Electric Railway Journal

Published by the McGraw Publishing Company, Inc.

Consolidation of Street Railway Journal and Electric Railway Review

Vol. XLVI NEW YORK, SATURDAY JULY 3, 1915 No. 1

A GOOD EXAMPLE OF CO-OPERATION

The National Fire Protection Association is a body whose interests might seem to conflict with those of electric railways and other sources of insurance risks. The insurance people naturally want to get the largest possible premiums for insuring property involving the least possible fire hazards. The larger the premiums and the fewer and slighter the fires the more the insurance profits. While, of course, electric railways do not desire to have their structures unduly hazardous from the fire standpoint, yet they do not enjoy dictation from the underwriters. There is, therefore, a constant possibility of difference of opinion as to what constitutes a reasonable risk and what payments should be made for carrying it. The Fire Protection Association is under no obligation even to consult the railways in this matter and it is all the more gratifying, therefore, that they not only do call representative electric railway men into conference, but they accept the suggestions of these men. Such conferences as those held in New York and Boston within the last two months achieve results which could not possibly come from conflict and produce benefits far beyond those originally contemplated. So conspicuous has been the success of co-operation in this instance that the following words appeared in a recent N. F. P. A. committee report: "The association (A. E. R. E. A.) has displayed a spirit of strong co-operation in harmony with the National Fire Protection Association in all matters affecting mutual interest, and friendly relations exist at the present time."

ENGINEERS NEED WAY COST RECORDS

Maintenance cost records founded on a standard unit should form the basis for analyzing the relative values of way materials and types of construction. The records of most way departments indicate that information about materials, the types of construction and the track locations are carefully and accurately kept. Beyond this point most engineers have hesitated to go. They are prone to look upon analytical statistics as a prodigious task, which reveal only what comes more quickly from experience. However, we wish only to call attention to the wonderful improvements that have been made possible by the performance records and costs of generating stations and repair shops. It is only by analyzing costs on a common unit basis that results may be compared on different properties. What is still more important, definite knowledge is available which shows whether the new materials or the new types of construction used have produced the expected results. Information of this kind would be especially valuable in analyzing the merits of different types of construction and materials used in track in paved streets. Generally speaking, the track cost represents approximately 40 per cent of the total plant cost, therefore the way engineer must exercise most careful judgment in adopting new types of construction and new kinds of materials. So many years are required on most properties to obtain definite results that some basis of generally adopted comparison is all the more important. If this were done, track worn out under dense and heavy traffic would serve as an index of what might be expected of track where comparatively light traffic obtains. To what length way-department cost records could be extended we do not care even to suggest. We do believe, however, that cost records on a unit basis of the total tonnage passing over the track would be of incalculable value in making comparisons between the different types of materials and construction. It would permit engineers to analyze their maintenance methods and particularly to criticise their own work. Where the same type of track construction is under similar traffic, maintenance costs on different properties could be compared.

GREATER PROTECTION FOR COMMISSIONERS

We hope that the New York Constitutional Convention will adopt the recommendation made by representatives of public utility companies who appeared before the members last week and urged that the term of office of public service commissioners be extended from five to ten years and that the holders of such offices have constitutional protection. We have often emphasized the fact that the tenure of office of commissioners is too short for them to become properly acquainted with the questions to be solved and the precedence and the economic laws governing these public utility problems. A term of fifteen years would not be too long, but a practical fulfillment of the ten-year term for New York would be a step in the right direction. As to the other point, up to the present there has been very little advocacy of constitutional protection for commissioners. The reason for this has been the comparative newness of the idea of commission regulation. Changes in constitutions come slowly in this country, and it is well that it is so. Public sentiment has gradually been crystallizing, however, in favor of commission form of government, but so separated from politics as to keep it free from the spoils system. We would approve, therefore, any means for giving commissioners the same security of office as the higher judges, and would advocate a requirement of a concurrent resolution of both legislative houses by a two-thirds vote for removal. To be sure, the character of commissioners must

ultimately depend upon the Governor's appointive power, but under the above plan the individual commissioner would be much more secure in office, and so better able to act in an unbiased way with the cases which come before him. For the same reason, also, a better class of men would be attracted to such work.

JITNEY-BUS COMPETITION

We are wholly unable to agree with the expression of belief in the importance of the motor-bus as a competitor to the electric railway, which appears on another page of this issue, notwithstanding our respect for the opinions of its author. Undoubtedly the itinerant jitney has made serious holes in the gross earnings of a number of properties, but that fact certainly does not constitute a valid reason why the electric railway should enter the bus business with a view to recouping its losses. We have followed with the utmost care—even with a certain amount of natural anxiety—the whole of the short history of the motor-bus movement in this country, and as it stands at present the situation may be summed up in one sentence: Nowhere have there been given out any authentic records of the actual operation of motor-buses which show them to be nearly as efficient, including all costs and all factors, as are electric cars.

The author expresses fear that organized capital might engage in the business and make greater inroads into the trolley receipts than the unorganized jitney competition, but there is even less danger of this, we believe, than from the itinerant jitney. The regular bus is at a disadvantage in some respects as a traffic getter, compared with the second-hand touring car. In the first place, with the increased number of passengers more stops have to be made, and the bus cannot compete in speed with the smaller vehicle. Again, the bus does not appeal so strongly to the man who does not own an automobile as does the touring car. We have always maintained that one of the reasons which impelled some people to use the jitneys was the appearance of affluence which it gave, and this is shown by the requests often made by passengers to the driver to remove his route sign. Finally, there is no such supply of second-hand motor-buses as there is of second-hand touring cars, so that the investment required to establish a line of buses is very much greater.

Organized capital has attempted to establish 5-cent motor-bus lines in various cities, but we know of no place where they have proved at all successful. In both Pittsburgh and Los Angeles the service has been abandoned, and last week the news came from Washington that a receiver had been appointed for the Metropolitan Coach Company of that city. Of these installations it is hard to imagine any two cities in the country where the natural conditions in the way of climate, low grades and good paving are more favorable to the operation of motor-bus lines than Los Angeles and Washington.

The sale of the Los Angeles buses was mentioned in this paper several months ago. In reply to a creditor's petition for a receiver in the Washington case the company admitted its insolvency. It has never made expenses at any time during three years of operation. It was not a fly-by-night undertaking equipped with second-hand cars. It was a company operating six eighteen-passenger buses of good design over a route from Fifteenth Street and Pennsylvania Avenue (a departmental, business and hotel center) to Sixteenth and U Streets, traversing one of the best residence districts of the city. The maximum haul for a 5-cent or six-for-a-quarter fare was 1½ miles. The traffic has amounted to as many as 65,000 cash passengers a month. But the line could not be made to pay even with the most economical, not to say parsimonious, management. There is no mystery about the outcome of this experiment. It is due simply to the fact that it cost more to carry passengers than was collected for the service. What makes the Washington bus failure especially impressive is the fact that the enterprise was well backed financially and had a particularly good route. If success could not be achieved under these circumstances it would be hard to find a situation that would justify the hope of profit in jitney operation.

There is a profitable bus line in New York City. But this charges a 10-cent fare in a restricted and highly-profitable territory, and if there is another successful city bus company of reasonable size elsewhere in the country, the fact of its existence has never been published. Indeed, until someone is able to make actual, not paper, profits with buses at the 5-cent fare charged by city railways, or to serve rural districts at the same speeds and at the same fares that have been established by the interurbans, we refuse absolutely to be stampeded by the spectacular features of the motor-bus. When its advocates can point to definite results that show it to be cheaper to operate than the electric car there may be some grounds for the consideration of bus operation in general by electric railways. Until that time arrives, however, we can only reiterate a warning against taking up this over-exploited and apparently extravagant method of transporting passengers.

THE JITNEY AND THE ONE-MAN CAR

It is perhaps more than a coincidence that we printed in last week's issue two letters from railway operators advocating the use of light one-man cars as a means for dealing with the jitney problem in small cities. The jitney has certainly shown the general demand for frequent service, and in emphasizing this fact it may prove to be a blessing in disguise. As a common carrier, it has no place on the streets of the city unless it assumes the duties which pertain to all common carriers, but that it may also direct attention to ways in which electric railway service may be improved, there is no question.

Two plans have been suggested for changes in electric railway practice to meet the competition brought by the jitney. One is the adoption of the short car which, in many cities, would be the one-man car. The second, mentioned in one of the letters last week, is the establishment of a zone system with a reduced rate

of fare for a restricted zone in the center of the city. The British Columbia Electric Railway is the only company we now recall as having taken this latter step. This line, preferring to apply the "aut scissors aut nullus" policy to its fares rather than to its service, recently offered as alternative to its ordinary straight 5-cent fare a special non-transfer ticket, good only within the city limits of Vancouver and Victoria, at the rate of eight tickets for 25 cents. In the recent report of R. B. Stearns on the Milwaukee zone system the suggestion was also made, though not yet put into practice, that a reduced rate for a smaller central zone would further increase riding through the stimulation of short-haul business and through the competition with the jitney and walking. Such a step would undoubtedly be revolutionary, but these suggestions show the way in which a number of railway operators are thinking.

The one-man car, especially the light car, is not so radical a departure from existing standards, and in one of the letters mentioned actual figures were given of the low injuries and damages account on two lines using one-man cars, as well as estimated annual net savings possible with one-man over two-man service. Operators and public officials inclined to regard the accident hazard of the one-man car as prohibitory will find a revelation in these figures, and general publicity of similar statistics would do much to remove prejudice from this type of equipment. So far as its inherent profitableness is concerned, the fact that a number of engineers are now engaged in designing experimental one-man cars of exceptionally light weight bids fair to promise for the future a considerable reduction in operating expenses, even as compared with the roseate yet conservative estimates already presented.

THE CALL OF THE RAIL

To graduates of engineering schools this year who are considering electric railway work as a chosen field, we unhesitatingly say that never in the history of the industry have opportunities been better for men with a real bent toward a transportation career, backed by staying power and a determination to do every job so well that it forms a stepping stone toward the next responsibility. The day has gone when a "favorite son" with a fat allowance and an easygoing disposition can expect to go into electric railway work and hold down a man's position on a banking hours' schedule; but the time will never come when a man willing to devote practically his whole time out of bed to mastering the problems of transportation in the early years of his career on the basis of aptitude for the work and of absolute fidelity to every commission cannot advance in the traction world once he is fortunate enough to get a start.

Once the 1915 graduate becomes an employee of an operating company, let him realize that his future largely depends upon himself. The exact line of work which is first taken up is relatively unimportant. Students sometimes hesitate to enter platform service for fear that they will be swallowed up in the organization, but it is fair to say that this anxiety is largely unnecessary. A period of service at the controller and among passengers affords a trained engineer opportunity to enter into the problems of the transportation department which may be extremely valuable in comparison with the rather academic ideas often gained otherwise. The methods of handling runs, of filling in traffic blanks, day cards, and accident reports, of "signing up" for work, the close observation possible of the way in which subordinate officials perform their tasks—these and a hundred other details afford experience which may be extremely suggestive, however loath a man may be to pass more than a few months in routine duty. In years to come, when the executive of 1925 goes under cross-examination in an arbitration or court case, the mere fact of having had actual experience on the platform or as a helper in the shop may give his evidence a value which could never be the result of purely theoretical knowledge. Work in the ranks of an operating company may not in itself call for the practice of principles learned on the hidden side of the college wall, but it gives a sense of proportion and a knowledge of men that come into play exceedingly well sooner or later.

However a technically trained man may enter the service of the modern street railway, he is bound to become acquainted with the engineering and executive staff in due course and, in fact, will do well to let the employment department know his full hopes and desires when he goes into the work. Attendance at meetings of company sections of the national association, the gradual extension of friendship and continued study are likely to bring their reward in due course. Where one can enter a student course or as a recognized apprentice, so much the better. Finally, if things go too slowly after a reasonable trial, it may be possible to apply for a transfer to another department with some show of success. Sooner or later the opportunity coveted is almost sure to come to the technically trained man whose qualifications are known to his superiors, and if they are not, either the system of employment and management is wrong or the man himself must be at fault.

Sooner or later the true cost of electric transportation must be met by the communities which it supplies. This means that as long as such service is rendered, scientific work in it will be rewarded. We need not enumerate the unsolved problems of the industry. There will always be such before it, and to those of the future the young men of to-day will have to address themselves. Public relations, scientific management, the conduct of labor affairs,—these and many other questions are coming to the front more and more as the industry grows. Methods may change with the years, but the fundamental problem of economically transporting men and things will always be with us, and in no small degree the success with which its variables are evaluated in the years to come will depend upon the graduates of the present period, upon their eagerness to master details before they attempt to generalize, and upon their appreciation of the meaning of opportunity in the humblest task which is placed upon them in the drab weeks which so often follow the fall of the academic curtain.

Improvements in the Low-Floor Car

Four Years of Development Have Brought the Pittsburgh Design into Its Probable Final Form—A Description is Published, Including Consideration of the Details of Construction of the Low-Floor Motors and the Control Without Resistance

Since the low-floor car was brought out in Pittsburgh, somewhat less than four years ago, certain changes have been made from time to time with the idea of improving the operating efficiency. The first cars of this general type were trailers and were placed in service in 1911. One of these, equipped with motors, has been in regular operation since the summer of 1912, but the first cars designed especially for use as motor cars have been in use about two years. The changes in the car body, although important, are very naturally overshadowed by those made in the control system that practically eliminates the use of resistance, as well as by the motors which have made possible such an astonishing reduction in weight by permitting the use of 24-in. wheels. As these features have, in all probability, reached the commercial form in which they will remain for some time to come, detailed descriptions are given in the following paragraphs. These include also a comparison between the design of the low-floor motor and a standard motor of the same rating, which shows for the first time some of the reasons for the ability of the former to do its work in spite of its small size.

The latest developments in the low-floor car design appear in the 100 cars which were ordered some time ago by the Pittsburgh Railways Company and are being received from the builders at the present time. In general appearance the new cars are like their predecessors which were described in the Electric Railway Journal for April 11, 1914. However, they have lower steps because of a greater ramp in the floor, and in addition a greater proportion of the car is built from steel, the latter feature, together with other refinements in design, making it possible to reduce the weight of the car body by approximately 2500 lb.

In the center-entrance motor cars first used in Pittsburgh the top of the center door is reinforced by heavy rolled channels. In the new cars, however, the whole side of the car becomes a girder, the depth of which is from the top of the letterboard to the bottom of the side sheathing. Previously the side girder extended from the bottom of the side sheathing to the bottom of the window only, and it was necessary to reinforce heavily the parts around the center doors in order to carry the strains across this portion of the car side.

The seating capacity is sixty. By combining longitudinal and transverse seats the company has returned to a plan that was very widely used in Pittsburgh before the advent of the first center-entrance cars. Permanent seats extend around the ends of the car, the control and brake handles being mounted on pipe railings that serve as seat separators. A plan is shown on page 7.

The ramp at the center of the car is 5 in. high and 5 ft. long. This reduces the two center-entrance steps to heights of 14 in. and 9½ in. Three steps respectively 12½ in., 8½ in. and 8½ in. are provided at the front exit, the first-mentioned one being the height from the rail to the lowest step tread.

In common with the earlier designs the new cars have a front exit door and two doors at the center. The door mechanism is made up of levers, and all doors are mechanically controlled by the trainmen without the use of compressed air or electricity, it being believed that a manually-operated door is much more easily kept in order than one opened by power. The center doors are separately controlled by the conductor, so that either one or both of these doors may be used as an entrance. If a passenger sitting in the rear part of the car signals that he wants to get off, the conductor keeps the rear center door closed until he is ready to alight. The entering passengers then divide into two streams, part coming in one door and part in another. The front exit door is supposed to be used by all of the passengers in the front half of the car, although it has been found in practice that only about two-thirds of them do so.

Some remarkable results have been obtained through having two streams of passengers board simultaneously and pass on opposite sides of the fare box. The loading time per passenger at certain corners is less than one second, the average at the heavy loading points (including the time of the fellow "who never has change")

LOW-FLOOR CAR—VIEW SHOWING CENTER ENTRANCE AND FRONT EXIT

being only slightly more than one second. In general, the separate control of the center doors has been found to be an excellent feature since it permits the conductor, without saying anything to any of the passengers, to guide their movements. Also it is possible in cold weather, when only one or two people want to board the car at a certain point, to open only a small part of the car to the outside atmosphere.

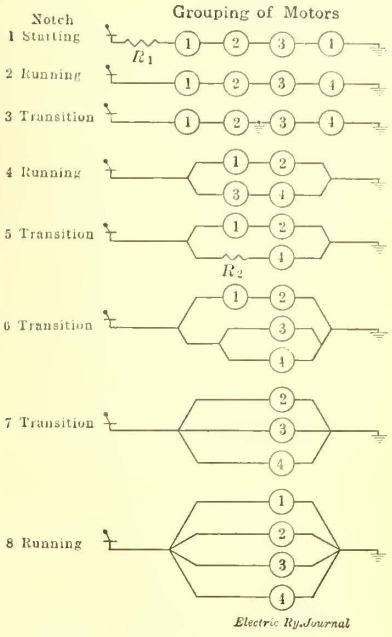
The exact weight of the new cars, fully equipped for double-end operation, with two fenders, two couplers, two controllers, etc., is 35,600 lb. If the car should be arranged for single-end operation, with only one set of doors, one controller, etc., the weight would be 33,000 lb. Car-body and equipment weights are as follows:

Weight of car body, conduit, wiring and air-brake piping	18,000 lb.
Weight of air brakes	950 lb.
Weight of motors	7,000 lb.
Weight of other electrical equipment	1,250 lb.
Weight of trucks	8,400 lb.
Total weight	35,600 lb.

The car-body weight includes all accessories as well as the air-brake piping and the wire and conduit for the motors and control. The weight of steel in the car framing is 6800 lb. The over-all length of the body is 45 ft. and the width is approximately 8 ft.

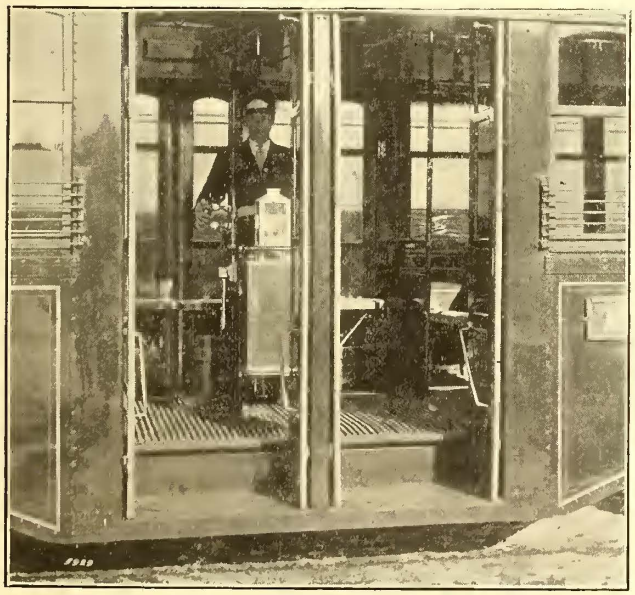
From the above table it is manifest that the low total weight of the car is brought about in great measure by the reduction in weight of the apparatus under the car rather than in the car body itself. The small wheel, in itself, reduces the weight by approximately 1200 lb. per car, and to its use can be traced almost all the other weight reductions. The axles of the trucks are lighter because of reduced strains, and the truck itself, in all its members, is lighter than with the larger wheel. In practice the lighter weights of the members are found to have ample strength. Theoretically the closer the center of gravity is to the track, the harder the impact from side motion, but in practice, in slow-speed city service, the distance that the car body travels in a side "slap" seems to be the controlling factor, since the low-floor car rides much better over rough track than the high-wheeled car. The details of the truck were worked out under the supervision of F. R. Phillips, superintendent of equipment.

The prominent feature of the truck is the elimination of end frames, the truck being held square by gussets that connect the transoms and the arch-bar-type side frames. The weight of 4200 lb. for the truck indirectly enables a total saving of 3400 lb. to be made over the standard type with large wheels, 740 lb. of this saving being in the smaller axles and 1200 lb. being due to the smaller wheels. Elliptic springs are used, these resting on a spring plank supported by 15-deg. swing links from the transoms, and it is reported that the arrangement makes the low-floor car actually ride more easily than the standard types, even in high-speed suburban service, where several of the cars of low-floor design are used.

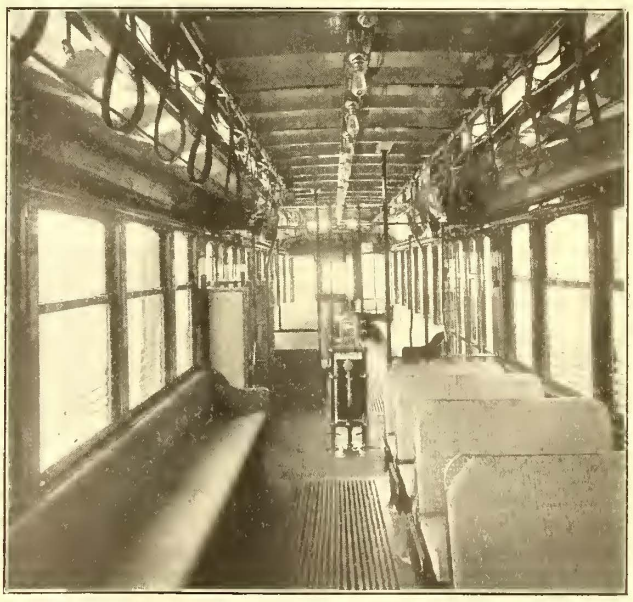


LOW-FLOOR CAR—GROUPING OF MOTORS FOR CONTROL

The electrical equipment consists of four GE-247-A, 35-hp motors with Jones control built by the General Electric Company under the Jones-Welsh patents. The control differs from that used on the earlier low-floor cars in having a new type of unit switch, this being of the armature. type instead of the plunger type. The contactors are arranged in two switch-group cases, the reduced size making it easy to find a place for the groups beneath the low floor of the car. The combinations and connections provide for the use of interlocks on the contactors to establish holding circuits whereby the motors are maintained in parallel groups while the control handle is being thrown off, thus affording a closed path of low resistance for the discharge of magnetic energy. In this way burning of the contactor tips is greatly reduced since the contactors act as commutating switches, and with the exception of one or two units have very little actual rupturing of the current to do.



LOW-FLOOR CAR—VIEW AT CENTER ENTRANCE, SHOWING DOUBLE-DOOR ARRANGEMENT

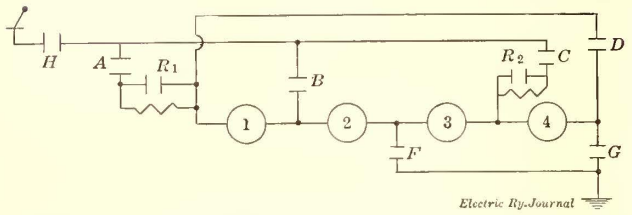


LOW-FLOOR CAR—INTERIOR VIEW, SHOWING CENTRAL LOCATION OF FARE BOX

Contactor Sequence

Step	A	B	C	D	F	G	H	R_1	R_2
1	●					●	●		
2 ○	●					●	●	●	
3	●				●		●	●	
4 ○	●			●	●		●	●	
5	●		●		●		●	●	
6	●		●		●	●	●	●	●
7		●	●		●	●	●		●
8 ○		●	●	●	●	●	●		●

○ Running Points



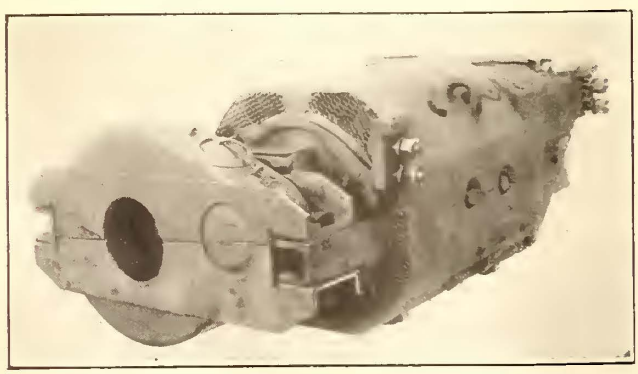
LOW-FLOOR CAR—SCHEMATIC DIAGRAM FOR CONTROL AND SEQUENCE OF SWITCHES

There is also provided a method of cutting out damaged motors by use of the control circuits which simplifies the car wiring.

In this control system resistance is used only on two transition points or when all four motors are in series and when the first motor is thrown in parallel across the line. In the original control system only two motors worked on the transition points, whereas the above plan shows never less than three from the series-parallel position to the final position. By the use of an additional contactor, three or more motors can be used throughout the entire range, but in practice this has been found unnecessary for the first part of the accelerating period. It should be said that a few of the controllers with the original connections are still in service and work very well except that the acceleration is not as rapid as with the new scheme.

Since there are three running notches, the transition points are used only for very short intervals. It is found that the motormen make frequent use of the first running notch with all the motors in series, when behind slow-moving wagons, and the power, therefore, is not continually thrown on and off. This saves controller fingers, brakeshoes, wheels, current, and last but not least, nerve force of the passengers.

Three extremely hilly routes in Pittsburgh have been equipped with the low-floor cars, and it is found that the current consumption is approximately the same as when the same number of small-capacity single-truck cars were in operation on these lines. Tests lasting for about two and one-half months show that this control



LOW-FLOOR CAR—VIEW OF MOTOR FOR 24-IN. WHEELS

LOW-FLOOR CAR—RELATIVE SIZE OF LOW-FLOOR AND STANDARD TRUCKS

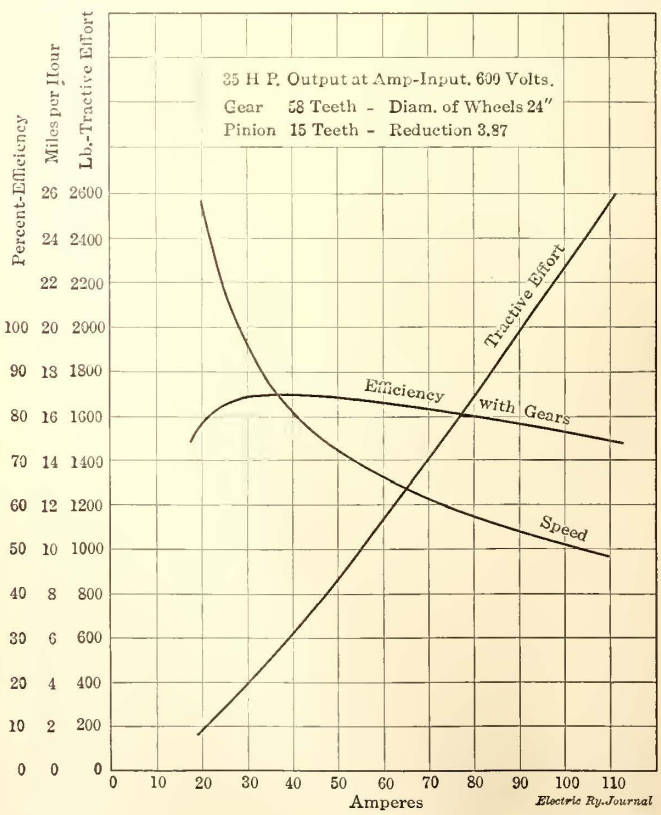
takes from 8 per cent to 15 per cent less power than with the standard, resistance-type, series-parallel control when used on cars of the same weight. The amount of saving, of course, depends largely upon the number of stops per mile. The design of the resistance and the smaller capacity of the motors, it may be said, help to reduce the car weight.

One other feature of the car is a new type of compressor which was specially designed by the Westinghouse Air Brake Company to fit the available space and to reduce the vertical height occupied to the absolute minimum.

Design of Low-Floor Motor

Naturally, the development of motors small enough for use with 24-in. wheels has raised some question as to the methods by which this most important step toward efficient operation has been made. As a matter of fact, in the design of the low-floor motors nothing has been skimped to save weight, and the construction has been worked out along normal lines, the designers utilizing all of the latest available knowledge about railway equipment to produce the best results consistent with generally accepted practice.

This is indicated in the following table, which shows that there is nothing in the new design that is greatly



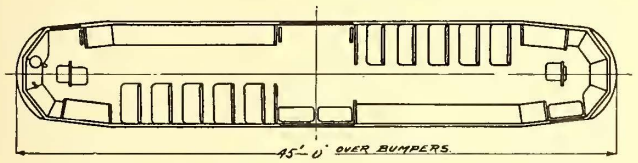
LOW-FLOOR CAR—CHARACTERISTIC CURVES OF MOTOR FOR 24-IN. WHEELS

different from the electrical and mechanical features of the older types of motors. The new type, which is known as the GE-247 motor, is of the same rating as the old standard GE-81, and on this basis may be compared with it. The field windings of the two motors cannot, of course, be compared because the GE-81 motor is a non-commutating-pole machine while the GE-247 motor has commutating poles. The armatures, however, are wound with exactly the same number of turns per coil. In both cases the air gaps are normal, being eccentric, and they should not vary from each other more than 1/64 in. The new motor, also, is ventilated, whereas the older one is not. This feature has naturally increased its relative hourly rating and has given it as well a high continuous ampere capacity.

COMPARISON BETWEEN LOW-FLOOR MOTOR AND STANDARD MOTOR

	GE-247	GE-81
Rating 600 volts	35 hp	35 hp
Rating 500 volts	30 hp	30 hp
Clearance under frame:		
30-in. wheels	....	4⅜ in.
24-in. wheels	3 5/16 in.	....
Speed (500 volts, 55 amp)	605 r.p.m.	610 r.p.m.
Diameter of armature	10½ in.	11½ in.
Number of slots	27	29
Turns per coil	3	3
Length of commutator	2¾ in.	3 in.
Thickness of shell	7/16 in.-1⅛ in.	½ in.-1¼ in.
Diameter of armature shaft	2¾ in.	2¾ in.
Weight with gears and case	1750 lb.	2020 lb.

Summed up it may be said that the 24-in. wheel, with all of its inherent advantages in reduced weight, has been made possible mainly by the adaptation of commutating poles and ventilation to a small-size motor, together with a reduction of 1 in. in clearance



LOW-FLOOR CAR—PLAN SHOWING NEW SEATING ARRANGEMENT

under the motor frame. Aside from these features the considerable saving in weight and size has been effected without departing in the least from the substantial mechanical design of standard motors. The efficiency tractive effort and speed curves are shown in an accompanying diagram.

DETAILS OF CONSTRUCTION

It should be said also that part of the saving in weight has been obtained by the use of the box type of frame. This has for long been considered necessary for large motors, and its adoption for a motor of this size is a perfectly logical step. The box frame of the new motor is approximately octagon in transverse section, and has the four main exciting poles located at angles of 45 deg. to the vertical. Bails are cast on the frame for handling the motor, and brackets are provided for bar suspension. A large opening is provided over the commutator, this being closed by a pressed-steel cover held in place by a cam locking device. The frame heads have auxiliary oil wells, and drain pockets for oil thrown off by the oil deflectors on the armature shaft. All covers on the axle and armature-bearing oil boxes have deep lips and are lined with thick felt held in place by rivets and washers, a sheet steel dustguard inclosing the axle between the axle caps. Provision is made for a 4-in. diameter of axle in the axle linings and for linings 7 in. in length. The gear case is made of sheet steel, each half being pressed from a single sheet, and it is supported by a horn cast on the axle cap at the pinion end.

The exciting pole pieces are built up of laminations assembled on keys which are bolted to the frame by tapped bolts inserted from the outside. The commutating pole pieces are drop forgings. The mummified type of coil is used for both main and commutating field coils, the insulation following standard General Electric practice in all respects. The exciting coils are held against steel pads by spring angle flanges, and the commutating coils against finished seats in the frame in a similar manner.

The armature, of course, is built up of laminations assembled on and keyed to the armature shaft, longitudinal ventilating ducts extending through it and through the commutator shell and armature heads. The commutator is 9⅛ in. in diameter and is built up of hard-drawn copper, insulated with mica grooved out to a depth of 3/64 in. below the surface of the commutator. The bars are insulated from the shell by cones of mica pressed to shape, the whole being pressed together hydraulically before the locking nut is tightened up. The insulation of the armature coils, hot banding, etc., and the brush-holder design also follows standard General Electric practice.

Ventilation is effected by a double or multiple fan which is made integral with the pinion-end armature head and which draws air into the motor through hooded openings provided in the commutator-end frame head. The air divides into two streams, one passing over and around the armature and field coils, the other taking a parallel path through the ventilating ducts in the commutator shell and armature core. After passing through the double fan the streams unite and are exhausted to the atmosphere through screened openings in the frame. By this means a positive circulation of air is maintained through the motor, cool air coming in contact with all parts of the motor.

In designing this motor no effort has been made to reduce the weight below limits that are consistent with sufficient strength and rigidity; therefore, it is well suited to handle loads within its range of capacity. This has been demonstrated by the fact that the original motors of this general type have been in hard service for nearly two years with a low maintenance cost. In fact, approximately 500 of the GE-247 motors have already been supplied for cars with 24-in. wheels, and all of them at the present time are giving very satisfactory results in operation.

Congresses at San Francisco

Eight hundred and twenty-two conventions and congresses, whose subjects cover the activities of the world along industrial, commercial, professional and scientific lines, will meet in San Francisco and the bay cities in connection with the Panama-Pacific International Exposition during the 288 days of its existence. This is more than double the number at any previous world exposition, and to secure them practically all organizations of importance in the civilized nations of the world were thoroughly canvassed by the exposition authorities.

The attendance at each of the conventions and congresses will range from 100 to possibly 30,000 delegates and visitors. There will be an average of nine exposition conventions per day throughout the entire period. But few days are blank, and on certain days during the summer months as many as thirty or forty meetings of various kinds will be held.

Following are the classifications geographically and the popular months: national conventions, 525; international congresses, 57; Pacific Coast conventions, 68; California conventions, 172. August is the month during which the largest number will be held, namely 249. July follows with 133, and September with eighty-six.

Pacific Claim Agents' Convention

Abstracts Are Given of Six of the Papers Presented at the Annual Meeting of the Pacific Coast Claim Agents' Association—Result of the Election of Officers

The seventh annual meeting of the Pacific Coast Claim Agents' Association was held in San Francisco on June 24-26. There was a full representation from member companies. The sessions were notable for the number of very able addresses and papers presented. One of these was published in abstract in the issue of this paper for last week, and abstracts of others appear this week.

At the meeting on June 26 officers were elected as follows:

President, Thomas G. Aston, claim agent Washington Water Power Company, Spokane, Wash.

First vice-president, Thomas A. Cole, claim agent Los Angeles Railway Corporation, Los Angeles, Cal.

Second vice-president, W. H. Moore, San Diego Electric Railway Company.

Third vice-president, J. S. Mills, assistant superintendent Key Route, Oakland, Cal.

Secretary and treasurer, H. G. Winsor, claim agent Tacoma Railway & Power Company, Tacoma, Wash.

Executive committee: J. H. Handlon, claim agent United Railroads, San Francisco, Cal.; A. M. Lee, assistant general claim agent Northern Pacific Railway, Seattle, Wash.; B. F. Boynton, claim agent Portland Railway, Light & Power Company, Portland, Ore.; George Carson, claim agent Puget Sound Traction, Light & Power Company; H. K. Relf, general claim agent Spokane, Portland & Seattle Railway, and S. A. Bishop, general claim agent Pacific Electric Railway, Los Angeles, Cal.

Tacoma was chosen as the place for next year's convention.

THE INVESTIGATOR AND HIS WORK

BY C. F. YOUNG, ADJUSTER PUGET SOUND TRACTION, LIGHT & POWER COMPANY

The investigator, to my mind, is next in importance to the claim agent or adjuster. Loyalty, of course, is one of his first requirements. He should be above the average degree of intelligence and come within the most critical definition of the term gentleman. Then his personality should be pleasing, and he should approach people in a manner to inspire confidence. He should also be a good listener, be able at once to impress upon the witness his fairness in the case in question, and fairly to influence an obstinate or prejudiced person. He should be honest in all things, clean morally, dress neatly but not overdress, as his work requires him to meet all classes. He should be particular when calling upon people below him in rank not to talk over their heads. He should hold his temper always, but by so doing not let the other fellow imagine he is afraid.

He will find cranks and critics in many places, as well as scores of people with complaints, real or fancied, and to these he must be able to make answer without provoking an argument. Many times, the fact of calling attention to the difficulties of operation or the tribulations of the trainmen in dealing with the public and endeavoring to please all, will be of material help in effacing prejudice and creating a friendly attitude. A good way out of many such incidents is for the investigator to explain that the claim department has nothing whatever to do with the operating end but that he will be pleased to call attention to the complaint or suggestion, and in this way many timely suggestions have been so made and reported to the proper department.

The investigator should be sufficiently acquainted with the subject under investigation to know what he is seeking and recognize it when he sees it, thus cutting out all suppositions and embodying in his statement positive facts to which the witness could testify if called upon the stand later. A reasonably short, clear statement covering the facts will help to save much of the time of the witnesses, most of whom are disinterested and conferring a favor upon him.

The investigator should be on the best of terms with all other employees, so far as is possible, and especially with heads of departments. His treatment of trainmen should be such that they may look upon him as a friend trying to build up a defense not only for the company but for the man or men who have had the accidents. If he has established this feeling he will secure many good tips from them.

He should be able to use a camera to secure pictures of conditions at crossings, landings, steps and platforms as well as street intersections, thus having evidence which is hard to refute months or years later in a suit, when conditions may have changed.

THE ORGANIZATION OF PUBLIC SAFETY COMMITTEES

BY B. F. BOYNTON, CLAIM AGENT PORTLAND RAILWAY, LIGHT & POWER COMPANY, PORTLAND, ORE.

After years of work along safety educational lines with our trainmen in Portland in the public schools, and in various other ways, we began to receive letters from all over this country and foreign countries inquiring about the methods and results of our work. We began to feel we had really accomplished some good in eliminating accidents, as we had reduced the number of accidents on our own property about thirty a day. One day I called on the Mayor and showing him the documents we had received from the various cities and countries, I told him I thought that a public safety committee, backed up by prominent men in our city, could accomplish a great deal toward making Portland the safest city in the world. The Mayor thought the suggestion a good one and appointed a committee consisting of nine bureaus, as follows:

Bureau of public safety—John T. Moore, captain of police.

Bureau of fire prevention—A. M. Churchill, lawyer and chairman of fire prevention bureau of Civic League; E. F. Dowell, chief of fire department, and Jay Stevens, fire marshal.

Bureau of traffic—H. P. Coffin, chairman public safety committee of Portland Automobile Club, and A. S. Kirkpatrick, city traffic engineer.

Bureau of schools—L. R. Alderman, superintendent of schools.

Bureau of transportation—F. L. Burckhalter, general superintendent Southern Pacific Railway.

Bureau of electric transportation—B. F. Boynton, general claim agent Portland Railway, Light & Power Company.

Bureau of industrials—M. N. Dana, *Evening Journal.*

Bureau of buildings—R. L. Withrow, *Evening Telegram.*

Bureau of publicity—H. E. Thomas, city editor *The Oregonian.*

Advisory board—G. W. Talbot, president Pacific Power & Light Company; F. C. Knapp, Peninsula Lumber Company, and A. H. Averill, Averill Machinery Company.

These men, you will see by the positions they hold, are representative men in representative positions. Each man has his branch of work to cover.

The first public step, after our organization, was to get our fire marshal, Jay Stevens, to go in full firemen's uniform, with H. P. Coffin, chairman of our public safety committee at the present time, and myself, to our various public schools throughout the city and talk to the children on fire prevention. Mr. Stevens, being a very interesting and entertaining talker, was received at all the schools with great enthusiasm, and we have a record at the present time of having saved two schools and a great many lives as the result of Mr. Steven's talks. At the time he started his school lectures many false fire alarms were being rung in every day, which not only cost about $25 each to answer, but introduced an element of danger from the heavy fire apparatus plunging through the streets at breakneck speed. He showed in his talk to the school boys that the fire engines, in answering one of these false alarms might collide with a street car, injuring the firemen and possibly the boy's own mother in the street car. This caused all the boys to think. They stopped turning in false alarms, and to-day a false alarm is a rarity in the city of Portland.

For a number of years I have been gathering different safety data and safety propaganda of every description from all over the world; in fact, I have quite a large room in our building given over entirely to a safety-first exhibit. To impress the members of the Commercial Club and Portland's citizens with what was being done along safety lines, I had this entire exhibit moved to the dining room of the club, and on the occasion of our first general meeting there we invited a number of representative employers to attend. The enthusiasm and interest displayed at that meeting has ever since been growing. We held other meetings at the Commercial Club, which was then Portland's representative business organization. Every meeting has been largely attended.

Within the past few months our Commercial Club and Chamber of Commerce and other large clubs have combined into one organization, namely, the Chamber of Commerce, thus making an organization of approximately 5000 members. The new Portland Chamber of Commerce in its budget just prepared, has made a very liberal allowance for carrying on the safety work.

Since the establishment of the public safety committee, our city has appointed a public-safety man. This gentleman, A. S. Kirkpatrick, has installed between 300 and 400 caution signs at dangerous points all over the city. They are steel disks 18 in. in diameter, mounted on steel tubing 6 ft. high, painted red with a green center, and are set in concrete just inside the curbing on the right-hand side of the street at various distances from danger zones, warning the drivers of teams and machines of the condition ahead. "Sharp Turn," "Steep Grade," "Railroad Crossing," "School, Drive Slow," "Fire Station," "Reverse Curve," "Hospital," and other warnings are painted on these little disks.

Up to May 1 our public safety committee had 153 automobile drivers arrested (and most of them were fined) for disobeying the traffic ordinance in passing street cars while the latter were discharging passengers. Before the organization of the public safety committee many passengers were knocked down and injured in this manner, but now, when a street car stops, no matter how many machines there are behind it, they all throw in the reverse and come to an immediate stop.

Our fire marshal has appointed a number of deputies, who all wear regulation fire inspector's uniforms. Every building in the city of Portland is being examined by him or his deputies for fire hazards, and we expect to carry out just as thorough work through every branch of industry, and in so doing solve through education the greater portion of the accident problem. I find that by being liberal enough to take an interest in the other phases of safety work than that which directly affects the company I represent, a feeling of desire to reciprocate and help us is created among all classes of people in a way that could not possibly have been done in any other manner.

THE EMPLOYMENT BUREAU

BY H. G. WINSOR, GENERAL CLAIM AGENT PUGET SOUND ELECTRIC RAILWAY AND TACOMA RAILWAY & POWER COMPANY

There are many types of applicants for employment but comparatively few can be classed as eligible. The process of elimination quickly disposes of such as the man who cannot afford time for proper instruction; or the one who is always financially embarrassed; or the man who is a "globe trotter" and has a pocket full of service letters; or the man who can tell his instructors just how the work should be done. We have no use for the man who is dissipated or naturally uncouth in appearance, and above all, we should shun the man who expects to secure a position through political influence.

On the other hand, the employment official of experience and mature judgment will quickly recognize probable merit in the following types:

1. The man who presents a desire to undertake the work without condition, depending entirely on his personality for favorable consideration.

2. The man who presents himself at an hour which he selects as being most convenient for the employment official and enters the office in a respectful manner.

3. Those having seen honorable service in the army and navy. Such men usually make satisfactory trainmen as their experience teaches discipline and loyalty.

The employment of men should be undertaken by one who is a good judge of human nature. If so, he can find out many of the defects of an applicant at a single interview. "Make haste slowly" is a splendid maxim for adoption by employment officials. Many an applicant who has the ability and personality to "make good" and a spirit of loyalty which would recommend him after deliberation has been disheartened and lost to the service through an abrupt, indifferent or discourteous reception of his application for employment.

Two important essentials for employment are character and physical fitness for the duties required. The investigation of an applicant's history is usually obtained through references and is often incomplete so that the employer's ability to judge finds its value in this regard. Physical fitness is determined by a medical examination, and such examinations should be thorough and complete.

A man who has had experience in public service work requires fully as close scrutiny as others, and it is a mistake to assume that his record is a passport to employment. Courtesy should be an absolute requirement. If a man applying for employment walks into your office unannounced, if he fails to remove his hat, places his feet on the table or other furniture, he should be courteously told why he cannot have a trial. When you are engaged in a personal interview with an applicant, and he volunteers the information that at the last place he worked he could have remained had he ap-

proved of the methods or systems used by his former employer, you may reasonably question his loyalty. Men under twenty-five and over forty-five years should not, as a rule, be considered, although there are exceptions. Trainmen under twenty-five lack experience and are likely to assume too great risk, while the man over forty-five, unless he has had previous experience, is hardly likely to make a satisfactory record.

Nearly all electric railways employ one or more experienced officials whose special duty it is to prepare the motorman student by instruction and demonstration for his work at the controller. To facilitate this work a dummy car fitted with the necessary appliances is often provided. When the instructor is satisfied that the student is competent he is sent out on the different lines for instruction by experienced trainmen in the actual operation of cars. From ten to fifteen days is usually consumed in this preparatory work. When the student is employed as a conductor he is instructed in practically the same manner, although along somewhat different lines. Oral examinations are always necessary to determine the advancement made by students and to satisfy the operating department of their growing efficiency.

From the information at hand it has been rather surprising that very few companies require a written examination. In our organization the conductor's examination blank contains eight-four questions pertaining to operation and thirty-two pertaining to accidents and accident prevention; the motorman's blank has 123 questions on operation and thirty-seven on accidents. So far as the effect of this system concerns our claim department it has been of material assistance in reducing the number of accidents as well as assuring complete and satisfactory reports.

Service Record of Tacoma Railway & Power Company

Trainmen Entering Service

	Conductors	Motormen	Total	Experienced	Re-employed
1912	189	109	298	41	No record
1913	155	82	237	49	8
1914	69	39	108	18	22

Trainmen Leaving Service

	Resigned		Discharged		
	Conductors	Motormen	Conductors	Motormen	Total
1912	108	59	80	24	271
1913	98	59	50	21	228
1914	53	42	32	11	138

Final instructions should be given by the employment official who selects and employs the applicant, and when this important duty is performed he should have before him a complete history of the man, gathered from the various sources at his command. Any criticism of his work or examination should be pointed out in a kindly but impressive manner.

Employees who remain in the service for a number of years are usually those who are interested in and have a liking for the work. These are the most desirable men, and every effort consistent with good policy should be made to encourage them. Employees should have as much recreation as possible consistent with their duties and the condition under which they are employed. Comfortable quarters with good light, good ventilation and toilet facilities should be provided, as should also reading matter of the right character. Good reading matter is always appreciated and easily furnished. Frequent visits by the company officials to the quarters of the men will likely result beneficially. An employee desiring to make complaint should be courteously received and his request promptly considered. The report of an employee's sickness or death should mean prompt action on the part of his immediate superior. Occasional entertainments for the benefit of the employees and brief discussions are sometimes used as a means of keeping up an interest in certain parts of the work. The organization of benefit associations has worked satisfactorily in some cities and much good results to both employee and employer if such an association is properly organized and managed. We believe that through welfare work many valuable men have been retained in our services. To support that contention, a record of trainmen entering and leaving the services of the Tacoma Railway & Power Company for the years 1912-1913-1914 is presented in the accompanying table.

The profit and loss account of a company is affected materially by necessary settlement of claims brought by reason of the acts of its employees. In the organizations which I represent the claim department is not only consulted and its approval required before a student is assigned to regular duty, but no trainmen is discharged without a conference of the superintendent of transportation and the claim agent. All examination papers and other records are submitted for the guidance and the assistance of the claim department, and all students are sent by the superintendent to receive advice and instructions in safety and accident work from the claim agent.

INVESTIGATION AND HANDLING OF COLLISIONS WITH PEDESTRIANS AND VEHICLES OTHER THAN AUTOMOBILES

BY THOMAS G. ASTON, CLAIM AGENT WASHINGTON WATER POWER COMPANY, SPOKANE, WASH.

All accidents should be investigated carefully. For example, in a recent damage case on our road two persons were sitting in cars going in opposite directions. Each had a left arm projecting from a window, and as the cars passed the arms were interlocked, causing both to be broken. The contention was that the cars scraped together while passing in a curve. One of the witnesses asked at the time of the accident to have the cars backed up together and made a measurement which proved that there was plenty of space between, and the investigation at the time showed that there were no marks on either car.

The car men should be instructed to make note of the exact place on the street where an accident occurs and should call it to the attention of witnesses, who should be placed on record as to the exact point. Witnesses should be asked to mark the point at which an accident occurs by some immovable object. This may assist in proving that the driver was on the wrong side of the street, or in the act of turning the corner in violation of the traffic ordinance, or that the accident occurred between blocks instead of on a crosswalk or at an intersection.

Measurements should always be made and photographs should be taken of the scene of the accident as soon as possible. The car and vehicle involved should also be photographed, bringing out all marks. This will establish the amount of damage and show the parts which came in contact, thus helping to prove whether the vehicle had just pulled onto the track or had partly crossed. I recall several cases where photographs were of considerable value to us.

If an accident is serious it is our policy forthwith to have an engineer's map made of the location and vicinity, showing all houses from which any person could have viewed the accident. The grade and height of rail should also be shown. After the map is made an investigator should canvass every house shown thereon and take statements from at least one person in each house to ascertain whether or not anyone in the house claims to have seen the accident. That this is a good practice was taught to us in a very serious case involving the death of a driver of a vehicle. Two persons living about half a block from the scene of the accident testified to having seen the accident, and that no

warning was given. To my mind they did not see the accident or car until after everything was over, and I believe that they would have made a statement to that effect had they been interviewed at the time of the accident or shortly afterwards.

THE MEDICAL DEPARTMENT

BY GEORGE CARSON, GENERAL CLAIM AGENT PUGET SOUND TRACTION, LIGHT & POWER COMPANY

The value of the medical department to the claim department is derived from the aid rendered, in handling the situation properly, after the accident has occurred, although the medical department sometimes may be able to offer suggestions of a kind that might tend to prevent accidents. The physician of a railroad should regard himself and his department as an exceedingly large and important factor in the work of the claim department, and should aid whenever possible in the saving of expense of that department in a proper way.

In so far as the handling of accidents is concerned, prior to the time the claim is adjusted or rejected, the medical department should act under the general direction of the claim department in regard to calls on the injured person, examinations, reports, etc. This, of course, in no way refers to matters of a strictly medical nature, as, for example, medical treatment of injured persons, such not being within the province of the claim department. Neither should the medical department interfere in any way in that which is strictly claim department work, such as legal investigations, adjustments, etc.

The physician representing a railroad as the head of the medical department and his assistants should be gentlemen of the highest standing and ability in their profession. Their ability should be such as to enable them to detect the accident faker and malingerer, making it impossible for them or unfair physicians to "pull the wool over their eyes." The company physician and his assistants should be of pleasing personality and should be capable of inspiring confidence in injured parties when first visiting. They should be within call at all hours of the day and night, to respond promptly to emergency calls and render first aid when necessary.

As thorough an examination of the injured party as may be consistent with the conditions should be made at the first visit, and under no circumstances should the injury be minimized. If there is any element of doubt as to the extent of the injury, it would be better to resolve such doubt in favor of the injured party. Any departure from this policy might result most disastrously to the company. Since medical reports are the basis upon which settlement is made, particularly in cases of liability, failure to discover a bad condition of the claimant, if such existed, would easily bring about failure to reach a settlement and result in a costly lawsuit. In making an examination of an injured person it is exceedingly important that the examination be thorough, if only for the purpose of satisfying the party of its thoroughness, otherwise the claimant will say to me that our physician had not made a thorough examination and therefore could not tell how he was suffering.

At the time of making the examination, if the condition of the patient will permit, the company physician should get, so far as is possible without offending or antagonizing the injured party, his complete history, including details relating to any accidents he might have previously incurred. Promptly after the examination has been made, a full and complete report should be sent to the claim department. Better reports, I think, can be made on blank sheets than on printed forms.

If at the time of the call of the company's physician on the injured party the family physician has not been called, the company's physician should ask the party whether treatment is desired by him or if the family physician would be preferred. If the injured party desires continued treatment by the company physician, such treatment should be rendered, but no effort whatever should be made to induce the injured party to continue treatment with the company physician, and such treatment should be rendered only when entirely agreeable to the injured party. If the family physician or an outside physician should be called in a case, pending its disposition, the company physician should keep in close touch with the injured party, either by consulting with the attending physician, or by examinations, keeping the claim department continually advised of the situation from every possible angle within his observation, including information as to whether or not the attending physician of the injured party is disposed to be fair, etc.

When visiting the injured party, the company physician, if tactful and diplomatic, can do a great deal toward paving the way later for the claim agent or adjuster to make a reasonable settlement. This many times is of great benefit both to the injured party and to the company.

When persons are injured in connection with our cars to an extent making it necessary for them to have hospital treatment, no particular hospital should be selected. The injured person should be taken to the nearest hospital where proper attention may be secured, or to any hospital that he might prefer. In a case of no liability and the injured person has no preference, then he should be sent to the city hospital for the purpose of saving expense to the company. The latter, however, would be a matter to be passed upon by the claim or operating departments, as the company physician is not supposed to know anything about liability.

When it becomes necessary from the viewpoint of the company physician to employ a specialist, who as a rule is not on a regular salary, the company physician should first ascertain whether the claim department is desirous of incurring the expense, as many cases might arise in which the company would not derive any benefit from a specialist's examination.

THE INVESTIGATING AND HANDLING OF AUTOMOBILE ACCIDENTS

BY H. H. BENTON, DISTRICT CLAIM AGENT NORTHERN PACIFIC RAILWAY, SEATTLE, WASH.

The phrase "Stop, look and listen," when applied to vehicles at grade crossings, can hardly be considered a safe rule of law for the claim agent. The true rule is this: the driver of the vehicle "must act with such care and caution for his own safety as a reasonably prudent man would be likely to do under like conditions."

For example, if a driver's machine is comparatively noiseless and does not materially interfere with his power to hear an oncoming train he may fail to stop and yet not necessarily be negligent. He should look and listen, but if looking and listening could avail nothing, his failure to do the useless thing would not necessarily bar his right of recovery if a negligently operated train collided with his automobile.

With these rules of law affecting the possible liability of the railway company firmly fixed in his mind the claim agent, in the investigation of such a collision, should obtain all available evidence as to the negligence or carefulness on the part of the railway company, either as to the safe or dangerous character of the location and construction of its road, and the crossing itself.

The speed of the automobile and of the train should be investigated in order clearly to demonstrate where each one was at successive intervals preceding the moment of the collision. This opens the way for the application of the rule of law closely held by the courts that if the driver could plainly see he will be held negligent if he did not see. Again, it is important to note the location of the railway line near the crossing, to determine whether the roar of an approaching train would be likely to be muffled or lessened. The condition of the weather at the time of the accident is always important. Storms may impede sight, wind may smother sound; either may tend to make some acts negligent, or tend to excuse other acts which would under other conditions be negligent.

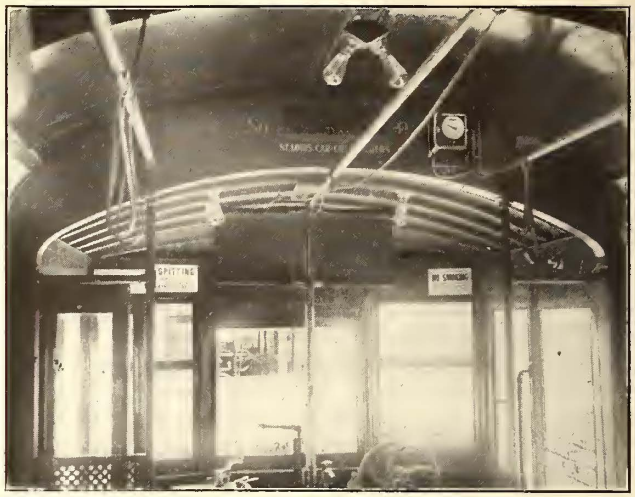
The average chauffeur boldly claims that he can stop his machine, when running at 12 m.p.h., within a distance of 4 ft. This is absolutely untrue when applied to conditions under which collisions occur. At a speed of 12 m.p.h. his machine travels 17½ ft. in one second, so that while descending into a cut at a grade crossing where the view of an approaching train might be obstructed, the chauffeur, when 25 ft. from the track, suddenly beholds the rushing train, he only has one and a half seconds to come to a stop. He imagines that 25 ft. is all that he needs, but he is mistaken.

Following Up Watt-Hour Meter Records at El Paso

Both Meters and Methods Have Stood Up Well After Nearly Four Years of Service

The El Paso (Tex.) Electric Railway began the use of Sangamo watt-hour meters in December, 1911, equipping at that time every one of its fifty motor cars. Since then fifteen meters have been added to new equipment, making a total of sixty-five motor cars.

The energy consumption savings were first presented by George G. Morse, superintendent railway department, before the Southwestern Electrical & Gas Association at its 1914 meeting (see the Electric Railway Journal for May 30, 1914, page 1,206). Mr. Morse showed that an average energy consumption of 2.61 kw-hr. per car-mile in 1911, without meters, had been reduced to 2.39 kw-hr. shortly after the installation of the meters. These averages, it should be stated, were readings taken at the d.c. busbars, therefore including all low-tension distribution losses. As the result of continued competition and the follow-up system, the energy consumption for the entire system is still (April, 1915) at 2.39 kw-hr. per car-mile, despite the addition of fifteen double-truck cars, which, of course, are heavier than the single-truck cars which formerly carried most of the business. In fact since the meters were first installed, the proportion of double-truck mileage has risen from 43.2 per cent in 1911 to about 54 per cent in 1915.



EL PASO CAR METERS—INSTALLATION OF WATT-HOUR METERS ON INSIDE ARCHWAY

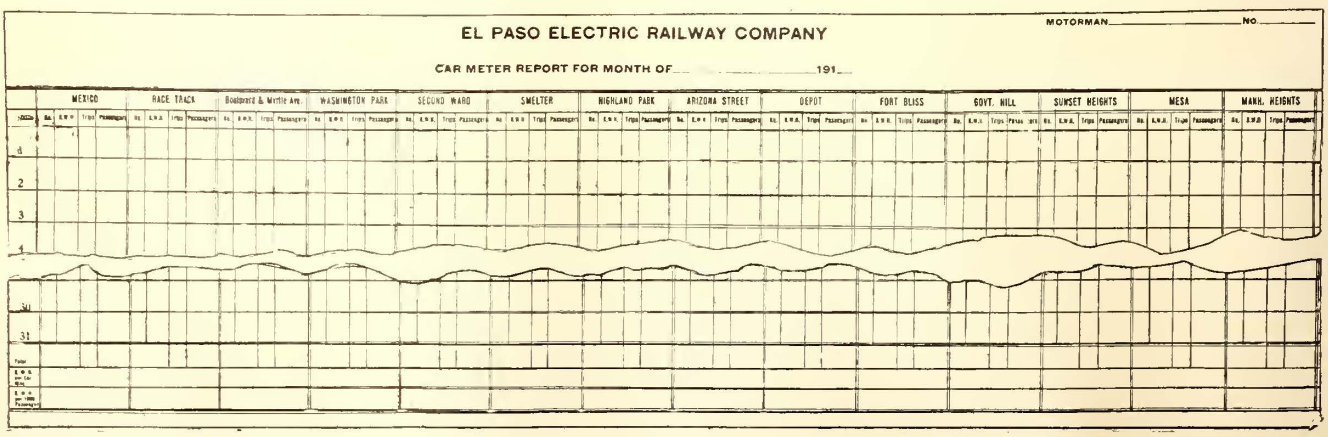
As stated in Mr. Morse's original paper, a bogey or standard was set up, after test, for each of the four classes of cars. This bogey plan still forms the basis of the follow-up system. In Mr. Morse's opinion, faithful adherence to the follow-up system is much more important than the type of checking device used on the car.

Meter Reading WHEN LEFT 73003
Meter Reading WHEN TAKEN 72885
AMOUNT USED 118
Register Reading WHEN LEFT 31817
Register Reading WHEN TAKEN 31537
TOTAL PASSENGERS 280
NO. OF TRIPS 30
LINE RUN ON Summit
CAR NO. 39
DATE 4-18-15
NAME Hazlett NO. 36

MOTORMAN'S METER SLIP; A DUPLICATE STUB IS RETAINED IN HIS BOOK

Follow-Up Records

The records begin with the meter slip made out by the motorman. On taking a car out, he takes and records his first meter reading. At the end of his work on that particular line he gets from his conductor the number of passengers handled. This record also shows the line on which he ran, the number of trips made (the mileage being figured later by the mileage clerk) and the car number. These motorman's slips are padded in a



EL PASO CAR METERS—MONTHLY COMPARATIVE RECORD OF METER PERFORMANCE ON A SPECIFIC TYPE CAR AND ROUTE

EL PASO ELECTRIC RAILWAY COMPANY

INSPECTOR'S METER DATA

Your attention is called to the performance of the following men, made on April 29, 1915.

Line	Name	No.	Car	PERFORMANCE		Notes
				Actual	Bogey	
Mexico	Broderson	66	80	12.20	7.25	
	Reynolds	78	79	8.05	7.25	
	Scrivenor	184	71	8.05	7.25	
	Dieterich	80	81	9.00	7.25	
	Weaver	114	79	8.20	7.25	
Park	Heard	132	93	12.40	10.50	
	Wilcox	84	92	11.70	10.50	
	Glaves	126	88	12.00	11.50	

Remarks:

EL PASO CAR METERS—RECORD OF DELINQUENTS SENT TO INSPECTORS ON THE DAY FOLLOWING THE PERFORMANCES NOTED

book in duplicate, so that the user can keep the stub for his own information and check.

The meter slips are first examined by the meter clerk for those men who have fallen below the bogey for their class of car. These delinquents are listed as shown on a sheet called "Inspector's Meter Data." Copies of this report are in the hands of all road inspectors by 11 a.m. the next day. Therefore, the inspectors are prepared to ride and correct the operating faults of the delinquents while all concerned still have in mind all the conditions of the preceding day. For example, a heavy sand storm, as is common in the vicinity of El Paso, will clog the rails and so increase energy consumption. Another cause of increased energy is found in heavy rains which leave much sand on the track. The inspectors, naturally, exercise their judgment under conditions of this character.

Records from all slips, regardless of delinquents, are also posted on a monthly sheet which is divided horizontally by days and vertically by routes. Each route is also subdivided vertically for the car number, kilowatt-hours, trips and passengers. The total kilowatt-hours per car-mile and kilowatt-hours per 1000 passengers are written at the top. This monthly record is made out in four colors, one for each type of car.

In order to make comparisons as fair as possible, the number of passengers handled is noted, as above stated. To avoid too much clerical work, however, the comparisons are made on the basis of 1000 passengers carried with any given type of car. The factor of schedule speed does not enter, as this is the same on any given line for any given period of the day, no comparisons being made between different lines. The average schedule speed of the system is 8.1 m.p.h.

The recapitulation of the monthly record for each type of car is prepared in typewritten form, as shown, for posting at the carhouses. This report presents each motorman's name, number, kilowatt-hours per car-mile, kilowatt-hours per 1000 passengers and his relative rating. This rating is obtained by dividing each

METER PERFORMANCE—SUNSET HEIGHTS

Class D Cars — April, 1915

Name	No.	Kw-hr. per car-mile	Kw-hr. per 1000 passengers	Rating
Shearer	154	1.76	388	95
Baker	196	1.83	570	98
Werner	108	1.86	445	100
Bloxom	34	1.90	585	102
Hayslett	36	2.00	420	108
Average		1.86	465	

Ratings are given on car-mile performance.
No ratings given unless the equivalent of a full day's mileage has been made.

.....
Superintendent Transportation

APPROVED:

.....
Superintendent Railway Department

EL PASO CAR METERS—MONTHLY RECAPITULATION OF DAILY METER PERFORMANCES

man's average kilowatt-hours per car-mile by the grand average of all men on the same line and type of car. The reference to passengers carried is used only where two men have the same rating on a kilowatt-hours per car-mile basis.

The interest of the men has been maintained chiefly by publishing their records, but their run privileges are sometimes modified by the nature of their performance. Before the men began to use meters they had no conception of the value of electric energy. The use of the meter has given them an entirely new point of view. Although the kilowatt-hour was an unfamiliar unit to the men, they soon became accustomed to it among themselves. However, they refer to the readings as so many "points" rather than so many "kilowatt-hours."

MAINTENANCE

The fact that these meters have now been in service for nearly four years makes the question of their maintenance cost a matter of special interest. Until recently the meters were maintained by the general meter shop of the lighting department, but they are now cared for directly by the railway department. For the year 1914, the cost of maintaining sixty-five meters was only $159.33, or $2.44 per meter. This total includes the cost of repairing six meters burned out by lightning. Outside of these repairs, the chief expense was the removal and straining of oxidized mercury through cheesecloth, the replacement of the mercury and reassembling of the meters. This purification is carried out about once in five months. The total cost mentioned also covers the expense of testing. The special calibration meter used for such testing was purchased from W. T. Mobray, Providence, R. I., at $150.

Illinois Association Trip to Milwaukee

Outing and entertainment features comprised the entire program of the Illinois Electric Railways' Association on June 25.

About eighty members and guests under the guidance of F. E. Fisher, president, and W. V. Griffin, secretary, left Chicago at 9.30 a. m. on the steamer Christopher Columbus and arrived in Milwaukee at 2.30 p. m. where they were entertained by the Milwaukee Railway & Light Company. They returned to Chicago over The Chicago & Milwaukee Electric Railway and the Northwestern Elevated Railway line.

En route to Milwaukee dinner was served in the main dining room of the steamer. After dinner, President Fisher called the members to order and impromptu remarks were made by several speakers. A vote of thanks was tendered Mr. Griffin in appreciation of his work in planning the trip.

On arrival at Milwaukee, R. B. Stearns, vice-president The Milwaukee Electric Railway & Light Company, conducted the party through the large Cold Springs shops and then through the Public Service terminal and office building of his company.

At 5 p. m. the party under the guidance of G. S. Henry, superintendent, and F. E. Low, traffic agent, left Milwaukee on a two-car train of the Chicago & Milwaukee Electric Railroad, arriving at Chicago via the Northwestern Elevated Railway at 7.45 p. m.

Ground was recently broken and the tunnel work begun on the projected electric mountain railway from the city of Bergen, Norway, to the summit of Mount Floien, the construction of which is estimated to cost $160,000. Bids for its construction and equipment were issued in January, 1915.

New York Electric Railway Association Meets

The Subjects Discussed Were Center-Entrance City and Suburban Cars, Financial Conditions, Jitneys and Interurban Highway Crossings, while Public Relations Were Considered at the Banquet

The thirty-third annual convention of the New York Electric Railway Association was held at the Oriental Hotel, Manhattan Beach, New York, on June 29 and 30. There was an attendance of between sixty and seventy at the technical sessions.

The convention was opened on Tuesday at 11.15 a. m. by President Hamilton, who delivered an annual address dealing with the present needs of the electric railways.

Mr. Hamilton referred to the extremely trying year through which the electric railway companies had passed during the past twelve months. He said that they had suffered financially along with industry generally as a result of the European war, and far more so than many industries on account of their inability to retrench to the same extent and counteract in various ways the effect of business depression. In addition, the companies had received another set-back in the form of jitney-bus competition, which has been and is still a serious menace to the industry. The electric railways are being compelled to sell transportation at a price based on service and under conditions of production of years ago. Although the traveling distance has increased vastly and the cost of production has advanced with leaps and bounds, the rate of fare has remained stationary. Jitney-bus competition and the business depression have reduced the earnings of the companies to an alarming extent, while expenses have increased to a degree which makes the 5-cent fare more and more inadequate for the actual needs of the companies. What the industry needs at this time is not "watchful waiting" but helpful action. It is all very well to theorize and discuss the many problems with which the industry is confronted and to sympathize with each other. But far more can be achieved if the companies assemble their best efforts and actively pursue fearlessly and honestly an organized campaign that will bring about the result and relief desired.

An example of effective and honorable activity is illustrated in the methods used by the association in advocating the enactment of the so-called jitney-bus bill. Thorough publicity was given to the railway side of the question, and a large number of representatives of various street railways appeared in a body at the public hearing on the bill and stated why the companies favored the legislation under consideration, in justice to all. It is gratifying to state that the bill is now a law of the State of New York. This fact indicates that the legislatures have been awakened to the fact that the interests of public service corporations must be protected to some extent, for the reason that these corporations do not exist by themselves alone but are necessary to the communities which they serve.

The report of the secretary and treasurer was then read. It stated that two companies had recently joined the association, namely, the New York & Stamford Railway Company of Portchester, N. Y., and the International Railway Company of Buffalo.

Report of Safety Rules Committee

The president then called for the report of the committee on safety rules, of which John J. Dempsey is chairman. This report was presented verbally by Mr. Dempsey. He said that the committee of the association had met at Albany with the committee of the Empire State Gas & Electric Association. Subsequently, the bureau of standards at Washington had announced that it was preparing a set of safety rules, and the committee had decided not to take any further action until a report had been rendered on the proposed rules by the committee that had been appointed by the American Electric Railway Association.

On motion of Mr. Peck the association decided to continue the committee on safety rules with instructions to review and criticise the proposed National Electric Safety Code promulgated by the bureau of standards and to act, subject to the approval of the executive committee, with the committee of the American Electric Railway Association on this subject.

Center-Entrance Car for City and Suburban Service

The paper by W. G. Gove, superintendent of equipment Transit Development Company, Brooklyn, was then presented. An abstract of this paper appears elsewhere in this issue. After Mr. Gove had read this paper he showed on the screen a very interesting collection of views of different types of cars used in Brooklyn from early days.

In referring to his paper Mr. Gove explained that the car described was designed by the company's own force and also went through the hands of others interested. Mr. Menden, chief engineer of the company, was the first to think of it and was largely responsible for its design as well as that of the new subway cars of the company. Mr. Menden had had a long experience in the transportation side of the industry as well as in the engineering side, and this was of great help to him in the design of the car. A sample car was built before the final plans were finished.

At the close of Mr. Gove's paper various questions were asked him, and the following information, among other points, was brought out: The ball-bearing center plates are kept clean by blowing them out and by using a light lubricant. They have proved very successful. Although the cars were built largely in the shops of the company, Mr. Gove does not recommend this plan as a rule, believing that better satisfaction will be obtained when cars are purchased from regular manufacturers. The plan was adopted in this case owing to a combination of unusually favorable circumstances. The cost of the car complete was about $6800 and the company is adding this year on capital account about $100, making the total cost per car about $6900. Mr. Gove estimated the life at thirty years. No trouble had been experienced with the concrete flooring breaking due to oscillation or weaving of the car. At the point where passengers enter there is a great deal of wear, and Mr. Gove thought that the entire floor of the pit of the car would have to be renewed probably each year.

Insufficiency of 5-Cent Fare

On Tuesday afternoon President Hamilton first called upon Z. K. Graham, secretary of the Utilities Publication Committee, to explain the plan of issuing the public utilities reports, annotated, as arranged with a firm of law publishers. A paper by E. G. Connette, president International Railway, on "What Can We Give for a Nickel?" was then read by Secretary C. C. Dietz. Mr. Connette's paper is abstracted elsewhere in this issue.

In the discussion on this subject the following points were brought out:

W. H. Collins, general manager Fonda, Johnstown & Gloversville Railroad, said that as the 5-cent fare is prescribed within the confines of cities, legislation will be needed to increase the fare. The commission can be appealed to for relief, but the problem is how to find a remedy for the present difficulty.

C. G. Young, consulting engineer, New York, stated that the present conditions must be met somehow. The passenger wants more for the "jitney," and the company has to pay out more. One solution is to let the cities participate in the net earnings. The cities, being partners, would be interested in increasing these earnings. In the direction of economy rides could be shortened and transfers cut out in some cases. The large amounts spent for taxicab service show that the public is willing to pay for service.

R. L. Rand, vice-president Richmond Light & Railroad Company, described the experience of his company in drafting and pressing a bill exempting it from paving requirements for a period of ten years. There was no opposition, but the bill was side-tracked. Mr. Rand said that the paving requirement is antiquated and outworn.

E. F. Peck of Allen & Peck, Inc., Syracuse, recommended the appointment of a committee to study the subjects discussed in Mr. Connette's paper.

H. W. Blake, ELECTRIC RAILWAY JOURNAL, said that while it will be difficult to increase fares there would probably be less public opposition to doing so because of the precedent of higher steam railroad passenger fares, and the principal thing now was to decide upon the best plan for each locality and work toward that end. There were three ways of raising fares and each had a precedent. They were: (1) Raise the unit fare to 6 cents as in Massachusetts. (2) Retain a 5-cent unit fare for a restricted district and charge additional 2-cent fares for exterior zones. While railway managers may consider this system complicated the experience in Milwaukee had shown that the problems of collection could be satisfactorily solved both as regards the company and the public. (3) Charge for transfers as in Cleveland. For this also there is an operating precedent. While these reforms seem revolutionary and may be difficult to secure, each is not seriously difficult from an operating standpoint.

James E. Hewes, general manager Albany Southern Railroad, described the tax-reducing campaign which his company had been conducting in the suburban territory served by it. Previous experience was with rising assessments, but after two years' effort the taxes have come down from 9 per cent of the income to 5 per cent, and the assessment 25 per cent each year. The company demanded meetings of the assessors one month before the preparation of tax budgets and presented evidence of assessment inequalities.

E. S. Fassett, New York Switch & Crossing Company, New York, thought that the publication of information in recent years should make tax reduction easier. If tax commissioners can be made aware of conditions, then reductions would be made by the franchise tax board.

C. Gordon Reel, consulting engineer, Kingston, N. Y., contended that the companies were often to blame for inequalities in assessments as their reports were not properly prepared.

After the close of the discussion a letter was read from the Brooklyn Rapid Transit Company inviting members to visit the new instruction school and to ride on the new subway cars.

A vote was also taken passing a resolution for the appointment of a committee to report at a later meeting on Mr. Connette's suggestions. President Hamilton announced that he would appoint this committee later.

Messrs. E. S. Fassett, W. H. Collins and E. F. Peck were appointed as the nominating committee.

JITNEY-BUS COMPETITION

At the session on Wednesday morning James E. Hewes, general manager Albany Southern Railroad, presented a paper entitled "Jitney-Bus Competition" which is abstracted on another page. He emphasized the difference between the real jitney bus that consisted of an old automobile driven by its owner and the high-grade, large-capacity motor-bus, saying that the former was not a menace to the electric railway industry but that the latter could be used to good advantage, especially on new routes, to test and to build up the traffic with possible installation of an electric line later.

The discussion was opened by Joseph K. Choate of J. G. White & Company who had had a wholly contrary experience to that outlined by Mr. Hewes. If the motor-bus should become permanent it would eventually have to pay for its use of the highways which had been constructed at an even higher cost than railways. In New Jersey he had established a short bus line to form a physical connection between two separated sections of a trolley road. The traffic conditions were excellent but the line lost 100 per cent in six months and had to be abandoned. The repairs were excessive. Depreciation of all gasoline-driven vehicles also was impossibly high when compared to those on electric railways. As for the buses in London, these were put on years before the electric railways and had never competed with them, as implied by Mr. Hewes. He had investigated motor-bus operation for New York City and had found that any fare less than 10 cents was impossible.

Paul Smith, Westinghouse Electric & Manufacturing Company, then spoke in support of the makers of electric railway equipment, saying that the demand for low weights had arisen and endeavors had been made to meet it long before the advent of the jitney bus.

William H. Collins, Fonda, Johnstown & Gloversville Railroad, outlined his experiences with interurban bus competition, which in one instance consisted of a bus line operating 4 miles for a 5-cent fare in direct competition with the railway. A campaign of education including daily statements published in the local papers had been efficacious in producing refusals to grant franchises to motor-bus lines because there was no real necessity for the new service. Climatic conditions, he said, constituted the strongest argument against the motor-bus in central New York, as buses could not maintain service in heavy snow. However, there might be conditions where the bus could be used satisfactorily for supplementary service.

J. P. Barnes, Buffalo, Lockport & Rochester Railway, considered that publicity had been a major cause of the jitney's success, and that the railways should talk more about the railways in public and less about the jitneys. It was not necessary to have local holders of railway securities in order to hold the public's friendship.

H. W. Blake, ELECTRIC RAILWAY JOURNAL, disagreed with some of Mr. Hewes' figures. He believed that the figures quoted for gasoline consumption of motor-buses was low, but even on the basis mentioned in the paper the cost of power would be less for an electric car than for the motor-bus when figured on the seat-mile. The same basis should also be used in estimating the investment. He thought that the figure of 10 per cent for depreciation on the electric railway was much too high.

but a sixty-passenger car would have nearly three times the number of seats of a twenty-two passenger bus and more than three times the carrying capacity. Hence the annual depreciation, even on the basis given in the paper, would be one-third higher for the bus than for the car if the relative carrying capacities of the two vehicles were taken into consideration. The same ratio of comparison ought to be applied also to the figures on operating cost of 21.8 cents per mile quoted for the twenty-two-passenger bus. Two such buses would be equal in seating capacity to a single city forty-four-passenger car and the cost of operating two such buses, or 43.6 cents, ought to be more than ample to operate one such car to advantage. He also believed that the public would require, for its own protection, regulations for motor-buses similar to those required of other common carriers.

In answer, Mr. Hewes admitted the importance of considering the relative size of the average bus and the average railway car in making cost comparisons but cited the case of a successful interurban bus line at Pittsfield, Mass., which charged 2 cents per mile and was reported to have cleared 100 per cent in six months. The speed, however, was only 12 m.p.h.

W. B. Rockwell, Eastern Pennsylvania Railways, Pottsville, Pa., spoke of the real economy of electric power notwithstanding the large investment required, on account of the facility of distribution. The jitney from every moral aspect was thoroughly bad. In Reading the local civic society had voluntarily taken up the matter of suppressing the business. It would soon be considered a public disgrace to ride in a jitney bus.

W. O. Wood, New York & Queens County Railway, said that the railways ought to try to put themselves on the same taxation basis as the jitney and not try to put the jitneys on the railway basis.

Protection of Highway Crossings

William H. Hyland, claim agent Fonda, Johnstown & Gloversville Railroad, then read a paper on highway crossings which is abstracted on another page in this issue.

In the discussion J. P. Barnes read some remarks prepared by C. R. Barnes, who in his official connection with the Public Service Commission of New York, Second District, made a special point of the fact that automobile drivers paid more attention to crossing signs put up by automobile organizations than to those put up by railway companies. He asked therefore for the appointment of a committee to co-operate with the automobile clubs of the State and with the Public Service Commission in regard to crossing protection. In response to this it was decided that the association would gladly confer on the matter whenever the Public Service Commission would call for such a meeting. Mr. Barnes also asked for co-operation in regard to existing discrepancies in the railway rules on carrying explosives. and this matter was referred to the executive committee.

Owing to the lateness of the hour the question box was omitted and the association proceeded to the election of officers, the following being unanimously elected:

President—John J. Dempsey, Brooklyn, N. Y.

First vice-president—James P. Barnes, Rochester, N. Y.

Second vice-president—Wilbur C. Fisk, New York, N. Y.

Secretary-treasurer—W. S. Stanton, Schenectady, N. Y.

Executive committee members were elected as follows: J. S. Doyle, New York, N. Y.; C. F. Hewitt, Albany, N. Y.; James E. Hewes, Albany, N. Y., and E. J. Dickson, Buffalo, N. Y.

President Dempsey was then escorted to the chair, responding with a few well-chosen words. After resolutions of thanks to the retiring president and secretary-treasurer the meeting adjourned.

The Social Features

The social features included automobile trips for the ladies, an auction bridge tournament on Tuesday afternoon, dancing after the banquet Tuesday evening, and a baseball game following the Tuesday afternoon session between the "managers" and the "peddlers." In this baseball game the managers won with a score of 15 to 10, if the official score is to be believed. The highest batting average was made by C. F. Banghart, general manager Binghamton Railway, who, in addition to making many base hits, scored a run every time that he came to the plate, which was five times during the five innings. In consequence of this achievement, he received a statue of Charlie Chaplin, which was the prize offered for the largest number of runs made by any individual player.

The Banquet

The banquet held on Tuesday evening was remarkable from the fact that at the speakers' table there sat four members of the New York State Public Service Commission, namely, Judge Edward E. McCall, chairman, George V. S. Williams and Robert C. Wood of the first district commission and William Temple Emmet of the second district commission. Of these, addresses were delivered by Messrs. McCall and Emmet. The banquet was attended by upwards of 200 persons and was marked by evidences of a co-operative spirit in the matter of public utility regulation. President James F. Hamilton presided as toastmaster and was very happy in his introduction of the speakers.

Commissioner Emmet discussed the regulatory situation in New York State, frankly admitting its shortcomings but expressing an expectation of fuller understanding between the utilities and the commissions. He said that regulation is not such a sore subject as it once was. While the regulatory program outlined by Governor Hughes was viewed with some apprehension it would be unthinkable now to go back to the old order. The apprehension was based upon the fear of the intrusion of politics into a field where expert knowledge was needed. There are still annoying features in regulation, but sensible men do not let these bother them. The "black horse cavalry" no longer disturbs the sleep of public utility men. Old-fashioned strike legislation has, through regulation, become a thing of the past. While regulation is not perfect its imperfections are being remedied, and the public utility men of the State and the commissioners are good friends, and friends of the principle of governmental regulation. The principal source of irritation has been due to the impossibility of staking out definitely the line of demarcation between regulation and government ownership and operation. For example, in the matter of supervision of service of street railways the commissions have sweeping powers, going into many matters of operating detail. Under the law they must give hearings on matters of this kind. It is a question whether this feature of the work should not be considered a part of the principle of government operation rather than regulation. A large section of the public expects the commissions to look after all operating details. Mr. Emmet raised the question as to whether this is a proper function for a public service commission.

In regard to the friction which has occurred in matters of regulation, all parties concerned are to blame. The sensible course for public utility men to take is

that which has been taken by the New York Electric Railway Association in the line of co-operation. Such co-operation is necessary in the solution of the problems involved. Public utility men should accept the principle of regulation, which is still in the experimental stage. While it is in this stage, inconsistencies must be overlooked. When the public comes to realize the attitude of public utility men toward regulation, many of the present problems will be solved. The public utility industry needs business men who are also statesmen. Mr. Emmet expressed the belief that regulation has seen its worst day and that a period of understanding is here.

Mr. Emmet was followed by Nathan C. Kingsbury, vice-president American Telephone & Telegraph Company, whose central thought was the need for co-operation among public utilities. He called attention to the fact that one-fifth of the wealth of the country is invested in public utilities which form a stable business necessary for the people. The margin of profit in this business is small and the problem of operating at a profit is a difficult one. Favorable conditions are necessary. A public utility corporation which is not now making money but which is serving the public faithfully can look forward with hope. On the contrary, one which is making money but which is not giving good service is doomed to failure. The men who started utilities were far-sighted, even considered visionary by some. After launching the utilities many of them stepped out, leaving difficult problems for their successors to solve. The day of these promoters has now passed but they did a good work. The speculative methods necessary in the early days are not needed now. All that is expected is a fair return. In the early days investors thought that they were investing in private business when they put their money into public utilities. It is now realized that this is not the case.

In order to improve conditions the public service corporations should get together on a co-operative basis. They have many interests in common and the public does not discriminate among them. In a community where one utility is successful others are apt to be so also, whereas the reverse of this is at the same time true. In the past public service corporations have not known each other. Now they are getting together. An example of this is seen in the co-operation which has been brought about in the use of transmission pole lines. Utilities could get together on the matter of valuation and in promoting an interest in public service commission decisions, many of which reach several utilities. The managements of the utilities must work to make the work of the commissions successful. Failure of the valuation commission work of the Interstate Commerce Commission, for example, would spell disaster to some corporations.

Mr. Kingsbury emphasized the value of the publicity clause of the code of principles of the American Association. The utilities must control public opinion through publicity. An example of large appreciation of this fact is shown by the activity of the warring governments of Europe in publishing the facts regarding the beginnings of the war. All that the war can do is to force the countries into a state of mind wherein they will give and take. When this time comes public opinion will be all powerful. Secret methods cannot be successful in public utility matters. New capital is constantly needed and if a company is not making money it cannot get capital. This fact tends to secrecy as to financial conditions, but such secrecy is not warranted. Much adverse legislation might have been prevented if the railways had practised publicity earlier.

Regulation can be overdone, and the commissions should realize the conditions under which public utility operations must be conducted. For example, the European war has made inroads on capital, the warring countries paying high rates of interest. This will make it more difficult to get capital for utilities and also for municipal and other public improvements. This is indicated by the fact that at the New York bond sale this week the city has to pay nearly 4½ per cent for its money. While the utilities do not ask for a high rate of return, they do ask for stability and such a rate as will attract capital.

Referring again to the subject of publicity Mr. Kingsbury pointed out that the railways must have a desire to serve, and that if there is some policy which cannot be made public that policy should be abandoned. Public utility securities are widely distributed and this fact should be made known. Further, the utilities are not ashamed of the men who promoted, developed and now manage them. The public service corporations have had much to do with the beneficent development of this country. They have added great wealth to the country and have fostered a homogeneous development. They make for prosperity and peace.

Judge McCall began his address by emphasizing the magnitude of the task of operating the properties in the metropolitan district. This task he said is unprecedented. New York City is spending $366,000,000 on rapid transit because of a realization of the tremendous growth in the demand for service. The service is not perfect, but the public insists that it should be so. Judge McCall agreed with Commissioner Emmet in regard to the separation of regulation and supervision of operation, expressing his belief that the former is the function of the commissions. He has stood for conservatism and the conservation of property rights, and has not and will not allow public clamor to trespass upon these. He had asked himself and his visitors many times why public utilities should not give good service when they have every cause to do so. He stated that much of the hostility to public service corporations does not come from the public but from interested persons. In closing he invited the association to co-operate with the commission in team work in bringing about a better understanding of the problems of regulation.

Before calling upon Charles C. Peirce, vice-president of the Manufacturers' Association, the last speaker on the program, Toastmaster Hamilton read telegrams from C. Loomis Allen and J. H. Pardee, expressing regret that they could not be present and sending good wishes for the meeting.

Mr. Peirce's plea was for appreciation of the supply men. The manufacturer occupies no small position in the public utility business. He has worked shoulder to shoulder with the pioneers in building it up. This is evident from the importance of the work done by such men as Sprague, Edison, Westinghouse and other great inventors. He also said a good word for technical journalism and the work that the ELECTRIC RAILWAY JOURNAL has done in furthering the electric railway cause. He said that the name of James H. McGraw will stand with that of other pioneers for the work that he has accomplished in developing his side of the industry. As a further illustration of the identity of the manufacturer with the electric railway, he said that while the manufacturer has worked with the railway he has also suffered with it.

After a rising vote of thanks to the distinguished speakers of the evening the banquet gathering broke up about midnight and adjourned to the dancing floor of the hotel.

WHAT CAN WE GIVE FOR A NICKEL?

With this question as the point of departure, E. G. Connette, president International Railway, suggested several of the problems involved in the furnishing of urban transportation at the 5-cent rate. The nickel was adopted as a convenient unit of exchange in carrying passengers, the distances in the beginning being very short and no transfers being issued. In the progress of time lines were extended and transfers were issued so that the payment of a 5-cent piece entitled a passenger to ride from city line to city line, in many instances from 5 to 20 miles.

"As the necessities arose for the extension of lines and franchises were sought by companies, the public authorities have been from time to time imposing additional conditions. One that is now very burdensome arose out of the conditions existing during horse-car times because the horses, traveling between the rails, wore out the roadway. The reason for this requirement has long since passed, but the burden of the expense remains. The cost of paving the so-called 'railroad strip' is represented in the 5-cent fare, while the abutting property owner receives the benefit besides an appreciation of the value of the property by reason of the street railway service. Patrons of the street railway should not be required to contribute even indirectly toward charges of this kind."

Mr. Connette also explained how the payment of percentages of gross receipts and franchise taxes, the original continuing expense due to change from horse cars to electrical propulsion, the cost of eliminating grade crossings, the advance in the costs of labor and materials; the carrying of firemen and policemen free in many communities, etc., have added to the burdens of the street railway until it now faces a crisis.

"Public service companies are now face to face with the necessity for considering seriously the question resulting from the foregoing conditions and discovering, if possible, some way in which they can either increase their return or decrease their expenditures. The problem can be approached from two points of view: (1) Should and can the unit of fare be increased? (2) Can the expenses and burdens of transportation companies be lightened so that they may continue to carry passengers for the same unit of fare and still earn a reasonable return upon the capital invested? I think it will be conceded by all that the last suggestion, if practicable, would be the most desirable.

"It seems to me that the traveling public and the company are entitled to have the rights of the parties readjusted on a more equitable basis. If the companies were permitted to receive a reasonable return upon the capital invested and then have everything over and above that expended for real transportation service for the benefit of the traveling public, eliminating and removing from the companies the burdens of tax which they now bear, which go toward purposes other than transportation, it might still be possible to continue to charge not more than 5 cents and at the same time pay a reasonable return upon the capital invested. The other alternative is to raise the unit of fare from time to time to cover the increasing expenses.

"The time has arrived to center attention on this question and evolve some plan by which relief can be secured. Under the public service commission's law as it now stands the commission has the power to regulate rates and can do much to relieve the situation if it is deemed wise to exercise that authority. The efforts of the public service companies should first be employed either to procure legislation directly relieving our properties of other burdens and costs not actually involved in transportation problems or, as an alternative, endeavor to have the powers of the commission enlarged so that it may relieve the companies of these burdens in every proper case. In any event we should endeavor to make the commissioners constitutional officers so that they may fearlessly perform their duty."

JITNEY BUS COMPETITION

On the subject of the jitney bus, James E. Hewes, general manager Albany Southern Railroad, said substantially as follows:

I take the radical position that the gasoline-driven vehicle has come to stay, and that its great potentialities can be, to a certain extent, used for our own benefits. I also take the radical position that, if this new form of transportation has come to stay, we must make use of it or else compel the electrical companies, the car builders and the truck builders to give us an electrical vehicle that will compete on equal terms with this new form of competition.

One of the best types of auto-buses with which I am acquainted is a convertible twenty-two-seat, 5-ton car (loaded), having a solid tire and a pneumatic tire on each wheel. The engine is four-cylinder, 30-hp. capacity. The weight of the car is 10,000 lb., or 455 lb. of car weight per seated passenger. A first-class interurban car, seating sixty passengers, weighs 60,000 lb., or 1000 lb. per passenger.

A horsepower can be delivered to the wheel of this gasoline car, with gasoline at 15 cents per gallon, at less cost than can be done by the average trolley company that makes electric current in a power house situated, say, approximately 20 miles from the trolley car, with coal at $3.25 per ton delivered to the boilers. A first-class auto-bus can do a car-mile at a power cost of 1½ cents. The type of auto-bus I speak of makes 10 miles on a gallon of gasoline, and the gasoline costs approximately 15 cents per gallon. Therefore, our competitor can operate a mile, can produce a horsepower where he wants it, can operate a ton-mile or a seat-mile at less cost than we can, and can carry a passenger in his auto-bus with one-half the weight that we can.

Let us now consider the item of investment and make a comparison between our competitor and ourselves, taking the item of investment as one unit, and comparing a trolley car with an auto-bus.

We pay $9,000 for a 30-ton interurban car, with a seating capacity of sixty, equipped with four 75-hp. motors, type "M" control air brakes, lighting circuits, two trolleys, registers, etc.

A first-class auto-bus of twenty-two seating capacity costs $4,500 complete, or just half the cost of our trolley car of sixty seating capacity, but the seat cost of the jitney is $205, whereas the seat cost of the interurban car is $150. The $205 per seat cost of the jitney is all the investment that our competitor has, but our $150 seat cost is only the smallest portion of our real net seat cost, because, after we buy our trolley car, we must build power houses, lay tracks, erect poles, pave streets, bond our tracks, equip trolley lines, construct and equip transformer stations and substations, until we have a total investment of approximately the following:

Power house cost per car	$3,000
Substation cost per car	1,200
Trolley line cost per car	2,000
Track cost per car	20,000
Cost per car	9,000
Total cost of trolley car before it can run	$35,200

I submit these figures only as a basis for comparison of first cost, and primarily to draw attention to the fact that our first cost, reduced to a seat basis, is vastly

greater than that of the first-class auto-bus. If the depreciation of the bus were at the rate of 33 per cent and the depreciation of a complete trolley system were but 10 per cent per annum, including obsolescence, the bus would, nevertheless, show a total depreciation less than ours, because 33 per cent of $4,500 is $1,485, whereas 10 per cent of $35,000 is $3,500.

Now, the bus has been made possible only by reason of the improved roads, built at the expense of the state and county. It has also been made primarily possible by the great economic development of the gasoline motor and the remarkable development of the automobile chassis. And we are confronted with the fact to-day that the average automobile is a higher development of mechanical principles than the trolley car. The tendency of our electrical engineers is to make our equipments of greater capacity and greater weight. The tendency of the automobile manufacturers is to reduce the amount of horsepower and lighten the weight of their automobiles. We must look to the electrical engineers to help us solve our problem. Our car builders must create a revolution in the car if they wish to stay in the game. Otherwise the electrical engineers and the car builders will be in the same position as we will be, namely, looking for other jobs.

I believe, as I have stated before, that gasoline transportation has come to stay, and that we should make use of it at first, or experimentally, as an auxiliary or aid in the development of our traffic. Where we seriously consider extensions to our lines, we can well use the gasoline vehicle, not paralleling our traffic, but beginning at the ends of our lines and transferring passengers to the extension territory, until the traffic becomes sufficiently reliable and congested to warrant the installation of tracks and trolley.

Other uses for the auto-bus by trolley companies would be in locations where there is considerable distance between our parallel tracks in congested districts that invite the jitney. In such districts it is well to consider the possibilities of the auto-bus, because in such localities the jitneys take away a permanent form of traffic.

By using the auto-bus to the extent cited, we will immediately win back the nickels we have lost and will do more than anything else to discourage jitney-bus competition and to prevent capital entering this field, because the jitney thrives best in a field originating in a congested district and paralleling our lines, and by carrying passengers to points beyond our track limits.

Few of our passengers would take a jitney-bus to points beyond our lines if they could ride in comfortable cars to our track limits and then be carried to points beyond in a comfortable, well-equipped auto-bus operating on a regular schedule. One such bus, by making frequent short trips, would replace many buses making a long trip.

Generally speaking, an electric traction company, if it used an auto-bus as an auxiliary, would discourage competition on any extensive scale, and would prevent organized incorporated capital from entering the field, which is the most dangerous feature of this form of competition. Most of the jitney competition is now in the hands of "shoe-string" capitalists, but when organized capital enters the field we will have to fear the worst. If, however, we make use of the gasoline auto-bus as an auxiliary, organized capital will be slow to enter the jitney-bus field.

We have, indeed, a serious problem to consider. There never was a time in our history when we were confonted with a problem that required us to make greater efforts to accomplish economies, and to combine our great capital to prevent further inroads into the field. We must organize our capital to prevent organized capital from entering the field of competition; we must combine our legal talent to have enacted such laws as will place our competitors on an equal basis with us; and we must enlist the combined talent of the electrical engineers and the car builders to give us a vehicle that will place us on an even footing with the jitney-bus competition.

I will say, in conclusion, that the total cost, including fixed charges, for operating an auto-bus-mile for a bus having twenty-two seats, based upon an annual bus-mileage of 30,000, is 21.8 cents per mile. There are few electric roads that can equal this. For over ten years more passengers have been carried by buses in London than have been carried by trolley lines. The service is just as good and as regular. When London got the bus habit, and the buses became popular, the capitalists owning surface trolley lines promptly unloaded them on the city and obtained exclusive franchises to operate the bus lines.

THE CENTER-ENTRANCE CAR FOR CITY AND SUBURBAN SERVICE

An account of the center-entrance car for city and suburban service was given by W. G. Gove, superintendent of equipment Transit Development Company, Brooklyn, N. Y., but as this car has been fully described in these pages, the technical features of this paper will not be furnished here. Mr. Gove concluded his remarks as follows:

One hundred and one cars of the center-entrance type have now been in service on the Brooklyn Rapid Transit system for over two years, and the results obtained have been very satisfactory. The principal advantage of this car is the reduction in boarding and alighting accidents, due to the doors being closed at all times when the car is in motion.

The following table gives a comparison of boarding and alighting accidents per 1000 car-miles for three different types of cars, operated on the same lines during the last calendar year:

Type of Car	Accidents per 1000 Car-Miles
Closed, semi-convertible and convertible	0.11
Open	0.26
Center-entrance	0.03

Another operating advantage of this car is its ability to carry an increased number of passengers with a decreased number of cars. This is accomplished by the shorter stops required, as passengers are entering and leaving at the same time, and by the increased seating capacity. On one line it was possible to make a reduction of seven cars per day on the schedule, or 190 trips and 24,142 ton-miles, with an increase in seat-miles of 45,022.

When the cars were first placed in service it was thought there might be some slight delay at terminals in loading and unloading passengers and in collecting fares as passengers entered. This has not been the case. At the Park Row terminal of the Brooklyn Bridge the passengers are allowed to board through both entrances and exits on one side of car, after all passengers have alighted from the opposite side. Fares are collected as the car is crossing the bridge.

At Borough Hall and Atlantic Avenue, the only two heavily congested points in Brooklyn, passengers are prevented from entering by way of the exits by two inspectors, one located at each exit, who also assist passengers to board the car. Fares are collected as passengers enter, but transfers are not issued until after the car starts. By this arrangement no delays are occasioned and schedules are easily maintained.

The light weight per passenger-seat is also an item not to be overlooked. This is saving money, not only in power consumption, but in wear and tear on equipment and roadbed.

THE PROTECTION OF INTERURBAN RAILWAY HIGHWAY CROSSINGS

In introducing this subject for discussion William H. Hyland, claim agent Fonda, Johnstown & Gloversville Railroad, first outlined the relation of the growth in automobile traffic during seventeen years, in which period the number operating in New York State has increased from forty-five to 150,000. At the same time the possible speed has increased from 25 m.p.h. to very high values. He stated further in substance as follows:

The qualifications necessary for operating an automobile in the State of New York do not include that of normal vision. Any person who can purchase an automobile, or any member of his or her family, even though partly deaf and with impaired vision, is allowed to operate automobiles upon the highway. There is a striking contrast between the requirements for driving an automobile and an interurban car. The motorman of today must not only be sound of body, but he must have perfect vision and hearing, tested by a competent physician every two years and after any severe illness. Much responsibility naturally rests upon the motorman, and for this reason the greatest care is exercised in selecting him. It should be quite comforting to nervous people to know that out of every 100 men who enter the train service only twenty become motormen, and only five of this number become motormen of interurban cars. The motorman is thoroughly trained to meet every emergency, and his efficiency is as carefully looked after as that of anything upon the railroad.

There are differences of brain power, taste, aptitude, physical power, mental strength, moral force and vision. With these inherent differences there must be different results. These great differences among men are the causes of many accidents at highway grade crossings. Whichever way we turn we find signs safeguarding the grade crossings. It is, however, impossible to get away from the personal equation. Frequently an eye fails to locate and measure correctly the position and speed of an approaching car; an ear fails to hear the warning bell or whistle; a hand fails to stop the horse or slow down the automobile, a mind goes "wool gathering" for a moment, and here we have, I believe, the cause of 95 per cent of our grade-crossing accidents.

With the advent of the automobile, railway companies caused signs to be erected facing the highway at points well back from crossings. These signs urged drivers of automobiles to slow down and look out for the cars. Crossing signs were illuminated so that they who ran, even in the dark, could read. Wherever possible, trees and buildings which in any interfered with a clear view of the tracks from the highway were purchased by railroad companies and removed. Of course, all highway grade crossings are dangerous places, but some crossings are safe as compared with other crossings. At the more dangerous crossings—that is, where people, on the highway, by looking cannot see and by listening cannot hear approaching cars—cars are stopped before crossing the highway. The whistle is sounded and the bell is rung. In fact, everything that railroad companies can do to safeguard the lives of people on grade crossings is done, but all the precautions in the world will not save the lives of those who drive vehicles recklessly over railroad crossings.

Acquiring definite information is, of course, the chief reward of all systematic reading and thinking, and in these days, when knowledge means much, this is important. It is especially important when the knowledge gained is on a practical subject, like the one in question. However, I really believe that if the managers of railroad companies should withdraw their attention from all other matters and center it upon the subject of the protection of highway grade crossings, they could learn nothing that they do not already know. The need of the railroad manager is not more information from the claim department upon this subject, but, on the contrary, it is money with which to eliminate these dangerous places. To obtain the money with which to do this most important work will depend largely, I believe, upon the attitude of the public toward railroad corporations.

The railroad is the partner of the business man. Partnership implies working together for a common end, and when the partners shall have viewed this subject from the same angle, railroad managers will have money with which to eliminate these dangerous crossings, and not before. Railroad companies are doing everything in their power to safeguard crossings, through men and machinery and by the posting of large signs, warning automobilists to look before crossing the track. They are doing their part and should at least receive due credit for their efforts and improvements.

A Remedy for Dusting Concrete Floors

At a recent meeting of the American Concrete Institute the question of eliminating the dusting of concrete floors was brought up for discussion. This problem is of particular interest to electric railways because of the generally adopted practice of using concrete floors in shops, carhouses and power stations. In this discussion it was brought out that more than thirty different methods had been attempted to eliminate this undesirable characteristic, but only two or three had been found at all satisfactory. Silicate of soda was included among those proprietary remedies which had given fair results. A better remedy, however, was discovered twelve years ago when the dust on the floor of a generating station damaged the bearings of some of the machines. A coating of linseed oil was applied to eliminate the cause of the trouble. In this case raw oil was used and the excess wiped off with waste, but later developments have demonstrated that boiled oil was better than raw oil, since it dried more quickly. One objection to the oil was that it produced a mottled appearance due to unequal absorption, but this undesirable feature has been overcome by the inclusion of lamp black, which gave the floors so treated a uniform slate color.

It was generally agreed that dusting of concrete floors was the result of using a mixture too rich in cement, or sand of too fine grain. Both of these causes are readily obviated by the use of a coarser and harder sand, or even crushed granite screenings in the wearing surface, and by a reduction in the quantity of cement. The more recent introduction, however, of fine iron and steel filings into the cement used in the wearing surfaces of floors is meant to attain the same end, and logically there is no reason why it should not. Another precaution employed to improve the wearing quality of concrete floors is to use only enough water to make the surface trowel without undue effort. It should also be allowed to cure for at least ten days, during which time it should be sprinkled frequently to complete the hydration of the cement.

The Cleveland, Southwestern & Columbus Railway, which adopted Eastern time shortly after Cleveland made the change, has returned to the use of Central standard time. None of the other towns and cities on its line used Eastern time.

COMMUNICATIONS

The New York Jitney Law

INTERNATIONAL RAILWAY COMPANY,
BUFFALO, N. Y., June 28, 1915.

To the Editors:

I notice a statement in the table on page 1224 in the ELECTRICAL RAILWAY JOURNAL for June 26, that the New York law regarding jitneys provides "that no jitney shall operate until the owner has procured the consent of the local authorities and has executed a bond in an amount fixed by said local authorities."

The law goes further than this. It also provides that they cannot operate until they have secured a certificate of convenience and necessity from the Public Service Commission, and in order to get this it will be necessary for any jitney operator to show by testimony under oath at a regular hearing before the Public Service Commission that the service is a public necessity and convenience.

E. G. CONNETTE, President.

Rating of Railway Substation Machinery

NEW YORK, N. Y., June 30, 1915.

To the Editors:

Your editorials on "Continuous vs. Normal Rating of Railway Substation Machinery," with their advocacy of continuous instead of nominal rating, suggest the desirability of introducing another factor into the rating of duty-cycle machines, or those whose cycle of load repeats itself with more or less regularity.

The heat generated in an electrical machine is primarily expended in raising its temperature. The greater the heat capacity of the machine, the more heat will be required to raise its temperature a given number of degrees, or, to put it another way, the greater the heat capacity, the less will be the temperature rise with a given expenditure of heat. As soon as the temperature begins to rise, however, the heat no longer confines itself to raising the temperature of the machine, as part of it is dissipated in the air by radiation and convection. At first the heat dissipation will be unimportant compared to the heat absorption, but as the temperature rises, it assumes increasing importance until, at a certain temperature, the rate of dissipation equals that of absorption. This is the temperature at which the machine will run continuously with the energy losses assumed. The greater the heat-dissipating ability of the machine, the less the temperature rise in continuous operation or, to put it another way, the greater the dissipation the greater may be the energy losses for a given temperature rise. It is therefore obvious that the fundamental characteristics of a machine, from the point of view of heating, are its thermal capacity and its thermal dissipation quality.

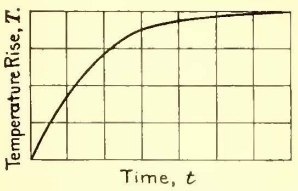
The continuous rating of a machine, being a measure of its thermal dissipation, is a perfectly satisfactory measure of its capabilities under practically constant load conditions, such as occur in lighting stations. In railway substations, however, the fluctuating character of the load renders the continuous rating less complete as a measure of capability, and necessitates an additional rating which will measure the capability of the machine to absorb the heat generated by heavy loads of short duration. The rating which accomplishes this is the thermal capacity.

Unfortunately, the thermal capacity has not been standardized as a rating. True, it is mentioned in an appendix to the 1914 Standardization Rules (Section 447), but only in connection with railway motors.

The nominal rating is a rather abortive attempt to combine the thermal dissipation and thermal capacity in one figure. Such an attempt is like trying to define a parallelogram by giving its area only, without reference to its shape. In either case the combination of the two quantities into one makes the rating fit innumerable cases. For example, a machine of high thermal capacity and low thermal dissipation may have the same nominal rating as a machine of low thermal capacity and high thermal dissipation. The two machines will be of radically different design, suited to entirely different services, but will have the same rating.

The thermal capacity depends upon the amount, disposition and specific heat of the materials of which the machine is composed. The thermal dissipation depends upon the ventilation, the areas of heat-dissipating surfaces and the specific radiation of these surfaces. How can these two distinct properties of a machine be put into the rating?

An answer to this question is suggested by a consideration of the curve of temperature rise of a machine operating at any constant load. The form of such a curve is shown by the accompanying sketch, from which it will be observed that during the early stages of the run, the temperature rise follows an almost straight line law due to the fact that practically all the heat generated is used in raising the temperature of the machine. Later the curve bends over due to the increase of heat dissipation as a machine becomes hot. The thermal capacity of the machine is proportioned to the slope of the straight line part of the heating curve with respect to the vertical axis. Thus if the mean temperature rise in t hours is T degrees with a constant load, giving a loss of P kilowatts, the thermal capacity will be Pt/T kilowatt-hours per degree rise. The ratio t/T which gives the slope of the curve with respect to the vertical axis, may be determined by stopping the heat run after, say, fifteen minutes and taking temperature readings. Assuming that this plan is practicable, we would be equipped with a measure of the thermal capacity of the machine which may then be used to determine its capability for carrying overloads for short periods. It is unnecessary to enter into the details of how this is done, but let it suffice to say that if we are provided with a load diagram and the thermal characteristics of the machine, it is an easy matter to plot a curve of temperature rise, no matter how complicated the diagram.



RATE OF TEMPERATURE RISE IN ELECTRICAL MACHINERY

The practicability of determining the thermal capacity as here outlined is, perhaps, open to doubt, due to the uncertainty of the temperature rise, which will probably be a small quantity and due to the uneven distribution of heat in the machine. There is, however, sufficient promise in the plan to warrant careful investigation. The standards committee of the A. I. E. E. has given the matter considerable thought, but received little or no encouragement from the railway men. I wish to commend the subject to the attention of electric railway engineers in the hope that a demand will arise for the rating of railway machinery in accordance with its thermal characteristics. The adoption of the continuous rating will supply one of the two necessary ratings. Is it not time for us to talk for the other?

WILLIAM L. DEL MAR.

The Chicago (Ill.) Tunnel Company has issued an elaborate folder entitled "Lifting the Lid in the Loop" for the purpose of acquainting the public with the property and the benefits derived by shippers and the city at large through the tunnel.

ANNUAL CONVENTION SAN FRANCISCO OCTOBER 4 to 8, 1915

American Association News

ANNUAL CONVENTION SAN FRANCISCO OCTOBER 4 TO 8, 1915

Under the Auspices of the A. E. R. A. and N. E. L. A. a Meeting Is Held in Manila at Which Public and Private Ownership of Utilities Is Discussed—Committee and Section Activity

COMMITTEE ON UNIFORM DEFINITIONS

The committee to develop uniform definitions of the American Electric Railway Transportation & Traffic Association met at the headquarters in New York on June 25. The following were present: H. C. Donecker, chairman; William C. Greenough and Frederic Nicholas. The committee went over in detail the definitions reported by the 1913 committee on the same subject and definitions contained in the 1911 report of the committee on construction of schedules and time-tables, and also considered suggested changes and additions.

The definitions, which have been reported to the association but not yet adopted formally, will be considered carefully by the members of the committee in comparison with definitions contained in the reports of the committees on rules and construction of schedules and time-tables and the joint committee of the Engineering and the Transportation & Traffic Associations on block signals for electric railways. Several of the terms which have been defined tentatively are of equal interest to allied associations and in order that the definitions may be satisfactory to each department of operation concerned, the committee will ask for the appointment of joint committees to act on these matters. Several additional terms were suggested for definition. The committee will hold another meeting on July 13.

GOVERNMENT OWNERSHIP DISCUSSED IN MANILA

As announced in the issue of the Electric Railway Journal for June 26, page 1211, the May meeting of the joint Manila Electric Railroad & Light Company section of the American Electric Railway Association and the National Electric Light Association was devoted to the subject of the relative advantages and disadvantages of private and government-owned public utilities. A paper with this title was presented by W. R. McGeachin, manager of the railway department of the company.

Mr. McGeachin's paper was based upon quotations from a number of important articles and reports. He first stated that while theoretically government ownership of all public utilities is the ideal condition, the principal argument against the public ownership of certain utilities is that the basic political and social conditions under which these utilities have existed and do exist are not ideal. This is not a theoretical reason but, being based on practical results and existing conditions, furnishes an all-powerful and irrefutable argument. Mr. McGeachin quoted from the National Civic Federation report giving the results of the investigation conducted by that body during 1905 and 1906, from the report of W. D. Mahon and L. D. Bland to the Amalgamated Association of Street & Electric Railway Employees of America in 1914, from an address on European public-utility conditions by W. J. Clark of the General Electric Company, from the proceedings of the conference of mayors held in Philadelphia last year and from the code of principles of the American Electric Railway Association. Abstracts of these various statements can be found in the file of the Electric Railway Journal.

In the discussion of Mr. McGeachin's paper L. L. Vincent, superintendent of electric testing of the company, expressed the belief that in America the people are willing to give private owners of public utilities a chance to earn a reasonable return on their investment, provided satisfactory service is furnished and that the code of principles of the association, when applied, will have the effect of educating the people generally and preventing hostile agitation. He considered the American Telephone & Telegraph Company's experience with publicity to be typical of the effects of frank publicity.

Clifford H. French, auditor for the Philippine Islands, referred to the fact that the incentive of profit is absent in public operation of utilities. Recent inquiries in China showed him that the operation of the railways by the government was more or less of a failure because the government could not pay suitable salaries to keep employees in a contented state of mind. He believed that no present government is organized on a basis of efficiency as compared with great representative corporations.

M. F. Loewenstein, president Pacific Commercial Company, referred to the difference between a Canadian Pacific train and an Inter-Colonial train as they stood side by side in the station at Montreal. As a result of the comparison he did not favor government ownership of railroads as much as he had done previously. He instanced the government ownership and operation of steam railroads in Australia where on one trip he was obliged to ride on three different trains, as one road had a narrow gage, one a standard gage and one a broad gage. He considered that the public ownership and operation of street railways in Sydney was satisfactory and noted that a long ride was given for a penny. Comparatively unsatisfactory conditions in Melbourne were explained by the fact that the company's franchise was about to expire and for that reason needed improvements were not attempted.

H. M. Pitt, president of the Manila Merchants' Association, stated that government at best is a cumbersome affair, and if it is possible to relieve it in any way of its multifarious duties it is good for the government and the public to do so. He stated that the government operated the ice plant in Manila under compulsion as the plant was built by the military government and was turned over to the civil government. For years the ice plant maintained a price for ice that was out of all reason, and it never reduced the price until the private companies did so after getting into a fight among themselves. Governmental ownership and operation of the ice plant in Manila is hardly a criterion of the success of such ownership of utilities.

The political aspect of the question was pointed out by M. D. Royer, traffic manager of the Manila Railroad Company, a steam railroad. He referred to the differences in conditions with regard to government ownership in European countries and the United States, and especially with regard to the possibilities of political control under government ownership. Conditions in the United States at this time do not warrant such ownership.

The experience of Japan in government ownership was outlined by Y. Mikami, manager of the Mitsui Bussan Kaisha. He said that the cumbersomeness of governments had been proved, and therefore the less the governments do the better for the people. In Japan it was necessary in many cases for the government to

inaugurate public utilities in order to have them, and principally for this reason the people of Japan advocated such ownership, but this does not prove anything. It is not surprising that in the United States, where the people are more practical than any other people in the world, public utilities are generally privately owned.

George H. Fairchild of Welch, Fairchild & Company, sugar planters, in referring to his experiences on government-owned railroads in Europe said that the service given by them was inferior to that furnished by the American railroads.

In closing the discussion C. N. Duffy, vice-president of the company, said that the people who advocate government ownership and operation are usually non-taxpayers. Speaking as a taxpayer he felt that whenever a government can or does operate public utilities as efficiently and as economically as a private company can and does, then and not until then is it time to take up the question for consideration. The men engaged in the public-utility business are performing a public service and are doing presumably what the government could not, or would not, undertake to do. He instanced the local electric railway, light and power system. The real reason for the success of privately-owned public utilities, and for the failure of government-owned public utilities, lies in the fact that in the latter there is no hope of individual financial reward, the personality of the man is lost sight of, and the individual's right to assume authority and discharge responsibility is hopelessly entangled in masses of red tape.

Referring to the advocacy of government ownership and operation of telephone and telegraph lines by the Postmaster-General of the United States, he called attention to the fact that the Postmaster-General also advocated the operation of rural free delivery postal service privately, as it had cost the government during the last fiscal year $56,000,000 whereas the service could have been performed privately for $20,000,000.

Mr. Duffy did not favor limited franchises for privately-owned utilities but preferred the indeterminate permit. He said that the franchise granted by the Philippine Legislature, recommended by the Board of Public Utility Commissioners for the Philippine Islands, for a hydroelectric plant on the Caliraya River was for a term of ninety-nine years. The government reserved the rights under certain conditions to purchase the property within twenty years after the plant began operation provided that the actual cost should be paid, plus 10 per cent, and plus such additional amounts as would equal the return in cash equivalent to an average of not less than 10 per cent on such actual cost for each year during the period of operation after adequately providing for maintenance and depreciation of the property and safeguarding the investment.

Referring to Mr. Loewenstein's impressions of railway service in Sydney, Mr. Duffy remarked that if the speaker had been called upon to pay in taxes his share of the deficit resulting from the operation of the street railway system his impressions might be different. In conclusion, he said that no privately-owned public-utility company, no investor in any such company and no employee in any such company objects to regulation that means fair treatment and protection to the interests regulated; that such regulation makes a privately-owned public utility stronger and better in every way and is best for the public; that the advanced and progressive privately-owned public-utility company knows full well that if it does not conduct its business according to business principles it cannot, will not and should not succeed and that the privately-owned public utility that gives the best service practicable at the least cost and that serves the public best, serves itself best.

CHICAGO ELEVATED SECTION

Financing electric railways, signals and interlocking were the subjects discussed at the meeting of the Chicago Elevated Railroad Section of the American Electric Railway Association held on June 22. When President Johnson called the meeting to order there were 110 members and guests in attendance and Secretary Smith reported sixteen new applications, which made the total membership 169. In the business session before beginning the regular program, it was suggested that an official pin cheaper than the one adopted should be available for those who could not afford to buy a gold one. This matter will be taken up with the parent association for action.

E. A. Brion, comptroller of the Chicago Elevated Railways, spoke on "How Funds Are Provided for Electric Railway Development." He described the different classes of securities employed, the manner in which they are marketed and the desirability of the various classes. It was shown by concrete example how the return on the various classes of securities varies with their safety and how the demanded return on all securities is steadily advancing. Mr. Brion also spoke of the holding company and its purpose, as well as the various factors which affect the marketing of the securities.

A talk on "Signals and Interlocking" was given by J. W. Stephenson, signal engineer of the company. The history of signal development was outlined beginning with the installation of the red ball at the crossing of the New York, New Haven & Hartford and the New England Railroads at Hartford, Conn., in 1852. Various types of interlocking machines installed on the Chicago Elevated Railroads were described, and the members were informed of several features which were developed on the company's lines, such as the "hesitation" frogs and the detector route locking.

"The Life of Treated Gears and Pinions" was the principal subject brought out by the Question Box and this was discussed at length. It was decided that this would be the last meeting before the summer adjournment. It is believed the section will be kept very much alive during the summer by the activities of the members who desire to be elected as delegates to the national convention at San Francisco.

The Anthony N. Brady Memorial Medals

The American Museum of Safety is sending to electric railways accident report forms for use in the competition for the Brady memorial medals which were awarded last year for the first time to the Boston Elevated Railway, Russel A. Sears and Henry V. Neal. The committee for formulating the conditions of competition comprise Arthur W. Brady, president Union Traction Company of Indiana, chairman; Wilbur C. Fisk, president Hudson & Manhattan Railroad; C. S. Sergeant, vice-president Boston Elevated Railway and W. H. Tolman, secretary, director American Museum of Safety. The committee on awards consists of Bion J. Arnold, chairman Board of Supervising Engineers, Chicago Traction; Hon. W. J. French, commissioner Industrial Accident Commission, State of California; James H. McGraw, president McGraw Publishing Company; Frank J. Sprague, New York; Prof. George F. Swain, chairman Boston Transit Commission, and Dr. W. H. Tolman, secretary.

The conditions of the competition are substantially the same as last year, but they have been improved in detail in accordance with suggestions received by the committee. They are contained in a circular published by the American Museum of Safety, 14 West Twenty-fourth Street, New York.

Equipment and Its Maintenance

Short Descriptions of Labor, Mechanical and Electrical Practices in Every Department of Electric Railroading

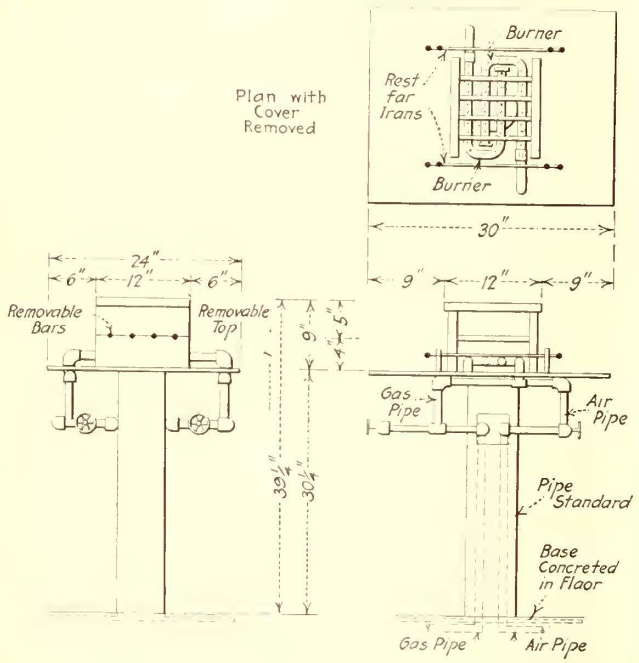
(Contributions from the Men in the Field Are Solicited and Will be Paid for at Special Rates.)

Furnace for Heating Soldering Irons

BY R. H. PARSONS, ELECTRICAL FOREMAN

The gas furnace illustrated in the accompanying drawing was designed for use in heating soldering irons and solder pots in shops where a number of men, say from six to ten, are winding, repairing and bending armatures. It is a home-made furnace set up in the following manner:

The stand consists of a piece of 6-in. pipe, 30 in. long, with a table welded on the top and a base welded on the bottom. The table is 30 in. long, 24 in. wide and



FURNACE FOR HEATING SOLDERING IRONS

½ in. thick. The base is somewhat smaller and is imbedded in the concrete floor a few inches below the surface.

On the table is a cast-iron box, housing the burners, and consisting simply of two sides with a heavy, removable top, the whole box being in two parts held together by dowel pins. The top may thus be lifted off to expose the burners. The division of the box into two sections also gives a convenient means for replacing the small bars which are provided over the burner to support the irons. As these are in the flame they warp and have to be changed occasionally. The provision of the removable top also makes the furnace available for heating solder pots, boiling water, heating irons for light blacksmith work, etc.

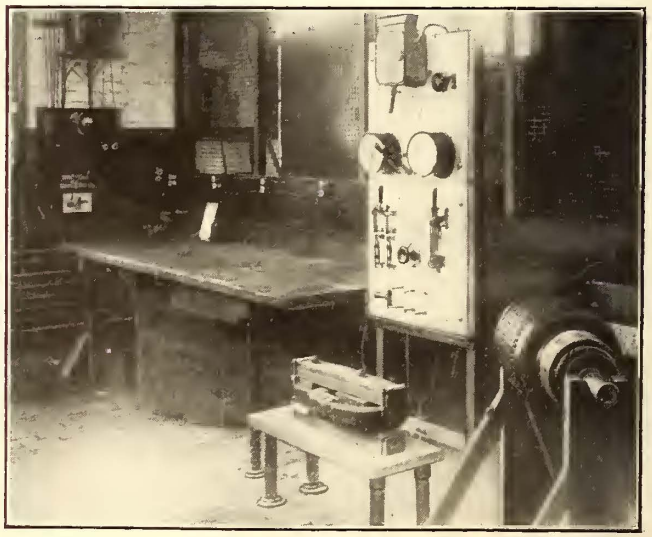
The burners are U-shaped loops of half-inch pipe perforated with ⅛-in. holes. They are laid together in the overlapping position shown in the diagram. Two ¾-in. pipes, one each for air and gas, are brought up from below the floor through the stem to a large opening near the top whence they lead to the burners. A valve is inserted in each pipe just below the table. Fastened to the flat iron top on each side of the burner is a bar, shaped to form a rest for the soldering-iron handles.

In designing this furnace, economy, neatness, convenience and safety were the considerations. The use of one central furnace does away with numerous individual fires, thus economizing fuel and insuring more nearly continuous use of the one fire. The inclosing of the pipes in the stem conduces to neatness, and the furnace is adapted to be centrally located for easy access by the users. The elimination of many small fires is conducive to safety and as this outfit is entirely of iron it is inherently fire proof.

Testing Corner in Atlantic City Shops

BY GEORGE F. FABER, GENERAL SUPERINTENDENT ATLANTIC CITY & SHORE RAILROAD

For the purpose of making the standard as well as special tests of electrical equipment, the arrangement of apparatus shown in the accompanying illustration has been adopted. At the left is shown an 1100-volt transformer used for break-down tests and beneath it a transformer and wattmeter board on which is an a.c. watt-hour meter and alongside it a switch in the low-voltage a.c. circuit leading to the transformer, by opening which the a.c. line to the main switchboard is killed.



TESTING CORNER IN ATLANTIC CITY & SHORE RAILROAD SHOPS

The principal instruments and switches are grouped on a small home-made switchboard consisting of two marble panels, which happened to be on hand, mounted on an angle-iron frame.

At the top of the board is a d.c. circuit breaker, to the right of which is a snap switch and pair of terminals for the d.c. voltmeter. In the center at the right is a d.c. ammeter arranged with shunts for reading either

100 or 1000 amperes. The range is controlled by two single-pole switches which short-circuit the respective shunts. The low-amperage switch is to the left of the ammeter and the high-amperage switch below it. To the left of the d.c. ammeter is a 60-amp. a.c. ammeter with a short-circuiting switch immediately beside it. Below the a.c. ammeter is the main a.c. circuit switch with fuses, and at the bottom of the board is a double-pole double-throw switch, connected in one direction for the field test and in the other for the armature test. Connections to the equipment under test are made from behind the board.

Immediately below the board is a water rheostat, consisting of an iron terminal plate suspended in an oil barrel concreted in for permanency. The barrel is provided with a drain pipe at the bottom so that the standing water may be changed as often as desired. The position of the terminal plate is controlled by a rope running over a drum on the back of the board. The drum is rotated by means of a small hand wheel on the front of the board. A weight is used to counterbalance the plate.

On the stand in front of the switchboard is a transformer for testing field coils for short circuits, consisting of a laminated iron core with a primary winding, the coil under test forming the secondary. The illustration shows the field coil of a Westinghouse No. 68 motor ready for short-circuit test, while the armature of the same motor is on the stand at the right ready for current and insulation tests. In addition to the test set described we have a K-36 controller mounted with circuit breaker and resistances for complete test of motors before they are installed on the trucks.

The testing equipment described above is used for making the following routine and special tests: 1100-volt a.c. insulation tests on armatures and other apparatus; a.c. field tests for "shorts"; a.c. armature tests for "shorts"; d.c. circuit-breaker tests; ohmic resistance tests of any apparatus, and in general any other a.c. or d.c. tests requiring large or small current. While I am aware that test sets are installed in most of the larger electric railway shops throughout the country, I believe that the arrangement of this one will be of interest as it is quite complete.

Ventilation Holes in Motor Frames

BY F. A. MILLER, SUPERINTENDENT POWER AND EQUIPMENT OAKLAND, ANTIOCH & EASTERN RAILWAY

R. H. Parsons' article in the issue of the ELECTRIC RAILWAY JOURNAL for June 19, on "A Simple Ventilating Scheme for Increasing Motor Output" recalls to the mind of the writer similar work which was carried out when he was with the Puget Sound Electric Railway in 1911.

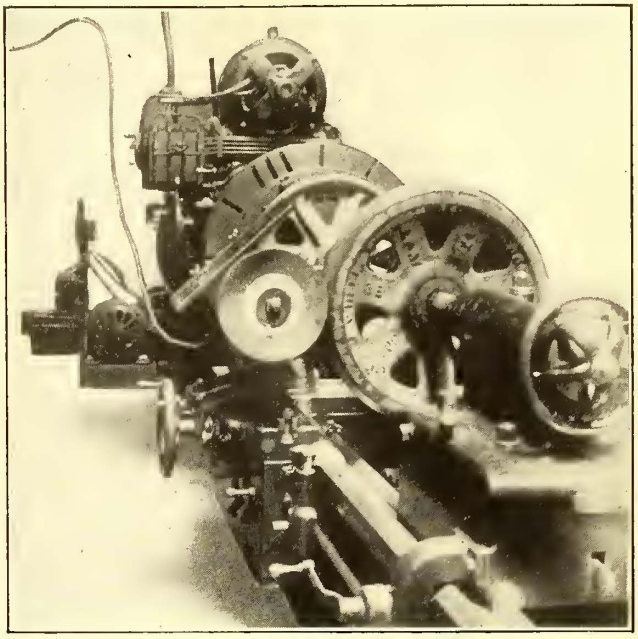
The company had in service a number of GE-66 motors geared 47:37. The operating conditions of these motors were so severe that with an outside temperature of 34 deg. C. the internal temperature of the motors ran as high as 105 deg. between the field poles. These high temperatures caused the melting of the solder in the rear-end clips of the two-piece armature coils, necessitating rewinding.

We therefore removed the standard handhole covers and replaced them with pieces of sheet iron in which 9/16-in. holes had been perforated at about the same distance between the edges of the holes. With the perforated covers substituted for the top handhole covers alone, the maximum temperature dropped to 77 deg.; and with the top, back and bottom handhole covers perforated, the temperature fell to 60 deg. and even to 55 deg. C.

A Home-Made Wheel Grinder

BY GEORGE G. MORSE, SUPERINTENDENT OF RAILWAYS, EL PASO (TEX.) ELECTRIC RAILWAY COMPANY

The accompanying photograph shows a device made in our shops for grinding wheels. This consists of a 1-hp. motor, with an emery wheel attached, fitted to the tool holder of our 36-in. wheel lathe. This attachment is secured to the tool holder by four bolts so that it can be removed quickly when necessary. We are, of course, able to grind but one wheel at a time with this device.

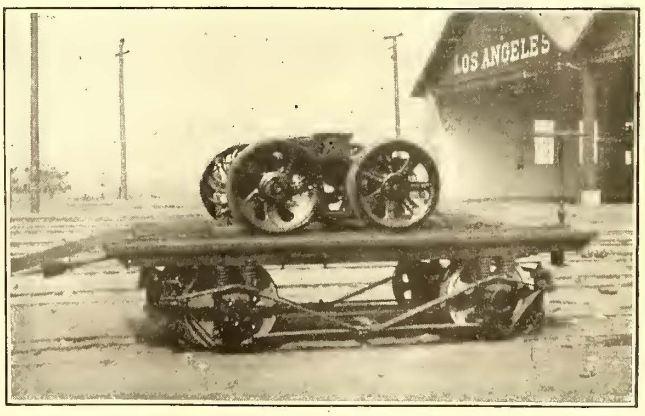


EL PASO RAILWAY HOME-MADE WHEEL GRINDER

The average time required to grind a pair of wheels is from two to three hours, depending on how badly they are skidded. We have been using this device since January, 1914, grinding from one to four pairs of wheels per month. We have lately used it for truing up steel wheels where there was a slight difference in diameter and in case the flanges did not require turning. The entire cost of this installation was $50, including the cost of a second-hand motor.

Emergency Truck Changing at Los Angeles

The accompanying cut shows a vehicle used by the shop forces of the Los Angeles Railway. This is used to carry a completely-equipped motor truck which is always ready for emergency replacements at the call



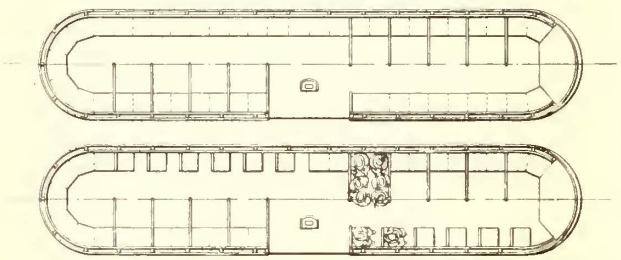
DOLLY WITH COMPLETELY EQUIPPED MOTOR TRUCK FOR EMERGENCY REPLACEMENTS

of the chief dispatcher. The dolly is supplied with a skidby means of which the replacing truck is readily lowered and the defective truck raised to the platform for return to the shops.

Making the Standee Comfortable

A patent, No. 1,142,867, has been issued by the United States Patent Office under date of June 15, 1915, which proposes the separation of surface-car interiors into small sections or units each providing standing space for a limited number of passengers. By segregating each unit every individual within such a space has a place from which he cannot be crowded and at the same time the railings surrounding the unit provide him with a firm and natural support during his ride.

The accompanying Figs. 1 and 2 show plans of a center-entrance motor car having an aisle which is off the center line of the car and thus provides room for the series of units along one side of the car. The units



FIGS. 1 AND 2—PLANS OF TYPICAL CENTER-ENTRANCE CARS SHOWING LOCATION OF RAILWAYS BETWEEN COMPARTMENTS

are separated from each other by horizontal pipe railings which are set about waist high and which may take either the form of an attachment to a vertical stanchion at the seat line or else continuous railing running horizontally from the car side to the center line. Wooden partitions are suggested for use in some cases.

The plan shown in Fig. 2 differs from that shown in Fig. 1 only in having the single seats arranged in tandem. The latter feature, by locating the foot space for seated passengers between the cross-seats, makes available for standing passengers a corresponding space in the aisle, and in addition insures those who occupy the cross-seats from close contact with those who stand. In Fig. 1 the plan provides for two seated passengers and four standing passengers in each unit.

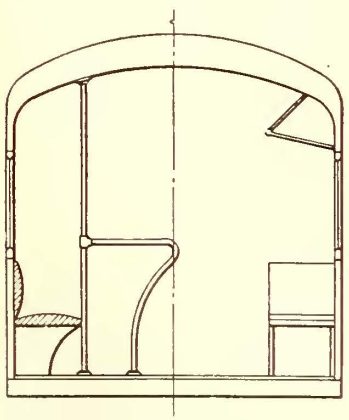
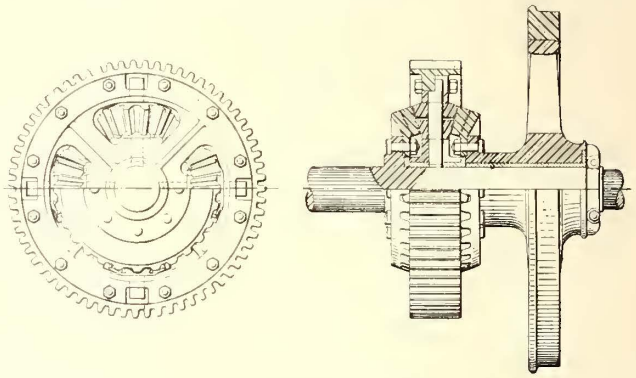


FIG. 3—CROSS-SECTION OF CAR SHOWING ARRANGEMENT OF RAILINGS

The inventors believe that this arrangement will prove superior to the use of both hand straps and stanchions because the horizontal partitions between the units will provide definite support for standing passengers at the proper position. It is also believed that the race for vacant seats which is a conspicuous and unpleasant feature of modern rush-hour travel will be eliminated, because passengers who have once gained a standing place within a given compartment acquire a natural right to vacancies within their compartment.

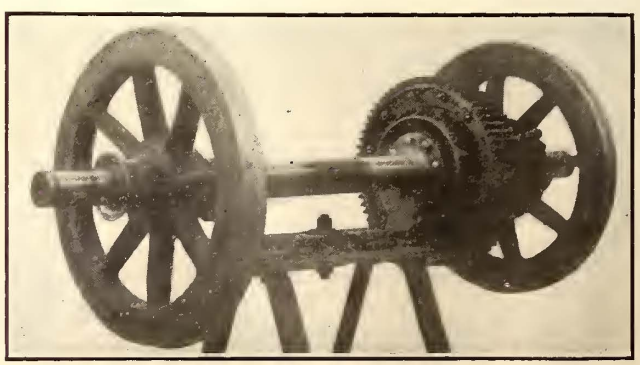
Differential Gears to Eliminate Rail Corrugation

For a number of months the Huddersfield Corporation Tramways, Huddersfield, England, has had in operation eleven cars fitted with differential driving gears. These cars have been operated on track which was formerly subject to corrugation, to the exclusion of other cars, to determine primarily the effect of eliminating wheel slippage. Incidentally information was desired upon the subject of energy consumption and life of tires with wheel slippage eliminated. It was the theory of R. H. Wilkinson, general manager and engineer of the tramways, that corrugations are caused by skidding and slipping of the wheels due to unequal diameter. If this theory is correct the elimination of slipping should have beneficial effects in the three directions indicated. Experience thus far has shown very satisfactory results as regards corrugation and tire wear, although there have been no appreciable energy savings. The cars are running on rails which were corrugated by cars of the ordinary fixed wheel and axle type. For the purpose of the experiment the corrugations were carefully ground out.



DIFFERENTIAL GEARS—SECTION SHOWING DETAILS OF CONSTRUCTION

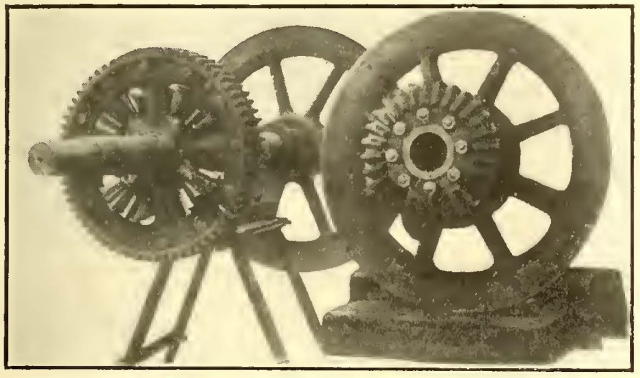
The construction of the differential gear can be seen from the illustrations. Referring to the line cut it will be noted that a differential driving axle gear is substituted for the ordinary gear one side driving the near wheel through a bevel gear mounted on the extension of its hub, while the other side drives the far wheel through the axle, which carries a similar bevel gear mounted on a collar forming an integral part of the axle. By this drive each wheel takes a speed determined by its circumference. The axle is carried in ordinary bearings. The wheels differ from the standard wheels in that they are straight rather than dished, in order to bring the tread and point of support more directly under the center of the length of the wheel boss and bearings,



DIFFERENTIAL GEARS—COMPLETE GEAR ON CAR AXLE

the better to support the axle equally over the full length of the boss bearings, giving parallel wear of bush and axle by approaching center running.

It will be noted that the wheel near the differential gear is mounted loose on the axle, the hub being bushed with a bronze bearing, while an extension of the hub carries the bevel gear. The appearance of the gear as attached to the wheel is shown clearly in one of the half-tones. The main spur axle gear is also loose on the axle and is similarly bushed. It consists of a cast-steel rim with machine cut teeth mounted on a cast-steel center which carries four bevel pinions meshing with



DIFFERENTIAL GEARS—SPUR GEAR WITH BEVEL PINIONS, AND BEVEL GEAR ON WHEEL HUB

the aforesaid bevel gear. The second bevel driving gear is bolted to a collar which is forged on the axle. All of these parts are securely bolted together with driving-fit bolts.

A thrust collar, made in halves bolted together, fits snugly into a groove in the axle on the outer side of the wheel, to take the thrust of the bevel gears. This construction permits the easy removal of the gears so that they may be lined up in case of wear.

The experiments which are being made with these differential gear drives should be of great value in settling questions as to the causes of corrugation, the effects of wheel slippage on curves, etc., and the effect on tire wear of inequalities in wheel diameter.

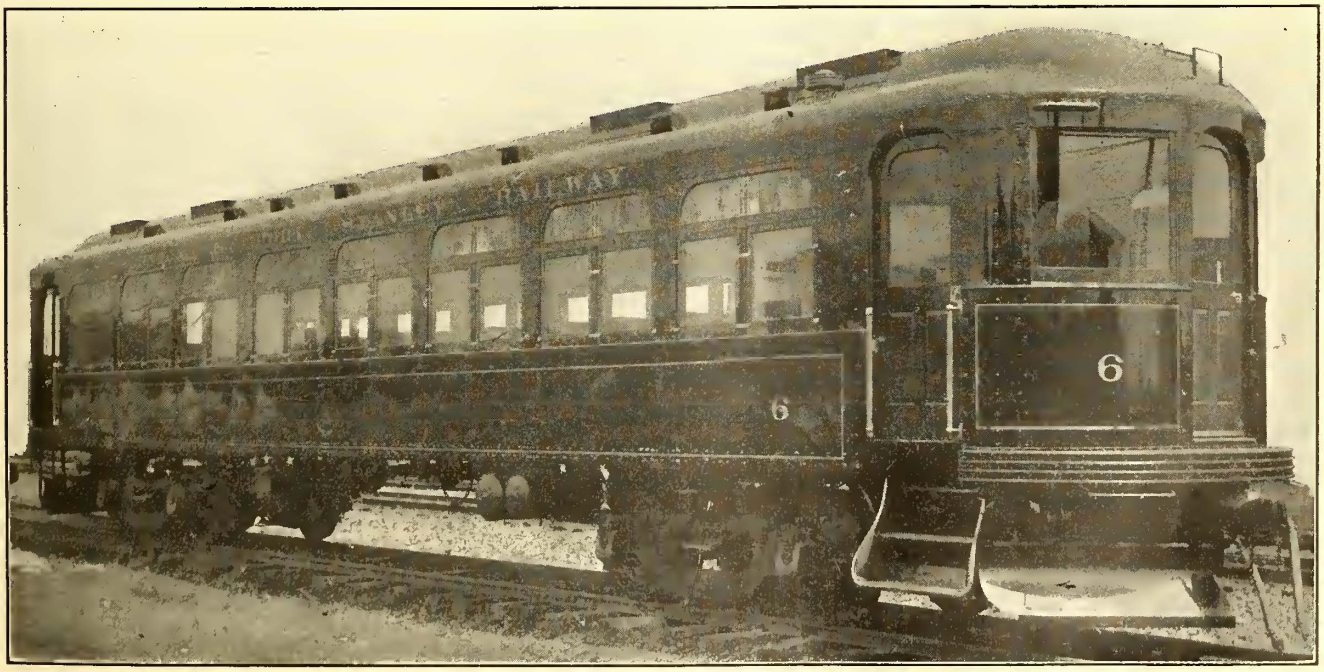
All-Steel Cars for London & Port Stanley Railway

Five cars for the London & Port Stanley Railway have recently been completed by the Jewett Car Company, the design providing for service in accordance with the highest interurban standards. The railway, which is a 1500-volt electrification of an old steam road between the cities of London and Port Stanley in the province of Ontario, Canada, really constitutes a first step in the extensive general plans of the Ontario Municipal Railways, and the service includes locomotive-hauled freight trains and multiple-unit passenger car trains of both limited and local classes.

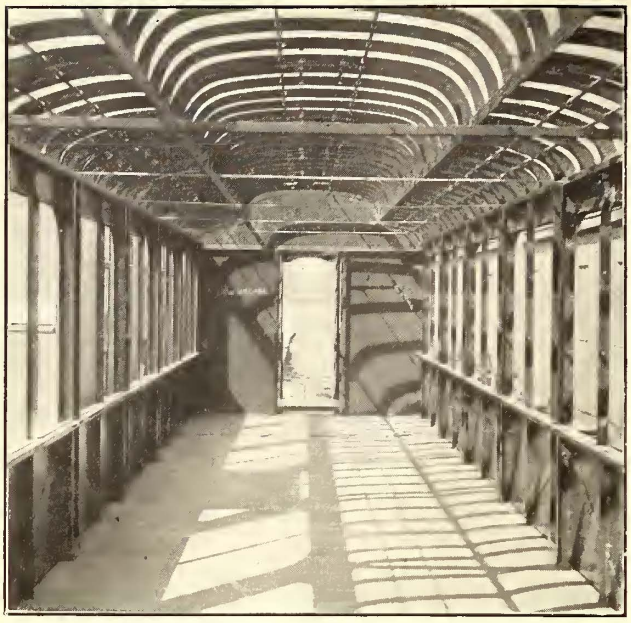
The recently completed cars are to be used in motor service at the head ends of the two-car trains. They are 61 ft. 1¾ in. long over buffers and are exceptionally wide, being 9 ft. 6 in. over posts. This makes possible seats that are 40 in. long, with an aisle 26 in. wide. The car body is divided into baggage, smoking and general passenger compartments, respectively 9 ft., 12 ft. and 25 ft. in approximate length. In the main compartment there are two saloons with metal tile walls and a tile floor set in cement. The seats in the main and smoking compartments are on 34-in. centers, and the total seating capacity is fifty-six.

The bottom framing of the car is made up of structural sills with pressed-steel cross-bridging, plate bolsters with pressed-steel fillers being used. Side posts are alternately of double channels and tees of light section, with angle-iron corner posts. The posts at the bulkheads and partitions are also of channels, with a channel header across between side plates. All of these posts have light wood fillers. The entire outside of the car and the bulkheads are composed of steel plates, the side girder plates and letter boards being of ⅛-in. steel and the pier-post panels, etc., being 3/32 in. thick. The carlines are of pressed steel, and the roof is sheathed with steel plates laid across the full width of the car.

The cars are fitted with extra heavy steel pilots and Tomlinson M. C. B. drawbars. The interior finish is mahogany, inlaid with inside and outside Gothic sash and cathedral glass, and storm sash are fitted to all body windows. The ceiling is of agasote, while the



PORT STANLEY CARS—VIEW AT VESTIBULE END, SHOWING DOOR ARRANGEMENT



PORT STANLEY CARS—VIEW SHOWING SIDE FRAMING AND METHOD OF ATTACHING CARLINES TO DECK SILL

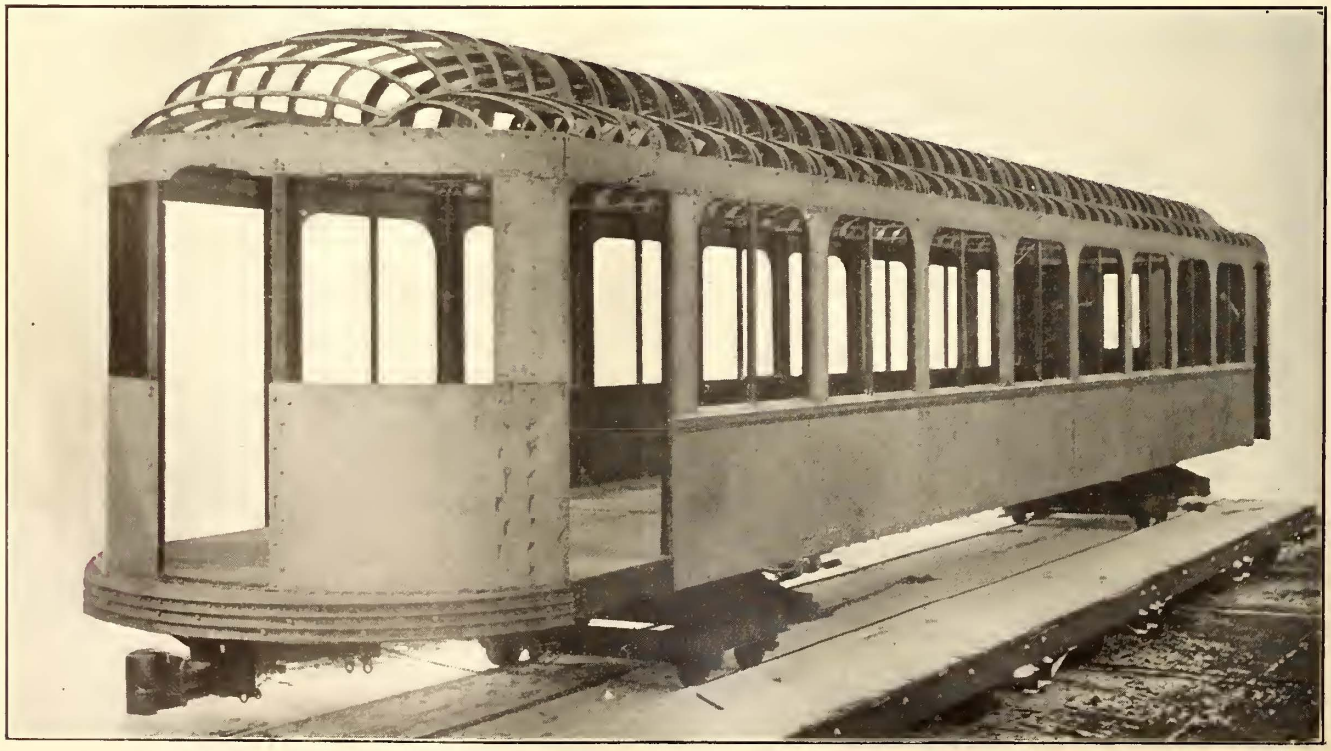
PORT STANLEY CARS—INTERIOR VIEW, SHOWING STYLE OF FINISH IN PASSENGER COMPARTMENT

floor, which is of wood, is covered with linoleum. The car is lighted by semi-indirect system with pendant fixtures, light wiring being in concealed conduit. The heater wiring is also concealed.

There is a vestibule only on the rear end, and this has triple steps covered with Edward's steel trapdoors. Both saloons are very completely equipped with flush hoppers, wash stands with liquid soap holders, towel racks, etc., all toilet-room fixtures being nickelplated. The interior of the car presents an exceptionally tasteful appearance, the mahogany being finished in a rather light tone, and great care has been exercised in selecting soft harmonizing colors both for ceiling and for stained glass.

Nothing in the way of incidental equipment, such as buzzers, air sanders, fire extinguishers, etc., has been omitted, while a large switch cabinet with a slate back extends from floor to ceiling, this containing all electrical switches. The roof is a compromise arch design having an ogee curve on each side, making a very good lines especially in the hood.

The electrical equipment for each car consists of four General Electric ventilated motors of 125-hp. hourly rating, connected permanently in series groups of two. The insulation, however, is designed for 1500 volts. The control is double end and energy for this is derived from a 1500-600-volt dynamotor which will have a sufficient capacity also to light the motor car and its trailer as well. Pantographs will be used for current collection. Each car will carry a combined straight and automatic air-brake outfit of the variable release type supplied by 1500-volt air compressors.

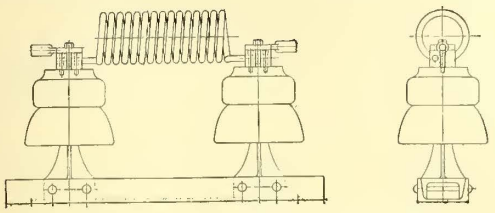


PORT STANLEY CARS—CAR BODY PRIOR TO INSTALLATION OF ROOF SHEATHING

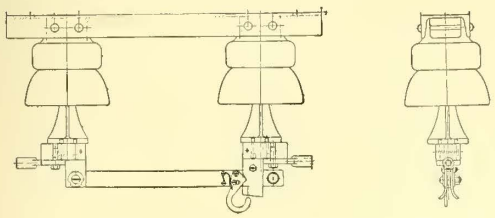
Choke Coils and Disconnecting Switches

The choke coil, disconnecting switch and fittings illustrated herewith are typical of the new and more complete line of such apparatus recently brought out by the Electric Service Supplies Company, Philadelphia, Pa. The fittings which accompany this line are all of new designs and especially noteworthy.

Both choke coils and disconnecting switches are made for standard and underhung mounting, as well as for

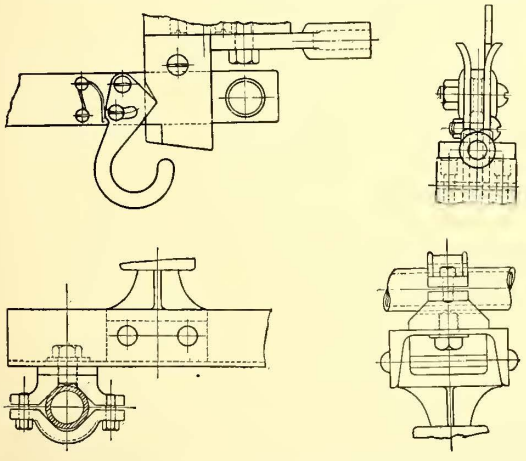


CHOKE COIL—STANDARD MOUNTING



UNDERHUNG DISCONNECTING SWITCH

voltages up to 35,000 and all standard ampere capacities. They are made with a base of channel iron, either 3-in. or 4-in., depending on the size of the coil or switch. Iron pins are riveted into this channel, and insulators cemented to these pins support iron caps, which in turn support the terminal blocks, terminals and coil or switch proper. All channel bases are drilled with 9/16-in. holes in each end and, therefore, may be mounted on any flat supporting member by bolts or lags. These coils and switches are very rugged in construction and possess great electrical and mechanical strength. The switches are designed for disconnecting and controlling



SWITCH LOCK AND PIPE CLAMP

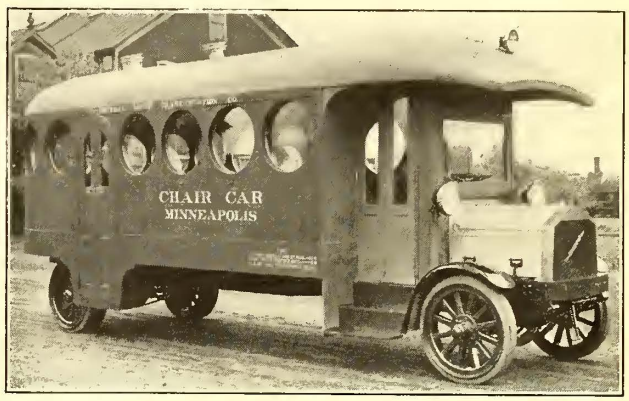
high-voltage lines, branch feeders, emergency feeders, etc., as well as for lightning arrester disconnecting switches that are installed to disconnect arresters from the line for the purpose of inspection or repair. The manufacturers claim that these devices are so designed that when they are used in conjunction with Garton-Daniels lightning arresters, a maximum of protection may be expected.

The line of fittings referred to consists of malleable iron pipe clamps for mounting switches or coils on either parallel or transverse piping, disconnecting switch locks for use particularly on underhung types as assurance against any tendency for the blade to be blown open, disconnecting switch stops which prevent the blade from opening beyond a given angle, switch blade operating attachments which provide an extra large hole in the switch blade to facilitate the quick opening of the switch in an emergency, and disconnecting switch hooks in lengths from 4 ft. to 12 ft. for operating the switches from a distance.

A Novel Form of Motor Bus for Interurban Service

There will soon be placed in service between St. Paul and Minneapolis a novel transportation unit that is called a "highway coach" by its builders, the McKeen Motor Car Company, Omaha, Neb. This is stated to be not an omnibus, not a street car and not a jitney bus, but the most comfortable, luxurious, exclusive and up-to-date means of transportation in urban or interurban passenger service. It will compete for the Twin City Rapid Transit Company's intercity traffic at twice the fare charged heretofore, the rate between cities being 20 cents and the local rides costing 10 cents.

The highway coach is equipped with individual chairs



HIGHWAY COACH FOR MINNEAPOLIS

of a new, steel-spiral-spring, pneumatic shock-absorbing cushioned type. This embodies all the cushioning effects of a 2-ft. spiral spring, and it has four air cushions operating in conjunction with it and differentiated on each other, the combination acting both as a cushion and shock absorber. The car is guaranteed by its builders to afford the most easy-riding method of transportation known to man.

Plate-glass, air-tight, round windows afford an almost uninterrupted panoramic view in all directions, the window when open being hinged to the ceiling and giving a full opening of 24½ in. in diameter. Exhaust suction ventilators on the roof maintain constant circulation and removal of the air. The car is electrically lighted, and between each two windows is an electric push button for convenience of passengers in signaling the driver, who controls the two door-operating mechanisms.

Entrance to the car is gained through a two-leaf outward folding door beside the driver's position, the prepayment fare collection being under his supervision. Exit is through double-leaf outward folding door in the side near the rear. Instead of a high step from the mud, the passengers take this car at the curb, the coach entrance being only 15 in. from the ground and the initial step about 7 in. high.

Adequate heating facilities for the car are obtained

from the waste products of the gasoline engine, there being twice the necessary heat units available for maintaining the proper temperature of the interior of this car in the coldest of winter days, and with this large supply of waste heat there is no additional expense in providing the passengers with plenty of moderately heated fresh air.

The chassis is a 3½-ton gasoline truck, having a wheelbase of 216 in. The length of the frame behind driver's seat is 22 ft. The coach may be equipped either with rubber tired wheels for road service or with flanged wheels for use on urban rail lines.

Light-Weight Car for Cleveland & Eastern Traction Company

A car that has just been completed by the G. C. Kuhlman Car Company for the Cleveland & Eastern Traction Company, possesses to an exceptional degree the feature of light weight that has recently become prominent in interurban car design. The railway company's lines extend east from Cleveland to Middlefield, with a branch to Chardon, a town of 1400 population. The land in this region is somewhat hilly, but lends itself to general farming, the principal industry which supports a population of 15,500, and the new car will be operated between the interurban terminal at the Public Square of Cleveland and Chardon, a run of 32 miles. It will make an average number of stops of four per mile, the maximum grade encountered being 11 per cent.

In the design of the car the utmost attention was given to the elimination of all unnecessary weight, and, in view of the fact that no sacrifice of strength or omission of equipment for obtaining the most efficient and safe operation was made, the result is extremely interesting, as is shown in the accompanying table, in which for comparative purposes is included a table of dimensions and weights published in a recent issue of Electric Railway Journal.

Steel Construction

The underframe is composed of angle side sills with eleven light I-beam crossings between the bolsters; the end sills are made in the form of a trussed frame, with angles at the top and channels at the bottom. Diagonals at each end are arranged to serve as center knees, and are brought well back of the bolster. They are strongly reinforced with angle gussets at the trussed end sills. A powerful construction for the attachment of the drawbars and anchors consists of angles and plates riveted to I-beams extending from the bolster to the end sill. The bolsters are made up of pressed steel diaphragms with 10-in. top and bottom members. At the rear platform the outside knees are omitted to provide an opening for the steps, and the angle forming the roof framing and the angle at the top chord of the side frame extend through to the corner post and aid to support the outer

CLEVELAND & EASTERN CAR—INTERIOR VIEW LOOKING TOWARD FRONT PLATFORM

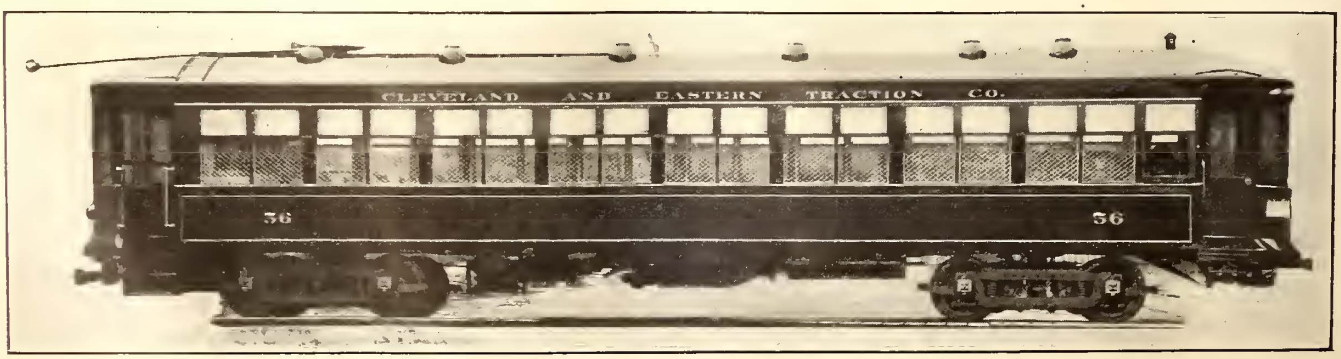
portion of the platform by means of structural steel connections.

Each side of the car, from the side sill of the underframe to the top plate, is constructed to form a girder.

	Cleve. & East	Fostoria	Union Trac.	Chicago
Over-all length	54 ft. 6 in.	56 ft. 9½ in.	61 ft. 0 in.	48 ft. 0 in.
Over-all width	8 ft. 6 in.	8 ft. 6½ in.	8 ft. 0½ in.	8 ft. 8 3/16 in.
Weight of body	23,186 lb.	29,550 lb.	45,200 lb.	35,600 lb.
Weight of trucks and equipment	36,214 lb.	38,450 lb.	40,400 lb.	34,900 lb.
Total weight	59,400 lb.	68,000 lb.	85,600 lb.	70,500 lb.

of which the principal member is a continuous plate of 3 32-in. steel riveted to the side sill angle, steel belt rail and the posts. The posts are of tee-section, and are alternately single and double, on account of the twin-window arrangement. The top chord of the girder consists of an angle riveted to all post heads. Additional stiffness is imparted to the girder by means of a continuous sash rail at the bottom of the top sash which is dadoed over each side post.

The roof framing consists of an angle on each side, with the horizontal web turned in, and steel carlines riveted to the vertical web. Wooden nailing strips are bolted to the carlines, and canvas nailing strips are bolted to the angle roof sills. After the roof was placed on the carbody, the side angles were riveted to the angle top chord of the side girder.



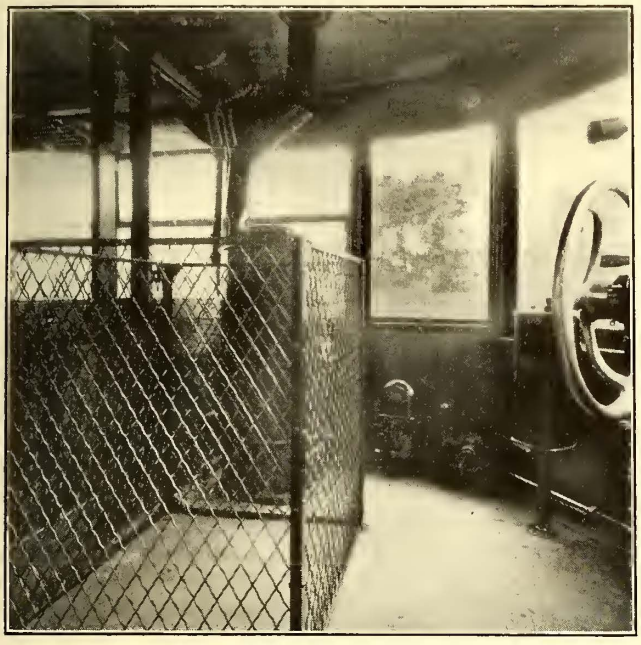
CLEVELAND & EASTERN CAR—SIDE VIEW SHOWING WINDOW AND DOOR ARRANGEMENT

The front and rear vestiblues are framed alike; the sheathing around the front end is of the same thickness as the side plates, while at the rear end it is composed of No. 14 sheet steel. The letterboards are made of sheet steel, and continue in line with the side letter panels.

INTERIOR DETAILS

There is a double flooring, the bottom layer of yellow pine and the top of maple, except at the aisle, where interlocking tiling extends the full length of the carbody proper. The tops of the trap doors over the steps and the floor between the steps and the rear platform are also covered with interlociking tiling, cemented to maple flooring.

The headlinings are composed of sheet steel and installed in a continuous piece from the curtain box molding on one side to the same point on the opposite side, and are the length of two windows, except at the



CLEVELAND & EASTERN CAR—INCLOSURE FOR PACKAGES AND MAIL ON FRONT PLATFORM

center, where they are cut to suit the partition. The only longitudinal moldings are those for the curtain boxes and advertising signs, and for covering the joints of the headlining; the latter are painted the same color as the headlining.

The lower side sashes have brass sash stiles, and are capable of being raised their full height. The upper sashes, as has been already stated, are made in a continuous section and are glazed with pressed prism Gothic glass. An interesting feature of the windows is a novel type of window guard, which is made of strongly framed diamond mesh wire screens. The window guards are attached to the bottom of the lower sashes and slide into pockets in the side walls when the sashes are lowered. When a sash with its screen guard is raised, the lower part of the screen guard covers the pocket opening, and thus prevents rubbish from being forced into the pocket. The inside lining below the windows consists of sheet steel.

The partitions between the motorman's compartment and smoking compartment, and between the smoking compartment and main compartment are of African mahogany. They are glazed in the upper part and have single sliding doors. On the left side of the car, next to the rear platform, is a toilet room with standard appointments and with a flooring consisting of a single slab of marble.

SEATING ARRANGEMENT

All of the seats are placed transversely, with the exception of the one opposite the toilet room. The type used is a non-reversible, light-weight seat, made without seat rails and having the pedestal and seat back support of pressed steel in one piece. The wall plate is pressed in one piece to form the back support at the wall end. The seats are upholstered in twill-woven rattan, and are of Brill manufacture. The total seating capacity is sixty-three, seventeen seats being located in the smoking compartment which has a transverse seat along the front bulkhead with a folding seat opposite the space at the door to the motorman's compartment. Continuous parcel racks are provided in both compartments, and a package and mail cage is located at the rear of the motorman's platform.

Twelve Brill "Exhaust" ventilators, six on each side of the roof, are installed and these have regulating registers attached to the headlining. The equipment includes hot-water heating system, air brakes, automatic air couplers, fender, sand boxes, trolley retriever, anti-climber bumpers, registers, signal lamps, air whistle, etc., and the car is mounted on Brill 27-MCB-2X trucks, which have a wheel base of 6 ft. 9 in., 34-in. wheels, and are suitable for a speed of 50 m.p.h. They are equipped with four 65-hp. motors per car. The bolster centers are 31 ft. 9⅛ in., and the trucks are arranged to radiate on a curve of 37 ft. 6 in.

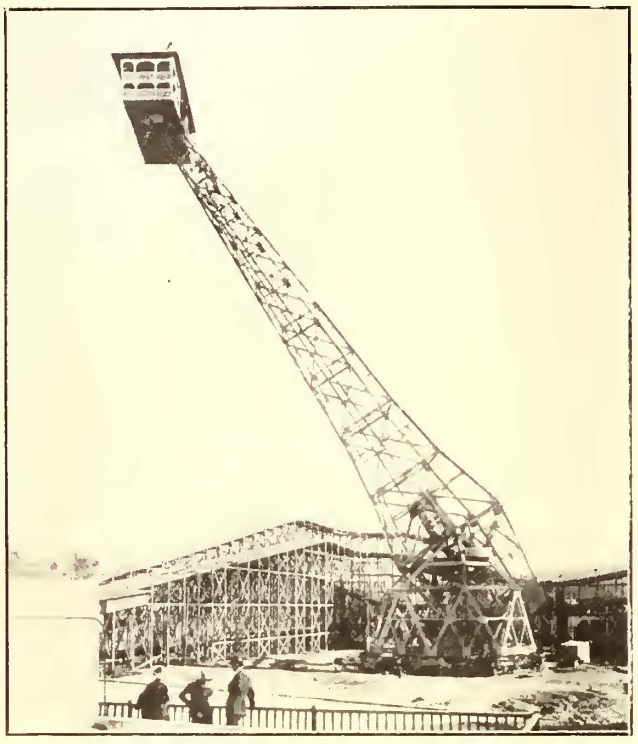
The Aeroscope at the Panama-Pacific Exposition

One of the most astonishing of the amusement devices installed at the Panama-Pacific Exposition at San Francisco is one which raises its passengers to an elevation of 330 ft. above sea level and provides a sea horizon of 200 miles. This is called the Strauss Aeroscope and it is reported to be the largest passenger-carrying machine ever built. However, on a smaller scale it would be peculiarly adaptable to ordinary amusement parks.

The device is fundamentally a Strauss trunnion bascule bridge mounted on a revolvable tower. The tower in turn is mounted on a series of eight trucks which travel on a circular railway track 60 ft. in diameter, four of the trucks being provided with 15-hp motors and trains of gears to drive them in either direction. At the apex of the tower, 48 ft. above ground, are mounted two 15-in. shafts, or trunnions, and upon them the huge arm of the structure is mounted. This projects 200 ft. in front of the trunnions and 38½ ft. behind them, the rear end carrying a 380-ton counter weight that is made of reinforced concrete. The rear end of the arm is provided with two circular racks which are engaged by pinions driven by two 11-hp motors, and these raise or lower the arm as desired. The arm is provided also with two air propellers mounted near the end. These propellers are driven by a 3-hp motor and they assist in raising the arm and in steadying its motion.

As an amusement device pure and simple, the Aeroscope is unique. The tower and its car are brilliantly illuminated at night and as the lines of the structure are graceful throughout it is particularly inspiring after dark. It moves majestically, each trip consuming ten minutes, and the view afforded from the car is unparalleled. The total capacity per day approximates 6000 passengers, and during the first four weeks of the exposition the Aeroscope carried 65,000 patrons.

The importance of the bascule bridge principle, as applied in the aeroscope, has even been recognized by the United States government which, it is reported, has arranged with the constructors for the application of



AEROSCOPE IN REVOLVABLE POSITION

the principle to military searchlight towers to be erected at the various coast-line fortifications.

Absolute safety for the passenger is guaranteed by the provision of both power and handbrakes under the control of an operator who travels with the car, provision having been made in the design for a wind velocity of 60 m.p.h.

Self-Lubricating Brushes

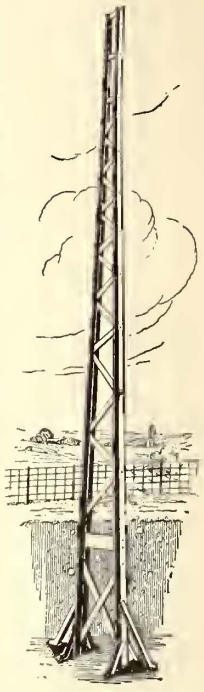
The "No-Spark" carbon brush manufactured by the Calebaugh Self-Lubricating Carbon Company has been making a remarkably successful record on several electric railways, the principal feature being an ability to run without chipping, splitting, or breaking. This has been demonstrated on the lines of the Lehigh Valley Traction Company where a number of test sets of the brushes have been installed.

Harry Branson, superintendent of equipment of this system, states that a test set of brushes recently removed from a car on the Bethlehem Division had made a mileage of 24,957 and had given excellent results, having been installed in Westinghouse 101-B motors. Other brushes of the same type are in service on Westinghouse 303 and 38-B motors, used elsewhere on the system, but these have not yet been removed because their condition is good. The commutators are all in excellent shape.

The makers claim that the "No-Spark" brush makes a frictionless contact because of its self-lubricating qualities and that it reduces the commutator wear 90 per cent, giving a dark-brown gloss on the commutator surface in a very short time after application. It will, in consequence, carry some 50 per cent more load than that normally allowed per brush and is moisture-proof as well as fracture-proof. Naturally, the sparking is reduced to the absolute minimum.

New Type of Steel Pole

A novelty in poles recently brought out by the Carbo Steel Post Company, Chicago, makes use of the revolutionary but logical principle that pole legs should be anchored under ground (thus putting the legs in straight tension or compression when a transverse force is applied) instead of being set in concrete to form a cantilever with the bending stresses localized at the ground line.



ANCHORED POLE

The makers believe that rigidity in a direction parellel to the wires on a pole line is undesirable, because if a wire should break the load is concentrated on the two poles at the break. If flexibility is provided the poles bend until the unbalanced force exerted by the wires is transmitted back from the break to a large number of the other poles, thus preventing actual failure of any pole. In consequence both the transmission line poles and the trolley poles designed by the company are of a modified A-frame type with the long dimension transverse with the line.

The poles are buried about 4 ft. or more in the ground, and each leg is provided with anchor plates to hold the feet of the pole firmly in place through the weight of earth resting on them. At the ground line is a sway plate that extends between the legs, giving a certain amount of longitudinal resistance to pull. Rusting at or below the ground line is prevented by a special finish which is stated to be proof against moisture and alkaline soils.

The material used in the construction of the poles is a high-carbon steel of uniform texture with an elastic limit over 50,000 lb., thus providing the desired lightness. It is stated that this metal will not pit even if left unpainted, and on this account the life is long in comparison to the ten or twelve years' use to be expected from wooden poles. The first cost, pole for pole, is reported to be about the same for wooden poles and for the new design, but owing to the superior strength of the latter only about half as many poles per mile are required. The total cost of a light transmission line with the new poles is estimated to be about three-fourths of the cost involved when wooden poles are used.

Effects of Heat Treatment on Nickel and Manganese Steel

In a paper presented before the American Society of Mechanical Engineers at Buffalo recently, Robert R. Abbott stated that for a heat-treated 1½ per cent plain manganese steel, the manganese in excess of that contained in a nickel-manganese steel of a corresponding carbon content (about 0.34 per cent) exerts a strengthening effect equivalent to that of about three times the same amount of nickel. While the effect of manganese on a steel which has not been heat-treated is to increase the toughness slightly, its effect upon a heat-treated steel is decidedly the reverse. In the case of nickel the effect upon an untreated steel is practically zero, while in a heat-treated steel nickel increases the toughness decidedly. An untreated steel containing about 1½ per cent of manganese is fully as tough and is stronger than a nickel steel of about 3¼ per cent nickel.

LONDON LETTER

Women Fast Taking the Places in Tramway Service of Men Needed at the Front

(From Our Regular Correspondent)

Fifty additional women have started training as car conductors in the service of the Glasgow Corporation Tramways Department, bringing the total number of their sex on active duty or in training to 250. The places of so many men have to be filled that it is expected the number of women appointed will soon reach 500. The list of women applicants now contains about 1400 names.

The traffic receipts on the Glasgow Tramways during the last financial year amounted to £1,070,353, being £8,083 less than in the preceding year. The count of the actual number of passengers carried during the year has not yet been completed, but up till May 29, which leaves only two days short in the year, the figures were 334,584,216, as compared with 334,676,627 in the corresponding period of the preceding year. Taking into account the exception of these two days' statistics and the circumstances of the war during the past ten months, the total number of passengers carried during the year which began on June 1, 1914, compares very favorably with the preceding year's total of 336,654,624..

The Coventry City Council has decided to employ a dozen women conductors. The women are to be between thirty and forty years of age, to work forty-eight hours a week, receive 6½d. an hour wages and wear uniforms.

The trolley scheme of the Hove Town Council has been abandoned until after the war. The project has been a source of controversy from its inception in 1911. After a bitter Parliamentary campaign in 1912 the plan received legislative sanction in such a form that both Hove and Brighton were left to pursue their own course, and complications ensued, from which the only escape seemed to be a costly arbitration. Brighton, in fact, was about to apply for the appointment of an arbitrator when the war prevented further proceedings.

The Corporation of Birmingham has decided to increase all the tramcar fares in the aggregate 10 per cent. Assuming that the volume of traffic remains constant, this will result in a gain in the takings of £60,000 per annum. The present rates were fixed in February, 1912, and the proposed alterations will in the main be a reversion to those in operation prior to that date. At present the average penny fare carries a passenger 2 miles 600 yards. When the new scale comes into operation the distance for the same money will be reduced to 1 mile 1200 yards. Outside this radius there will be an increase of a halfpenny on the present rates. As regards workmen's fares, they will go up ½d. on each return ticket. Though passengers in the penny zone will find all the distances curtailed, an increase in the number of overlapping stages will help slightly to improve matters.

At a meeting of the tramways committee of the Newcastle Corporation the general manager reported that since the last meeting of the committee forty-eight women conductors had been trained; that twenty-four were in full charge of cars on the Osborne Road route, and that the rest were in training on the Jesmond route. The general manager expressed his appreciation of the help given by the public to the women conductors, as well as of the services of the inspectors and motormen. Application for further women conductors are desired. The committee has decided to abolish halfpenny workmen's fares, the minimum in future to be 1d.

The Edinburgh & District Tramway is employing on its cars twenty women conductors, who received preliminary training at the depot. The manager has expressed himself as highly satisfied with the manner in which they are performing their duties. The employment of women conductors in Edinburgh, however, is opposed by the tramwaymen. The management has agreed that their employment shall not exceed the period of the war; that efforts will be made by the company to obtain male labor, and that old employees discharged from military service will be replaced in their positions. An amicable settlement has therefore been arrived at, and it is likely that Edinburgh will have many women on the tramways in the very near future.

The Manchester Ratepayers' Association has addressed a letter to the treasury urging it to refuse sanction at present to the carrying out of the Manchester electricity scheme for new works at Barton. It is pointed out that the great amount of skilled labor required for the construction and manning of the new works would cause a serious drain upon the already weakened labor market and tend to draw men away from work immediately necessary for the prosecution of the war, and that there is not likely to be any overwhelming pressure upon the Manchester electricity department for some time.

Owing to the fact that 2000 tramwaymen in Manchester have enlisted, the Manchester Corporation is considering the advisability of engaging women conductors to fill some of the places.

The Salford Corporation tramway workers have accepted the terms offered by the borough tramway committee of a war bonus similar to that recently awarded by arbitration at Newcastle-on-Tyne. The terms are a bonus of 2s. 6d. a week for married men and householders, 1s. 6d. a week for single men, and 1s. a week for youths under the age of eighteen years. The question of the employment of women conductors was discussed at a recent meeting of the men, and a resolution was proposed asking the management to withdraw the women and offering the support of the Salford branch of the men's union and of the Trades and Labor Council in finding suitable male labor for the cars. If these efforts are not successful, however, the resolution provides that the men shall work with the women on certain conditions. The women conductors, of whom sixteen have been trained, are to work on cars running from Weaste to the Cliff and from Irlams-o'-th'-Height to the Market Place, Broughton.

The strike on the London County Council Tramways has now definitely collapsed though it seemed that it would be renewed when the tramways manager's decision to reinstate only men over military age became known. The Council has taken a very firm position as regards this, all men of military age being refused, unless they can show special reasons for exemption from the rule. Mr. Fell has stated that every effort will be made to deal sympathetically with the cases of the men of military age who have good reasons for not enlisting. During the week ended May 12—that before the strike began—the total traffic receipts were £50,891, as compared with £42,779 for the corresponding week in 1914, but for the following three weeks the figures were only £22,460, as against £44,961; £12,610, as against £44,961; and £23,586, as compared with £47,346. No official notification has yet been received from the men's joint strike committee or their unions that the strike is at an end. While before the dispute great difficulty was experienced in maintaining full service, it is estimated that at least 90 per cent of the normal number of cars are now in operation.

Reporting upon recent proceedings before the House of Commons committee regarding new tramway schemes, the London County Council mentions the important fact that, in connection with the proposal for extending the Farrington Road tramways, the chairman of the select committee declared that the committee would very much like to see a scheme to carry the tramways through to South London. So keen, however, was the opposition to many of the schemes that Parliamentary sanction has been granted only in the case of the less important ones—those involving little change and small expense.

Adverse comments were made at a recent meeting of the Birmingham watch committee on the action of tramway conductors who refused to work with a number of women and sent the authorities an ultimatum that if the women were not withdrawn there would be a strike. The committee has been reluctantly compelled to accede to the demand, because the cars are carrying so many munition workers that it cannot run the risk of having them stopped.

The Portsmouth Town Council has decided to engage women conductors to take the place of men who have joined the forces. Of 330 motormen and conductors in the corporation service 137 have enlisted and thirty entered other government service. The women conductors will be paid 5d. an hour, and will be supplied with a uniform.

A. C. S.

News of Electric Railways

THE CHICAGO ARBITRATION

Proceedings Begun on June 28 With the Presentation of Case of the Men

Arbitration of the differences between the Chicago surface and elevated railway companies and their employees was begun on June 28, with Mayor Thompson as umpire, State's Attorney Maclay Hoyne, arbitrator for the employees, and James M. Sheean, representing the railway companies. Eight questions are to be arbitrated and each side has the right to present evidence through counsel. The following are the questions:

1. Percentage of straight runs and consecutive hours in which swing runs shall be completed.
2. Maximum time covered by straight runs on Sundays.
3. Allowances for fall-backs for meals and reliefs, if any, on the streets for meals.
4. Hours of service, including weekdays, Sundays and holidays for employees other than trainmen provided for in this agreement.
5. Number of years to receive maximum wage scale and wages for all trainmen, including trainmen on cinder, sprinkler, supply and other cars.
6. Hours of service and wages paid car repairers, motor repairers, inspectors, dopers, car placers, car cleaners, janitors, terminal men, or other men around carhouses.
7. Allowance for turning-in time.
8. Seniority and efficiency with men outside of train service.
9. Night car hours and wages.
10. With reference to employees outside of the train service the company recognizes seniority of service, but in connection therewith efficiency shall be taken into consideration.

William Quinlan, president of the local union, was the first witness. He gave evidence regarding the methods of employing men in the early days and at the present time, and also outlined the existing working conditions and what he believed should be done to improve them. He claimed that the large and heavier cars, refinements in their equipment and increased vehicular congestion made the work of the motorman increasingly more difficult. Regarding the idle time of extra men between swings, Mr. Quinlan claimed that the men could not engage in other business without obtaining a permit from the company. He said that the present allowance of five minutes for turning-in time should be increased to ten minutes. According to Mr. Quinlan it at one time required only one month to reach the maximum wage scale, whereas it now required six years. This was brought about by the union conceding increased time to reach the maximum whenever a new wage agreement was negotiated.

Mr. Quinlan claimed that the graded scale had discouraged the men and offered an opportunity for abuse, but stated specifically that the present management of the companies had not taken advantage of this. No more accidents were charged against the new men than the old when working conditions were taken into consideration. The fact that the hours of the new men were longer and their runs undesirable as compared with those of the old men accounted largely for the increased number of accidents recorded against them. It was Mr. Quinlan's opinion that a man is as proficient a conductor or a motorman at the end of one year as he ever will be. Questioned regarding wages and working conditions of the employees outside of the train service, Mr. Quinlan said they were paid less than ordinary building laborers while they performed duties requiring much more skill. He also contended that the duties of motormen on sprinklers, cinder, supply and other utility cars were identical with those of the motormen on passenger cars, and he said that the men on these runs should be included in the regular train service.

George W. Miller, attorney for the railway companies, in cross-examination of Mr. Quinlan, brought out that present working conditions were much better than those of the past. He also showed how improvements in car equipment and design had aided in reducing accidents and in decreasing the responsibilities of both motormen and conductors. Prior to 1912 eighteen different transfers were used by the surface lines, whereas only four have been in use since 1912. Regarding swing and split runs, Attorney Miller in his examination of Mr. Quinlan, emphasized the importance of furnishing a service to meet the riding habits of the public and by bringing out that the speed varied with the conditions on the street he refuted the argument regarding the alleged increase in speed. Although Mr. Quinlan claimed the speed had increased he did not know it to be a fact. Mr. Quinlan also acknowledged that long service with the company tended to increase the feeling of responsibility and interest and that high wages added to this increase. Concerning the rotating and standing list of extra men, he claimed that the company preferred the former and the men preferred the latter or standing list. This completed Mr. Quinlan's testimony.

On Tuesday morning, June 29, John Ernst, a cabinetmaker, was examined. Inquiry showed that he was getting 33 cents an hour for steady work, but he believed that he was not being paid enough. On cross-examination it was brought out that he based his idea of the wage he should received upon that received by workers in other shops. M. C. Boyle, a conductor, was examined next. He had been in the service for twenty-seven years and was receiving the maximum wage of 32 cents an hour. This was insufficient. When he entered the service he had $1,000 in the bank. Of this only about $600 was left. He had used about $125 to make up his deficiency in living expenses. He was also examined regarding the transfer system, trip sheets and car loadings.

James M. Sheean, the arbiter selected by the Chicago surface and elevated railways, served as attorney for the Western Railroads in the arbitration of wages and working conditions for the locomotive engineers and firemen. Mr. Sheean was born in November, 1866, at Galena, Ill., was graduated at Beloit College in 1887 and studied law under his father. He was admitted to the bar in 1889, in which year he was taken into partnership with his father and uncle. He moved to Chicago in 1901 and for three years was with the firm of Pan, Calhoun & Glennon. In 1904 the law firm of Calhoun, Lyford & Sheean was organized, and as a member of this firm Mr. Sheean is serving as arbiter for the railway companies. For a number of years he has served as a trial attorney for steam railroads.

Maclay Hoyne, the arbitrator selected by the employees, is State's attorney of Cook County. He was born in Chicago in October, 1872, and was graduated from Williams College in 1895 and Northwestern Law School in 1897. In July, 1913, Mr. Hoyne was appointed assistant corporation counsel of Chicago and two years later was made first assistant corporation counsel. He resigned from this office in June, 1907, to engage in private practice and four years later again was appointed first assistant corporation counsel. In this capacity he served as counsel for the Subway & Harbor Commission and was in immediate charge of the litigation between Chicago and the Peoples Gas, Light & Coke Company regarding gas rates. Mr. Hoyne is also credited with drafting the Chicago 70-cent gas ordinance, upon which issue former Mayor Harrison was elected to his last term of office. Mr. Hoyne was elected State's attorney of Cook County in November, 1912, on the Democratic ticket.

SPRINGFIELD-WORCESTER LABOR AGREEMENT

A new working agreement has been signed by officials of the New England Investment & Security Company and by representatives of the employees' unions on the Springfield (Mass.) Street Railway and the Worcester (Mass.) Consolidated Street Railway to continue in effect from May 31, 1915, to May 31, 1916, taking the place of a three-year agreement which expired on the former date. According to advance reports no increase will be granted the employees of the Springfield company, but there will be an increase on the Worcester lines to a maximum scale of 31 cents an hour, the minimum being 25 cents. The day rate at Springfield will range from $2.30 to $2.85. The agreement practically equalizes the wages on the system under the "nine-hour-in-eleven" law. The full agreement will be made public after ratification by the local unions.

CHICAGO LINES ISSUE STATEMENT

Questions Involved in the Recent Strike Explained by the Companies

On June 18 the Chicago (Ill.) Surface Lines carried in the daily newspapers an advertisement explaining the issues in the controversy that resulted in the suspension of railway service in that city for two days. Its termination was referred to as a victory for arbitration. The statement was concerned with correlated subjects of arbitration, labor and capital and dealt with all three features. The company said in part:

"The question settled in this crisis was not one of wages, hours or other conditions of employment, and was not, we repeat, a question as to whether Chicago should have a strike lasting two days or two months; but the much more fundamental question as to whether men in a twentieth century democracy should settle their differences in accordance with twentieth century ideals and standards, or by recourse to the methods of primitive man and feudal government. The issue was rather as to whether civic progress could be set back, even temporarily, by any group of men, either capitalists or working men, in the second largest city of the most progressive democracy in the world. The result was a victory for the principle that civilized men either should settle their differences face to face and man to man or should leave those differences to an impartial body of their fellow men.

"There was a time when large employers were inclined to reject arbitration and when public service corporations were operated by men who looked upon them as purely private corporations, but that time has passed. There is something to be said, if not in justification, at least in explanation, of the old type of railway builder and corporation operator. Trained in the individualistic school of his time, he believed that he was entitled to the fruits of his labor, and he resented interference with what he considered his private business. His time has passed and a new type of man has taken his place. But the fight which oftentimes is made upon his successors is based upon the belief that the old type still exists.

"The worst that can be said of the type that has passed is that these men held the point of view of their time. Their time has passed never to return; the public has a new point of view and the management of great properties to-day is vested in men whose point of view has changed with the times. All that the men in charge of public corporations ask to-day is that the public realize the change that has come in the ownership and management of such properties; that the men in charge of them are endeavoring—and are succeeding up to the limit of their capacity as men—to put into their business a spirit and practice in accordance with the newer ideals and standards of to-day. They expect no special consideration from the public; they want only fairness, and expect to give it.

"There have been signs in recent controversies between labor and capital that labor itself, after having long ago won capital to the principle of arbitration, was beginning to question, and possibly would reject altogether, this great principle, because it had not at all times resulted favorably, or perhaps even fairly, to the workers.

"As we have stated heretofore, we believe that the principle of arbitration frequently has been misused and misunderstood; but we do not believe that these errors should be charged to the principle itself; nor do we believe that, on account of such errors, the enormous victory of labor in first establishing the principle of arbitration as a means of settling disputes should be lost or forgotten.

"If it be admitted that the older and outworn methods of capital constituted a tyranny, it must be admitted also that a resort to force on the part of labor in these enlightened times would constitute no less a tyranny, not only over the interests of the employer, but over the public interest as well. It is obvious that there can be no gain in the substitution of one tyranny for another, and that the efforts of labor men and employers alike should be directed toward the elimination of all tyranny and the substitution of sound principle, safeguarded by honest men, as we believe the great principle of arbitration has been safeguarded in the agreement under which the present differences are to be adjusted."

CLEVELAND'S FREIGHT TERMINAL

The special committee of the City Council, to which was referred the proposed franchise of the Cleveland & Youngstown Railroad for a freight terminal in Cleveland, was to meet on July 2 to hear arguments on the disputed points between the company and the city. Electrification of the freight yards and the streets to be vacated in the Broadway-Orange Street district are the principal points in contention.

Attorney S. V. McMahon informed the committee on June 24 that the Broadway Improvement Association had employed an engineer to make plans for subways under the proposed terminals at East Twenty-third Street and Pittsburgh Avenue. The company's engineers declared that such plans would be impractical and Mayor Baker expressed the opinion that neither grade crossings nor subways would answer the purpose. He suggested that the city reserve the right to require the construction of overhead bridges. Director of Public Service Sidlo is preparing a report on the proposition. He will probably recommend electrification of the terminals.

THE NEW YORK PUBLIC SERVICE INVESTIGATION

The Thompson committee appointed by the last New York Legislature to inquire into the workings of the New York Public Service Commissions will resume its hearing in New York City on July 15. The new chairman of the committee is Merton S. Lewis, first deputy attorney general. He succeeds Col. William Hayward, now a member of the Public Service Commission for the First District. It will be recalled that Governor Whitman failed to agree with the report of the majority of the committee with respect to the commission for the First District and that he appointed Mr. Hayward to succeed Mr. Maltbie, whose term of office had expired, and vindicated the commissioners. The investigating committee will now concern itself with the public service commission law and with the rapid transit contract in Greater New York and will report its findings to the next Legislature.

ARBITRATION LIKELY AT ALBANY

On the afternoon of June 29 Harry C. Weatherwax, vice-president of the Delaware & Hudson Company, controlling the United Traction Company, Albany, N. Y., and Charles F. Hewitt, general manager of the United Traction Company, agreed to take up again on July 1 the consideration of the questions at issue between the traction company and its employees. The principal question involved is in regard to jurisdiction over all the lines of the United Traction Company by the Amalgamated Association, which objects to the operation into Albany of cars of the Hudson Valley Railway manned by members of the Brotherhood of Locomotive Engineers.

The United Traction Company has issued a statement reviewing this question. The contract between the Hudson Valley Railway and the United Traction Company, both controlled by the same interests, for the operation of through cars from points on the Hudson Valley Railway into Troy, via Waterford, was entered into on June 7, 1901. Under the terms of this agreement the Hudson Valley Railway furnished at its own expense the men to run its cars over the tracks of the United Traction Company. The Amalgamated Association contends that its contract covers this run and that the cars operated into Troy by the Hudson Valley Railway should be manned by members of the Troy division of the Amalgamated Association.

For the first ten years of the contract between the companies the men operating the cars of the Hudson Valley Railway into Troy over the lines of the United Traction Company belonged to the Amalgamated Association. Subsequently they seceded and joined the Brotherhood of Locomotive Engineers and the Order of Railway Conductors. In its statement the United Traction Company says that as far as it is concerned it feels that these organizations should settle the matter between themselves and should not involve the company or the public. While both the United Traction Company and the Hudson Valley Railway feel that they cannot undertake to settle the differences between the two organizations, they are willing, if it is desirable, to be a party to arbitration proceedings.

INFORMAL TOLEDO CONFERENCE

Henry L. Doherty, chairman of the board of the Toledo Railways & Light Company, Toledo, Ohio, met with a few members of the franchise committee of the Toledo City Council on the afternoon of June 29 and discussed informally a number of points in the new draft for a franchise made by that committee. President Frank Coates and Attorneys Tracy and Rathbun Fuller of the company also were present.

Mr. Doherty and Attorneys Thomas H. Tracy and Rathbun Fuller told the franchise committee that they must refuse to accept the clause in the tentative franchise which provides that the company recognize the initiated municipal ownership ordinance as legal. Mr. Tracy suggested that a clause be inserted saying that the franchise under consideration shall not affect or be affected by the municipal ownership ordinance. Mr. Doherty objected to the clause in the proposed franchise which would require the company, in case the city purchased the property, to accept at least half the bonds issued against the property for the purchase. The bonds would be a lien against the property only and not against the tax duplicate. Mr. Doherty said the company preferred a cash settlement. The committee was informed that the company would insist on a rate of fare that would yield 6 per cent on the investment; a guarantee that it would be reimbursed for any loss during the year's try-out of the 3-cent fare; assurance that the property will be purchased at its appraised value if a franchise is granted any other company, and that it should not be required to begin again if the try-out period is interrupted.

At the conference on June 30 agreements were reached on a number of points, but several others were still in dispute at the close. One of these pertains to the return on the investment during the try-out period, and another is the proportion of bonds the company shall take in case the city purchases the property. Mr. Doherty wanted a stipulation that the company accept one-third of the bonds at a fair market value. Chairman Dotson insisted that they should be taken at par and accrued interest.

Mr. Doherty expressed surprise when informed of the Mayor's assertion some time ago that he would veto any franchise agreement reached by the committee and the company representatives, but Chairman Dotson expressed the belief that Council will approve the franchise under consideration. It was agreed between the parties that the franchise should be submitted to a vote of the people at the primary election on Sept. 14, instead of the regular November election. Mr. Doherty asked the committee to have the tentative draft of the franchise printed, leaving blanks for the portions upon which an agreement has not been reached, and that another conference be held the afternoon of July 2. He desired to reach an agreement on the entire franchise, if possible, before he returned to New York on July 3.

CONTROVERSY IN TORONTO

Toronto Railway and City in Contest for Short Line Desired by the City for Its Civic Railway

At noon on June 29 the Board of Control of Toronto, Ontario, issued instructions to Works Commissioner Harris to tear up the remainder of the tracks of the Toronto & York Radial Railway's Metropolitan division on Yonge Street south of Farnham Avenue, and this has been done. Shortly after the order was issued by the controllers the Toronto Railway opened the legal battle over the franchise question at Osgoode Hall. The company through its solicitors issued a writ against the city "for an injunction to prevent the defendants, the Corporation of the city of Toronto, from removing the tracks on 1320 ft. of Yonge Street south of Farnham Avenue, and for a mandatory order to replace so much of the said tracks as have already been taken up." This injunction is pending.

At the Board of Control meeting Controller Spence opposed the action of the board on the ground that it might prejudice the city's interests before the Ontario Railway Board, when the members consider the railway application for an order to operate. Mayor Church claimed that the alleged sale of tracks by the Metropolitan to the Toronto Railway was not carried out according to the requirements of the railway act.

Mayor Church issued a statement in which he said:

"The franchise has elapsed, and no one can renew it but the people. The sale of the Metropolitan to the Toronto Railway means nothing, as the Metropolitan had nothing to sell after midnight last Friday except the rails and overhead fixtures. The district south of Farnham Avenue to the Canadian Pacific Railway crossing is the most important in Toronto and is the funnel for Sir Adam Beck's radial railways. The 1891 agreement of the Toronto Railway does not give it the right to operate this service, as the Beck act is to be read into the section requiring the vote of the people. The subway at the head of Yonge Street will not be finished for some time. Before the Toronto Railway can operate, it will have to secure an order from the Dominion Railway Board."

The Mayor proposes that the city lay a permanent pavement on the street and a double line of tracks and find a way to link up with the St. Clair Avenue line of the Toronto Civic Railway operated by the city.

The Toronto Railway's answer to the action of the city officials in tearing up the tracks was heard by the Ontario Railway Board on June 29. H. S. Osler, counsel for the company, appealed to the board for an order compelling the city to relay the tracks and affirming the right of the company to give a service over that section. Mr. Osler declared that the work of tearing up the tracks had been continued in contempt of the board after the company had appealed to the board. He held that under its agreement with the city the Toronto Railway had the right to operate upon all streets with the exception of the portion of Yonge Street where the York Radial Railway had a franchise. When the radial company no longer had that right it fell to the Toronto Railway. A remark by the chairman of the railway board that the line was better than nothing and that the city had apparently treated with indifference the efforts of the company to accommodate the public brought a vigorous objection from Mr. Fairty for the city. In reserving judgment Mr. McIntyre of the Railway Board expressed the opinion that some interim arrangements should be made for the convenience of the public.

Amalgamated to Meet in Rochester. — The fourteenth convention of the Amalgamated Association of Street & Electric Railway Employees of America will be held in Rochester, N. Y., in September. The Boston *News Bureau* says that a concerted effort may be made by New England car men at the meeting to have the arbitration clause stricken from their constitution as a result of the Bay State Street Railway arbitration award.

New Stone & Webster Offices in Texas.—A suite of offices in the Scanlan Building at Houston, Tex., has been engaged for the district office of the Stone & Webster Management Association. L. C. Bradley, assistant district manager of the association, will occupy the new quarters with his office force on July 10. Mr. Bradley formerly had supervision over the Dallas properties controlled by Stone & Webster, which work has now been assumed by Charles F. Wallace.

Commissions as Constitutional Bodies.—Representatives of many public utility corporations which are under the jurisdiction of the Public Service Commissions of New York State joined on June 23 in urging a Constitutional Convention committee to make the commissions constitutional bodies. At present they have only legislative authority for their existence. It was urged that the change would add dignity to the commissions, tend to take them out of politics and add force and weight to their rulings.

The Philadelphia Transit Ordinance.—By unanimous vote the Common Council of Philadelphia, Pa., has passed the ordinance authorizing the $6,000,000 transit loan. The finance committee's plan is to have the loan ordinance transmitted to the Mayor as soon as it is concurred in by Select Council. Immediately upon being advised that the ordinance has been approved by Mayor Blankenburg, the finance committee will report the appropriation ordinance, which will be passed by both chambers. The committee proposes to allot $3,000,000 for preliminary work on the Broad Street subway and $3,000,000 to the Frankford Elevated line.

Financial and Corporate

ANNUAL REPORT

Middle West Utilities Company

The comparative statement of income, profit and loss of the Middle West Utilities Company, Chicago, Ill., for the fiscal years ended April 30, 1914 and 1915, follows:

	1915.	1914.
Total income	$1,528,855	$1,466,760
Expenditures	168,855	165,068
Balance	$1,360,000	$1,301,702
Interest	378,684	227,516
Net income	$981,316	$1,074,186
Preferred stock dividend	598,048	566,925
Balance	$383,268	$507,261
Written off	80,000	75,000
Balance	$303,268	$432,261
Due from subsidiary companies	78,504	147,416
Total surplus	$381,772	$579,677

The report shows total income of $1,528,855, comparing with $1,466,760 in the previous year, an increase of $62,095. Interest charges were increased $151,168 and preferred stock dividends were increased $31,123, but in spite of this the company surplus for the year, after all deductions, stood at $303,268.

The report states that owing to the unsettled conditions the increase in gross business of the subsidiary operating companies was not equal to what might have been expected under normal conditions. The combined earnings of the subsidiary companies for the last two fiscal years follow:

	1915.	1914.
Gross earnings	$7,634,745	$7,345,350
Operating expenses	4,877,016	5,036,696
Net	$2,757,729	$2,308,654
Fixed charges (paid outside holders)	$1,307,629	$908,032
Dividends (paid outside holders)	310,428	474,816
Total	$1,618,057	$1,382,848
Earnings accruing to Middle West Utilities Company	$1,139,672	$925,806

Of the foregoing earnings $437,123 come into the company's treasury as interest on bonds and debentures, $269,774 as interest and brokerage on money advanced and $354,270 as dividends on stocks, leaving a balance of $78,504. This is the company's proportion of the surplus carried in the aggregate surplus accounts of the subsidiary companies on their own books.

THE KANSAS CITY REORGANIZATION

At the meeting of the committee of the upper house of the City Council of Kansas City, Mo., to which the ordinance extending the time limit for the acceptance of the street railway franchise was referred, Frank Hagerman, attorney for the receivers of the Metropolitan Street Railway, outlined the history of the negotiations under the terms of the franchise. He suggested that the only hope for agreement lay in the proposal of Judge Hook of the Federal Court to present a plan of reorganization for the adoption of the stockholders and bondholders. Mr. Hagerman had no idea what would happen if the franchise was returned.

The participation of the city in the management of the street railways under the new franchise was indicated at the session by the questions and remarks of Aldermen. Under the court's sanction the receivers have employed P. J. Kealy, suggested by the street railway interests, and Robert P. Woods, suggested by the city, to perform practically the duties which will be performed by the board of control provided for in the new franchise. In response to questions by Aldermen, it was pointed out that these gentlemen are actually performing such duties, especially in reference to schedules and service. Judge Evans urged that since Judge Hood had so plainly indicated his conviction that service to the public was the first consideration of any settlement, the Council should accede to his request for an extension of four months in the time limit for acceptance of the franchise.

The City Council of Kansas City has granted an extension to Nov. 7, four mouths, to the time within which the Kansas City Railways must accept the franchise voted by the city. The action was in response to a request of Judge Hook of the federal court, who said he would prepare a plan for the acceptance or rejection of the interested parties, and would recommend final cancellation of the franchise if this plan was not adopted. The Council has also extended to Nov. 20 the opportunity for the interurbans to accept the conditions of the franchise bearing on a union station.

WASHINGTON MERGER STORY DENIED

In a letter to the ELECTRIC RAILWAY JOURNAL George E. Hamilton, president of the Capital Traction Company, Washington, D. C., asks that a denial be published of the item which appeared in the issue of this paper for June 26, page 1223, to the effect that negotiations were being conducted for the merger of that company with the Washington Railway & Electric Company. Mr. Hamilton says:

"Permit me to state that the Capital Traction Company, its officers and directors, have no knowledge whatever of any such negotiations and that the article referred to is entirely without foundation in fact."

OAKLAND, ANTIOCH & EASTERN FINANCING

The Oakland, Antioch & Eastern Railway, Oakland, Cal., has asked the Railroad Commission of California to approve its new plan of financing. This plan embraces two agreements, one with the bondholders and the other with the stockholders of the company. The agreement between the Oakland, Antioch & Eastern Railway and the bondholders of the Oakland & Antioch Railway and the San Ramon Valley Railway was originally executed on Nov. 19, 1914, and was amended on Jan. 1, 1915. The agreement provides that the bondholders shall deposit with the Union Trust Company, San Francisco, those coupons which will mature in the years 1915, 1916 and 1917. As security for these it is provided that the Oakland, Antioch & Eastern Railway shall deposit with the trustee prior to Jan. 1, 1918, first mortgage bonds in an amount which, at 80 per cent of their face value, will equal the par value of the coupons deposited and unpaid on Jan. 1, 1918. A further provision is made that the Oakland, Antioch & Eastern Railway shall cancel the unsold portion of the note issue authorized by the Railroad Commission on Feb. 3, 1914. The stockholders' agreement, dated Nov. 19, 1914, provides that each subscriber thereto shall pay to the trustee, as a loan to the railway company, the sum of $3 on each share of stock held by him. These payments are to be made according to the following schedule: Jan. 1, 1915, $1 per share; July 1, 1915, $1 per share; Jan. 1, 1916, 50 cents per share, and July 1, 1916, 50 cents per share. As security for those advances the railway agrees to deposit with the trustee its promissory notes in equal amount. These notes are to be secured by first mortgage bonds in the ratio of two to one.

RECEIVERSHIP AVOIDED

By the payment of a portion of two judgments at once and agreeing to pay the remainder on Dec. 24, 1915, the Cincinnati, Dayton & Toledo Traction Company prevented the appointment of a receiver to collect its rental, in the Federal District Court at Cincinnati on June 24. Edna Wilson et al, executors and trustees of George B. Wilson, deceased, and Julius C. Levi and Samuel Leopold, executors of Marks Leopold, Philadelphia, each secured judgment in the Federal Court on Dec. 24, 1914, for $5,479.17, representing the principle and interest on five debenture bonds of the Dayton Traction Company, a subsidiary of the defendant company.

Both plaintiffs had asked for a receiver for the rents, and a temporary restraining order had been issued to prevent either the Ohio Electric Railway, which operates the property under lease, or the Cincinnati, Dayton & Toledo Traction Company from disposing of the property or money belonging to the defendant, except on order of the court, and the hearing was set for June 24. Attorneys, however, informed the court that a settlement had been arranged and asked for a continuance. This was granted. The company is to pay $3,125 on each claim at once and the remainder on Dec. 24, when it receives an installment of rental from the Ohio Electric Railway.

Birmingham Railway, Light & Power Company, Birmingham, Ala.—The July dividends will not be paid on the common and preferred stocks of the Birmingham Railway, Light & Power Company. This decision was reached on account of the general business depression. An initial dividend of 3 per cent was paid on the preferred stock in January, 1902, and 3 per cent has been paid since then to and including December, 1914. In 1903, 3 per cent was paid on the common stock; in 1904 and 1905, 4 per cent; in 1906, 5 per cent; in 1907 and 1908; none; in 1909, 2 per cent; in 1910, 5 per cent; in 1911, 7 per cent; in 1912, 8 per cent, and in 1913 and 1914, 6 per cent.

Chicago (Ill.) Elevated Railways.—The investigation conducted by the Illinois Public Utilities Commission on the complaint of J. B. Hogarth against the Chicago Elevated Railways collateral trust has resulted in the dismissal of the case. The commission found that the collateral trust, against which the complaint was filed, was not a public utility, and that therefore the commission had no jurisdiction in the case. The answer of the company to the alleged violation of the utilities act by the trust was referred to in the ELECTRIC RAILWAY JOURNAL of March 20, page 599.

Cleveland, Painesville & Eastern Railroad, Willoughby, Ohio.—The Public Utilities Commission of Ohio has authorized the Cleveland, Painesville & Eastern Railroad to issue $20,000 of its 5 per cent bonds, to be disposed of at not less than 80, the proceeds to be used to reimburse the income for improvements paid out of the earnings in 1914. The Cleveland, Painesville & Ashtabula Railroad has been authorized to issue $10,000 of bonds on the same basis and for a similar purpose. The latter company is owned by the former.

Empire United Railways, Syracuse, N. Y.—The Public Service Commission for the Second District has authorized the issue of $42,400 of car trust certificates by the Empire United Railways to pay in part for twelve new pay-as-you-enter cars to cost $52,980, the company paying $10,580 in cash. The certificates are placed with the Guaranty Trust Company, New York, N. Y., bear interest at 6 per cent, and mature in three yearly installments from 1916 to 1919.

Kanawha Traction & Electric Company, Parkersburg, W. Va.—The Fidelity Trust Company, Baltimore, Md., as trustee is offering at 98¼ and interest, to yield about 6 per cent, the unsold portion of the authorized issue of $1,100,000 of two-year 5 per cent mortgage gold notes of the Kanawha Traction & Electric Company referred to in the ELECTRIC RAILWAY JOURNAL of June 19, page 1180. The notes are dated June 15, 1915, and are due on June 15, 1917. The interest is payable on June 15 and Dec. 15 in Baltimore. The notes are in the denomination of $1,000 and $500. The Kanawha Traction & Electric Company was incorporated in April, 1915, and on June 7, 1915, absorbed by consolidation the Parkersburg, Marietta & Interurban Railway, which was incorporated in 1902, and purchased the properties of the Parkersburg Gas, Electric Light & Street Railway Company, the Parkersburg Interurban Railway and the Marietta Electric Company and leased the property of the Muskingum Traction Company. There are outstanding $150,000 of first mortgage 5's of 1938 of the Parkersburg Gas, Electric Light & Street Railway, $550,000 of consolidated 5's of 1942 of the Parkersburg, Marietta & Interurban Railway, $150,000 of first mortgage 6 per cent bonds of the Marietta Electric Company due in 1942 and $1,100,000 of two-year 5 per cent notes of the Kanawha Traction & Electric Company due on June 15, 1917. The Kanawha Traction & Electric Company has authorized $1,500,000 of common stock and $1,500,000 of 6 per cent preferred stock, cumulative after July 1, 1916. Of the common stock $1,100,000 has been issued and of the 6 per cent cumulative preferred stock $1,078,500 has been issued.

Lake Erie, Bowling Green & Napoleon Railway, Bowling Green, Ohio.—On June 25 Judge Killits of the Federal District Court at Toledo granted a decree for the sale of the Lake Erie, Bowling Green & Napoleon Railway. The action was taken in the case of the Union Trust Company against the railroad.

Lima & Honeoye Light & Railroad Company, Lima, N. Y.—The Public Service Commission of the Second District of New York has refused to allow the Lima & Honeoye Electric Light & Railroad Company and the Lima-Honeoye Light & Railroad Company to separate their electric light from their railway business, on the ground that this would result in a default under the lease between companies approved by the commission in 1910, to the disadvantage of the public, as the operation of the railroad would be ultimately abandoned because it is unprofitable.

New Orleans Railway & Light Company, New Orleans, La.—E. H. Rollins & Sons, Boston, Mass., are offering at 100 and interest a block of 6 per cent debentures of the New Orleans Railway & Light Company of 1913 due on June 1, 1916.

New York (N. Y.) Railways.—An additional $500,000 of first consolidated mortgage 5 per cent fifty-year bonds of the Broadway & Seventh Avenue Railroad due in 1943 has been listed on the New York Stock Exchange. This makes the total of this issue listed to date $8,150,000. The bonds are issued from escrow to refund the same amount of second mortgage 5's due in 1914.

Northern Ohio Traction & Light Company, Akron, Ohio.—Hayden, Miller & Company, Cleveland, Ohio, are offering at par and interest the unsold portion of $500,000 of 6 per cent secured gold bonds of the Northern Ohio Traction & Light Company of 1915.

Omaha & Council Bluffs Street Railway, Omaha, Neb.—A quarterly dividend of 1 per cent on the $10,000,000 of common stock of the Omaha & Council Bluffs Street Railway has been declared payable on July 1 to holders of record of June 30, contrasting with 1¼ per cent paid quarterly from Jan. 1, 1912, to April 1, 1915.

Public Service Corporation of New Jersey, Newark, N. J.—There has been listed on the Philadelphia Stock Exchange $261,000 of additional general mortgage 5 per cent sinking fund gold bonds of the Public Service Corporation of New Jersey due on Oct. 1, 1959. This makes the total amount listed to date $36,998,000.

Puget Sound Traction, Light & Power Company, Seattle, Wash.—The Puget Sound Traction, Light & Power Company has declared a quarterly dividend of three-fourths of 1 per cent on its preferred stock, payable on July 15 to stock of record of July 2. This is a reduction of three-fourths of 1 per cent from the regular quarterly dividend of 1½ per cent, the dividend paid on April 15 having been at the latter rate.

DIVIDENDS DECLARED

Aurora, Elgin & Chicago Railroad, Wheaton, Ill., quarterly, 1½ per cent, preferred.

Chicago City & Connecting Railways, Chicago, Ill., quarterly, 1½ per cent, preferred participating certificates.

Chicago (Ill.) City Railway, quarterly, 2 per cent.

Columbus, Newark & Zanesville Electric Railway, Cincinnati, Ohio, quarterly, 1½ per cent, preferred.

Elmira Water, Light & Railroad Company, Elmira, N. Y., quarterly, 1¾ per cent, first preferred; quarterly, 1¼ per cent, second preferred; quarterly, 1 per cent, common.

Interstate Railways, Philadelphia, Pa., 30 cents, preferred.

Little Rock Railway & Electric Company, Little Rock, Ark., 3 per cent, preferred; 5 per cent, common.

London (Ont.) Street Railway, 3 per cent.

Manchester Traction, Light & Power Company, Manchester, N. H., quarterly, 2 per cent.

Nashville Railway & Light Company, Nashville, Tenn., quarterly, 1¼ per cent, preferred.

New England Investment & Security Company, Springfield, Mass., 2 per cent, preferred.

Omaha & Council Bluffs Street Railway, Omaha, Neb., quarterly, 1¼ per cent, preferred; quarterly, 1 per cent, common.

Philadelphia Company, Pittsburgh, Pa., quarterly, 1½ per cent, common.

Porto Rico Railways, Ponce, Porto Rico, quarterly, 1¾ per cent, preferred.

Scioto Valley Traction Company, Columbus, Ohio, quarterly, 1¼ per cent, first preferred; quarterly, 1¼ per cent, preferred.

Western Ohio Railway, Lima, Ohio, quarterly, 1¾ per cent, first preferred.

Winnipeg (Man.) Electric Railway, quarterly, 2½ per cent.

ELECTRIC RAILWAY MONTHLY EARNINGS

REPUBLIC RAILWAY & LIGHT COMPANY, NEW YORK, N. Y.

Period			Operating Revenues	Operating Expenses	Operating Income	Fixed Charges	Net Income
1m.,	Apr.,	'15	$237,747	*$149,664	$88,083	$56,808	‡$31,269
1 "	"	'14	252,461	*152,176	100,285	56,050	‡44,291
4 "	"	'15	962,584	*606,509	356,075	227,441	‡128,894
4 "	"	'14	991,579	*618,246	373,333	222,733	‡150,877

INTERBOROUGH RAPID TRANSIT COMPANY, NEW YORK, N. Y.

1m.,	May,	'15	$2,904,773	*$1,280,115	$1,624,658	$911,861	‡$786,463
1 "	"	'14	2,948,937	*1,292,504	1,656,433	911,861	‡810,296
11 "	"	'15	30,744,300	*12,836,463	16,907,837	10,003,551	‡7,470,966
11 "	"	'14	30,800,728	*13,764,780	17,035,948	10,211,703	‡7,391,442

CITIES SERVICE COMPANY, NEW YORK, N. Y.

1m.,	May,	'15	$287,365	$14,358	$273,007	$40,833	$232,174
1 "	"	'14	281,104	8,870	272,234	29,167	243,067
12 "	"	'15	3,952,800	143,095	3,809,705	478,333	3,331,372
12 "	"	'14	3,245,045	93,824	3,151,221	268,896	2,882,325

TWIN CITY RAPID TRANSIT COMPANY, MINNEAPOLIS, MINN.

1m.,	May,	'15	$789,118	$499,383	$289,735	$137,153	‡$154,937
1 "	"	'14	806,123	472,114	334,009	133,979	‡200,522
5 "	"	'15	3,821,110	2,544,657	1,276,453	668,218	‡620,944
5 "	"	'14	3,722,869	2,388,582	1,334,287	651,183	‡687,454

EL PASO (TEX.) ELECTRC COMPANY

1m.,	Apr.,	'15	$76,698	*$43,293	$33,405	$4,201	$29,204
1 "	"	'14	81,419	*47,940	33,479	4,522	28,957
12 "	"	'15	1,016,196	*555,052	461,144	50,350	410,794
12 "	"	'14	937,340	*513,504	423,836	51,268	‡379,567

PADUCAH TRACTION & LIGHT COMPANY, PADUCAH, KY.

1m.,	Apr.,	'15	$22,193	*$14,866	$7,327	$7,750	†$423
1 "	"	'14	23,941	*16,677	7,264	7,666	†402
12 "	"	'15	297,982	*190,135	107,847	91,767	16,080
12 "	"	'14	308,257	*198,023	110,234	91,302	18,932

PENSACOLA (FLA.) ELECTRIC COMPANY

1m.,	Apr.,	'15	$20,472	*$11,433	$9,039	$7,200	$1,839
1 "	"	'14	22,323	*14,470	7,853	7,170	683
12 "	"	'15	253,354	*159,168	94,186	86,982	7,204
12 "	"	'14	285,373	*180,072	105,301	84,079	20,822

SAVANNAH (GA.) ELECTRIC COMPANY

1m.,	Apr.,	'15	$65,689	*$40,959	$24,730	$23,225	$1,505
1 "	"	'14	70,841	*47,761	23,080	22,875	205
12 "	"	'15	829,427	*538,954	290,474	276,816	13,658
12 "	"	'14	843,082	*559,719	283,363	273,522	9,841

PUGET SOUND TRACTION, LIGHT & POWER COMPANY, SEATTLE, WASH.

1m.,	Apr.,	'15	$605,180	*$394,582	$210,598	$181,325	$29,273
1 "	"	'14	702,770	*427,455	275,315	175,267	100,048
12 "	"	'15	8,072,022	*4,905,546	3,166,476	2,141,107	1,025,369
12 "	"	'14	8,726,264	*5,028,377	3,697,887	2,088,304	1,609,583

NORTHERN TEXAS ELECTRIC COMPANY, FORT WORTH, TEX.

1m.,	Apr.,	'15	$123,465	*$79,250	$44,215	$27,215	$17,000
1 "	"	'14	171,411	*97,861	73,550	29,354	44,196
12 "	"	'15	1,910,801	*1,077,722	833,079	321,636	511,443
12 "	"	'14	2,159,227	*1,207,272	951,955	292,732	659,223

JACKSONVILLE (FLA.) TRACTION COMPANY

1m.,	Apr.,	'15	$52,076	*$36,425	$15,651	$16,255	†$604
1 "	"	'14	62,836	*40,239	22,597	12,734	9,863
12 "	"	'15	677,608	*459,907	217,701	160,143	57,558
12 "	"	'14	711,162	*452,308	258,854	151,148	107,706

HOUGHTON COUNTY TRACTION COMPANY, HOUGHTON, MICH.

1m.,	Apr.,	'15	$21,850	*$11,812	$10,038	$5,580	$4,458
1 "	"	'14	24,344	*15,357	8,987	5,660	3,327
12 "	"	'15	267,497	*173,886	93,611	66,805	26,806
12 "	"	'14	290,491	176,943	113,548	67,491	46,057

GALVESTON-HOUSTON ELECTRIC COMPANY, GALVESTON, TEX.

1m.,	Apr.,	'15	$152,211	*$98,241	$53,970	$36,058	$17,912
1 "	"	'14	196,149	*109,759	86,390	35,669	50,721
12 "	"	'15	2,283,457	*1,256,641	1,026,816	434,963	591,853
12 "	"	'14	2,434,215	*1,375,662	1,058,553	432,240	626,313

DALLAS (TEX.) ELECTRIC COMPANY

1m.,	Apr.,	'15	$131,945	*$85,308	$46,637	$33,394	$13,243
1 "	"	'14	179,086	*106,896	72,190	27,334	44,856
12 "	"	'15	2,062,880	*1,182,824	880,055	396,994	483,061
12 "	"	'14	2,270,136	*1,339,920	930,216	312,062	618,154

COLUMBUS (GA.) ELECTRIC COMPANY

1m.,	Apr.,	'15	$56,409	*$25,431	$30,978	$28,791	$2,187
1 "	"	'14	55,234	*22,660	32,574	24,827	7,747
12 "	"	'15	691,648	*309,939	382,009	340,043	41,966
12 "	"	'14	636,108	*281,014	355,094	292,288	‡70,071

CAPE BRETON ELECTRIC COMPANY, SYDNEY, CANADA

1m.,	Apr.,	'15	$25,164	*$15,337	$9,827	$6,449	$3,378
1 "	"	'14	26,505	*16,695	9,810	6,427	3,383
12 "	"	'15	342,908	*207,650	135,258	76,146	57,112
12 "	"	'14	375,098	*210,677	164,421	74,560	89,861

BATON ROUGE (LA.) ELECTRIC COMPANY

1m.,	Apr.,	'15	$14,517	*$8,998	$5,519	$2,146	$3,373
1 "	"	'14	13,589	*9,256	4,333	2,109	2,224
12 "	"	'15	181,151	*112,335	68,816	25,070	43,746
12 "	"	'14	169,899	*110,502	59,397	25,258	34,139

*Includes taxes. †Deficit. ‡Includes non-operating income.

Traffic and Transportation

THE JITNEY BUS

Washington Bus Line in Receiver's Hands — Regulatory Ordinances in Philadelphia, Rochester, Flint, Taunton and Newport

H. S. Wilson has been appointed receiver of the Metropolitan Coach Company, Washington, D. C., by Judge Gould of the District Court. It is announced that the company will continue to operate its herdic line in Sixteenth Street N. W., between Pennsylvania Avenue and U Street under the direct supervision and management of Mr. Wilson. Officials of the company consented to the appointment of the receivers to take over its business following the filing of a suit in the District Supreme Court against the company in which it was alleged that James O'Donnell had been unable to collect on a judgment against the company in March, 1915, for the sum of approximately $500.

The Metropolitan Coach Company has had an application pending before the Board of Public Utility Commissioners of the District of Columbia to authorize an issue of $150,000 in bonds. The commission would allow only $118,000 to cover necessary expenditures. In a letter to the Public Utilities Commission. S. Dana Lincoln, president of the company, said in part:

"Referring to your letter of April 14 and with reference to the previously declared attitude of the commission with respect to our application for permission to issue $150,000 of bonds, we must repeat that the position taken by the commission is such as to make it impossible for us to finance our needs and therefore impossible to continue the operation of the Metropolitan Coach Company. As we have heretofore pointed out, the proposed issue of bonds would not, except as to the amount specified for new vehicles and garage, have increased the indebtedness of the company. It would, however, have enabled us to put an existing debt (which was incurred in establishing and equipping the motor vehicle service) in such form that it could have been carried at the same time to the company's improvement plans that were being executed. We have also expressed the opinion that in applying to the case of this company rules formulated with reference to the utilities of a wholly different character the commission takes the position that makes a further attempt to continue operation unprofitable and impossible."

The report of the company to the Public Utilities Commission of Washington for 1913, the latest available, contains the following operating figures: gross receipts, $24,734; operating expenses, $23,654, or 95.63 per cent of gross receipts; interest and taxes, $4,381; loss for the year, $3,301. At the beginning of 1913 the deficit was $119,121, making the deficit at the close of 1913 $122,422. The cost of equipment is given as $22,997, and current assets $1,181. Funded debt at the close of 1913 was $95,600, and current liabilities $26,001. In 1913 the line carried 577,539 passengers paying regular fare, and it carried 243,068 passengers on transfers from the Washington Railway & Electric Company's H Street line.

A measure to regulate the operation of the jitney has been passed by the Common Council of Rochester, N. Y., and is now before the Mayor for signature. Vehicles carrying five passengers are to pay a license fee of $50. Vehicles carrying more than five passengers and not more than ten are to pay a tax fee of $60. Vehicles carrying more than ten passengers are to pay a license fee of $75. The bond required is $3,000 for each car carrying not more than ten passengers and $5,000 for each car carrying more than ten passengers. If an owner operates more than 100 jitneys he may give a blanket bond for $25,000. A number of owners operating more than 500 jitneys may unite in one blanket bond of $50,000. The fare by jitney is to be not more than 5 cents within the city. Jitneys are to be inspected once a month under the direction of the Commissioner of Public Safety, who is also authorized to designate hours and routes of service. The ordinance will not revoke any of the licenses granted previous to its adoption.

The Council of Flint, Mich., has passed an ordinance regulating the jitney, effective on July 15. The measure provides for a license fee ranging from $25 for five-passen-

ger buses upwards and for a bond of $5,000 to $10,000 for buses of five to seven-passenger capacity and of $20,000 for those over ten-passenger capacity. The regular seating capacity of the buses must not be exceeded.

The ordinance committee of the City Council of Richmond, Va., has recommended to the Council for passage an amended ordinance designed to regulate the jitney in that city. The proposed ordinance requires an indemnity bond, fixes certain routes and limits the carrying capacity of the vehicles. The committee after voting down several amendments adopted a motion fixing the bond of the first car at $2,000, and $500 for each additional car. The license fees for cars are fixed according to the route and the number of passengers carried. The minimum license for a four-passenger car is $30 and the maximum license for a nine-passenger car is $75.

A jitney regulatory ordinance has been passed in Taunton, Mass. The measure provides that no vehicles shall be operated for hire in Taunton until a license in the sum of $100 has been obtained and that a bond in the sum of $5,000 shall be taken out for the first vehicle and one of $1,000 for each additional vehicle. The drivers of vehicles licensed under the measure are not to carry in their vehicles any passengers in excess of the designed seating capacity.

The police commissioners of Kansas City have rejected the proposal of the Kansas City Jitney Association that one of their members be made a special officer to help regulate traffic at the downtown jitney station, Twelfth Street and Grand Avenue. The starter of the association said he had been assisting in traffic regulations, and that if he had a commission he could work more effectively. The police board was averse to granting any special interest in transportation any authority over traffic, and the conclusion was that the police would continue to be the official regulators of traffic.

The City Commissioners of Austin, Tex., have passed an ordinance regulating the jitneys, the principal features of which are provision for a license fee of $50 for five-passenger cars, $75 for six-passenger cars and $100 for seven-passenger cars; a bond of $2,500 for the injury of one person in accidents and a bond of $5,000 for the maximum damages which can be demanded by several persons who may be injured in a single accident. School children must be carried for not more than 3 cents when going to or from school. The ordinance prohibits the jitneys from operating on Congress Avenue between Fifth and Ninth Streets.

A jitney ordinance will go into effect at Newport, R. I., on July 5, 1915. The ordinance requires the operator to procure a special annual license from the Board of Aldermen. Six months' residence preceding the date of application is required. The license is fixed at $2 per seat at the manufacturer's rating, with a maximum fee of $50 per bus. The specification of stands is well covered in the ordinance. No license is to be issued until there is filed with the board an amount computed at the rate of $250 per seat, with approved surety, conditioned in substance to pay all damages sustained in the conduct of the business. Violation of the ordinance is punishable by a fine not exceeding $50.

On June 30 City Councils of Philadelphia, Pa., passed an ordinance establishing a 5-cent fare zone which the jitneys must traverse, extending on the north to Olney Avenue and on the south to League Island, with Thirty-third and Diamond Streets as an alternative northern terminus. On baseball days the jitneys may operate to Shibe Park. A license fee of $50 must be paid for each machine and each driver must be bonded in the sum of $2,500. The provision of the ordinance requiring cars to traverse the entire zone system caused a storm of protests from the jitney operators, and it is said that they will petition the mayor to veto the ordinance. On the same day that the regulatory ordinance was passed by Councils the June Grand Jury made its final presentment to Judge Patterson in the Court of Quarter Sessions. The jury recommended fixed regulation of jitneys and held it to be to the city's interest to protect the earnings of the Philadelphia Rapid Transit Company, inasmuch as the municipality is interested financially in that corporation. Dr. Ziegler of the Department of Public Health and Charities of the city has recommended that the drivers be forced to pass a rigid examination before being permitted to run automobiles. He reports that from April 1 to June 12 there were 112 jitney accidents, causing injury to twenty-nine pedestrians and two deaths.

JITNEYS IN THE TEXAS COURTS

Judge Edward R. Meek of the United States Court for the Northern District of Texas, at Dallas, Tex., on June 19, dismissed the bill in the cause of the Forth Worth Auto Association vs. the City of Fort Worth. The judge held that he had no jurisdiction in the matter as there was no federal question involved. From this decision it follows that, in the opinion of Judge Meek, the original jitney ordinance was not a contract and the passage of the amended ordinance, which made the first ordinance inoperative, did not result in confiscation of property and did not violate the fourteenth amendment of the federal constitution.

Before the hearing Judge Meek said that he had grave doubts as to his jurisdiction in the matter, but in order that partiality might not be shown he decided to listen to the argument of the counsel. City Attorney Altman argued that the first ordinance was not a contract but a franchise and that the city had the right absolutely to terminate any license granted under the ordinance and should be permitted to make additional terms under which the jitneys should operate. He denied that any discrimination had been shown or that the men would be unable to make the bond as claimed. At the conclusion of the arguments, Judge Meek requested that the ordinance, which was to have gone into effect on June 17, be suspended until he had time to determine whether a federal question were involved. This suspension was granted by Mayor Tyra. On June 19, Mays & Mays, attorneys for the jitney union, received a brief letter from Judge Meek in which he stated:

"After careful consideration I have reached the conclusion that the United States District Court is without jurisdiction to entertain the application for the injunction."

When informed of the decision, Police Commissioner Hurdleston said:

"The ordinance is now in effect and the police will proceed to enforce it without further instructions."

The jitney attorneys announced that an appeal would be made to the Supreme Court of the United States.

No decision has as yet been handed down by the Fifth Court of Civil Appeals on the hearing of the application for an injunction sought by the jitney union to restrain the enforcement of the jitney ordinance by the city of Dallas, Tex. The case was taken under advisement on June 12. The Court of Appeals remains in session until July 3, and it is expected that a decision will be rendered on June 26. In any case the ordinance, by agreement, will not go into effect until July 15.

Judge Marvin Brown of the Sixty-Seventh District Court at Fort Worth, Tex., declined to release I. W. Sullivan, the jitney driver, on his application for habeas corpus which was heard June 14. Sullivan was found guilty in the County Court of violating the first jitney ordinance and the decision was affirmed by the Court of Criminal Appeals. When the mandate of the Appellate Court was received by the County Court, attorneys for the defendant applied for a writ of habeas corpus on the grounds that the second ordinance had repealed the first and that the defendant should not be punished for violation of an ordinance which no longer existed. After hearing the case Judge Brown decided against the contention of the defendant. The case was promptly appealed to the Court of Criminal Appeals.

A temporary injunction restraining the enforcement of the Fort Worth jitney ordinance has been granted by Judge Marvin H. Brown of the Sixty-seventh District Court on an application filed by the Auto Transit Company, a private corporation chartered for fifty years. Members of the jitney union who have offered resistance to the ordinance in the courts without effect, joined as intervenors with the Auto Transit Company after the injunction suit was filed. The petition holds that both the original ordinance and the amended one are unreasonable, discriminatory, and void and in violation of the Constitution of the United States and of the State of Texas. It is argued that the Northern Texas Traction Company is operating street cars for hire and is not required to pay any license fee or occupation tax, nor is it required to execute any sort of bond. A bond of $500 was required by the court of the plaintiff.

SEATTLE COMPANY TO RUN JITNEYS

According to A. L. Kempster, general manager of the Puget Sound Traction, Light & Power Company, Seattle, Wash., the company will engage in the jitney business in that city. In discussing the plans of the company, Mr. Kempster said:

"Experience is showing us that the public demands faster service. The time for romance and platonic consideration of conditions is past. We will fight fire with fire. If the public demands that we give fast service in small units, with correspondingly few stops, we shall do so. Not only does the jitney cost us less to operate but it gives us a certain amount of freedom from franchise and public service regulation. How soon the new plan will go into effect is problematical, but we are ready to protect our property by giving the public exactly what it wants. As a matter of fact, the saving in our rail upkeep and in the care of overhead wire and in carhouse costs will pay the cost of upkeep and repairs, and go a long way toward the primary cost of such machines as we may be compelled to purchase.

"The problem of whether the public wants motor service is answered by decreased receipts. The company feels that it can go further toward giving reliable service to the public through the jitney bus as a medium than can any individual. It goes without saying that we are responsible. That is a big feature. There cannot be speed without an occasional smash-up. If we are willing to let our claim department settle with real cash for any accident directly attributable to our service, we are doing the riding public a service. Under the present bonding system, a month, two months, three months may elapse before a claim is settled. With us, the presentation of proofs that we are blameworthy is sufficient basis on which to establish negotiations for a cash settlement.

"Great, big motor-propelled cars will never be run by the Puget Sound Traction, Light & Power Company as mediums of transportation. The minute this is done the automobile is put into the class of the street car, with as many stops and consequent loss of time. Neither will the heavy freight business pass to the automobiles. The package-carrying business was dropped by us many months ago, and nothing is left now but the heavy freight and the straight passenger-carrying business. Conditions at present are unusual, 'unordinary,' or remarkable, according to the viewpoint, but the fact remains that if the public demands the automobile, we shall furnish it and it will be a service no citizen need be ashamed to patronize."

At present the electric railway pays Seattle 2 per cent of its gross earnings, but this will not be required of the subsidiary jitney company. The present revenue of $70,000 a year to the city from this source will be reduced materially, and other obligations, including that of building and maintaining street paving, will be removed in a large measure. It is stated that the company's receipts have fallen off about $2,000 a month on account of the jitney, which pays only a vehicle license to the city. The new jitney service of the company will cover only short runs, as it is unnecessary to enter long-haul traffic, which is unprofitable to the street cars and to the jitneys. It is even intimated that the suburban service of the company will be curtailed on account of its unprofitable character.

JITNEY ORDINANCE VALID

An important decision has just been handed down by the Supreme Court of Appeals of West Virginia upholding the rights of cities of that State to regulate the jitney. The city of Huntington had passed an ordinance on the jitney bus with the usual restrictive provisions, requiring among other things from owners of jitneys the filing of a $5,000 bond and a statement from the applicant as to the terminals and routes over which the cars were to operate and the hours of their operation. The case was brought to the Supreme Court on a writ of habeas corpus charging illegality of the ordinance for a violation of which the relator was held in restraint of his liberty.

In its opinion denying this writ the court showed at length that every city in West Virginia had the power to limit and regulate the use of vehicles kept for hire and that it might classify them for purposes of regulation, and an ordinance dealing with one class of such vehicles, as determined by the nature of their business and the prices they charge, is not discriminative because of its lack of provision for the regulation of other distinct classes of vehicles kept for hire. The case was entitled No. 2906 ex parte M. T. Dickey, and it is said to be the first decision by the highest court of any State on the legality of jitney regulation in cities.

THE TENNESSEE JITNEY DECISION

Abstract of Decision Rendered by Circuit Court Judge Holding the State Law Unconstitutional

In a decision holding the Tennessee jitney law to be unconstitutional rendered by Judge A. B. Pittman of the Third Division of the Circuit Court at Memphis and referred to briefly in the ELECTRIC RAILWAY JOURNAL of June 26, page 1225, the court said in part:

"It is not open to debate or doubt that the Legislature may define and declare what constitutes a common carrier; that it may define and declare privileges; that it may classify different privileges for purposes of taxation, and also for other purposes; that municipalities may regulate the use of its streets and impose such reasonable terms and conditions upon the users as it may deem wise. The only restriction under the constitution is that the classifications must be natural and reasonable and not arbitrary and discriminatory.

"The act under examination in this case declares the jitney bus to be a common carrier, and provides among other things that such common carrier shall give a bond conditioned that such carrier will pay any damage that may be adjudged finally against such carrier as compensation for loss of life or injury to person or property inflicted by such carrier or caused by his negligence.

"Passing the question of the right to classify the jitney so as to compel it to protect its passengers, what possible justification is there for classifying it so as to compel it to afford protection to the street-using public in general, when no such burden is placed upon owners of private automobiles? Whatever might be said of the Legislature's power to regulate the jitney as a carrier of passengers and to require bond for the protection of such passengers the law leaves no room for doubt that the Legislature may not impose upon the jitney a burden as to street using pure and simple not imposed on others using the streets in identically the same manner.

"I hold the act in question (being chapter 60 of the acts of 1915) unconstitutional, and void, in that it is class legislation of the most glaring character, is arbitrary and discriminatory, and violative of the constitution of Tennessee. The relator herein will be discharged and the costs of this proceeding taxed against the city of Memphis."

DETROIT PURCHASE ULTIMATUM

The Board of Street Railway Commissioners of Detroit, Mich., has sent an ultimatum to the Detroit United Railway to the effect that unless the company accepts the terms of a purchase contract by July 6 all negotiations for the purchase of the lines of the company within the one-fare zone will be called off. For several weeks attorneys representing the city and the company have been holding conferences with a view to drafting an agreement to provide for submitting the purchase proposition to the electors, the understanding being that the price of the property was to be fixed by the Circuit Court of Wayne County. The Street Railway Commission has issued a statement to the effect that the company has sought to get language into the agreement which would tie the hands of the court and be prejudicial to the interests of the city, and in its ultimatum it gives notice that the company must accept the contract as the city wants it or the commission will "proceed immediately to acquire a railway by other ways and means." The ultimatum came as a surprise, inasmuch as frequent statements have been forthcoming from the commission indicating that the differences between the attorneys were largely with respect to details. The company has not indicated what course it will pursue in dealing with the latest phase of the purchase negotiations, but it is highly improbable that the company will accept any agreement which it does not believe protects its interests properly.

Wages Restored.—The Gulfport & Mississippi Coast Traction Company, Gulfport, Miss., which reduced the wages of its employees last October, has restored them to the former scale.

One-Man Cars in San Antonio.—The City Commissioners of San Antonio, Tex., have granted permission to the San Antonio Traction Company to use one employee on the cars of several of its local lines.

Toilet Facilities Ordered.—The Public Utilities Commission of Kansas has ordered the Joplin & Pittsburg Railway to provide toilet facilities on all of its cars. The order is based upon an act of the Legislature of 1915.

Accident in Brooklyn.—Slippery rails, due to a storm, caused a rear-end collision on the night of June 27 between a Vanderbilt Avenue surface car and a Culver line train, at Neptune Avenue near Van Siclen station, Coney Island, in which fourteen persons were injured.

Fare Increase Suspensions.—The Public Service Commission of Massachusetts has suspended until Aug. 1 the proposed increase in passenger fares and fare limits on the Norfolk & Bristol Street Railway, and proposed increase in fares on the New Bedford & Onset Street Railway.

Traffic Interchange in Illinois.—An interchange of freight has been arranged between the Illinois Traction System, Peoria, and the Kankakee & Urbana Traction Company, Urbana, Ill., intrastate tariffs being effective on June 12 and interstate rates effective on July 10. All shipments are routed via Urbana, Ill.

Traction Lines to Feature the Liberty Bell.—The Fort Wayne & Northern Indiana Traction Company and other interurban lines entering Fort Wayne, Ind., will run excursions into that city on July 6, when the Liberty Bell, en route to the Panama-Pacific Exposition in San Francisco, will be exhibited in Fort Wayne.

High Speed Camden-Newark Service.—Fast through service to New York every hour has been inaugurated by the Public Service Railway from Camden, opposite Philadelphia, by way of Trenton and New Brunswick, to Newark, where connection is made with the Hudson & Manhattan Railroad. The running time is five hours, and the fare is $1.45 for one way, and $2.60 for the round trip.

Seattle Service Case.—Federal Judge Neterer at Seattle, Wash., has signed an order allowing the Puget Sound Traction, Light & Power Company to perfect an appeal to the United States Supreme Court on the order of the State Public Service Commission requiring the company to furnish a seat for every passenger, as well as to run its Alki Point, Fauntleroy Park, and Ballard Beach lines beyond the downtown termini provided by the company's charter.

The Memphis Fare Case.—The case involving the efforts of the city of Memphis, Tenn., to compel the Memphis Street Railway to issue transfers on tickets sold at the rate of eleven for 50 cents, has been argued before the State Supreme Court sitting at Jackson. A writ of mandamus issued by the lower court was taken to the Appellate Court by the railway and went in favor of the company. The city is aggressor in the present review of the case in the highest court of the State.

The St. Louis Skip-Stop Hearing.—Additional testimony was taken before the Public Service Commission of Missouri in St. Louis on Jan. 26 in regard to the petition of the United Railways for permission to eliminate 770 stops in the city. Application has been made to the commission by the company for a rehearing in regard to the order of the commission requiring the company to construct certain extensions and install loops. The requirements of the commission with respect to extensions and loops was referred to in the decision of the commission abstracted in the ELECTRIC RAILWAY JOURNAL of May 15, page 961.

The Free Transportation Menace.—A tentative clause in a franchise for the construction of an extension in Los Angeles, Cal., has resulted in a statement from the Los Angeles Railway Corporation with respect to free transportation. The clause in question sought to extend the courtesy of free transportation on all lines of the company to all nurses of the health department. The company objected to this. S. M. Haskins of counsel for the company said: "The history of free transportation in Los Angeles is written in the ordinances of the city. It began with the Mayor and members of the fire department, and it has been increased gradually until the amount of free transportation furnished by the Los Angeles Railway to the city of Los Angeles amounts to more than $200,000 annually."

Operating Trailers in Washington.—As a result of observations made of the operation of trains of two small open cars of the Capital Traction Company, Washington, D. C., and of records kept by the commission and the company of accidents occurring on these cars, the Public Utilities Commission of the District of Columbia is of the opinion that the operation of the small single truck open cars in trains of two cars each with a single conductor in charge of the train is not a menace to public safety. It has therefore ordered that Section 13 of Order No. 21 of the commission be amended to read as follows: "No trailer car shall be operated for the purpose of carrying passengers unless there be a separate conductor or employee acting as such for each car of the train; provided, that trains of small single-truck open cars not exceeding two cars each may be operated with a single conductor in charge of the train."

The Albany Service Case.—A conference was held at Albany, N. Y., on June 23 between officers of the United Traction Company of that city and the members of the Public Service Commission of the Second District of New York with respect to the order of the commission calling for the purchase of forty cars, each with a minimum seating capacity of forty passengers. Chairman Van Santvoord said that the commission felt that conditions were correctly set forth in the data the commission already had, and that the order of the commission must be complied with or the company, in accordance with the decision of the Appelate Division of the Supreme Court, must show that it cannot comply with it. It was finally agreed that the company should submit to the commission not later than July 6 an alternative plan for improving the equipment. This plan may involve either the purchase of new cars or the rebuilding of the old ones, provided this can be done in a satisfactory manner.

The Shore Line Wage Agreement. — As stated in the ELECTRIC RAILWAY JOURNAL of June 26, page 1226, the Shore Line Electric Railway, Norwich, Conn., has agreed with its trainmen to an advance of wages from a minimum of 22 cents and a maximum of 28½ cents an hour to a minimum of 23 cents and a maximum of 29 cents an hour. While it is a fact that the company has increased its wage rates practically one-half cent in each grade, it has at the same time eliminated the overtime payment of 10 cents an hour and the lunch checks. The original purpose of the lunch checks was to protect the men who were detained from their homes or regular eating places, and as a consequence were put to an expense. Under the former agreement the men twice a year elected whether they would take box lunches or 25 cents. For the past year the company has not been asked for a lunch box, and the management felt that it would be fairer to all the men if the money represented by the lunch boxes was distributed among all the men rather than to a favored few. The change in the rate of pay, as frankly stated to the men, will not add materially to the cost of operation of the company, as the increase is very largely offset by the saving which results from the changes previously mentioned.

The Value of Action.—A preachment to railway men that carries a valuable lesson was contained, no doubt unconsciously but none the less effectively, in an item published recently in Louisville. Around it could be woven a second "Message to Garcia." It illustrates strikingly the value of independent action. On account of the lesson which it contains the Louisville (Ky.) Railway is calling the attention of its trainmen to the item, which follows: ". . . On Main Street, between Fifth and Sixth Streets (a busy section of the street, traversed by cars of five important lines, three of which loop there), a wheel came off a wagon and blocked the line. In a very few minutes several cars were tied up by the blockade. One man called the wreck car and then they all stood around trying to talk that wheel back on the wagon. Then something happened —a man came along who could see things. He asked the

driver to take out the wagon tongue, which they used as a pry pole, chocked the wheels with a brick, and raised the axle slightly and put the rim of the wheel under it; got a new bight, raised it again, and put the hub under it, then with another effort the wheel was on and the blockade relieved in just two minutes after the 'live wire' got there. The wreck car found a clear track."

Question of Authority in Canada.—The First Appellate Court at Toronto, Ont., has granted the petition of the Hamilton, Grimsby & Beamsville Electric Railway, Hamilton, Ont., for an appeal against the decision of the Ontario Railway Board made some time ago to compel the company to place certain conveniences in the cars and stations, also on the question as to whether the Dominion of Canada, once having declared a railway for the general advantage of Canada, can subsequently withdraw that declaration. The company claimed that it was outside the jurisdiction of the Ontario Board to require the company to install the conveniences, and that under a section of the railway act of 1888 the railway was placed under the Dominion Railway Board, which alone could exercise authority over it. Counsel for the company pointed out that the dominion by the railway act of 1888 declared all railways crossed by the Grand Trunk and the Canadian Pacific Railways to be works for the general advantage of Canada. By an enactment of 1903, which counsel for the compny challenges as *ultra vires*, the dominion purported to limit this declaration to the crossings only. For twenty years his clients had considered themselves under the Dominican Railway Board, and still did so. The question will be argued later on appeal.

Lexington Arbitration Award.—The board of arbitration which has been handling the case of Motorman Robert E. Walker, discharged last summer by the Kentucky Traction & Terminal Company, Lexington, Ky., has reported, reinstating the motorman and awarding him $200 of back pay. The proposition was referred to the board as a means of compromising the strike which followed Walker's discharge. The union men in the company's employ contended that Walker was dismissed through discrimination against the union. The company urged that the dismissal was purely for carelessness, which resulted in the wreck of an interurban car. C. C. Bagby, a Danville attorney, was named umpire, the union chose its president, Robert Goss, and the company its own superintendent, George McLeod. The decision was a majority finding, holding that the company acted in part from "unconscious prejudice" and that the case did not merit such severe treatment. Supplemental charges that the company discriminated against union employees were dismissed by the board of arbitration as not sustained by the evidence. The minority report, by Mr. McLeod, pointed out that Walker had been dismissed in good faith, "the opinion of the umpire to the contrary notwithstanding," and that he would be reinstated in equally good faith.

Peninsula Railway Fare Case.—F. E. Chapin, general manager of the Peninsula Railway, San José, Cal., has issued a statement in regard to the recent fare decision of the Railroad Commission of California, referred to in the ELECTRIC RAILWAY JOURNAL of May 8 on page 911. Mr. Chapin said in part: "The published reports in relation to the decision of the State Railroad Commission as to the complaint of Palo Alto and Mayfield complaining of discrimination in favor of San José, have been in error and have led to much confusion in the minds of our patrons. Briefly, the decision of the commission is, first, that night excursion rates, which have been so lightly availed of by the traveling public, can be withdrawn by the Peninsular Railway; second, that the Sunday excursion rate from Mayfield and Palo Alto to Congress Springs cannot be raised without discrimination in favor of San José, as it is now; third, that after allowing for the influence of 5-cent street railway fares which ordinarily should not influence interurban fares, but which sometimes cannot be avoided, discrimination in favor of San José against Palo Alto and sometimes in favor of Los Gatos as against Palo Alto, is found, and exists to an extent that demands the revision of existing rates. The present tariffs, which have developed just as the road has grown are being revised accordingly, but it should be apparent to all that the decision does not in itself direct reduction in rates."

Personal Mention

Mr. R. H. Smith, formerly engineer of the Ogden, Logan & Idaho Railway, Ogden, Utah, has been appointed manager of the Goldsboro (N. C.) Electric Railway.

Mr. John H. Adams, formerly chief engineer of the Augusta-Aiken Railway & Electric Corporation, Augusta, Ga., has been appointed general manager of the Blue Ridge Light & Power Company, Staunton, Va.

Mr. Timothy E. Byrnes, formerly vice-president of the New York, New Haven & Hartford Railroad, has established himself in Boston in his former business as legal adviser concerning railroad rates and transportation.

Mr. John W. Wagner president of the German-American Bank, Kansas City, Mo., and not Mr. John W. Brown, as previously reported, has been reappointed as a member of the board of the Kansas City Railways to represent the city.

Mr. R. B. Stichter, vice-president of the Southern Traction Company, Dallas, Tex., has been granted a six months' leave of absence. Mr. Stichter will leave at once for Colorado and expects to spend the greater part of his vacation in the mountain resorts of that State.

Mr. R. F. Blanchard has resigned as chief engineer of the power station of the Holyoke (Mass.) Street Railway to become associated with Mr. William Butler, formerly construction engineer of the Economy Fuel Company, Matteawan, N. Y., in the firm of Blanchard & Butler, Boston, Mass., dealers in engineers' supplies. The employees of the Holyoke Street Railway presented Mr. Blanchard with a traveling bag and toilet set as a token of esteem. He has been connected with the company for more than five years.

Mr. John J. Dempsey, who was elected president of the New York Electric Railway Association at the meeting at Manhattan Beach on June 29 and 30, is superintendent of transportation of the New York Consolidated Railroad (Brooklyn Rapid Transit System). Mr. Dempsey started his railroad career as a boy with the Lehigh Valley Railroad. In 1894 he severed his connection as telegraph operator with that company to take a position as telegraph operator with the Brooklyn (N. Y.) Union Elevated Railroad. He remained with this company until June, 1897, when he resigned to return to the Lehigh Valley Railroad as telegraph operator, from from which position he was promoted to yardmaster. In 1900 he left the Lehigh Valley Road and re-entered the employ of the Brooklyn Rapid Transit Company as assistant dispatcher, from which position he was successively advanced to dispatcher, trainmaster, chief dispatcher, assistant superintendent and finally superintendent of transportation.

J. J. DEMPSEY

Mr. W. S. Stanton, the newly-elected secretary-treasurer of the New York Electric Railway Association, is exceptionally well qualified for the responsibilities of his office, as during the past few years he has been secretary to two of the presidents of the association, Messrs. Peck and Hamilton. Mr. Stanton was born in 1882, and his railway experience began eleven years ago when he entered the service of the Schenectady Railway. He has remained with that system without interruption since that time, being engaged in various positions in the clerical department of the company. For the past eight years he has held the title of secretary to the general manager, Schenectady Railway, and he will retain that position in addition to his secretaryship of the New York associations, as his central location and familiarity with association affairs will enable him readily to combine the duties of both.

Construction News

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

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

FRANCHISES

New Britain, Conn.—The Connecticut Company has asked the Council for a franchise to extend its lines from Main Street to Myrtle Street, Grove Street, Broad Street, Washington Street, Farmington Avenue, and Commonwealth Avenue to a point 100 ft. beyond Farmington Avenue, New Britain.

***Lakeland, Fla.**—Application is being made to the Council for a franchise to construct a line in Lakeland in connection with a railway to extend to and through surrounding towns, providing a similar franchise is obtained through and along the principal business and residence thoroughfares. A committee of the Chamber of Commerce is working out the details and has been assured of the necessary capital as soon as the franchises and rights-of-way have been secured. Among those interested are G. C. Rogan, M. F. Hetherington, Dr. S. F. Smith, W. F. Sneed, and A. J. Holworthy.

Newport, Ky.—Bids will be received until Aug. 2 by the City Commissioner of Newport for an electric railway franchise. August Helmbold, Mayor.

Springfield, Mass.—The Springfield Street Railway has asked the Council for a franchise to construct a line along Page Boulevard to East Street in Chicopee.

Woburn, Mass.—The Bay State Street Railway has asked the Council for a franchise to alter and relocate its tracks on Washington Street, Woburn.

Farrell, Pa.—The Farrell & Mercer Railway has received a franchise from the Council to construct an electric line in Mercer. This is part of a plan to build an electric railway from Farrell to Mercer and New Castle.

Lynchburg, Va.—The Lynchburg Traction & Light Company has received from the Council a franchise to extend its line from the Fair Grounds to Fort Hill. Work will be begun at once on the extension.

TRACK AND ROADWAY

Fresno (Cal.) Interurban Railway.—Construction of the overhead work has been begun by this company on its line on Belmont Avenue from Fresno Avenue to Valeria Avenue, extending on Valeria Avenue to Merced Avenue and thence to J Street.

Pacific Electric Railway, Los Angeles, Cal.—Plans for the construction of four viaducts to span Macy Street, First Street, Fourth Street and Seventh Street to eliminate the dangerous grade crossings are being prepared by the Board of Public Utilities for presentation to the Council. The plans tentatively worked out by the Board of Public Utilities provide that the cost shall be borne one-half by the steam roads and one-half by the city, the county and the Pacific Electric Railway. The total cost of the four viaducts will be $3,500,000.

San Diego, Cal.—Lewis R. Kirby reports that, owing to the failure of the El Centro trustees to concede a satisfactory route and conditions of operation for the proposed electric railway between El Centro and Imperial, and because of general business conditions, the plan of constructing the railway has been abandoned, at least temporarily. [May 2, '14.]

Municipal Railways, San Francisco, Cal.—The Mission Promotion Association has asked the Board of Supervisors to extend some of its lines in San Francisco. The line which the association urges most strongly is the extension of the Potrero Avenue branch from Tenth Street and Potrero Avenue along Division Street and thence to the Southern Pacific station at Third Street and Townsend Street. From this point the extension would continue to the Pacific Mail docks and to the waterfront.

Mount Carmel Railway, Hamden, Conn.—Willis M. Cook advises that the project to build an electric line from the terminal of the Connecticut Company's line to the top of Mount Carmel has been abandoned. [Oct. 4, '13.]

***Pocatello, Idaho.**—Plans are being considered to build an electric railway from Arbon, Oneida County, to Pocatello. George Williams, Mayor of Pocatello, is interested.

Peoria, Ill.—The immediate construction of the interurban line between Chillicothe and Peoria, which has been in the course of negotiation for some time, was assured at a meeting of the stockholders held in Chillicothe on June 15, at which the engineers who have been making the preliminary survey were present. From the end of the tracks of the Peoria Railway at Riverview Park to the Santa Fé station in North Chillicothe will require the construction of 15.26 miles of track, which, together with the necessary poles, wires, power house and stations, will cost approximately $500,000. E. F. Hunter, Peoria, is interested. [Dec. 25, '14.]

St. Joseph Valley Traction Company, Elkhart, Ind.—In connection with the paving of East Jackson Street this company plans to replace its present tracks, turnouts and switches with new material. The track will be relaid with new open-hearth steel rails not less than 60 ft. long and weighing not less than 90 lb. to the yard. The ties will be 6 in. x 8 in. and 7 ft. long.

Terre Haute, Indianapolis & Eastern Traction Company, Terre Haute, Ind.—Citizens of Newcastle have filed a petition with this company asking that the company extend its city lines in Newcastle.

Southwestern Interurban Railway, Coffeyville, Kan.—Plans are being considered by this company to extend its line from Winfield to the Albright Gardens near Oxford, extending north through Mulvane to Wichita, where it will connect with other interurban lines. It is proposed to construct a line from Wellington to Mulvane to connect with the main line.

Bangor (Me.) Railway & Electric Company.—Work has been begun by this company double-tracking its lines on Harlow Street, Central Street and State Street, Bangor.

Bay State Street Railway, Boston, Mass.—Work will soon be begun by this company extending its double tracks from the corner of Hampshire Street and High Street to Railroad Square, Lawrence.

Springfield (Mass.) Street Railway.—Extensive repairs have been begun by this company in Springfield. The company will retie the entire stretch of track on Walnut Street from King Street to Hancock Street. The track will also be repaired at Memorial Triangle and in the Winchester Park section of State Street from Catharine Street to the New England crossing. The present rails will be replaced on Main Street on the west side of the north-end green. The company is also at work on Elm Street between Park Street and Westfield Street, West Springfield, where 60-lb. rails will be replaced by 80-lb. rails and the same procedure will be followed at Tubb's Hill on Westfield Street. The 7-in. rails on the Sumner Avenue line between the carhouse and the crossing will be removed and replaced by heavier rails.

Worcester (Mass.) Consolidated Street Railway.—Work has been begun by this company laying new rails on West Boylston Street, Worcester, between Chadwick Square and the fair grounds.

Gulfport & Mississippi Coast Traction Company, Gulfport, Miss.—Among the improvements being made by this company is the rebuilding of all bridges on its line from Biloxi and Pass Christian and the replacement of all defective poles.

Metropolitan Street Railway, Kansas City, Mo.—Plans are about completed for the single-deck viaduct and bridge to replace the Central Avenue double-deck structure over the Kaw River. At present the elevated structure of the Metropolitan Street Railway connects with the second deck of the Central Avenue bridge. The roadway on the lower deck extends on the ground level several hundred feet and connects with a viaduct that reaches the higher street level at the bluffs of Riverview. The new viaduct will be a single deck and will be about the present level of the upper deck. There will be viaduct approaches connecting with the roadway viaduct and approaches to the lower level roadway of the east side of the Kaw River. The total cost of the bridge and viaduct will be $450,000.

United Railways, St. Louis, Mo.—This company has received permission from the Board of Public Service to lay double tracks across the new Jefferson Avenue Viaduct, St. Louis.

Lincoln (Neb.) Traction Company.—This company has received permission from the Council to tear up its N Street line and relay the track on K Street, Lincoln. The company will begin work on the K Street line at once, and will maintain service on N Street until the new line is ready to carry traffic.

Brooklyn (N. Y.) Rapid Transit Company.—Bids are desired by the Public Service Commission for the First District of New York for furnishing approximately 37,800 tons of open-hearth track rails and about 2400 tons of open-hearth guard rails for equipping the new lines of the dual system.

Brooklyn (N. Y.) Rapid Transit Company.—The Public Service Commission for the First District of New York will open bids on July 20 for the construction of Section No. 1 of Route No. 49, a part of the Culver line. This a three-track elevated railroad, which will connect the Fourth Avenue subway through Thirty-eighth Street and Gravesend Avenue with Coney Island. Section No. 1 extends from a point in Thirty-seventh Street 246 ft. southeast of Tenth Avenue under private property and intersecting streets to Gravesend Avenue and over Gravesend Avenue to a point about 525 ft. south of Bay Parkway (Twenty-second Avenue).

International Railway, Buffalo, N. Y.—This company is rebuilding its Niagara Street line from Forest Avenue to Hertel Avenue with a concrete roadbed and heavier rails. The East Utica Street line is also being rebuilt on Kensington Avenue from the Erie tracks to Bailey Avenue.

Interborough Rapid Transit Company, New York, N. Y.—This company has received permission from the War Department to construct a bridge over the Bronx River at Westchester Avenue. The bridge will carry the tracks of the Pelham Bay Park branch of the Lexington Avenue subway, which at this point runs on an elevated structure. A permanent bridge will be built with a clearance of 61 ft. above mean high water.

Poughkeepsie City & Wappingers Falls Electric Railway, Poughkeepsie, N. Y.—This company plans to spend about $150,000 for improvements, including the reconstruction of track and extension of double track.

New York State Railways, Rochester, N. Y.—This company has been asked to double track its line on North Street, Rochester.

Western Ohio Railroad, Lima, Ohio.—Plans are being considered by this company to extend its line from St. Mary's south to Covington, via Minster and Fort Laramie.

Toledo, Bowling Green & Southern Traction Company, Toledo, Ohio.—Plans are being considered by this company to extend its line from Findlay to Kenton.

Toronto, Ont.—The Ontario Hydro-Electric Power Commission has completed surveys for the construction of the proposed railway from Toronto to Montreal and Ottawa. Plans have also been prepared for the construction of a radial railway to extend 60 miles north and west of London, Ontario.

Lehigh Valley Transit Company, Allentown, Pa.—It is reported that this company will begin work in the fall on a new route through Center Valley on its Philadelphia division. It is proposed to remove the tracks to private right-of-way for about 2 miles.

Easton & Washington Traction Company, Easton, Pa.—This company plans to construct a line between Washington and Hackettstown, N. J., extending along Lake Hopatcong, 19 miles.

McConnellsburg & Fort Loudon Railway, McConnellsburg, Pa.—Bennett & Randall, contractors, plan to begin work at once on this company's line from McConnellsburg to Fort Loudon, 10 miles. [May 8, '15.]

Scranton & Binghamton Traction Company, Scranton, Pa.—During the year this company plans to spend about $1,000,000 in building a 20-mile extension of its line, and 3000 tons of rail will soon be delivered for use in the construction of the line.

Nashville, Springfield & Northern Railroad, Nashville, Tenn.—Surveys will soon be begun by this company on its proposed line between Nashville, Springfield, Clarksville, Tenn., and Franklin, Ky. [June 19, '15.]

Virginia Railway & Power Company, Norfolk, Va.—This company reports that it has made about $25,000 worth of improvements at Ocean View in the way of new amusement devices and remodeling the hotel. An entirely new bulkhead has also been constructed.

*Wheeling, W. Va.**—Plans are being contemplated to construct an electric railway from Wheeling, W. Va., to Baltimore, Md., via Fairmont and Grafton. Preliminary surveys will be made at once. The Pennsylvania Electric & Lighting Company, Valley Falls, is interested.

SHOPS AND BUILDINGS

Arkansas Valley Interurban Railway, Wichita, Kan.—This company has purchased a site 66 ft. x 66 ft. at 111 Second Avenue East, Hutchinson, where its new terminal station will be erected. It is planned to construct a wye into the station off Second Avenue. The cost of the property was $6,850.

Lewiston, Augusta & Waterville Street Railway, Lewiston, Me.—This company has completed its freight station at Lincoln Street, Lewiston.

New York Municipal Railway Corporation, Brooklyn, N. Y.—Contracts for the construction of eight elevated railroad stations in connection with the third-tracking of the Broadway elevated railroad in Brooklyn, submitted by the New York Municipal Railway Corporation, have been approved by the Public Service Commission for the First District of New York. The proposed stations are at Hewes Street, Lorimer Street, Flushing Avenue, Myrtle Avenue and Broadway, Kosciusko Street, Gates Avenue, Halsey Street and Chauncey Street.

Salt Lake & Ogden Railway, Salt Lake City, Utah.—Pending the construction of a new terminal station, the depot offices of this company, with the exception of the freight department, have been removed to the temporary terminal at Third South Street and First West Street, Salt Lake City, which will be used jointly with the Salt Lake & Utah Railroad. Passenger train service was inaugurated on June 19.

POWER HOUSES AND SUBSTATIONS

Metropolitan Street Railway, Kansas City, Mo.—This company has ordered one 3000-kw., 575-volt d. c., six-phase, twenty-five-cycle, 250-r.p.m. compound-wound commutating pole rotary converter; three 1000-kva., single-phase, twenty-five-cycle, 6600-volt high-tension to rotary voltage low-tension air-blast transformers; one blower outfit for the above transformers and three-panel switchboard for the control of same. The contract for this apparatus has been placed with the Westinghouse Electric & Manufacturing Company.

Ephrata & Lebanon Traction Company, Mauch Chunk, Pa.—This company reports that it has completed and placed in operation its two substations at Iona and Clay in connection with its change from storage battery to overhead operation.

Ogden, Logan & Idaho Railway, Ogden, Utah.—Two substations will be built by this company, one at the Utah Hot Springs and the other at Deweyville, to care for the distribution of power for the entire system between Ogden and Preston. Each station will cost about $35,000, including equipment.

Kanawha Traction & Electric Company, Parkersburg, W. Va.—Preliminary work has been begun by this company for the construction of a power plant at Parkersburg, 140 ft. x 90 ft. The structure will be of brick and concrete. The condensers will be placed in a pit and the turbines will be installed on the floor immediately above. The cost is estimated at $500,000. Sanderson & Porter, engineers.

Wheeling (W. Va.) Traction Company.—This company will discontinue the operation of its power plant at Benwood, but will hold the plant in readiness for emergency service. The new main power plant located at Forty-second Street, Wheeling, has been completed.

Manufactures and Supplies

ROLLING STOCK

New York & Queens County Railway, New York, N. Y., expects to order immediately six double-truck end-entrance cars.

Carolina, Greeneville & Northern Railway, Greeneville, Tenn., a new line, is preparing specifications for rolling stock. F. A. H. Kelley, Greeneville, is chief engineer.

Isthmian Canal Commission, Major F. C. Boggs, general purchasing officer, will receive sealed proposals until Aug. 16 for twelve electric towing locomotives for canal locks.

Hutchinson (Kan.) Interurban Railway has purchased a Westinghouse 323-A motor equipment for one new steel semi-convertible passenger car mounted on Dupont single-trucks.

Corpus Christi Railway & Light Company, Corpus Christi, Tex., has ordered, through A. W. Burke, Wilmington, Del., eight steel single-track one-man cars from the Southern Car Company.

Ogden, Logan & Idaho Railway, Ogden, Utah, reported in the ELECTRIC RAILWAY JOURNAL of June 26 as having ordered six trailers, has awarded this contract to the American Car & Foundry Company. The cars are all-steel and 65 ft. in length.

Eastern Pennsylvania Railways, Pottsville, Pa., is having built by The J. G. Brill Company one all-steel car to be equipped with GE-90 four-motor equipments. The car is designed for experimental operation in both city and interurban service.

TRADE NOTES

Frank R. Farnham has joined the staff of Walter B. Snow, publicity engineer and advertising agent, Boston, Mass. Mr. Farnham was at one time with the McGraw Publishing Company.

Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., has received an order for one 6-kw. combination trolley and storage battery gathering locomotive equipped with two No. 904 motors and Nonclad Exide batteries.

Curtain Supply Company, Chicago, Ill., has received orders for Ring No. 48 fixtures and Rex rollers for the ten cars recently ordered by the Wilkes-Barre & Hazleton Railway, Hazleton, Pa., the ten cars ordered by the Lehigh Traction Company, Hazleton, Pa., and also from the Long Island Railroad and Miami (Fla.) Traction Company.

Standard Underground Cable Company, Pittsburgh, Pa., has been awarded a gold medal by the international jury of award, Panama-Pacific International Exposition, for its exhibit of a complete line of electric wires, cables and cable accessories. This is the seventh award of this degree which has been received by this company in as many different expositions.

Western Electric Company, New York, N. Y., has been awarded the following medals by the international jury of award of the Panama-Pacific International Exposition: The Grand Prix for the exhibit as a whole; gold medals, one for telephone switchboards and equipment, another for telephone train dispatching and control apparatus, and a third for insulated wires and cables.

Esterline Company, Indianapolis, Ind., manufacturer of "Golden Glow" headlights, reports a change in the territory of its Southeastern representation. The Walker-Smith Company of Baltimore will now handle the sale of "Golden Glow" headlights in Delaware, Maryland, Virginia and District of Columbia only. New representatives will be appointed for the States of North Carolina, South Carolina, Alabama, Georgia and Florida.

Dayton Fare Recorder Company, Dayton, Ohio, received orders from the Louisville & Interurban Railroad, Louisville, Ky., and the Cleveland & Eastern Traction Company, Cleveland, Ohio, for large installments of its new interurban fare recorders, following sixty-day trials of the recorders in service. This manufacturing company has also recently secured contracts for recorder equipments from the Pearson Engineering Corporation for one of its South American customers; the Erie Railroad, New York & Long Island Traction Company, Pittsburgh Railways, and United Traction Company, Albany, N. Y. The Dayton company is now arranging to install recorders for trial for the Minneapolis & St. Paul Suburban Railroad and the Jamestown, Westfield & Northwestern Railroad, Jamestown, N. Y.

ADVERTISING LITERATURE

Dayton Fare Recorder Company, Dayton, Ohio, has issued a folder describing its various types of fare boxes. Inclosed with the folder is a photographic reproduction of a record card produced on this company's fare box recorder.

Railway & Industrial Engineering Company, Pittsburgh, Pa., has issued a catalog showing the application of Burke horn gap apparatus in connection with a few of its stationary designs of outdoor substations. Views and diagrams in the catalog show these installations as applied to the Wheeling Electric Company, Virginia-Western Power Company, Ohio Electric Railway, Steubenville & East Liverpool Railway & Light Company, Wilmington & Philadelphia Traction Company, Georgia Railway & Power Company, Central Illinois Public Utilities Company.

National Tube Company, Pittsburgh, Pa., has just issued a de luxe catalog of the material manufactured at the Kewanee works of the company. It is entitled "Catalog J" and contains 450 pages, printed in two, and in some places three, colors. An idea of the completeness of the book may be derived from the fact that the index embraces approximately 1800 entries. This material includes "National" pipe for steam, gas, water, and air; cast-iron, malleable-iron, and brass fittings; "Kewanee" unions and "Kewanee" specialties; brass and iron body valves, cocks, etc.

General Electric Company, Schenectady, N. Y., has issued Bulletin No. 47,050, describing this company's line of small plant switchboards made up of standard units in various combinations. The line provides for a great variety of conditions in small plants where panels of simple and inexpensive design are required. They are designed for 125-volt and 250-volt, d. c., two-wire service, for general power and lighting purposes. These units are described and illustrated in detail, various combinations are illustrated, dimensions are given, and panels designated by catalog numbers. The publication contains wiring diagrams and a list of accessories.

United States Steel Corporation, New York, N. Y., has issued in pamphlet form an extended description of its exhibit and those of its subsidiary companies at the Panama-Pacific Exposition at San Francisco. The pamphlet contains a number of illustrations showing the most interesting apparatus shown. Among the exhibits which will attract particular interest of electric railway men are rail sections, special work and electrically-welded joints of the Lorain Steel Company, rolled steel and forged steel wheels, heat-treated axles and steel ties of the Carnegie Steel Company, trolley poles and other tubing and pipes of the National Tube Company, and rail bonds, insulated wire and fencing of the American Steel & Wire Company. Some interesting statistics of the history, output and organization of the United States Steel Corporation are also given in the pamphlet.

NEW PUBLICATION

Shall the Government Own and Operate the Railroads, Telegraph and Telephone Systems? The Negative Side, published by the National Civic Federation, 1 Madison Avenue, New York. Paper, 119 pages; price, 50 cents.

In this pamphlet are contained the papers presented on the negative side of municipal and government ownership of public utilities at the meeting of the National Civic Federation in New York, Dec. 4, 1914. The authors are Prof. Jeremiah W. Jenks, Ex-Senator Jonathan Bourne, Jr., F. G. R. Gordon, and James W. Sullivan. A report of this meeting and abstracts of the papers were published in the ELECTRIC RAILWAY JOURNAL at the time, but the complete papers should be helpful to all who are interested in this very live subject. The extended experience of all the authors enables them to speak with authority and to marshal facts which are convincing.