannot act as an electrical conductor. The cars must be so equipped by Sept. 15, 1913, and if any other kinds of fire extinguishers are used, such other extinguishers must be conspicuously labeled that they are not to be used until the current has been shut off. This action was taken following an investigation into a recent accident upon a trestle at Jamaica where a car of the New York Consolidated Railroad caught fire and was destroyed. It was found that the car carried no fire extinguishers.

Hearing on Kansas City Terminal Plans.—The Board of Public Works of Kansas City, Mo., held a hearing on July 18 in regard to the plan of the Kansas City Terminal Railway to build a terminus for street cars on the plaza in front of the station and to re-route cars. The franchise of the Terminal Company provides that in all physical matters pertaining to the station or terminals in which the public or public streets are involved the plans must first be submitted to the board of public works for approval. All cars are to arrive at and leave the station from the north, south, east and west by McGee Street, Grand Avenue and Broadway along Twenty-third and Twenty-fourth Streets by way of the terminals to be built in the plaza. This plan would eliminate service on Walnut and Main Streets and Baltimore Avenue, it was claimed.

Buffalo Testimony Concluded.—The International Railway, Buffalo, N. Y., and its employees have concluded the presentation of testimony before the board of arbitration named to settle the question of wages and hours, and the board now has fifteen days in which to hand down its decision. Burt L. Jones, vice-president and general manager of the Great Gorge Route, represents the International Railway on the board; Assemblyman Edward D. Jackson represents the men, and Mayor Louis P. Fuhrmann of Buffalo is the third member of the board. William B. Fitzgerald summed up for the men, and Thomas F. Penney, formerly president of the International Railway, and now a member of the law firm of Norton, Penney, Spring & Moore, counsel for the corporation, summed up for the company. The men demand a flat rate of 32 cents an hour, time and a half for all over time and improved working conditions.

Decision in Seattle Fare Case.—The Supreme Court of the State of Washington has affirmed the decision of the King County Superior Court in dismissing the case against W. R. Crawford and Samuel Walker, officers of the Seattle, Renton & Southern Railway, Seattle, Wash., for charging more than a 5-cent fare within the corporate limits of Seattle in supposed violation of the provisions of the Washington public service commission law of 1911. Messrs. Crawford and Walker were found guilty in a King County justice court of charging a 10-cent fare for a passenger riding within the city limits of Seattle over the Seattle, Renton & Southern Railway, and each was sentenced to serve thirty days in jail. They appealed to the Superior Court and their contention was sustained. The State then appealed to the Supreme Court and the decision handed down rules that the law is invalid. The court points out that to enact such a statute might mean confiscation of property; that the only relief of a company would be to have the statute declared unconstitutional and that it would not dare take the risk of testing out the law because of the accumulative penalties. The provision of the law in regard to the 5-cent fare was drawn to meet instances where the city limits were extended.

PROGRAM OF ASSOCIATION MEETING

New England Street Railway Club

The annual outing of the New England Street Railway Club was arranged to be held at Plymouth, Mass., on July 24, 1913. The trip to Plymouth from Boston was to be made by boat, leaving Rowe's Wharf, Atlantic Avenue, Boston, at 10 a. m., and returning from Plymouth at 3:15 p. m. After reaching Plymouth the party was to be conveyed over the Brockton & Plymouth Street Railway to the beach, where a clam bake was to be served. In the event of rain the outing was to be held the next pleasant day.

Financial and Corporate

Stock and Money Markets

July 23, 1913.

The movement of trading on the New York Stock Exchange to-day was irregular, with the leading issues generally showing slight losses at the close. There was some selling of Brooklyn Rapid Transit and that stock declined 5/8 to 87 3/8. Third Avenue Railway advanced 1 point to 35 3/8. The tone at the close was irregular. Railway and other bonds were also irregular. Rates in the money market to-day were: Call, 2@2 1/2 per cent; sixty days, 3 3/4@4 per cent; ninety days, 4 3/4@5 1/4 per cent; four months, 5 1/4@5 1/2 per cent; five months, 5 1/2@5 3/4 per cent; six months, 5 3/4@6 1/4 per cent.

In the Philadelphia market trading was quiet to-day and fractionally lower levels ruled on the exchange.

In the Chicago market the volume of transactions was smaller and price movements were generally within narrow limits to-day. Bonds were fairly active and firm.

The railroad issues were dealt in sparingly in the Boston market to-day. Small sales were recorded of Boston Elevated, Massachusetts Electrics and West End.

In the Baltimore market United Railways issues were the leaders to-day. The sales of stock totaled 402 shares, while the sales of bonds totaled \$32,500.

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

	July 16	July 23
American Brake Shoe & Foundry (common).....	87 1/4	87 1/4
American Brake Shoe & Foundry (preferred).....	130	129
American Cities Company (common).....	37 5/8	37
American Cities Company (preferred).....	66	66 3/4
American Light & Traction Company (common).....	340	340
American Light & Traction Company (preferred).....	104	104
American Railways Company.....	38	38 1/2
Aurora, Elgin & Chicago Railroad (common).....	39 1/2	39 1/2
Aurora, Elgin & Chicago Railroad (preferred).....	85	82 1/2
Boston Elevated Railway.....	89 1/2	89 1/2
Boston Suburban Electric Companies (common).....	7 1/2	7 1/2
Boston Suburban Electric Companies (preferred).....	50	55
Boston & Worcester Electric Companies (common).....	* 8	* 8
Boston & Worcester Electric Companies (preferred).....	42	42
Brooklyn Rapid Transit Company.....	87 7/8	87 1/2
Capital Traction Company, Washington.....	119 1/4	117 1/2
Chicago City Railway.....	165	* 165
Chicago Elevated Railways (common).....	* 26	28 1/2
Chicago Elevated Railways (preferred).....	* 75	* 75
Chicago Railways, pteptg., ctf. 1.....	95	* 95
Chicago Railways, pteptg., ctf. 2.....	25	25 1/2
Chicago Railways, pteptg., ctf. 3.....	7 1/2	* 7 1/2
Chicago Railways, pteptg., ctf. 4.....	* 2 1/2	* 2 1/2
Cincinnati Street Railway.....	110	110
Cleveland Railway.....	103	102 3/4
Cleveland, Southwestern & Columbus Ry. (common).....	6	6
Cleveland, Southwestern & Columbus Ry. (preferred).....	29	29
Columbus Railway & Light Company.....	18	18
Columbus Railway (common).....	69 1/2	69 1/2
Columbus Railway (preferred).....	88	88
Denver & Northwestern Railway.....	107	107
Detroit United Railway.....	70	70
General Electric Company.....	139 1/2	139 3/4
Georgia Railway & Electric Company (common).....	115 3/8	114 3/4
Georgia Railway & Electric Company (preferred).....	82 1/2	82 1/2
Interborough Metropolitan Company (common).....	15 3/4	15 1/2
Interborough Metropolitan Company (preferred).....	56 3/4	58 5/8
International Traction Company (common).....	* 30	* 30
International Traction Company (preferred).....	* 95	* 95
Kansas City Railway & Light Company (common).....	18	18
Kansas City Railway & Light Company (preferred).....	36	36
Lake Shore Electric Railway (common).....	9	9
Lake Shore Electric Railway (1st preferred).....	90	90
Lake Shore Electric Railway (2d preferred).....	25	25
Manhattan Railway.....	125	126
Massachusetts Electric Companies (common).....	14 1/2	14 1/2
Massachusetts Electric Companies (preferred).....	70	71
Milwaukee Electric Railway & Light Co. (preferred).....	* 90	* 90
Norfolk Railway & Light Company.....	25	* 25
North American Company.....	67	69 1/2
Northern Ohio Light & Traction Company (common).....	a75	a75
Northern Ohio Light & Traction Company (preferred).....	a100	a100
Philadelphia Company, Pittsburgh (common).....	39	39
Philadelphia Company, Pittsburgh (preferred).....	39	39
Philadelphia Rapid Transit Company.....	21 1/2	22 1/2
Portland Railway, Light & Power Company.....	58	58
Public Service Corporation.....	107	108
Third Avenue Railway, New York.....	32 3/4	35 5/8
Toledo Railways & Light Company.....	a12	a12
Twin City Rapid Transit Co., Minneapolis (common).....	102 1/2	104
Union Traction Company of Indiana (common).....	4 1/2	4 1/2
Union Traction Company of Indiana (1st preferred).....	80	80
Union Traction Company of Indiana (2d preferred).....	30	30
United Rys. & Electric Company (Baltimore).....	26 1/2	26 3/4
United Rys. Inv. Company (common).....	18	18 1/2
United Rys. Inv. Company (preferred).....	32	35
Virginia Railway & Power Company (common).....	51	51
Virginia Railway & Power Company (preferred).....	89	89
Washington Ry. & Electric Company (common).....	89 1/2	89 1/2
Washington Ry. & Electric Company (preferred).....	87 1/2	87 3/8
West End Street Railway, Boston (common).....	70 1/2	71
West End Street Railway, Boston (preferred).....	85	86
Westinghouse Elec. & Mfg. Company.....	59	61 1/2
Westinghouse Elec. & Mfg. Company (1st preferred).....	106	108

*Last sale. a Asked.

ANNUAL REPORTS

Philadelphia Rapid Transit Company

The income account of the Philadelphia (Pa.) Rapid Transit Company for the years ended June 30, 1913, and 1912 follows:

	1913	1912
Earnings:		
Gross passenger earnings.....	\$23,020,932	\$21,727,468
Receipts from other sources.....	906,246	973,223
	\$23,927,179	\$22,700,691
Expenses—Maintenance and renewals:		
Maintenance.....	2,495,512	2,681,022
Reserve fund for renewals.....	1,093,564	724,081
Total appropriation.....	\$3,589,076	\$3,405,103
Operation of power plants.....	1,454,122	1,531,573
Operation of cars.....	6,129,119	5,765,413
General.....	1,807,948	2,087,968
Taxes.....	1,225,488	1,158,872
	\$14,205,755	\$13,948,831
Net earnings from operation.....	\$9,721,423	\$8,751,860
Fixed charges:		
Interest.....	1,728,222	1,509,473
Rentals.....	7,363,618	7,392,876
Sinking fund, city contract.....	120,000	.....
	\$9,211,840	\$8,902,350
Surplus, 1913.....	\$509,582	*\$150,489

*Deficit.

The balance of surplus account as at June 30, 1913, was \$676,849.

The statement of reserve funds for renewals contained in the report follows:

Appropriation from current assets Dec. 31, 1910, as per requirement of the Stotesbury Management to meet the then estimated deficit of the following three-year period.....	\$1,500,000
Appropriation from income (being the unexpended balance of 15 per cent of gross earnings charged to operation for maintenance and renewals)	
Year ended June 30, 1911.....	604,728
Year ended June 30, 1912.....	724,082
Year ended June 30, 1913.....	1,093,564
Proceeds—Sale of obsolete equipment, etc.....	93,215
	\$4,015,589
From which deduct:	
Deficit year ended June 30, 1911.....	\$415,559
Deficit year ended June 30, 1912.....	150,490
Renewal expenditures:	
50 per cent of the total cost of the first fifty near-side cars and disbursements to June 30, 1913, on account of the 20 per cent down payment required under the car trust plan covering the purchase of 1450 near-side cars*.....	961,530
50 per cent of the cost of standard track reconstruction.....	159,155
Miscellaneous.....	87,629
	1,774,363
Credit balance in fund at June 30, 1913.....	\$2,241,226

*NOTE—20 per cent of the cost of the near-side cars acquired under the Car Trust Agreements is paid directly from the renewal fund, the remaining 80 per cent represented by car trust certificates maturing in equal semi-annual instalments during a twelve year period. Car trust certificates equaling 30 per cent of the cost of these cars mature during the next four or five years and will be paid from the renewal fund, thus making total payments of 50 per cent of the cost of near-side cars from the renewal fund in accordance with the established policy of the company.

In his statement to the stockholders of the company made July 21, 1913, T. E. Mitten, chairman of the executive committee, said in part:

"The Stotesbury management assumed charge and control of the affairs of your company on June 5, 1911, undertaking within a five-year period to furnish to the public an adequate system of transportation, to recognize the efforts of the motormen and conductors in the way of co-operation by such wages as the resulting increased efficiency makes possible and to build up the property of the company and produce to its owners a return upon the \$30,000,000 of capital stock actually paid in.

"The company under date of April 10, 1911, asked permission from the city of Philadelphia to borrow \$10,000,000, the proposed application of the proceeds thereof being duly set forth and including 1300 cars of the most modern type to be furnished during the five-year period ending June 30, 1916. In order to be able to render adequate service to the public it has been demonstrated that a greater number of cars are necessary and this within the much shorter period of two and one-half years ending Dec. 31, 1913. Application was, therefore, made to the city government during February, 1913, to sanction a larger plan of financing providing for the issuance of car trusts to cover the purchase of new equipment then secured or contracted

for or to be later provided, thus releasing a portion of the \$10,000,000 bond issue to finance the additional power development and expenditures for larger carhouses which this policy of expansion entailed. The enabling ordinance being approved by the city, car trust agreements have been executed providing for the issuance of car trust certificates maturing in equal semi-annual instalments during a twelve-year period and covering approximately 80 per cent of the purchase price of 1450 near-side and eighty elevated cars. The first fifty near-side cars purchased in July, 1911, are not covered by the car trust agreements, thus making a total of 1500 near-side and eighty elevated cars, of which 1070 near-side and thirty elevated cars have been received to June 30, 1913, the remaining 430 near-side and fifty elevated cars being on order for delivery prior to Dec. 1, 1913. Six hundred and fifty of the near-side and fifty of the elevated cars were ordered by the company during the fiscal year ended June 30, 1913.

"In accordance with the Stotesbury requirement, 15 per cent of the annual gross earnings are set aside for maintenance and renewals, this in order that the physical integrity of the property may be maintained out of earnings. Following the established policy of the company, 50 per cent of the total cost of the new near-side cars, representing the cost of the small four-wheel cars replaced, will be paid through the medium of the renewal reserve. The car trust plan, therefore, provides that the down payment representing 20 per cent of the cost of these cars be met out of the reserve fund for renewals, as shall also the payments on account of the retirement of the car trust certificates maturing during the next four or five years to an amount equaling 30 per cent of the cost, thus making a total of 50 per cent of the cost of these cars which shall be paid for out of the renewal fund. The car trust certificates representing the remaining 50 per cent of the cost of these cars will commence to mature four or five years hence and will then be refunded by the issuance of capital obligations.

"The sum of \$765,742.45 expended for cars under the head of additional property represents expenditures to June 30, 1913, on account of eighty elevated cars and additional freight, utility and miscellaneous equipment, all of which is new and additional property and therefore properly chargeable, in its entirety, to capital account.

"The expenditures for standard track reconstruction during the two-year period ending June 30, 1913, amounted to \$318,309, of which \$159,154, being 50 per cent thereof and representing the cost of the lighter and obsolete type of track replaced, was charged to the reserve fund for renewals, this also being in accordance with the conservative policy of this company as above set forth.

"The company is enlarging its Beach Street power house and installing approximately 20,000 hp of additional power generating machinery. This increased supply of power, together with 6500 hp of additional purchased power, contracted for delivery from the Philadelphia Electric Company commencing Nov. 15 next, will serve to insure the continuity of the power supply and also make possible the operation of the additional service to be provided during the coming winter.

"A new concrete carhouse, having capacity for 336 near-side cars, has been built at Tenth and Luzerne Streets, and an additional new carhouse at Fifty-eighth and Callowhill Streets capable of housing over 300 near-side cars is now in the course of construction.

"The contract of July 1, 1907, between the city of Philadelphia and the company, provides for the establishment of a sinking fund which will enable the city to acquire, through the purchase of the capital stock, the property and franchises of the company at the expiration of the contract in 1957. This sinking fund is to be built up by certain graduated payments made by the company from its earnings throughout the balance of the term of the city contract. These payments began in July, 1912, and during the past year aggregated \$120,000, as shown in the income account. In accordance with the terms of the city contract, the company has made payments monthly to a commission composed of the Mayor of the city, the president of the company and the president of the board of directors of city trusts.

"Fire insurance policies were taken out as of June 21, 1913, to an amount of \$22,500,000 at a rate of 35 cents per

\$100, representing an annual premium of \$78,750, as against protection of \$21,000,000 secured June 21, 1912, at the rate of 45 cents per \$100, calling for the payment of an annual premium of \$94,500. The rate of premium during the year commencing June 21, 1911, was 50 cents per \$100.

"The company has vigorously carried on its campaign for the prevention of accidents, enlisting towards that end the co-operation of the Board of Public Education, the Department of Public Safety, the county coroner's office and the permanent public safety committee. The good results obtained from this safety crusade are evidenced by the following comparative statistics: The number of passengers carried during the year ended June 30, 1912, increased more than 6 per cent over the year ended June 30, 1911, while the number of accidents showed a decrease of 4.7 per cent as compared with the previous year. During the year ended June 30, 1913, the number of passengers carried again increased over 6 per cent as compared with the preceding year ended June 30, 1912, while the number of accidents showed a further decrease of 8.7 per cent as compared with the previous year.

"This management has earnestly co-operated with the courts in the trial of all cases in which this company is defendant. At the incoming of the Stotesbury management 4367 suits were pending in the courts. The number of suits pending as at June 30, 1913, was 2783, being a decrease of 36 per cent. An analysis of court records shows that there were 3393 cases in which this company was defendant ordered for trial during the court year from Oct. 1, 1912, to June 30, 1913, of which 1358 or over 40 per cent were disposed of by trial or settlement; 1364 or 40 per cent were ready for trial but not reached by the courts; 501 or 15 per cent were continued by the request of the plaintiff; leaving but 170 or 5 per cent which were continued for good legal reasons at the request of this company.

"A general rerouting of the car lines has been undertaken by the company, with a view to providing more direct rapid transit and to make possible the operation of a larger number of cars during the rush hour in the downtown district. The changes throughout the city are so designed as to have the car lines follow closely the direction of greatest travel, as shown by the traffic check made by the company's experts covering two years past, and to provide for the patrons of the several lines the most direct access to the business district which is most essential, as for residential or home-building purposes the distance to the business center is not measured in miles but in minutes."

Extended references are contained in the report to the Co-operative Beneficial Association, the co-operative purchasing plan for employees and to the co-operative plan under which 22 per cent of the gross passenger earnings is set aside in a separate fund for the payment of wages, pensions and death benefits to motormen and conductors.

United Light & Railways Company

The United Light & Railways Company, Grand Rapids, Mich., addressed to the stockholders of the company recently a letter in part as follows showing the growth of the company from June 1, 1912, to March 31, 1913:

"We beg to acquaint you with the growth of your organization from the twelve months' period ending June 30, 1912, up to and including the twelve months' period ending March 31, 1913; this being the period during which your company acquired a large number of properties. No additional properties have been acquired since March 31, 1913.

"Below is a statement of earnings of the subsidiary companies of the United Light & Railways Company. The item 'interest and dividend charges' also includes interest on notes outstanding at the respective periods and all charges are figured on the assumption that the principal amount of the securities were outstanding for the entire twelve months' period.

For Year Ended	Gross	Net	Interest and Dividend Charges	Net Profit
June 30, 1912.....	\$4,480,570	\$1,825,276	\$934,322	\$890,954
September 30, 1912.....	4,542,246	1,872,797	.....	.....
December 31, 1912.....	4,672,054	1,952,798	.....	.....
March 31, 1913.....	5,497,598	2,282,981	1,037,858	1,245,123
Increase, per cent.....	22.7	25	11	39.8

"On June 30, 1912, your company had outstanding its own securities, namely, first preferred, second preferred.

common stock and bonds of a total of \$18,319,597. On March 31, 1913, additional securities having been issued for the purchase of properties and the liquidation of debt, the amount outstanding was \$21,706,890, an increase of 18.5 per cent.

"The interest and dividend charges of the United Light & Railways Company between the two periods mentioned above increased 21.6 per cent, while the surplus remaining after all dividend disbursements (figuring common stock dividends at 4 per cent on the amount outstanding for the respective periods) increased from \$38,543 to \$208,555, an increase of 447 per cent.

"Your company had on its books on Jan. 1, 1911, 267 stockholders, which number was increased to 500 on Jan. 1, 1912, and on July 1, 1913, stands at 1800."

Plans for Sale of Rhode Island Properties

It was reported in Boston on July 19 that a syndicate to include members of the firms of Kidder, Peabody & Company, Stone & Webster and interests identified with the Boston Elevated Railway and the Boston Consolidated Gas Company was being organized to take over the electric railway properties of the New York, New Haven & Hartford Railroad in Rhode Island, the Interstate Commerce Commission having recommended in its recent report that the company divest itself of these and other interests outside of the railroad field. Credence was lent to the report on account of the fact that Stone & Webster contemplate the construction of an interurban railway between Boston and Providence. This work has been delayed for some time owing to the inability of the company to secure a suitable entrance to Providence and a franchise in that city. Charles A. Stone, of Stone & Webster, is quoted by the Boston *Herald* as saying that there is nothing to the report in regard to the purchase of the Rhode Island properties. An official of Kidder, Peabody & Company is also quoted by the *Herald* to the effect that the report is incorrect. Marsden J. Perry, who was interested in the promotion of the Rhode Island Company, is reported to have said that he had heard of no such syndicate and that he "took no stock in the report." Benjamin F. Jackson, president of the United Traction Company, Providence, is reported to have said that the organization of the syndicate was news to him.

Reorganization Plan for Buffalo & Lake Erie Traction Company Involving Through Service Between Rochester, Buffalo, Niagara Falls and Erie

Application has been made to the Public Service Commission of the Second District of New York by the committee representing the holders of the Buffalo & Lake Erie Traction Company first and refunding mortgage 5 per cent, thirty-year gold bonds for the consideration of a proposed plan for the reorganization of the Buffalo & Lake Erie Traction Company and the acquisition by the reorganized company of the capital stock of the Buffalo, Lockport & Rochester Railway and of the capital stock of an electric company to be organized to acquire a certain contract of the Electrical Development Company, Ltd., for the delivery of electrical energy at the international boundary. The Buffalo & Lake Erie Traction Company was unable to pay the interest which matured on Nov. 1, 1912, on its first and refunding mortgage 5 per cent bonds, of which there are outstanding \$7,066,000 par value. A protective committee was organized under an agreement dated Oct. 25, 1912, to represent the aforesaid bondholders, and 80 per cent of the bonds have been deposited with the committee.

The plan formulated by the bondholders' committee is, briefly, as follows: The mortgage securing the said first and refunding bonds of the company will be foreclosed and the property of the company acquired by the committee for the bondholders. A new company will be organized to take over the property at the foreclosure sale. The new company will issue in payment of the said property \$6,000,000 of its mortgage bonds, which will be secured by a mortgage on the property of the company, and \$448,000 of its capital stock. This mortgage will provide for the issue of additional bonds in the future for extensions, improvements and betterments. Messrs. Bertron, Griscom & Company, New

York, will surrender to the committee for cancellation \$1,066,000 of the said first and refunding mortgage bonds of the committee and will also surrender to the committee for cancellation the unsecured indebtedness of the company, amounting to about \$435,000, and will also reimburse the committee for the moneys borrowed by it to advance to the first and refunding mortgage bondholders the interest which accrued on Nov. 1, 1912, on their bonds. These bankers will also pay the expenses of the reorganization and provide working capital for the new company.

In pursuance of this plan the unsecured indebtedness of the company will be paid and the bondholders will receive in place of existing bonds the bonds of the new company, dollar for dollar, thus making a reduction in the amount of bonds outstanding against the property of the company of \$1,066,000. The new bonds to be received by the old bondholders will not commence to draw interest until Jan. 1, 1915. They will draw interest for the year 1915 at the rate of 2 per cent per annum, for the year 1916 at the rate of 3 per cent, and for the year 1917 and the years thereafter at the rate of 5 per cent per annum. The new company will acquire more than 80 per cent of the \$4,000,000 of the capital stock of the Buffalo, Lockport & Rochester Railway, and will issue in payment therefor \$866,700 of its capital stock. The western terminus of the Buffalo, Lockport & Rochester Railway is at Lockport and in order to connect the new company with the Buffalo, Lockport & Rochester Railway and obtain an entry to Niagara Falls the new company will lease the Lockport division of the International Railway and obtain contracts over the International Railway and the tracks of the railway to be built on the frontier right-of-way between Buffalo and Niagara Falls. In this way a through service will be established between Rochester, Buffalo, Niagara Falls and Erie, Pa. It is contemplated that the new company will also acquire the capital stock of an electrical company to be organized to take over an existing contract with the Electrical Development Company, Ltd., of Ontario, and the Toronto Power Company, Ltd., for the delivery of 46,000 hp at the international boundary, thus assuring an ample supply of power for the lines of road between Rochester and Erie, and leaving a large surplus of power for distribution in the territory served by the above-mentioned lines.

The commission has set a hearing on this application for July 31, 1913, at Buffalo.

Conference in Regard to Proposed Toronto Purchase

Mayor Hocken of Toronto, Ont., made the following announcement recently in regard to the proposed purchase of the property of the Toronto Railway and Toronto Electric Light Company:

"Sir William Mackenzie and I have reached agreement with the exception of one thing. We will have another conference on July 17, and at that time I hope to arrange everything to the satisfaction of the citizens. If the outcome of the conference on July 17 is satisfactory I will notify the experts at once, and the work of valuing the properties will be commenced."

Following the meeting of July 17 the Mayor is reported to have said:

"The first thing we have to do is to put the experts to work, and if their report is satisfactory, it will be put into the hands of the solicitors to prepare a formal document on the basis laid down. According to the tentative agreement which has been arranged we will get what we thought we ought to get, and concede to the companies the things that we thought they were entitled to. I am prepared to recommend to the Council on the basis as agreed upon for adoption, assuming that the report of the experts is favorable and the consent of the Ontario Hydroelectric Power Commission is obtained. The experts appointed to value the railway and electric properties will start work at once, and will probably finish by Aug. 15."

American Water Works & Guarantee Company, Pittsburgh, Pa.—L. L. McClelland, of J. S. & W. S. Kuhn, Inc., Pittsburgh, has addressed the clients of that firm in part as follows: "Upon the closing of the First-Second National Bank, Pittsburgh, of which W. S. Kuhn was president, it was deemed advisable by the officers of both the American

Water Works & Guarantee Company and of J. S. & W. S. Kuhn, Inc., to apply to the courts for receiverships in order to conserve the assets of these two corporations for the protection of creditors, bondholders and stockholders against the possible results of any impairment of credit which might be caused by the closing of such a large institution, with which the Messrs. Kuhn had been identified. Neither the bonds, loans nor any other financing of the American Water Works & Guarantee Company, nor of J. S. & W. S. Kuhn, Inc., caused the closing of the First-Second National Bank. The receiverships of these two corporations were asked for primarily as protective measures. In my judgment, everything that is possible is being done looking to the protection of your interests and those of all concerned."

Chicago & Oak Park Elevated Railroad, Chicago, Ill.—A decree was filed by Judge Kohlsaet in the United States District Court at Chicago on July 17, ordering the sale of the property of the Chicago & Oak Park Elevated Railroad at public auction unless certain obligations were met within the next ten days. These aggregate \$5,080,984. As the syndicate which owns the other elevated lines of the city holds the debts against the Oak Park it will probably buy the property. The bid must be sufficient to cover the receivers' certificates both as to principal and interest. The minority stockholders who have been opposing the receivership are said to have agreed to have the affairs of the corporation settled.

Chicago, Waukegan & Fox Lake Traction Company, Chicago, Ill.—The Chicago, Waukegan & Fox Lake Traction Company is reported to have arranged to take over the property of the Woodstock & Sycamore Traction Company, which has been operating McKean gasoline motor cars between Marengo, Genoa and Sycamore.

Columbus Railway & Light Company, Columbus, Ohio.—At a meeting of the reorganization committee of the Columbus Railway & Light Company and its underlying properties on July 15 it was decided to extend the time of depositing securities until Sept. 15. More than the required two-thirds of the stock of all the companies, except the Columbus Light, Heat & Power Company, has been deposited.

Dayton (Ohio) Street Railway.—The *Dayton News* says: "Negotiations have been inaugurated which will probably result in the merger of all the local street railways. In the event that the plans are successfully consummated it will mean that the properties of the City Railway, the Oakwood Street Railway, the People's Railway, the Dayton Street Railway and the city lines of the Ohio Electric Railway and the Dayton, Springfield & Xenia Southern Railway will be operated under one management. The negotiations, so far as they have advanced, have been conducted by Adam Schantz, the largest stockholder in the Dayton Street Railway, and William A. Keyes, president of the Dayton Street Railway, representing the local interests, and C. L. S. Tingley, Philadelphia, second vice-president of the American Railways, of which the People's Railway is a part."

Hudson & Manhattan Railroad, New York, N. Y.—At the annual meeting of the Hudson & Manhattan Railroad on July 17 the following were elected directors, in accordance with the new financing plan of the company: C. W. Davison, vice-president of the Central Trust Company; J. J. Hanauer, of the firm of Kuhn, Loeb & Company; Alexander J. Hemphill, president of the Guaranty Trust Company; John W. Platten, president of the United States Mortgage & Trust Company, and W. H. Williams, vice-president of the Delaware & Hudson Company. The new directors replace William G. McAdoe, who resigned from the board to become Secretary of the Treasury of the United States; F. A. Briggs, deceased; William H. Barnum, F. B. Jennings, and J. G. McCullough, who resigned. The following remain members of the board: L. L. Clarke, Pliny Fisk, Wilbur C. Fisk, E. H. Gary, R. W. Meirs and W. G. Oakman. The plan for the readjustment of the company's debt, which has been formally approved, provided for the management of the company for a period of five years at least by a voting trust. Three voting trustees have been named: Charles Francis Adams, treasurer of Harvard University; Felix M. Warburg, of Kuhn, Loeb & Company, and Albert H. Wiggen, president of the Chase National Bank.

Mankato (Minn.) Electric Traction Company.—An initial dividend of 5 per cent has been declared on the \$28,850 of outstanding preferred stock of the Mankato Electric Traction Company.

Middle West Utilities Company, Chicago, Ill.—The Middle West Utilities Company proposes to issue \$2,000,000 of three-year 6 per cent collateral notes out of an authorized issue of \$3,500,000. According to the official announcement the "proceeds of the issue will be used to complete payments on properties heretofore contracted for, to provide funds for the development of subsidiary companies, and to fund the floating debt of the company."

Nebraska Traction & Power Company, Omaha, Neb.—The Omaha & Lincoln Railway & Light Company has been incorporated in Nebraska with a preliminary capital stock of \$750,000, presumably by the McKinley interests, as the successor to the Nebraska Traction & Power Company, the property of which was purchased recently at receiver's sale by W. B. McKinley, president of the Illinois Traction System. The purpose of the company, as stated in the articles of incorporation, is to construct an electric railway from Omaha to Lincoln. The incorporators are W. L. Loomis, E. W. Bradford, R. E. Borkenhagen, S. J. Howell and Justin Refrigerier.

New York, New Haven & Hartford Railroad, New Haven, Conn.—A special meeting of the stockholders of the New York, New Haven & Hartford Railroad will be held in New Haven on Aug. 22 to vote to authorize \$67,552,400 of 6 per cent debentures convertible into stock at any time after five years from their date until, but not later than, fifteen years from their date at the rate of one share of stock for each \$100 of debentures. The stockholders also will vote to authorize an increase in the capital stock by issuing 675,524 additional shares of \$100 each, as necessary for the conversion of the debentures. The present amount of capital stock outstanding is \$180,013,200. Mr. Mellen in explaining the issuance of the debentures said that \$400,000,000 was for indebtedness maturing on Dec. 1, 1913, and \$5,000,000 maturing on Feb. 1, 1914, and that the balance was to be used in completing the electrification to New Haven, and for new steel cars, passenger equipment and other necessary improvements, such as the elimination of grade crossings.

Northern Ohio Traction & Light Company, Akron, Ohio.—Application has been filed with the Public Service Commission by the Northern Ohio Traction & Light Company for authority to issue \$360,000 of preferred capital stock and \$2,680,000 of general mortgage bonds to provide funds to double-track the line between Akron and Canton and to make other improvements.

Ocean Shore Railroad, San Francisco, Cal.—The Ocean Shore Railroad applied to the Railway Commission of California for approval to issue first mortgage bonds to secure a proposed loan of \$250,000. It appeared that, prior to the filing of the application, legal proceedings were begun and are pending against the company, involving, among other questions, the legality of the authorization of the bonds. Accordingly, further proceedings were ordered suspended until the court having jurisdiction shall have rendered its decision.

Public Service Company of Northern Illinois, Streator, Ill.—Out of an authorized issue of \$3,500,000 of three-year 6 per cent collateral gold notes of the Public Service Company of Northern Illinois \$2,500,000 are being offered by Lee, Higginson & Company, Russell, Brewster & Company, and N. W. Halsey & Company. The price is 97.34 and interest, yielding 7 per cent. The issue is secured by a deposit with the Illinois Trust & Savings Bank, trustee, of \$3,125,000 par value of the company's first and refunding 5 per cent bonds and the notes are convertible into these securities at 95. The date of the notes is July 1, 1913, and they are in denominations of \$1,000, \$500 and \$100, being callable as a whole at 100½ on any interest date. The ratio of security is 100 to 125, and bonds against which the notes are issued are in turn secured by a lien on all the property now owned or to be acquired by the company, subject in part to \$18,587,100 prior lien bonds of which 18 per cent, or \$3,434,000, are pledged under the mortgage. The purpose of the issue is to provide funds to pay

the remaining \$1,500,000 of the purchase of the Northwestern Gas Light & Coke Company, to fund floating debt and to provide for construction to be completed during the current year.

San Diego & Southeastern Railway, San Diego, Cal.—The Railroad Commission of California has authorized the San Diego & Southeastern Railway to issue bonds to the amount of \$543,000, the proceeds of which will be used in making additions and betterments to the company's property.

Springfield (Ohio) Railway.—Application has been made to the Public Service Commission of Ohio by the Springfield Railway for authority to issue \$1,244,000, par value, of first mortgage bonds and 3568 shares of preferred stock. The company also asks for permission to retire \$500,000 of first mortgage bonds, pay the floating debt and purchase ten new cars.

Dividends Declared

American Railways, Philadelphia, Pa., quarterly, 1¼ per cent.

Auburn & Syracuse Electric Railroad, Syracuse, N. Y., quarterly, 1½ per cent, preferred.

Brazilian Traction, Light & Power Company, Ltd., Toronto, Ont., quarterly, 1½ per cent.

Cumberland County Power & Light Company, Portland, Me., quarterly, 1½ per cent, preferred.

Grand Rapids (Mich.) Railway, quarterly, 1½ per cent, preferred.

Monongahela Valley Traction Company, Fairmont, W. Va., 2½ per cent, preferred.

Ottumwa Railway & Light Company, Ottumwa, Ia., quarterly, 1¾ per cent, preferred.

Railways Company General, New York, N. Y., quarterly, 1 per cent.

United Power & Transportation Company, San Francisco, Cal., \$1.26.

West Penn Railways, Pittsburgh, Pa., quarterly, 1¼ per cent, preferred.

York (Pa.) Railways, \$1.25, preferred.

ELECTRIC RAILWAY MONTHLY EARNINGS

Period		Gross Earnings	Operating Expenses	Net Earnings	Fixed Charges	Net Surplus
AMERICAN RAILWAYS COMPANY, PHILADELPHIA.						
1m.,	June, '13	\$446,471	.....	.....	.....	.....
1 "	" '12	417,804	.....	.....	.....	.....
12 "	" '13	5,130,840	.....	.....	.....	.....
12 "	" '12	4,869,391	.....	.....	.....	.....
CLEVELAND, PAINESVILLE & EASTERN RAILWAY, WILLOUGHBY, OHIO.						
1m.,	May, '13	\$37,245	*\$20,559	\$16,686	\$10,421	\$6,265
1 "	" '12	34,804	*19,668	15,136	9,927	5,209
5 "	" '13	147,551	*84,864	62,687	52,149	10,538
5 "	" '12	135,050	*86,344	48,706	49,452	†746
KENTUCKY TRACTION & TERMINAL COMPANY, LEXINGTON, KY.						
1m.,	May, '13	\$67,540	\$32,539	\$35,000	\$19,206	\$15,794
1 "	" '12	61,006	35,984	25,923	17,298	7,725
11 "	" '13	702,624	368,449	334,175	206,122	128,053
11 "	" '12	650,427	386,815	263,612	190,953	72,659
LAKE SHORE ELECTRIC RAILWAY, CLEVELAND, OHIO						
1m.,	May, '13	\$116,371	*\$72,344	\$44,026	\$35,079	\$8,947
1 "	" '12	107,140	*63,553	43,587	34,689	8,988
5 "	" '13	498,932	*330,362	168,570	174,971	†6,400
5 "	" '12	466,336	*294,237	172,099	173,737	†1,638
NEW ORLEANS RAILWAY & LIGHT COMPANY, NEW ORLEANS, LA.						
1m.,	May, '13	\$556,492	*\$308,277	\$248,214	\$206,995	\$41,219
1 "	" '12	547,040	290,254	256,786	183,244	73,542
5 "	" '13	2,905,265	1,499,843	1,405,422	987,786	417,637
5 "	" '12	2,819,639	1,430,758	1,388,881	915,488	473,392
NORTHERN OHIO TRACTION & LIGHT COMPANY, AKRON, OHIO						
1m.,	May, '13	\$379,992	*\$167,697	\$112,295	\$45,214	\$67,081
1 "	" '12	255,104	*142,804	112,299	43,821	68,479
5 "	" '13	1,205,720	*750,103	455,616	225,510	230,106
5 "	" '12	1,100,375	*638,342	462,033	219,108	242,925
UNION RAILWAY, GAS & ELECTRIC COMPANY, ROCKFORD, ILL.						
1m.,	May, '13	\$395,679	*\$209,549	\$186,130	\$128,302	\$88,406
1 "	" '12	275,795	*168,231	107,564	68,086	39,478
12 "	" '13	4,463,916	*2,536,657	1,927,259	1,172,292	814,116
12 "	" '12	3,387,666	*1,963,606	1,422,060	781,884	642,176
VIRGINIA RAILWAY & POWER COMPANY, RICHMOND, VA.						
1m.,	May, '13	\$424,549	*\$206,983	\$217,567	\$128,302	\$89,265
1 "	" '12	386,854	206,218	180,535	119,588	61,047
11 "	" '13	4,524,297	2,219,111	2,305,186	1,372,292	632,894
11 "	" '12	4,234,382	2,215,063	2,019,320	1,302,606	716,714

*Includes taxes. †Deficit.

Traffic and Transportation

Through Elevated Routes and Extension of Loop Platforms Authorized in Chicago

The City Council of Chicago passed on July 21 the ordinance providing for through routes on the elevated lines, for extension of the union loop platforms and for other elevated improvements. It eliminated, however, the section providing for a downtown terminal subway for the elevated lines.

The extensions of platforms at the stations on the union loop, which the companies have tried for a number of years to get the city to permit, are not to be uniform in length. At Randolph and Washington Streets the platforms may be extended south approximately 6 ft. At the station in Fifth Avenue near Randolph Street the platforms may be extended south approximately 336 ft. The platforms may be extended south approximately 9 ft. at Fifth Avenue and Madison Street. At Fifth Avenue and Quincy Street the platforms may be extended north approximately 50 ft. At Van Buren and La Salle Streets the platforms may be extended east approximately 48 ft. At the Metropolitan line station at Van Buren and Franklin Streets the platforms may be extended 140 ft. west. The width of each platform extension shall not exceed the width of the platform to which it is an extension except in one instance.

The ordinance also provides for the construction of additional stairways at certain loop stations. Transfer bridges above the tracks are to be built at some of the loop stations. Necessary changes in the alignment of tracks and necessary alterations in or additions to the structure, designed to permit cars of the Northwestern company to pass to the track of the South Side company and the South Side cars to pass to the Northwestern track are authorized, except that no additional columns shall be erected in the streets.

Each of the four operating companies is authorized to construct additions to its station platforms outside of the union loop so as to make the total length of each platform not more than 330 ft. in order that it may accommodate a seven-car train.

A connection between the Chicago & Oak Park line and the Metropolitan line, at the point where one crosses over the other, is authorized.

The Chicago & Oak Park line is authorized to construct a third track upon its structure between certain points. A definite time for completion of the various changes is prescribed. After the completion of the work so many of the trains of the Northwestern line shall be through-routed over the union loop and over and upon the tracks of the South Side company and so many of the trains of the South Side company shall be through-routed over the union loop and over and upon the tracks of the Northwestern company "as shall be reasonably necessary to give adequate transportation service, subject to the supervision of the City Council." Each of these companies may operate into stub terminals or around the union loop any of its trains not so through-routed. Any passenger may transfer from any one of the four operating companies to any other one of the four operating companies at any union loop station where provision is made for transfer or at any other joint station where the cars of both companies shall stop without the payment of additional fare.

Ruling in Regard to Free Transportation in Missouri

The Southwest Missouri Railroad filed a petition with the Public Service Commission of Missouri recently requesting a construction of Section 35 of the Public Service Commission Law, relating to the subject of free transportation of passengers by common carriers, and particularly with reference to the authority of that company to continue to carry free of charge certain persons named in the petition to whom free transportation had theretofore been issued. In 1898 the Southwest Missouri Electric Railway owned and operated an electric railway in Jasper County, Missouri, running from Carthage through Carterville and Webb City to Joplin. Pursuant to a resolution adopted by

the board of directors in 1898, certain certificates, under the seal of the company, were issued to the directors, purporting to entitle them to free transportation over the lines of that company, its successors and assigns during their natural lives. The consideration for such transportation, as recited in the resolution, was alleged promotion services rendered by the said directors without compensation. The Southwest Missouri Railroad subsequently acquired the property of the Southwest Missouri Electric Railway and has honored the certificates of free transportation, but upon the enactment of the Public Service Commission law, being in doubt as to its authority to continue so to do, asked for a construction of the law as to its duty in the premises.

In its finding the commission says in part:

"The purpose of the law was to prevent discrimination and to secure to all the same rights and privileges. Construing similar statutes the courts have held that as to persons not excepted in the act, nothing but money and that in amount as fixed by the published schedules on file shall be received as compensation by the carrier for transportation. In the case before us alleged services were recited as a consideration for the issuance of the free passes. In others such passes have been issued in consideration of a right-of-way granted to the carrier, or in settlement of a claim for damages, or to enable the passenger to render service in the cause of religion, science, education or charity, and doubtless many others could be enumerated, but whatever the consideration upon which such transportation has been issued in the past, the Legislature, in the interest of the public welfare, has ordained that henceforth, with the exceptions expressly noted in the law, the payment of the regular fare in money will alone authorize the carrier to transport passengers. No other or different compensation will answer and unless the person claiming the privilege of free transportation can bring his case within one of the classes of exceptions to the law against free passes, he must pay the fare in cash.

"In the case of Railroad Company v. Mottley, 219 U. S. 467, the Supreme Court of the United States had before it a provision of the Interstate Commerce Law almost identical with that under consideration, and the decision in that case may be regarded as the last word upon the subject. Construing that law, the Court (l. e. 479) said:

"It solved the question when, without making any exceptions of existing contracts, it forbade by broad, explicit words any carrier to charge, demand, collect or receive a 'greater or less or different compensation' for any services in connection with the transportation of passengers or property than was specified in its published schedules of rates. The court cannot add an exception based on equitable grounds when Congress forbore to make such an exception. *Yturbide v. United States*, 22 How. 290, 293. The words of the act therefore must be taken to mean that a carrier, engaged in interstate commerce, cannot charge, collect or receive for transportation on its road anything but money."

"Although the contract under which the free transportation was issued was a valid contract at the time it was entered into, that fact does not change the rule, for, as said in the Mottley case, supra:

"'If one agrees,' said Mr. Parsons, 'to do a thing which it is lawful for him to do and it becomes unlawful by an act of the Legislature, the act avoids the promise.'"

"It follows that under the facts alleged in the petition, even assuming that the transportation at the time it was issued was for a valid consideration, it is our opinion that on and after July 31, 1913, it would be unlawful for the petitioner to continue to carry the persons named in the petition upon the certificates of free transportation described."

The Recent Vote on the Co-operative Plan in Philadelphia

Co-operative Bulletin No. 20, issued by the Stotesbury management of the Philadelphia (Pa.) Rapid Transit Company under date of July 18, 1913, refers to the third step in the rerouting plan of the company, the prevention of accidents, the result of the recent vote on the co-operative plan, the change in the pay period, the audit of the 22 per cent fund, and the co-operative benefit association. As

stated in the *ELECTRIC RAILWAY JOURNAL* of July 12, 1913, the vote to continue the co-operative plan in force for another year, taken on July 7, 1913, was 4320 in favor of the plan as compared with 2028 against it. In this connection the management says in part:

"Upon the invitation of the management to its men, 6355 motormen, conductors and trainmen, comprising more than 93 per cent of those entitled to vote, went to Horticultural Hall on July 7, for the purpose of expressing their desire as to a continuation of the present plan of co-operation between the management and its men as individuals.

"The number of men who, by voting 'No,' expressed their desire that the company deal with organized labor, instead of with the men as individuals, is less than one-half of the number who expressed themselves in favor of a contract with organized labor at the vote in Nov., 1911. As a result of this vote, the co-operative plan with the men, as individuals, as now in force, will be continued for another year.

"The work of the co-operative committee and of the management in their co-operative effort to increase the wages and improve the working conditions of the men is thus shown to have borne good fruit. There now remains but a small minority of the men who, as yet, fail to realize the great advantage to be secured by a continuation of the co-operative plan with the men as individuals.

"The co-operative committeemen should now endeavor to determine what measure of reason or justice is behind this difference of opinion as expressed by the small minority. If this attitude is based upon a just cause for complaint, every effort should be made by the co-operative committeemen and the management to remove the cause of this disaffection. If, on the other hand, these men are being misled or misinformed by those whose interest it is to interfere with the progress now being made, every effort should be made by the co-operative committeemen to destroy the effect of such misrepresentation, to the end that all men may see the light and join in the good work by putting their shoulders to the wheel."

Newark-Trenton Passenger and Milk Tariff

The proposed increased schedule of passenger rates on the Trenton Terminal Railroad, now operated by the Public Service Railway between Newark and Trenton, has been approved by the Board of Public Utility Commissioners, in so far as it relates to the through rates between Trenton and New Brunswick. The board had already approved the continuous service rate between Newark and Trenton, and its latest order sanctions all the charges proposed by the line. The board has also approved in effect a proposed increase in the charge of the same company for the transportation of milk from various points on its lines to Trenton. It disapproves, however, a proposed minimum charge of 15 cents for a single can, regardless of size. To fix this minimum, the board held, would constitute an unjust discrimination against the small shipper. The board announced that if the company would agree to eliminate this minimum charge feature the milk schedule would also be approved. Under the new passenger schedules, which may now take effect immediately, the single fare between Trenton and New Brunswick will be 50 cents and the excursion, or round trip fare, 85 cents.

The new milk tariff which the board has expressed its willingness to approve, with the elimination of the minimum single can charge, is 7½ cents for a twenty-quart can; 11½ cents for a thirty-quart can; and 15 cents for a forty-quart can. The rates also include the return of empty cans. They are made irrespective of distance, the maximum haul being about 20 miles. Under the present schedule the milk tariff is 5 cents for a twenty-quart can and 7½ cents for a thirty-quart can and 10 cents for a forty-quart can. In its memorandum the board pointed out that the proposed advances in the milk schedule seemed to be fairly in line with charges of other companies for comparable service. In refusing to sanction the minimum charge for a single can, the board remarked that if a car was stopped at any station to take on or put off a single passenger without extra charge, it should do the same for a single can of milk.

The through service between Newark and Trenton was established recently.

Annual Report of Montreal Tramways Mutual Benefit Association

The tenth annual pamphlet report of the Montreal Tramways Mutual Benefit Association, composed of employees of the Montreal (Que.) Tramways, has been issued. It is for the year ended April 30, 1913, and was submitted at the annual meeting of the members, held on June 28, 1913. The following is a summary of the relief work done during the year as compared with the preceding year:

	1912-13	1911-12
Number of members disabled through sickness or injury	1,205	1,173
Number of visits made by physicians to disabled members	695	626
Number of consultations given by physicians to disabled members	7,690	7,587
Number of prescriptions issued	5,769	5,811
Amount paid for sickness and injury	\$10,065	\$10,274
Amount paid for medicine	\$1,840	\$1,725
Amount paid for pensions	\$408	\$354
Amount paid for withdrawals	\$508	\$296
Amount paid for death and burial insurance	\$7,083	\$12,533

J. E. Hutcheson, the president of the association, concluded his report as follows:

"It will be of interest to members to learn that since the organization of the association the following amounts have been paid out in benefits:

Death and burial claims	\$67,643
Sickness and injury benefits	83,765
Medicine	14,548
Medical attendance	19,682
Pensions	1,755
Refunds	1,089
Total	\$189,292

"Your committee of management gratefully acknowledges the special Christmas donation of \$1,000 received from the Montreal Tramways. This makes the total contributions received from the company \$18,318, and this amount added to the fees and dues received from the members, viz., \$16,651, and the proceeds of the picnic and the interest on investments and bank deposits amounting to \$15,506, make a total revenue for the year of \$50,476. As the expenses were \$28,795, the surplus is \$21,680."

Automatic Blocks Recommended for Venice Short Line

On his arrival in Los Angeles on June 15 Paul Shoup, president of the Pacific Electric Railway, Los Angeles, Cal., made a statement in part as follows in regard to the accident on that line near Venice on July 13, referred to in the ELECTRIC RAILWAY JOURNAL of July 19, 1913, page 121:

"I have recommended the immediate installation of automatic block signals on the Venice Short Line as a beginning. To-day we begin the establishment of a temporary block system manually operated until the other is built. I am informed that between Vineyard and Venice there has never been a fatality from a collision heretofore though millions of people have been handled by that line.

"During the year ended June 30, 1913, the Pacific Electric Railway carried 78,796,000 passengers, and of these one was killed in an accident resulting from collision and derailment and free from other causes.

"We ask the public to bear with us in this hour of trial, and not to forget that this company has tried faithfully for many years to serve and build up this community and, I think on the whole, that it has done so to your satisfaction. I arrived home only this morning. The testimony as to the accident is not yet so complete that I care to comment on it. We should like to hear from every passenger who can aid us in gaining full information."

Rules Governing Operation in Washington, D. C., Modified

New regulations governing the equipment and operation of cars in the District of Columbia have been adopted by the Public Utilities Commission. The rules, framed originally by the District Electric Railway Commission and promulgated, with a number of changes, by the new commission, will become operative as soon as copies have been furnished the companies. Probably the most drastic change provided for is one under which the companies may operate trailers of any type, provided separate conductors are supplied when cars are operated in pairs. The

former railway board abolished the use of single-truck "trailers."

The rules say that before any new car may be placed in operation, plans for the type proposed to be installed must be submitted to the commission for approval. A provision in the order clearly defines the city and suburban sections as traversed by each railway line. As a result, motormen will know exactly when they may increase the speed of the cars upon reaching the suburban sections. It is stipulated that cars must stop within 20 ft. of crossings and not start until cars going in the opposite direction have passed over the street. Passengers are prohibited from standing on running boards. Air brakes must be installed by Dec. 1, 1914, on all cars weighing sixteen tons or more. Each car must have an illuminated front-end sign and also a sign indicating the route to be followed. Additional requirements are contained in the new regulations with respect to wheel guards.

Three-Cent Ordinance in Jacksonville.—An ordinance introduced into the Council of Jacksonville, Fla., by C. L. Bonney, providing for a 3-cent fare on the electric railways in Jacksonville, has been referred to the committee on public service.

Permission to Discontinue Car Denied.—The Public Service Commission has denied the application of the Cincinnati, Georgetown & Portsmouth Railway, Cincinnati, Ohio, to take off a car running between Cincinnati and Batavia in the evening.

Berkshire Street Railway Asks Freight Rights.—The Berkshire Street Railway, Pittsfield, Mass., has petitioned the Public Service Commission for authority to act as a common carrier of baggage and freight in Lenox, the authorities of that town failing to act within the prescribed time.

Agreement Between Company and Employees in Providence.—D. F. Sherman, vice-president of the Rhode Island Company, Providence, R. I., has announced that the differences between the officers of the company and the employees in regard to wages and terms of service have been adjusted.

Schenectady Fare Case.—The hearing on the application which is before the Public Service Commission of the Second District of New York to require the Schenectady Railway to sell six tickets for 25 cents has been continued until Sept. 15. The testimony is being presented before Commissioner Decker.

Request in Regard to Route Signs in Buffalo.—Business men's associations and other civic organizations in Buffalo, N. Y., have sent a communication to Edward G. Connette, president of the International Railway, Buffalo, N. Y., asking that the route of the car be placed on the rear of the new near-side cars. At present the route is displayed only in the front window of the car.

Reduction in Fare During Summer.—The Orange County Traction Company, Newburgh, N. Y., has reduced the one-way ticket fare in both directions between Newburgh and Orange Lake Park, for passage between the hours of 7 p. m. and 12 midnight, to 5 cents. The reduction is from 15 cents cash fare or 10 cents commutation fare and is effective from July 7, 1913, to Aug. 31, 1913.

Insurance for Third Avenue Railway Employees.—F. W. Whitridge, president of the Third Avenue Railway, New York, N. Y., has addressed a circular to the members of the benefit association organized among the men giving the particulars of the insurance plan for the men to which Mr. Whitridge referred in his report in regard to the operations of the company for the six months ended June 30, 1913, which was abstracted in the ELECTRIC RAILWAY JOURNAL of July 19, 1913, page 116.

British Columbia Electric Railway Folder.—The British Columbia Electric Railway, Vancouver, B. C., has issued a traffic folder, "Trips for Tourists," in which the interurban trips over the company's lines are described. The folder is on white paper printed in black and red, and in the center there is a double-page bird's-eye view which conveys an excellent idea of the extent of the territory covered by the company's lines. There are many excellent half-tone en-

gravings made from photographs of places of interest in the territory through which the company operates.

Complaint Against Buffalo Southern Railway.—Devoe P. Hodson, of the Public Service Commission for the Second District of New York, has directed John J. Snyder, Ebenezer, N. Y., to file a formal complaint against the Buffalo Southern Railway, operating between Buffalo, Orchard Park, Armour and Hamburg, N. Y., because it does not stop its East Aurora express at two of the principal points in Ebenezer, but runs through from the city line of Buffalo to the city line of Ebenezer.

Conference in Cincinnati in Regard to Transfers.—W. Kesley Schoepf, president, and Walter A. Draper, secretary of the Cincinnati Traction Company, conferred with the committee on street railways of the City Council on July 18 in regard to the question of universal transfers. The officers of the company expressed their willingness to issue transfers at points where there is a demand for them and where they are not now issued, but they are opposed to the measure now before the Council to require the company to issue universal transfers. There will be a public hearing on the question at an early date.

Staten Island Transfer Arrangement Discussed.—The proposed arrangement between the New York (N. Y.) Railways and the city for a combined service between the Staten Island municipal ferries and the cars of the company at South Ferry was discussed recently in the office of Mayor Gaynor by the members of the special transit committee of the Board of Estimate for the city and Frank Hedley, general manager, and James L. Quack-enbush, counsel for the New York Railways. Mr. Quack-enbush said that the company from the first had maintained that it was impossible for it to consent to carry the passengers from the ferry for less than 3 cents.

Plea for Commutation Rates Dismissed.—The Railroad Commission of California on May 24, 1913, handed down a decision in a commutation case in favor of the San Diego Electric Railway, San Diego, Cal. This company, operating an electric railway and ferry between the city of San Diego and Coronado, a residential-suburb, accords to residents of Coronado a special family commutation rate. A resident of Coronado urged, upon the ground of "justice and equity," that the failure of the company to accord a like privilege to residents of the city of San Diego is a discrimination, and asked that the discrimination be removed by requiring the company to put in a joint commutation ticket similar in character applying between San Diego and Coronado and return. On the ground of different circumstances and conditions in the traffic to and from Coronado and to and from San Diego, however, the complaint was dismissed.

The Seat-for-Every-Passenger Idiocy.—The *St. Louis Star* said recently in an editorial: "The *Star* gave no encouragement to the 'seat for every passenger' idiocy. Anyone except a newspaper editor or other person unfamiliar with practical railroad operation knows that a seat for every passenger during rush hour is impractical. The appearance of Robert McCulloch, general manager of United Railways, before the sanitation committee of the Council and the talk he made to that committee show very clearly that he and the men he represents in the operation of the system are setting to work with honest intent and effort to correct the physical deficiencies of the system. Captain McCulloch announces that 200 new cars have been ordered and promises to have them in service by winter; he likewise announces that all of the cars of the company are being equipped properly with ventilators and that when the winter comes the legally designated temperature will be maintained. These are facts and they concern the public directly. Captain McCulloch is entitled to be taken at his word when he announces that he is trying to provide better facilities and better service in St. Louis. There is little doubt that he is doing approximately the best he can and as quickly as he can do it with the resources at hand. This newspaper believes it will be doing the riders of St. Louis better service by keeping United Railways and its operating management cognizant of their promises than by the silly and stupid methods of attack indulged in by some of the other newspapers of the city."

Personal Mention

Mr. James Furey has been appointed roadmaster of the Hartford & Springfield Street Railway, Warehouse Point, Conn., to succeed Mr. Henry K. Greenwood.

Mr. William Bradley has been elected president of the Cumberland County Power & Light Company, Portland, Maine, to succeed Mr. Charles O. Bancroft.

Mr. Robert J. Waller has been appointed chief engineer of maintenance of way of the Otsego & Herkimer Railroad, Cooperstown, N. Y., to succeed Mr. C. S. Lee.

Mr. Lee Skipwith has been appointed purchasing agent of the Hot Springs (Ark.) Street Railway to succeed Mr. S. E. Dillon, who continues as general manager.

Mr. H. W. Ridgway has been appointed superintendent of motive power of the Denver & Interurban Railroad, Denver, Col., to succeed Mr. H. C. Van Buskirk.

Mr. J. J. Spindler has been elected treasurer of the Omaha & Council Bluffs Railway & Bridge Company, Council Bluffs, Ia., to succeed Mr. E. E. Harte.

Mr. Frank Mather has resigned as superintendent of the Walden Avenue carhouse of the International Railway, Buffalo, N. Y. No successor has been appointed.

Mr. H. N. Crandall, who has been treasurer of the Aroostook Valley Railroad, Presque Isle, Me., has in addition been appointed claim agent of the company.

Mr. William Roberts has been appointed superintendent of motive power of the Canton-Akron Consolidated Railway, Canton, Ohio, to succeed Mr. W. E. Salber.

Mr. Frank L. Butler, receiver of the Alton, Jacksonville & Peoria Railway, has been appointed general manager of the County Traction Company, Oak Park, Ill.

Mr. William A. House, president of the United Railways & Electric Company, Baltimore, Md., has been elected a director of the Fidelity Trust Company, Baltimore, Md.

Mr. James E. Dick has been appointed chief engineer of power station of the Hanover & McSherrystown Street Railway, Hanover, Pa., to succeed Mr. R. B. McKinnon.

Mr. Thomas M. Leahy has been appointed assistant secretary and assistant treasurer of the American Light & Traction Company, New York, N. L., to succeed Mr. E. A. Smith.

Mr. J. E. Adams has been appointed traffic manager of the Stockton Terminal & Eastern Railroad, Stockton, Cal., to succeed Mr. J. A. Nesbitt, who continues as auditor of the company.

Mr. Robert E. Nihan, formerly electrical engineer of the Indiana Utilities Company, Angola, Ind., has been appointed superintendent of the company to succeed Mr. C. W. Morse.

Mr. J. W. Steacy, formerly vice-president of the Hanover & McSherrystown Street Railway, Hanover, Pa., has been elected president of the company to succeed the late W. H. Lanius.

Mr. W. Wallace, formerly special agent for the Cincinnati (Ohio) Traction Company, has been appointed division superintendent of the Eighth Street division, succeeding Mr. N. Wickersham.

Mr. T. F. Swayze, superintendent of the Welland, Lake Erie & Niagara Electric Railway, Welland, Ont., has resigned to accept a position with the Niagara, St. Catharines & Toronto Railway, St. Catharines, Ont.

Mr. P. J. Conley has been appointed roadmaster of the Chicago, South Bend & Northern Indiana Railway, South Bend, Ind., and the South Michigan Railway. He succeeds Mr. A. Hitchcock with the latter company.

Mr. J. E. Farrell has resigned as superintendent of the Cold Spring carhouse of the International Railway, Buffalo, N. Y., and has been succeeded by Mr. George Baker, formerly superintendent of the Hertle Avenue carhouse.

Mr. W. C. Swisher, who for the last two years has been actively engaged in the investigation and settlement of claims against the Denver (Col.) City Tramway, has been appointed to the position of claim agent of the company.

Mr. James S. Larkin has resigned as a member and chairman of the Public Service Commission of West Virginia and has been appointed a member of the State Board of Control. Mr. Lee Ott, of Thomas, will succeed him on the commission.

Mr. M. L. Sperry, who has been local manager of the Savannah (Ga.) Electric Company, has been transferred by Stone & Webster, who control the property at Savannah, to the New London Gas & Electric Company, New London, Conn.

Mr. E. W. Underwood has been appointed general manager of the Corning & Painted Post Street Railway, Corning, N. Y., to succeed Mr. Franklin G. Robbins. Mr. Underwood also succeeds Mr. Robbins as general manager of the Elmira, Corning & Waverly Railroad.

Mr. H. C. Foss, who has been general superintendent of the Savannah (Ga.) Electric Company, has been appointed acting manager of the company to succeed Mr. M. L. Sperry, who has become connected with the New London Gas & Electric Company, New London, Conn.

Mr. A. Taurman, heretofore master mechanic of the Richmond Division of the Virginia Railway & Power Company, Richmond, Va., has been appointed superintendent of rolling stock with supervision over cars, equipment, shops and carhouses of the Richmond, Petersburg, Interurban, Norfolk and Portsmouth Divisions.

Mr. N. Wickersham, formerly division superintendent of the Eighth Street division of the Cincinnati Traction Company, has been appointed division superintendent of the Walnut Hills division, succeeding Mr. D. S. Ross, whose appointment as assistant superintendent of transportation is mentioned elsewhere in this issue.

Mr. Theodore Deinst, who has been superintendent of the Parsons Railway & Light Company, Parsons, Kan., has been transferred to the Gilmer division of the Texas Public Service Company, successor to the Gilmer Light & Power Company, Gilmer, Tex. The properties at both Parsons and Gilmer are owned by Mr. Albert Emanuel.

Mr. J. S. Alexander, who has been superintendent of the Houghton County Electric Light Company, Houghton, Mich., has been appointed general superintendent of the Savannah (Ga.) Electric Company to succeed Mr. H. C. Foss, who has been appointed acting manager of the company. Both properties are controlled by Stone & Webster.

Mr. D. S. Ross, formerly division superintendent of the Walnut Hills division of the Cincinnati (Ohio) Traction Company, has been appointed assistant superintendent of transportation, succeeding Mr. A. J. Ostendorf, whose appointment as superintendent of transportation was mentioned in the issue of the *ELECTRIC RAILWAY JOURNAL* for July 5.

Mr. Thomas Elliott, chief engineer of the Cincinnati (Ohio) Traction Company, has been elected vice-president of the Cincinnati Car Company, and since May 1 has been in active charge of the operation of the car company's plant. In taking over these new duties Mr. Elliott has not resigned his position with the Cincinnati Traction Company but still retains the title of chief engineer.

Mr. Henry T. Jones, division superintendent of the Fillmore and Turk Street system, has been promoted to the position of general superintendent of the United Railroads, San Francisco, Cal., to fill the vacancy due to the recent death of Elwood D. Hibbs. Mr. Jones went to San Francisco in 1900 from Los Angeles, where he acted as assistant superintendent of the Los Angeles Cable Company for two years.

Mr. Walter L. Eyke, who has been electrical engineer of the Muskegon Traction & Lighting Company, of Muskegon, Mich., has been appointed general superintendent of the company to succeed Mr. J. T. Young, resigned. From 1898 to 1903 Mr. Eyke worked as motorman, lineman and line foreman. He then entered the engineering department of the University of Michigan and was graduated with the degree of B. S. in 1907.

Mr. Floyd O. Jellison has resigned as claim agent of the Chicago, South Bend & Northern Indiana Railway, South Bend, Ind., and is now engaged in the general practice of

law, having recently become associated with the law firm of Howell, Jones & Devine, South Bend. During the last year the company relieved Mr. Jellison of the details of the claim department so that he could complete his law course at Notre Dame University. He secured his degree from that university last month.

Mr. Norman Read has resigned as electrical engineer of the Denver (Col.) City Tramway to become assistant general manager of the Central Colorado Power Company in charge of all Colorado properties. The power department of the Denver City Tramway will hereafter be included in the engineering department, reporting to the chief engineer. The position of electrical engineer will remain unfilled for the time being. Mr. J. F. Warner, superintendent of power station, will have charge of the operation and maintenance of the generating station. Mr. W. E. Casey, electrician, will have charge of the maintenance and operation of the substations.

Mr. W. T. Maddox has resigned as assistant general manager of the Utah Light & Railway Company, Salt Lake City, Utah, and has announced that he will retire from active work and live on his ranch near Gardena, Cal. Mr. Maddox has been engaged in railway work about thirty years. He was with the Missouri, Kansas & Texas Railroad and the Missouri Pacific Railroad for nineteen years as operator, agent, clerk to the superintendent, train dispatcher and chief train dispatcher. He then entered the employ of the Pacific Electric Railway, Los Angeles, Cal., and served that company and the Los Angeles & Redondo Railway as train dispatcher, trainmaster, general freight and passenger agent and as superintendent of the Southern Division.

Mr. Robert E. Lee, retiring superintendent of the Cincinnati (Ohio) Traction Company, had a farewell banquet tendered to him by more than 175 of his friends at the Scottish Rite Cathedral, Cincinnati, on the evening of July 12. Mr. Eugene L. Lewis acted as toastmaster and responses were made by Mr. Thomas Kite, thirty-third degree Mason, of the Cincinnati Valley; Mr. W. F. Robertson, president of the Court House Savings Bank, of which Mr. Lee is a retiring director; Mr. William B. Melish; Mr. Thomas W. Sullivan, president of the Railway Employees' Association; Dr. J. D. Buck, Postmaster Monfort, Judge Jacob H. Bromwell, Dr. E. S. Kiefer, County Prosecutor Thomas L. Pogue, Dr. Thomas M. Stewart, Judge Lueders, Mr. William Armstrong, Mr. William Leiman, Judge J. G. O'Connell and the guest of honor. Several of the speakers presented Mr. Lee with gifts, among which were a silver dish for Mrs. Lee, a gold chain, a diamond pin and a shrine emblem.

OBITUARY

Anthony N. Brady, chairman of the board of directors of the Brooklyn (N. Y.) Rapid Transit Company, died on July 23 at the Hotel Carlton in London, Eng., following an attack of acute indigestion. Mr. Brady was born in Lille, France, on Aug. 22, 1843, but came to this country with his father and mother when he was a little boy. He was first employed in the Delavan House at Albany, N. Y. Subsequently he entered the tea business in Albany. He next turned his attention to granite and gained control of large granite quarries and began building sewers and laying pavements. He then assisted in organizing the Albany Gas Light Company, this marking his entrance into the public utility field. He was also one of the organizers of the Metropolitan Street Railway. At the time of his death Mr. Brady was a director and officer in many gas and electric lighting corporations and in electric railways, notably in Greater New York, Albany and Troy. Among the companies with which he was affiliated as a director are the Brooklyn Rapid Transit Company and its subsidiaries, New York Edison Company, Kings County Lighting Company, Consolidated Gas, Electric Light & Power Company, of Baltimore, Hudson & Manhattan Railroad, the Hudson Companies, United Electric Light & Power Company, of Baltimore, and the Westinghouse Electric & Manufacturing Company. Mr. Brady was best known perhaps through his connection with the Brooklyn Rapid Transit Company and the New York Edison Company, in both of which he is said to have been very heavily interested.

Construction News

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

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

RECENT INCORPORATIONS

***Olympian Springs (Ky.) Railway.**—Application for a charter will soon be made by this company to build an electric railway from Olympia Station on the Chesapeake & Ohio Railway to the Olympian Springs Hotel, about 3 miles from the railway. Power for this line will be supplied from the Olympian Springs Hotel Company.

***Omaha & Lincoln Railway & Light Company, Lincoln, Neb.**—Incorporated in Nebraska, presumably in the interests of the McKinley Syndicate and as a successor to the Nebraska Traction & Power Company, to build an electric railway between Lincoln and Omaha and operate other public utilities. Capital stock, \$750,000. Incorporators: W. L. Loomis, E. W. Bradford, R. E. Borkenhagen, S. J. Howell and Justin Refrigier, all of Omaha.

Cumberland Valley Railroad, Nashville, Tenn.—Application for a charter has been made in Tennessee by this company to build an 80-mile electric railway to connect Nashville, Gladesville, Liberty, Sparta and McMinnville. Capital stock, \$10,000, with the privilege of increasing it to \$1,000,000 or more. Incorporators: J. H. Cartwright, Homer Hancock, W. G. Beard and J. W. Jenkins. [E. R. J., July 19, '13.]

***Dallas Southwestern Traction Company, Dallas, Tex.**—Incorporated in Texas to build a 90-mile electric railway from Dallas to Glen Rose, via Cleburne, with a branch from Eagle Ford to Irvin. Capital stock, \$500,000. Incorporators: E. P. Turner, Cullen F. Thomas, W. Poindexter, B. N. Cain, John T. Witt and E. L. Sargent.

***Kelso & Eastern Railroad, Kelso, Wash.**—Incorporated in Washington to build an electric or steam railway from Kelso eastward toward Mayfield. Capital stock, \$500,000. Incorporators: John L. Harris, J. M. Ayres, G. L. Buland, F. L. Stewart and F. M. Broadbent.

FRANCHISES

Fresno, Cal.—The Fresno Traction Company has received a franchise from the Supervisors for a line from the city limits of Fresno to the San Joaquin River, near Riverside Country Club.

Chicago, Ill.—The Chicago & Northern Interurban Railway has received a perpetual franchise over certain streets in Chicago. This line will connect Chicago, Palatine, Crystal Lake, Richmond and Lake Geneva. [E. R. J., Jul. 19, '13.]

Bettendorf, Ia.—The Tri-City Railway, Davenport, has received a twenty-five-year franchise from the Council in Bettendorf.

Des Moines, Ia.—The Chesterfield Improvement League, Des Moines, will ask the City Council that a provision for the extension of the Scott Street line be made in the new city railway franchise.

Boston, Mass.—The Boston Elevated Railway has received a franchise from the Council to double-track its line on L Street from East Fourth Street to East First Street in Boston.

Fitchburg, Mass.—The Fitchburg & Leominster Street Railway has received a franchise for an extension of its line in Water Street, Fitchburg.

Anoka, Minn.—The Minneapolis & Northern Suburban Railway has asked for a franchise over certain streets in Anoka.

Liverpool, N. Y.—The New York State Railways has received permission from the Public Service Commission to double-track and extend some of its lines in Liverpool.

Niagara Falls, N. Y.—The International Railway, Buffalo, has received a franchise along Willow Avenue to its proposed new carhouse in Niagara Falls.

Fort William, Ont.—The property owners at Fort William, Ont., have decided to petition the Council for an extension of the municipal electric railway on Victoria Avenue. A connection would be made with the present line, thus practically forming a belt line.

Portland, Ore.—The Portland Railway, Light & Power Company has asked for a franchise to build a double-track crosstown line on the East Side in Portland. A branch of the Woodlawn line is also asked to extend from East Thirteenth Street to East Twenty-fourth Street.

Philadelphia, Pa.—The Philadelphia Rapid Transit Company has received a franchise from the Council to extend several of its lines in Philadelphia.

Anderson, S. C.—The franchise has been accepted for the proposed electric railway extension from Greenville and North Main Streets in Anderson to the property of the North Anderson Development Company, by M. M. Mattison, J. H. Anderson, J. D. Brown, John W. Linley and G. N. C. Boleman. It will be over 1 mile long and will be constructed and operated by the Greenville Traction Company. [E. R. J., July 12, '13.]

Dayton, Tenn.—J. W. Adams, Chattanooga, and associates have received a franchise from the Council in Dayton. This is part of a plan to build an electric railway between Chattanooga, Dayton and Knoxville. (E. R. J., Jun. 14, '13.)

Knoxville, Tenn.—The Maryville-Knoxville Interurban Railway has received a thirty-year franchise from the Knox County Court for its electric line between Maryville and Knoxville. John H. Frantz is interested. (E. R. J., July 12, '13.)

Dallas, Tex.—The Southern Traction Company has received a twenty-five-year franchise from the Council to bring the Waco-Corsicana interurban lines into Dallas.

***South Tacoma, Wash.**—A. R. Exley, president of the Albion Land Company, has asked the Council for a franchise for an elevated railway to extend from the southernmost limits of South Tacoma to Point Defiance Park.

Seattle, Wash.—The Puget Sound Traction, Light & Power Company recently withdrew its application for a franchise on Avalon Way. The proposition was favored by the City Council but was vetoed by Mayor Cotteril, who insisted on a common user clause in the franchise. The line will continue operating through Youngstown.

TRACK AND ROADWAY

Alabama Traction Company, Montgomery, Ala.—This company will proceed with the construction of its line in Montgomery, as the result of a court ruling, it is stated. The company was organized with \$1,000,000 capital stock three years ago and received a franchise from the city. It has already begun work along Lee Street.

***Vancouver, B. C.**—Edward Bath and associates are considering plans to build an electric railway from Bella Coola, B. C., to Red Deer, Alta. Application for a charter will be made at the next session of the Dominion parliament.

Northern Electric Railway, Chico, Cal.—Obstacles to the construction of this company's line between Vacaville and Fairfield in the right-of-way difficulties have been settled by compromise and grading will be begun at once.

Fresno (Cal.) Traction Company.—The citizens of Calwa have asked this company for an extension of its J Street line through the main street in Calwa, a distance of about 2½ miles.

Oakland, Antioch & Eastern Railway, Oakland, Cal.—Surveys have been completed by this company for an extension from its present main line at Danville to Livermore and thence to San José.

Crescent City Railway, Riverside, Cal.—This company will build an extension from the present terminus on Cedar Avenue to the Southern Pacific Company's tracks at Bloomington station.

Pacific Gas & Electric Company, San Francisco, Cal.—This company will build an extension to the Hammond Mill, provided the city improves Date Street.

Southern Pacific Company, San Francisco, Cal.—It is reported that this company plans to extend its Porterville & Northeastern branch, which now has its terminus at Springville, on to Lindsay.

Tidewater & Southern Railroad, Stockton, Cal.—This company announces that the poles have been placed between Stockton and Modesto and that wire stringing will be started at once. It is the expectation of the company

that the line will be electrified within a few months and the old steam equipment disposed of. Work has been started on the bridge across the Mormon channel at Pilgrim Street.

Sacramento Valley West Side Electric Railway, Willows, Cal.—This company has applied for an extension of the Commission's previous order authorizing an issue of stock from Aug. 1, 1913 to Aug. 1, 1914.

Albany (Ga.) Transit Company.—Work will be begun at once by this company on its extension to the Wetherbee addition in the southwestern part of Albany.

Georgia Railway & Power Company, Atlanta, Ga.—Work will soon be begun by this company relaying its rails on Ivy Street in Atlanta.

Valdosta (Ga.) Street Railway.—During the next few weeks this company will award contracts to build 4 or 5 miles of new track in Valdosta.

Chicago (Ill.) Railways.—Work will be begun at once by this company on the extension of its Armitage Avenue line in Chicago.

Springfield (Ill.) Consolidated Railway.—Plans are being considered by this company to use the tracks from the city limits west from Washington Street, which were owned by the Springfield, Clear Lake & Rochester Interurban Railway, which ceased operating.

Interstate Interurban Railway, Arkansas City, Kan.—Surveys have been completed and construction will soon be begun by this company on its 50-mile line between Arkansas City, Kan., Ponca City, Okla., via Blackwell, Tonkawa, Chillico and Billings. S. K. Titus, Arkansas City, chief engineer. [E. R. J., Oct. 19, '12.]

Hutchinson & Northern Railway, Hutchinson, Kan.—Work will be begun by this company within the next two months on its 14-mile line between Hutchinson and Burton. W. S. Thompson, Hutchinson, is interested. [E. R. J., June 28, '13.]

Joplin & Pittsburg Railway, Pittsburg, Kan.—This company is asked to consider plans to build an extension from Columbus to Hattonville, Miami and Baxter Springs.

Topeka (Kan.) Railway.—Work will be begun at once by this company on the extension of the West Eighth Street line in Topeka.

Jenkins, Ky.—The Consolidated Coal Company is considering plans to build an 8-mile electric railway from McRoberts to Dunham, Jenkins and Burdine. Power will be furnished from the central power plant of the Consolidated Coal Company, located at Jenkins, Ky.

Louisville (Ky.) Railway.—This company is laying steel ties, carrying on experimental work which it began some time ago. The first ties were put down over a year ago in the construction of its Bardstown Road extension, and recently it laid down steel ties on Oak Street and Fourth Avenue.

Shreveport (La.) Traction Company.—It is reported that this company will extend its Fairfield line in Shreveport from the present terminus to the center of the South Highlands tract, a distance of 1 mile.

Michigan United Traction Company, Lansing, Mich.—Plans are being considered by this company to build three extensions of its lines in Battle Creek.

Marquette City & Presque Isle Railway, Marquette, Mich.—This company has awarded a contract to George D. Sherman to lay the concrete foundations for the line on Front Street in Marquette.

Hattiesburg (Miss.) Traction Company.—This company has completed the extension of its Mobile Street line to Boule Street in Hattiesburg.

***St. Louis Belt, Illinois & Eastern Traction Company, St. Louis, Mo.**—This company is being organized and will be a consolidation of the St. Louis County Belt Railroad with the Wood River, East Alton & Bunker Hill Traction Company. It is planned to build a bridge over the Mississippi River just below the mouth of the Missouri River. An eastern extension of this line will be made to Mattoon, Ill. It will parallel the Big Four Railroad and connect with lines extending into Indiana. James G. Houseman, Roe Building, St. Louis, is the promoter of this line.

Atlantic Coast Electric Railway, Asbury Park, N. J.—This company has just completed 2016 ft. of double track through the camp ground at Sea Girt.

Brooklyn (N. Y.) Rapid Transit Company.—The New York Municipal Railway Corporation, which is controlled by the Brooklyn Rapid Transit Company, has purchased from the Alco Building Company a strip of land in Mapleton Park for the purpose of extending the Sea Beach tracks from Nineteenth Avenue to Twenty-second Avenue (Bay Parkway) and to Sixty-fourth Street, in Brooklyn. The property was purchased for the purpose of four-tracking the Sea Beach line to Coney Island.

Hornell (N. Y.) Traction Company.—Work will be begun at once by this company on its line between the Shawmut depot through North Hornell to the Canisteo River.

Frontier Electric Railway, Niagara Falls, N. Y.—This company, which plans to build an electric railway over private right-of-way from Niagara Falls to Buffalo, has secured franchises in the cities of Niagara Falls, Tonawanda and North Tonawanda and it expects to secure the entire right-of-way within the next sixty days and will begin construction of the line the early part of 1914. James S. Simmons, vice-president. [E. R. J., June 28, '13.]

New York & North Shore Traction Company, Roslyn, N. Y.—It is reported that this company is considering plans to build a line between the railroad station and Great Neck village.

***Dayton, Ohio.**—Plans are being considered by the Dayton Chamber of Commerce to build an electric railway between Covington and St. Mary's, to connect with the Dayton, Covington & Piqua Traction Company at Covington. The Miami Valley Development Commission is making a survey between Dayton and Washington C. H., with a view to the future construction of an electric line and it also plans to build another line between Dayton and Cincinnati, via Loveland.

Berlin & Waterloo Street Railway, Berlin, Ont.—During the next six weeks this company will award contracts to build 3,600 ft. of double track and 2,400 ft. of single track in Berlin.

Windsor, Essex & Lake Shore Rapid Railway, Kingsville, Ont.—During the next few months this company plans to do some paving in Windsor and in Essex.

Imperial Traction Company, Ottawa, Ont.—This company has been authorized by the railroad committee of the House of Commons to proceed with the construction of its line from Smithville to Bridgeburg and from Hamilton to Toronto. Work will be begun at Smithville. L. B. Howland, Toronto, is interested. [E. R. J., May 17, '13.]

Pacific Power & Light Company, Astoria, Ore.—This company announces that it will extend its line to the eastern limits of Astoria and to the Hammond Lumber Company's mill, provided the city will improve Date Street for a distance of 3,000 ft.

***Milwaukee, Ore.**—The East Milwaukee Improvement Association is considering plans to have an electric railway built through East Milwaukee, Harmony, Ardenwald, Clackamas and Reed College territory. C. B. Hanson, president, and N. B. Harvey, secretary.

Bloomsburg, Millville & Northern Railway, Bloomsburg, Pa.—This company advises that during the next two months it will not award any contracts for the construction of new track, but after that it will award contracts to build 10 miles of new track. The company plans to purchase some attractions for its park.

Johnstown (Pa.) Traction Company.—This company plans to spend more than \$20,000 in double-tracking part of the Windber branch at Kring's Station in Johnstown and the elimination of a number of curves there. It is stated that other improvements will be made during the year. The rails at all curves are to be replaced and practically the whole line will be made new.

Chambersburg, Greencastle & Waynesboro Street Railway, Waynesboro, Pa.—This company plans to build 5,000 ft. of paving in Waynesboro this fall.

Wilkes-Barre and Wyoming Valley Traction Company, Wilkes-Barre, Pa.—Work has been begun by this company on the construction of its new viaduct near Duryea.

San Antonio & Austin Interurban Railway, Austin, Tex.—Surveys have been completed by this company for its 27-mile line between San Antonio and Austin, via San Marcos, Kyle, Buda, Manchaca, Hunter, New Braunfels and other towns. The work of securing the right-of-way and the necessary franchise is now in progress. Vories P. Brown, San Antonio, president. [E. R. J., May 24, '13.]

***Dallas Northwestern Traction Company, Dallas, Tex.**—This company is being formed and will soon apply for a charter to build an electric railway from Dallas to Krum, via Denton, a distance of 46 miles. Among those interested are: E. P. Turner, B. B. Cain, John T. Witt and E. L. Sargent.

Lynchburg Traction & Light Company, Lynchburg, Va.—This company plans to build 6 miles of new track this year. Orders for the material have been placed.

SHOPS AND BUILDINGS

Georgia Railway & Electric Railway, Atlanta, Ga.—This company plans to construct a new building at Gilmer Street and Phoenix Street in Atlanta. The structure will be one-story and of brick and wood construction. The cost is estimated to be about \$4,500.

Quincy (Ill.) Railway.—This company has awarded a contract to build a new carhouse in Quincy. The structure will be 60 ft. x 120 ft. of galvanized corrugated or frame construction.

Oskaloosa Traction & Light Company, Oskaloosa, Ia.—During the next few weeks this company will award contracts to build a new carhouse in Oskaloosa. The structure will be 60 ft. x 120 ft.

Public Service Railway, Newark, N. J.—This company has awarded two contracts to Thomas J. Reynolds & Sons, Newark. One contract is for the mason work on the new office and operating building at River and Canal Streets and the other is for the rebuilding of a brick stable in Commercial Street, Newark.

Bloomsburg, Millville & Northern Railway, Bloomsburg, Pa.—During the next few months this company plans to build a new carhouse in Bloomsburg.

POWER HOUSES AND SUBSTATIONS

Oskaloosa Traction & Light Company, Oskaloosa, Ia.—During the next few weeks this company expects to purchase one 300-hp boiler for its plant in Oskaloosa.

Kentucky Southwestern Electric Railway, Light & Power Company, Paducah, Ky.—Plans have been prepared by this company for the construction of a central power plant in Paducah.

Elmira Water, Light & Railway Company, Elmira, N. Y.—This company is now building a new steam power plant with a capacity of 30,000-kw in Elmira.

Niagara Gorge Railroad, Niagara Falls, N. Y.—This company has purchased an additional 500-kw rotary converter for its substation at Lewiston.

Interurban Railway & Terminal Company, Cincinnati, Ohio.—This company's temporary power plant at Rossmoyne was destroyed by fire on July 17.

Northwestern Pennsylvania Railway, Meadville, Pa.—This company has contracted for two new substations, one to be located at Edinboro and the other at Richley's Grove, Pa. Equipment for these substations, one 500-kw rotary converter in each, has been purchased from the Westinghouse Electric & Manufacturing Company.

Chambersburg, Greencastle & Waynesboro Street Railway, Waynesboro, Pa.—This company has awarded a contract to the Electric Storage Battery Company, Philadelphia, to renew the storage battery of its plant.

Austin (Tex.) Street Railway.—This company is in the market for one additional unit for its power plant, and will ask for bids for one 800-hp and also 1,000-hp compound-condensing engine and direct-connected 500 to 550-volt generator.

Southern Traction Company, Dallas, Tex.—This company has decided to build its new substation in Corsicana where the railway crosses the road at Trinity and Brazos Valley road north of Corsicana. The equipment will be furnished by the General Electric Company.

Manufactures and Supplies

ROLLING STOCK

Winona Interurban Railway, Warsaw, Ind., expects to purchase two box cars and two flat cars.

Windsor, Essex & Lake Shore Rapid Railway, Kingsville, Ont., is in the market for one passenger car.

Bloomsburg, Millville & Northern Railway, Bloomsburg, Va., is in the market for two passenger cars.

Chicago (Ill.) City Railway has decided to buy a number of additional cars this year. Not less than fifty will be bought. No decision as to the details has been made.

Northwestern Pennsylvania Railway, Meadville, Pa., has placed an order with the Niles Car & Manufacturing Company for two 51-ft. combination cars and two 51-ft. passenger cars, each to be equipped with four Westinghouse 306 motors.

New York, New Haven & Hartford Railroad, New Haven, Conn., is asking for bids on about 175 cars. The pending orders are scheduled to include 100 steel passenger cars, 10 steel smoking cars, 10 steel combination baggage and smoking cars, and 10 steel baggage and mail cars.

Chicago (Ill.) Railways, noted in the ELECTRIC RAILWAY JOURNAL of July 19, 1913, as having ordered fifty cars from the American Car Company, has specified that these are to be 32-ft. 5-in. pay-as-you-enter closed cars, mounted on Brill 39-E trucks. In addition to this the company will build 100 cars of the same type in its own shops.

British Columbia Electric Railway, Vancouver, B. C., is building three interurban cars and three combination mail cars in its own shops at New Westminster. The company has also placed an order with the Seattle Car Company for fifty freight cars and fifty freight box cars.

Toledo Railways & Light Company, Toledo, Ohio, noted in the ELECTRIC RAILWAY JOURNAL of June 21, 1913, as having ordered thirty double-truck, single-end prepayment cars from the McGuire-Cummings Manufacturing Company, has specified the following details for these cars:

Type	semi-conv.	Roof	arch
Length over bumpers,		Headlining	agasote
	44 ft. 10 in.	Bumpers	angle iron
Length over corner posts,		Curtain fixtures,	
	33 ft. 3 in.	Cur. Sup. Co.	
Length front platform,		Destination signs...	Keystone
	4 ft. 6 in.	Hand brakes.....	Peacock
Length rear platform,		Air brakes.....	G. E.
	6 ft. 6 in.	Trucks	Standard
Width of window rail,		Motors	West. 310 C
	8 ft. 3½ in.	Controllers	K-36-J

TRADE NOTES

General Electric Company, Schenectady, N. Y., has opened a branch office at Madison, Wis.

J. G. Brill Company, Philadelphia, has received an order from the Charleston Consolidated Railway & Lighting Company, Charleston, S. C., for twelve 27-G-1 trucks.

St. Louis Surfacer & Paint Company, St. Louis, Mo., had its entire plant destroyed by fire of mysterious origin on July 22. The company has placed the estimated loss at \$80,000.

Barney & Smith Car Company, Dayton, Ohio, which went into the hands of receivers last month, has been authorized by the courts to spend \$175,000 for plant improvements.

Bryant Electric Company and the Perkins Electric Switch Manufacturing Company, Bridgeport, Conn., announce the opening of a New York sales office, located at 51 East Forty-second Street.

Western Steel Car & Foundry Company, Chicago, Ill., is preparing plans for the enlargement of its plant at Hegewich, Ill., and will erect a new shop building 120 x 360 ft. at a cost of about \$60,000.

Osgood-Bradley Car Company, Worcester, Mass., expects to erect three eight-story buildings for store and manufacturing purposes, on the site of the old plant, which will cost between \$800,000 and \$900,000.

National Railway Equipment Company, Toledo, Ohio, has been incorporated with a capitalization of \$10,000 by Charles Weirich, Frank W. Coughling and others, to manufacture locomotive parts and railway equipment.

Car Works Company, Peoria, Ill., has been incorporated with capital stock of \$50,000 to manufacture and deal in street railway cars. The incorporators are George L. Fickenson, H. V. Finkelstein and Frank T. Miller.

Haskell & Barker Car Company, Michigan City, Mich., suffered considerable loss from the disastrous fire which occurred on July 12, 1913, at that place. The approximate amount of damage is between \$700,000 and \$800,000.

C & C Electric & Manufacturing Company, Garwood, N. J., has issued Bulletin No. 513J which illustrates and describes its electric arc welding apparatus, and also contains several views of welds that have been made by this process.

General Railway Signal Company, Rochester, N. Y., has appointed Prof. V. I. Smart general manager of its Canadian company. Professor Smart was formerly connected with the department of railway engineering at McGill University.

Robert W. Hunt & Company, Chicago, Ill., have been appointed to inspect all the structural steel work in the new thirty-eight-story Equitable Life Insurance Building, New York, N. Y., which contains approximately 36,000 tons of structural steel.

National Carbon Company, Cleveland, Ohio, has taken over the entire output of the Helios Manufacturing Company of Philadelphia, makers of the "Helios" Storage battery, which has been used for ignition, signaling, balancing, station reserve, and interlocking service.

National Lock Washer Company, Newark, N. J., has appointed Frank B. Archibald eastern manager of the company. Mr. Archibald, who was formerly connected with the sales department of the company, will retain his present offices at 50 Church Street, New York, N. Y.

National Tube Company, Pittsburgh, Pa., has issued a very attractive catalog describing and illustrating in two colors all of its products. The catalog also contains reprints of several letters received from users of "Kewanee" products, telling of the good results received from their use.

J. S. Morrison, Pittsburgh, Pa., has been appointed district sales manager, with offices in the Oliver Building, by the following concerns: Taylor-Wharton Iron & Steel Company, Wm. Wharton, Jr., & Company, Tioga Steel & Iron Company, and the Philadelphia Roll & Machine Company.

Independent Pneumatic Tool Company, Chicago, Ill., has moved its motorcycle department to Chicago, from Aurora, Ill., in order to allow more space for the manufacture of Thor air and electric tools. This change will increase the output of the plant to 1500 air tools and 500 electric tools per month.

American Automatic Switch Company, New York, N. Y., states that as the result of a recent decision of the United States Patent Office, it has the undisputable right to manufacture and sell the automatic electric track switch known as Type 15. In this switch the contactor has a swinging movement with an electrical selection which operates the switch in one direction or the other according as the car passing under it has its current on or off.

Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., has sold to Kuhn, Loeb & Company, New York, N. Y., \$3,250,000 six per cent, two-year notes due August, 1915, to provide for the retirement of the \$4,000,000 of 6 per cent three-year notes due August, 1913. The remaining \$750,000 will be paid out of the treasury of the company. A cash payment of \$10 for each \$1,000 note will be paid to the holders of the old notes who exchange them for new notes.

Philadelphia Commercial Museum, Philadelphia, Pa., announces that it decided to comply with the invitation of the British committee of the Anglo-American Exposition, which will be held in London in 1914, from May to October, to undertake the organization of the American industrial section of that exposition. The object of the exposition is to celebrate in a fitting manner the one hundred years of peace and progress between English-speaking peoples since the Treaty of Ghent in 1814. The exposition offers

an opportunity to reach the buyers of Great Britain and her colonies, as well as those of many other countries.

Union Switch & Signal Company, Swisshale, Pa., has received a contract for installing 26.4 miles of automatic block signaling with continuous alternating current track circuits on the New York State Railways from Utica Park to Frankford Junction and from the Herkimer "Y" to Little Falls, these being sections of double track which handle a very heavy traffic, especially in connection with amusement parks. In the first named section the average length of block is 5900 ft. and in the second section 14,500 ft. There will be eighteen blocks, eighteen three-position style T-2 semaphore signals and twelve semaphore type switch indicators. The contract also includes the electric lighting of the switch stand lamps in the signal territory.

General Electric Company, Schenectady, N. Y., is about to announce further advances in the direction of higher efficiency of the incandescent lamp. The new lamps contain especially shaped tungsten filaments and are filled with inert gas, such as nitrogen, at the pressure of about an atmosphere. The types which it is expected to first develop are adapted to comparatively high current consumption, 6 amp. and above, and operate at an efficiency of half a watt per candlepower. This is fully twice as high an efficiency as the most efficient incandescent lamps heretofore available. The company says that the new lamps promise to be of particular value in a field not heretofore covered by incandescent lamps, and should greatly broaden the applications in which they can be used advantageously, particularly in the direction of very large candlepower units.

ADVERTISING LITERATURE

Brookfield Glass Company, New York, N. Y., has issued a folder illustrating and describing forty-three designs of glass insulators.

Walter A. Zelnicker Supply Company, St. Louis, Mo., has issued Bulletin No. 141 describing and giving prices of a number of extra heavy, high pressure tanks.

Jovian Order, St. Louis, Mo., has issued a small booklet entitled "The Reason," which contains a brief review of the purpose and progress of the Jovian Order together with its constitution and by-laws.

Railway Improvement Company, New York, N. Y., has issued Bulletin No. 2, of its series of four bulletins, which deals with its coasting time recorders for subway and elevated cars. The bulletin contains several letters from railways operating these types of cars, which show the large saving in power to the railways since their installation.

Goldschmidt Thermit Company, New York, N. Y., has issued "Reactions" for the second quarter of 1913. The issue contains several very interesting articles, among them being the following: "Electrolysis and Reinforced Concrete," "New Pipe Facing Machine," "Carbon-Free Cobalt Now Produced by the Thermit Process" and "Important Repair for Mining Company."

Electric Service Supplies Company, Philadelphia, Pa., has issued the *Keystone Traveler* for July, 1913, containing much interesting information regarding its products. The chapter on prepayment cars contains interesting statistics compiled by the Detroit (Mich.) United Railway, showing the decrease in accidents due to its installation of prepayment cars. A very interesting letter is also reprinted in connection with the chapter on automotoneers, which states that one of these devices played a very important part in a damage claim proceedings and resulted in the plaintiff's \$25,000 suit being decided in favor of the operating company.

Edward B. Smith & Company, Philadelphia, Pa., have issued a booklet giving a brief history of the J. G. Brill Company, illustrated with many photographs of early horse, cable and electric cars. The history also contains a concise description of the investment position of the preferred stock of the company, which is said to be the largest manufacturer of electrically propelled cars and trucks in the world. The company has no bonded debt, and for the year ended Dec. 31, 1912, had \$1,054,851 available for dividends. Beginning with the sum of \$1,300 its assets have now reached a reported total of \$12,353,478. Its annual output is valued at nearly \$8,000,000.