

Electric Railway Journal

Consolidation of Street Railway Journal and Electric Railway Review

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Number 1

Attend the Ottawa Beach

Meeting of the C. E. R. A.

IF ANY ONE is hesitating about whether he will attend the C. E. R. A. meeting at Ottawa Beach, Mich., July 8 and 9, we should like to assure him that he will find his time spent not only profitably but most pleasantly, for Ottawa Beach is a delightful summer convention spot. It has some of the attributes of Atlantic City as a convention place. The Hotel Ottawa and environs are isolated in a measure from outside attractions so that delegates will find a greater fraternizing than prevails where the convention is less unto itself. We feel confident, also, that the time spent traveling to the convention will be amply rewarded, though it may be a rather complicated journey in a few cases. In this connection, we might suggest that the easiest ways to go are either via Grand Rapids or Chicago—interurban from the former and boat from the latter direct to Ottawa Beach. Also, special interurban through cars are arranged from some points.

The Hotel Ottawa is situated on the beautiful Black Lake, but only a five-minute walk (in a bathing suit) to Lake Michigan's beautiful shore—sandy and clean. Just across the channel from Ottawa Beach is Macatawa Park, famous as a summer resort for cottagers. There are good boat trips to be had up Black Lake to Holland or down the shore of Lake Michigan to Saugatuck, and much scenery en route. All these places have proved so popular to resorters that we feel confident the convention at Ottawa Beach will be a close second if not superior to the customary boat trip, which had to be abandoned this year. And with John Collins as the big boss of the hotel, we feel sure things will be right and enjoyable there. Let's all go to Ottawa Beach for a good outing and a characteristically worth-while meeting.

A Friendly Bit of Advice Overheard from Part of the Public

ADVICE, impartial, absolutely unbiased and from a trustworthy source, is priceless. We have found a sample and are quoting it herewith. It is an editorial from *Printers Ink* (June 17), a paper for publishers and advertisers, expert critic of advertising. The editorial is not written to be directed toward the electric railway, but merely takes as an example the publicity which the Interborough Rapid Transit Company has been putting out through its *Subway Sun*, using this example in the discussion of negative and positive advertising.

THE "NEGATIVE" ARGUMENT AGAIN

Only in rare instances have negative arguments in advertising campaigns proved successful. As a general rule, it is the positive or affirmative presentation of a story that brings the response. Negative arguments too often work away from the advertiser's interest and fortify his legitimate prospects against him.

As an illustration of this, the advertising campaign now

being conducted by the Interborough Rapid Transit Company of New York to secure an increased fare may be examined with interest. The company has so far been unsuccessful in convincing the public that it should pay more than 5 cents for a ride on its cars. A bulletin called the *Subway Sun*, placed in the windows of its cars, is the advertising medium used. For successive weeks these bulletins have been telling the company's troubles to its patrons—how it will have to sell its real estate, that municipal ownership will not give the public any better service than the Interborough is giving now, how it will be unable to construct new lines for the growing city—and always adding to each appeal that the present 5-cent fare is inadequate.

All these arguments are negative. The individual user of the company's cars is not interested in the company's troubles. He is interested in his own comfort and convenience before anything else.

Here is where the use of affirmative or positive arguments would be more apt to enlist the interest of the public in helping to change the conditions. One such argument would be the improved service that an increased fare would make possible—less time to get from home to office—and less crowded cars. Another argument would be to tell the public how many cars are being run now for a 5-cent fare and how many more could be run for a higher fare. Also some of the improvements which could be put into effect just as soon as the increased fare takes effect—safety devices, new cars, lighting, ventilation, new lines.

Then there is the story that could be told about the wonderful devices the company now has in use for the public's protection—the motorman's "dead man's handle," automatic signaling, block divisions, how the cars are cleaned, heated and the public's health and safety looked after all the while.

Thousands of people pay 10 cents for a short trip on a Fifth Avenue bus and think nothing of it, because the bus company assures every passenger a seat and it has enough buses to do it. You can ride 20 miles on the subway for a nickel and nobody cares a whoop, because the subway does it grudgingly, complaining all the way about its own troubles.

Many street railway companies in other cities have succeeded in securing increased fares by affirmative advertising of the kind referred to. Negative arguments often "sell" the negative condition. Positive, constructive, upbuilding arguments inspire a desire for the things they tell about.

We quote this not for the benefit of the Interborough Rapid Transit Company management, which has probably already seen it, but because many railway companies use similar methods of publicity and more and more is publicity of the right sort urged. Here we have caught, unawares, as it were, an intimate discussion of our methods from an observant and discriminating part of the public, doubly able to judge of the effects of our work, for they who discuss it are careful students of advertising methods.

We believe these suggestions and criticisms should be heeded. There is at least food for thought in them. They are certainly impartially made and they must be well taken, for they come from some of the very public we are trying to reach and are a part of their own family discussions, in which a piece of our work is used as an example from which to profit by avoiding. Here is a statement too not only *how not to do* a certain thing but also *how to do it*. We need more of that—not preaching, but real honest-to-goodness, heart-to-heart talk from the inside out by those who know.

Co-operation Between City and Company Urged in Philadelphia

AN OUTSTANDING feature of Director Twining's report, made public last week, is that, while he does not hesitate to criticize the local company for faults which he says he sees, he urges as the one solution to Philadelphia's problem whole-hearted and unselfish co-operation between city and company. Certain it is that a continued quarrel between a city and its transportation corporation merely makes more difficult the rendering of good transit facilities on a sound financial basis. It is not surprising that Mr. Twining favors this policy, and we believe the industry as a whole should feel encouraged that municipal officials are more and more supporting such programs of co-operation.

Costly Non-Revenue Car-Hours Have Effect on Labor Contracts

WORK being done by the new committee on economics of schedules of the American Electric Railway Transportation and Traffic Association in the way of standardizing time-table statistics of the various railway companies should be of considerable value to the industry and warrants serious discussion at the coming convention. At no time is the question of revenue and non-revenue car-hours of more importance than in the drafting of new labor contracts. Study and action on this subject should be of particular interest at a time when so many companies are engaged in negotiations with their platform employees.

Just what non-revenue hours mean to a railway company may be judged from the statement of one operator that his week-day schedules contain practically one-fifth of "dead" time, or time when cars are earning nothing for the management. With the growing demand on the part of labor organizations for an eight-hour day this burden is bound to become more serious. Similar hazards are contained in agreements providing for an eight or a nine hour minimum workday, because where it is not economical to keep cars in service that long a certain amount of "bonus" time must be added to the cost of operation.

The largest item contained in non-revenue hours in a railway schedule undoubtedly is that made up by terminal or layover time. The association committee can serve a useful purpose in educating the companies toward economy in this regard. A schedule maker, of course, must have in mind some standard for layover allowance when framing his time tables. This should depend largely on conditions existing on the individual routes, because car lines with steam railroad crossings at grade or with heavy vehicle traffic cannot be operated with such regularity as those where no such delays are to be encountered. However, even where due allowance is made for blockades it is a regrettable fact that many schedule makers allow too much "slack" in running time between terminals, and the result is a line of cars waiting at ends of a line. This not only is waste of good money but it has an unfortunate effect on the public mind, where the impression is given that the company has cars for storage purposes and not for service.

Contracts made with labor unions in recent years are being stretched to the point of unwarranted liberality in allowances for reporting time, turning-in time and meal reliefs. Combination of these items runs as high as sixty minutes per run with some companies, and

where thousands of runs are to be paid for at \$1.50 per crew-hour the cost in a year on a large property is a staggering factor. The result is even more burdensome on a system where overtime bears a penalty rate and where non-revenue hours are included in the items going to make up overtime.

While negotiating with the trainmen's union recently, a railway manager called attention to these heavy burdens borne by the company and said the men were receiving approximately 5 cents an hour as "bonus." The answer of the union officials was that this was not apparent to the men and they could not appreciate it. They were unwilling, however, to have any of these working conditions changed. Apropos of this point, we recall the recent ruling of an arbitrator that "bonus" time is never appreciated by the employee and should be added to the regular rate of pay.

Boards of arbitration have been slow to concede the eight-hour day to electric railway employees. They have been impressed with the fact that the traveling public demands maximum service at periods of the day separated by more than eight hours and that in this particular the transportation business differs from other industries. There are few railway companies in the United States where the eight-hour day prevails for platform employees, and even on these properties it has been found necessary to allow a certain percentage of the runs to cover a "spread" as high as fourteen hours.

Men who accept work as conductors or motormen must learn to appreciate wherein their industry differs from others and to value more highly the factor of continuous employment as against the limited number of working days in seasonal occupations. They will find, for instance, that hourly rates as high as \$1.25 in the building trades do not mean as high an annual income as this figure would indicate. Also, while there has been considerable agitation for an eight-hour day, experience shows that many employees will pick runs allowing the greatest number of pay hours, and others who have a short workday will seek additional employment in their spare time so as to add to their daily earnings. Labor union officials would do well to consider these facts while negotiating for new agreements with employers.

How Much Freight Haulage Is Done at a Profit?

THE paper by W. K. Zinsmeister read at the convention of the New York Electric Railway Association last Saturday and published in abstract in this issue is the first attempt, so far as we can recall, to present a definite classification of accounts for electric railway freight operation. One of the aphorisms of the late Mr. Whitridge was that there was no profit in doing business at less than cost. This applies to the electric freight business as well as to the electric passenger business. Hence, it is most important for every electric railway which hauls freight to know how much this service is costing, and for this knowledge an accurate plan for determining the cost is essential.

There is great difference of opinion among electric railway managers as to the desirability of engaging in freight or express haulage. Some claim that if all the expenses properly chargeable to freight operation are included very few electric freight services in this country would be found profitable. Others believe that for most interurban roads and for many suburban roads which have not undertaken this business it presents

great opportunities for profit, particularly at the higher rates warranted by the more rapid service given, as compared to that of the steam railroads.

To determine questions like this a correct and comprehensive method of allocating the expenses between the probable early increase in steam railroad rates, is essential. But when this has been done and a decision has been reached no manager should remain under the delusion that the conclusion reached will continue indefinitely to be correct. Such an analysis must be made not once but periodically, as the costs of operation are constantly changing.

We believe, with Mr. Zinsmeister, that the present condition of freight congestion on the steam roads, with the probable early increase in steam railroad rates, makes the topic of very live interest to electric roads at present. It is also true that the recent expansion of the auto trucking business has increased the competition, especially for short distances. Probably the effect of these two factors has been to increase both the maximum and the minimum limits of profitable electric railway haul. In other words, the tendency will be for the electric roads to give up more definitely to the auto truck some of the shorter hauls heretofore found profitable by them and to reach out for certain of the longer hauls which up to this time have been considered to be exclusively the province of the steam road. If this view of the situation is correct, it emphasizes still more the necessity for a systematic and careful analysis of the costs of electric freight haulage.

How About Goods Distribution in Urban Communities?

CAN the electric railway help solve the problem of freight and express distribution from urban trunk line or waterway terminals? We believe this question deserves more serious study than has so far been given to it. The Chicago tunnel has, of course, long performed a useful service and Chicago's Loop District surface traffic problems would long since have been more serious than they are today without this agency. But this is a special case. Our question relates to combined use for passengers and materials. The electric railway, surface or rapid transit, now serves as a distributor for passengers, why not for goods?

New York City now is in a terminal crisis, aggravated by a trucking strike. Other cities have similar physical problems. The delays and consequent cost of surface distribution of goods is mounting enormously. A. H. Smith, president of the New York Central Railroad, recently estimated New York's *daily* loss due to improper terminal facilities as close to a quarter million dollars. The electric railways have facilities which might be utilized for a worthy service here.

What study or trial, for example, has been given to a utilization of the subway facilities for distributing goods from terminals to subdistribution centers? Can the express tracks be used at nights, with cars run off on spurs for loading and unloading? Can New York's elevated tracks be used at nights likewise? How about Chicago's elevated roads at nights for similar service? And Philadelphia's subway and elevated? And Boston's? And main artery surface lines in every other city of appreciable size?

It may not pay. But who knows? Any previous attempts or studies are out of date in today's economic world. We have generally assumed the urban electric

railway's field to be for passenger traffic, but why should it not also be for goods traffic? We believe this is one way in which the gross business, and probably the net, of some railways can be increased. Is it not worth the time of some one to see if this business cannot be obtained, or, to put it another way, to find out if the electric railway cannot perform this service to the community?

Making the Life of the Joint Equal That of the Rail

IT IS GENERALLY conceded that the problem of rail joint maintenance is one of the most troublesome with which the electric railway engineers have to contend. It is becoming more and more clearly recognized that the requirements of modern traffic, especially in paved streets, demand both mechanically and electrically a continuous rail. Many miles of track have been constructed or reconstructed with welded joints of one type or another, in order to provide as nearly as possible a continuous rail, and many improvements have been made in the various methods of welding rails. These have resulted in a material reduction in the percentage of failures and have overcome defects in the original processes which caused many of the initial failures.

In numerous cases, particularly on the smaller properties where the joints to be welded are comparatively few, the cost of welding by some of the processes is prohibitive because of the high cost of transporting the necessary equipment to and from the work and because of its interference with the operation of the cars. Often it is neither convenient nor practicable to utilize some of these processes for ordinary repair or maintenance, because the work would have to be done during such hours of the night as traffic was off the tracks, and the charges for delays and moving time quickly increase the cost per joint where only a few joints are to be repaired. It was the result of such considerations as these that led to the development of the several types of small portable electric arc welding machines now on the market.

It is extremely important that the continuity of the return circuit be maintained at as nearly 100 per cent efficiency as possible, and comparatively inexpensive equipment has placed the accomplishment of this much-desired condition within the reach of even the smallest companies. The actual methods by which the work is accomplished with any given machine are many and varied, and without doubt the results obtained are equally manifold. Only by experiments along this line, however, can it be hoped to reach perfection, and it is with this thought that we are glad to give space in the columns of this paper to any method which has been tried out long enough to indicate that it results in success and is an improvement over a former method.

In these days of high cost of both material and labor, coupled with comparative inefficiency on the part of that class of the latter which most street railway companies are able to secure, the engineer and maintenance men must work hard to keep this cost within the limits of the amount set aside for the purpose. Experiments in arc welding of rail joints, therefore, must be conducted not only with the idea of reaching a higher degree of perfection in the results obtained but also with consideration of the cost of the completed job. It might be possible to obtain marked success in the mechanical results, while the cost of installing or of repairing the joints would be so high as to make it cheaper to install or repair the joints a second time by some less costly process.



SIX-CAR ELECTRIC TRAIN FOR BAKERLOO-WATFORD SERVICE

New Cars for the "Bakerloo" Line

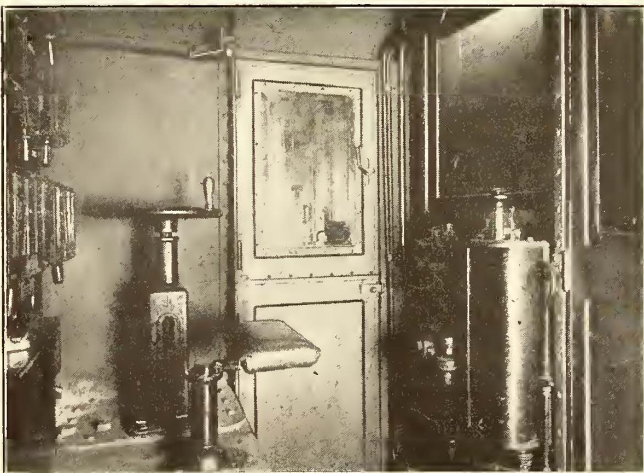
The First Train for Joint Operation Over the Lines of the London (England) Electric and London & Northwestern Railways Has Been Placed in Service

THE first train has now been delivered on the joint order of the London & Northwestern Railway and the London Electric Railway, out of a total of ten multiple-unit trains of this type ordered in 1914. Each train will consist of six cars and will be made up of three motor cars and three trailers. The section of these new cars is made to conform to the dimensions of the "tube" of the Baker Street & Waterloo Railway, as they will operate through this tunnel as well as out into the country over the surface tracks of the London & Northwestern Railway.

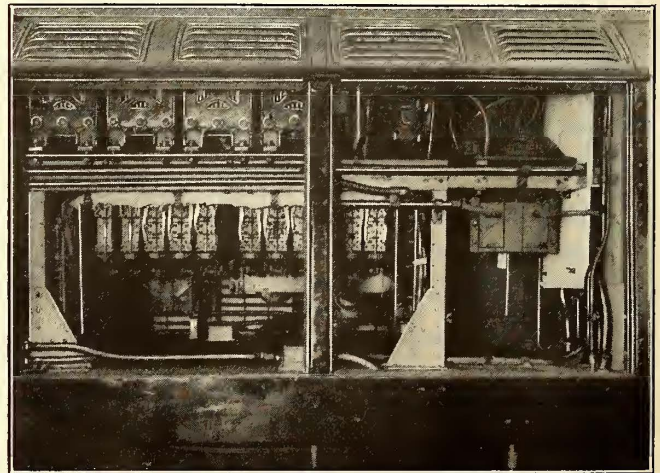
The Baker Street & Waterloo Railway belongs to the London Electric Railway and, for brevity, is commonly referred to as the "Bakerloo." This is an underground tunnel line some 6 miles long running from the Elephant and Castle in South London to a junction with the London & Northwestern Railway at Queen's Park, Willesden, in the northwest of London. Some little distance before reaching the tracks of the London & North-

western Railway the tube line comes to the surface. This extension and the making of a physical connection with the London & Northwestern line were completed two or three years ago, when the newly electrified tracks of the Northwestern company were finished. The electrified tracks of this latter company run out into the country as far as Watford, and the distance which the through electric trains will run from the Elephant and Castle to Watford is twenty-one miles. Direct current at 600 volts, with third and fourth-rail conductors, is employed. When these new cars were ordered in 1914 it was realized that additional rolling stock would be necessary in order to meet the growing requirements, but owing to delay caused by the war these cars are only now being delivered.

The new cars are being built by the Metropolitan Carriage, Wagon & Finance Company, Ltd., of Birmingham, and are entirely of steel. Both motor cars and trailers are painted with the standard London & Northwestern



VIEW OF MOTORMAN'S COMPARTMENT



CONTACTOR GROUP AND GRID RESISTOR INSTALLATION

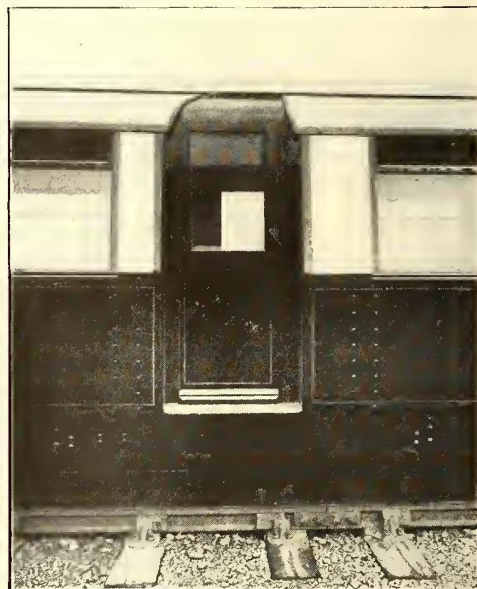
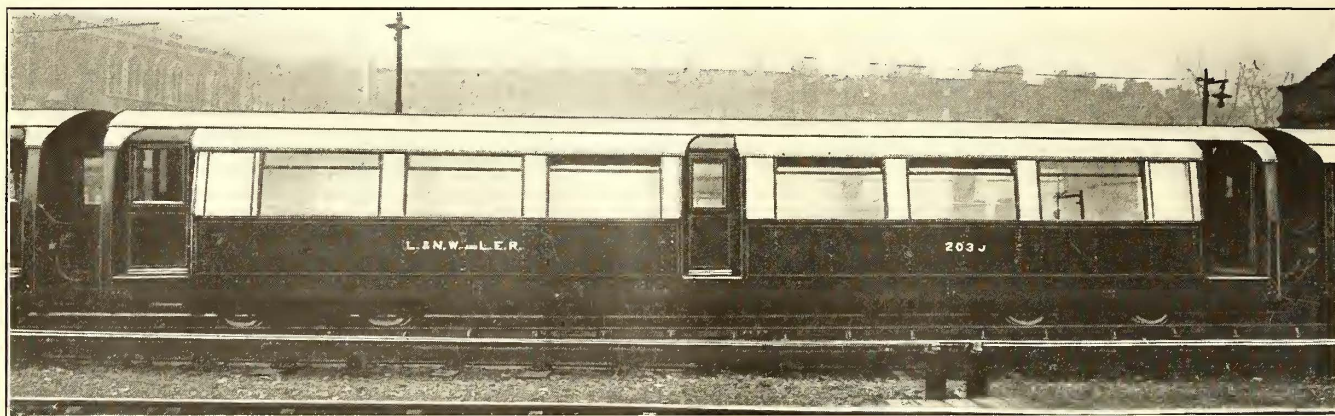
unloading of passengers has had to be done through the doors at the ends of the car. To expedite entrance and exit of passengers and cut down the length of stops the center-door arrangement adopted for these cars was devised for the original Bakerloo and Watford cars and it has been followed with improvements in this new rolling-stock.

The shape of the car and the type of construction followed thus make it necessary for the doors to be hinged and they are hung to open inward. The end doors, which open onto a vestibuled platform, are worked by a gateman. The center doors cannot be opened unless the end doors are open, and when the latter are closed the center door is shut and locked. Thus

the middle door and a green lamp in the pedestal is illuminated. Should the end door be shut and the center door for any reason be not properly fastened the lamp in the pedestal will continue to show red until the door is properly locked.

STATION PLATFORMS OF THE TWO SYSTEMS ARE NOT OF THE SAME HEIGHT

An additional problem in connection with the operation of through trains was brought about by the different heights of station platforms. The platforms of the tube railway stations are much lower than those of the London & Northwestern Railway stations. In the cars which have hitherto been in this service a ramp



AT TOP, TRAILER CAR. DOOR ARRANGEMENT. AT LEFT, LARGE WINDOWS WITH HINGED VENTILATORS.
AT RIGHT, CENTER DOOR CONSTRUCTION

the center door is completely under the control of the gateman. It is closed automatically by means of a spring under the car floor, but it is not locked until the end doors are closed. A signal lighting arrangement notifies the gateman when all doors are properly closed. Embodied in the pedestal which holds the mechanism for operating the end doors is a switch which controls the circuit governing the electric lock of the middle door. In this way when the gateman opens the end door he automatically unlocks the center door, and this fact is made plain by the lighting of a red lamp in the pedestal supporting the end-door mechanism. When the end door is again shut it closes the circuit which locks

was provided on the platform of the cars. This new rolling-stock, however, has been built with the floors 5 in. higher than the old cars, so that the new floor level is a compromise between the height of the two classes of station platforms. The result is that a passenger entering a car from a Bakerloo platform has to take a small step up, while passengers from a London & Northwestern platform have to step down. This raising of the car floor has permitted the use of 42-in. driving wheels instead of 36-in. wheels, as were used on previous types of equipment.

Each motor car is equipped with two British Thomson-Houston motors of 240-hp. capacity each, a total of

1,440 hp. for a six-car train. The gearing provides for free running speeds of from 40 to 45 m.p.h. The trucks are built of steel plates and angles.

The particular type of Thomson-Houston multiple-unit control employed has not been used before in England except on some of the existing cars running on the Watford line. It is of the relay automatic type. In starting, the handle of the master controller is placed in either the full series or full parallel position and the contactors automatically notch up in their correct sequence to this position. A current-limit relay provides the notching arrangement and this operates whenever the motor current drops to a predetermined value. There is no bus line throughout the train, so that each motor car has a potential relay to drop off the contactors whenever the power circuit is opened. Westinghouse air-brakes with quick-action triple valves are used and the truck brakes are of the clasp type.

BOTH CENTER AND SIDE LAMPS ARE USED FOR LIGHTING

Special care has been given to the lighting and ventilating systems. The illumination for each trailer car is provided by nine opal-bowl ceiling lamps and eight small auxiliary lamps located along the sides between the windows. The motor cars have but six of each

type of these lamps, as the total area to be lighted is smaller due to the space taken up by the motorman's compartment. A very satisfying light is thus provided which is both strong and diffused. The diffusion is increased by the reflection from the white roof and the cream-colored sides. Emergency lighting is also provided. Current for this is obtained from a small storage battery, which is automatically switched on should the main current fail. Ventilation is provided by the top sections of the windows opening inward on hinges and by a perforated air duct which runs the length of the car.

A further comfort which is not usual in tube railway rolling-stock in England is the use of electric heaters. The temperature of these tunnels even in cold winter weather is never very low, so that it has not been the practice to heat cars used in this service. These cars, however, will be required to make part of their journey in a warm tunnel and the remainder of it in the open country. This change of temperature during frosty weather is irritating to passengers. Electric heaters have therefore been placed under each seat and these can be switched on by the trainmen when the trains are in the open and turned off again, if desired, when they enter the tunnel.

Convention at Bluff Point

New York Electric Railway Association Holds Annual Meeting at Lake Champlain, with an Attendance of More Than Two Hundred—Expenses of Interurban Freight Service Analyzed and Discussed

THE thirty-eighth annual convention of the New York Electric Railway Association, held at Hotel Champlain, Bluff Point, N. Y., was confined to a morning session, with a banquet in the evening, but there was a large and representative attendance and a number of important topics were discussed. In the afternoon the delegates divided to engage in golf and the annual game of baseball between two nines representing respectively the railway men and the supply men, while the ladies participated in a bridge tournament. The annual banquet was held in the evening. The attendance numbered about 225.

The business and technical session of the Association was called to order at 10:30 a.m. by President E. H. Maher, Jr., who summed up the work of the association during the past year in a brief presidential address. He explained that the past twelve months had brought better conditions to some companies in the State, but not to others. He hoped that the situation as regards higher fares which had occurred in the northern part of the State would find a counterpart later in New York City. He expressed appreciation for the services performed during the past year by the executive committee, which had been unstinted in its devotion to the cause of the association.

The report of the executive committee, presented by the secretary, explained that the association had been represented at several legislative hearings during the past session at Albany, and while the association had not been successful in securing the reforms desired the executive committee believed its efforts had not been in vain and at the next legislative session some relief

would be granted. The secretary and treasurer reported thirty-five active members, ninety allied members and seven associate members in the association. The receipts, including the balance on hand at the beginning of the year, were \$14,372; disbursements, \$9,840, and balance now on hand \$4,532.

The committee on military operations, which had done good service during the war, was discharged with thanks.

The report of the committee on standards was presented by W. G. Gove. The committee included, besides Mr. Gove, W. J. Harvie, B. Penoyer and J. S. McWhirter. In his report, which was supplemented by a verbal statement, Mr. Gove said the committee was convinced that more could be accomplished by co-operation with the American Electric Railway Engineering Association and in an advisory way with the manufacturers than by independent action. He said that standardization has an important place in the economics of railway operation, but that the most favorable time to secure results was when apparatus was being developed rather than later. He cited the case of the safety car and commended the manufacturers for what had been done in the way of standardization with that design of car. He expressed his belief that the engineering association would be pleased during the coming year to co-operate in any way outlined. The report was accepted with thanks.

The same action was taken with the report of the committee on membership, presented by H. B. Weatherwax, giving the record of changes in membership during the year.

COLLECTION OF REVENUE

Thomas P. Whelly, cashier New York State Railways, Utica, read a paper on the methods followed by his company so far as regards practice in the cashier's office, receiver's office, etc.

All the revenue from Utica city lines, Rome & Little Falls line, city of Oneida, city of Rome, Herkimer, Mohawk, Ilion and Frankfort lines is counted in the Utica city office. Seven of the city lines in Utica have pay-as-you-enter bank box collection.

All pay-as-you-enter boxes are padlocked to the car and all banks in the boxes have a stenciled number on the cover. This number is visible through a slot in the door so the conductor can make up his record. The conductors on these cars are provided with a bank of \$6 for change, \$4 in nickels and \$2 in pennies, and all conductors are provided with city tickets. Change stations are maintained at junction points where necessary.

The banks in these fare boxes are removed by the receiver at the stations every night, and an empty bank is placed in the fare box as each car completes its run. The receiver makes a report of the number on each bank which he removes from the car and also the number of the bank with which he replaces it. The banks can readily be checked from this report each morning. An additional check of the banks operated is made by the accounting department from the conductor's reports. The receivers at the stations inspect all bank-box collection cars every night and report each car, showing the cars that are in the shop for repairs and those that have not been in service during the day. The cash boxes containing the money are placed in the receiver's cage at the station until morning, when they are brought to the office by two armed men in an auto truck. They are checked and opened at the office, the tickets are sorted from the money and the money is put into a coin counter, where it is sorted, counted and wrapped ready for the bank. It requires three men to perform these operations.

The receipts from the other city lines and the Rome & Little Falls line, which are open collection, are turned in by conductors at stations, upon completion of their runs, to the receivers, who check the receipts and give the conductors receipts for their money. This money is made up into a deposit by the receiver and placed in a leather padlocked money bag and taken directly to the bank in the morning by the same truck which calls for the boxes. A duplicate deposit slip with a statement of each conductor's turn-in goes to the main office, and later in the day this duplicate slip is received by the teller at the bank and becomes a permanent record.

The receipts from the Rome city, Oneida city and Herkimer, Mohawk, Ilion and Frankfort lines, which are open collection, are placed in canvas bags by conductors at their respective stations and deposited in safes which are equipped with a hopper top. Each morning these bags are removed from the safe by the division superintendent, who checks the number of bags with the number of runs operated the previous day and places them in a locked box, which he chains to the brake handle in the front vestibule of a regular passenger car bound for Utica. At Utica these bags are taken to the main office and are checked by two tellers. Each box has a blank receipt calling for the number of remittances in the box, and this is received by the teller who opens the box.

All express and ticket office receipts are put up in

sealed envelopes by the agent in charge of each station and are collected each day by an express messenger, who gives receipts to the agents for them. These envelopes are brought to the Utica office, where they are checked by tellers. This money is then made up into a deposit and taken to the bank.

In Syracuse the system of handling the money is the same as at Utica.

There was no discussion of Mr. Whelly's paper.

A brief paper, on which there was also no discussion, on the reduction of transfer abuse was then presented by Charles A. Coons, general superintendent United Traction Company, Albany. His company, Mr. Coons said, serves a population of about 300,000 in Albany, Troy and neighboring cities. Several years ago the company put into effect a transfer giving the direction and also showing a map, and the issuing conductor was instructed to punch the points where the passenger boarded the car, where he changed cars and the direction he desired to go. This transfer was good for thirty minutes after the time punched. In most cases this meant unnecessary time, offering opportunities to the passenger to abuse the transfer privilege.

About five months ago a line-for-line transfer was substituted for the direction transfer, with the time limit reduced from thirty to fifteen minutes. The name of the issuing line is printed on the face of the transfer and the transfer points are printed on the back for the information of passengers. A transfer instruction book was issued to the conductors for their guidance in issuing and receiving transfers. On several lines where it is possible for passengers to make a round trip for one fare conductors were instructed not to issue a transfer, but to advise passengers to board a car going in the opposite direction and transfer to the line they wish to ride on, where such a plan would make it impossible for a passenger to make a round trip for a single fare. The new system was well advertised and was put in service on June 6, 1920. So far it seems to be giving general satisfaction.

COST OF INTERURBAN FREIGHT SERVICE

A paper on this subject was then presented by W. K. Zinsmeister, auditor and treasurer Rochester and Syracuse Railroad. It outlined a proposed system of freight accounts and will be found in abstract elsewhere in this issue.

In the discussion which followed, R. C. Cram, Brooklyn, referred to the high expense for track maintenance often caused by the operation over track of heavy freight cars. He said that some time ago the Brooklyn Rapid Transit Company had a contract with the city of New York by which ashes were hauled over its tracks to dumping points in 40-ton cars, and it was found later that the tracks leading to these dumping points and other tracks used extensively by these cars deteriorated more rapidly than tracks used exclusively by passenger cars. Mr. Cram said that the tendency in passenger car construction now was toward lighter equipment and consequently toward lighter track construction. Hence, any rate set up for the use of tracks by freight cars should include allowance for such additional wear as would be caused by heavy cars.

NEW OFFICERS ELECTED AND OTHER BUSINESS

Edward F. Peck, chairman of the nominating committee, then reported the following nominations, which were unanimously confirmed:

President, T. C. Cherry, Syracuse.
 First vice-president, W. O. Wood, New York.
 Second vice-president, B. E. Tilton, Syracuse.
 Secretary and treasurer, W. F. Stanton, Rochester.
 Executive committee, the officers and George Keegan, New York; W. J. Harvie, Auburn; W. G. Gove, Brooklyn, and E. J. Dickson, Buffalo.

The newly-elected president, Mr. Cherry, after being escorted to the chair, expressed his appreciation of the honor of his election and asked for the co-operation of the members in carrying out the purposes of the association.

Mr. Peck then presented a set of resolutions expressing the grief of the association at the death during the past year of Edgar S. Fassett, past president of the association.

The resolutions said, in part:

The qualities of heart and mind, the genial, lovable personality which endeared him to all who knew him forbid that his memory should ever fade from our minds. The loss that we have sustained is irreparable, and by this memorial we record our sorrow at his demise and our appreciation of his services to this association and to the industry in New York State.

After the unanimous passage of this resolution and of one expressing the thanks of the association to the retiring officers for their services during the past year the meeting adjourned.

The Banquet

At the banquet in the evening two of the speakers who had been scheduled to present addresses were prevented at the last moment by circumstances beyond their control from attending, but sent letters which were read by the toastmaster.

One of these letters was from the Hon. John A. Barhite, a member of the Public Service Commission, Second District, State of New York, who explained that he was kept away by illness and then said, "My experience in the Public Service Commission for the past three years has made me deeply interested in the transportation systems of the country. We cannot do without them. Every citizen who has the future prosperity of the country in mind ought to recognize this fact and should be willing to lend a helping hand to promote the success of our steam and electric roads."

Hon. William B. Wilson, United States Secretary of Labor, who also hoped to have been in attendance, wrote, in part: "It would have been a source of very great pleasure and satisfaction for me to have been present at the banquet of the New York Electric Railway Association, because you gentlemen are engaged in one of the most important activities affecting the progress of civilization."

In spite of these absences a very acceptable program was provided and carried out. Retiring President E. A. Maher, Jr., acted as toastmaster and the two principal speakers were Douglas Malloch, president of the Chicago Press Club, and Senator Ashurst of Arizona. The address of the former contained many epigrams and hits on the foibles of the day. Senator Ashurst spoke of the basic nature, in our civilization, of transportation and the justice of rates which will yield a fair return to the investor. In this connection he said that the recent increase in fare in the city of Washington to 8 cents was not considered unreasonable there. The latter part of Senator Ashurst's address was an advo-

cacy of a change in the Constitution of the United States by which future amendments to that instrument would have to be approved by popular vote.

Between the addresses of these two speakers Mr. Maher awarded the prizes for the athletic events of the afternoon. The golf prizes went to W. O. Wood and R. E. Hamilton, and a brown derby hat was given to Alex. Cameron as captain of the supply men's team, which won the baseball game in the afternoon.

Mr. Maher also read a telegram from the New England Street Railway Club inviting those present to join the outing of that club in Montreal on June 29-30. A similar invitation in behalf of the officers of the Montreal Tramways Company was warmly extended by A. Gaboury, superintendent Montreal Tramways and president Canadian Electric Railway Association, who was present at the banquet and urged those present to take this opportunity to visit Montreal.

A feature of the banquet was a number of choral selections given by a quartet made up of representatives of the United Traction Company of Albany, led by H. B. Weatherwax, vice-president of the company.

Report Issued on London Traffic Needs for Centralized Regulation, Co-ordination and Better Fares Are Emphasized

THE Ministry of Transport, through its advisory committee on London traffic, has presented to Parliament a report which was adopted unanimously by the committee on March 18, 1920. The report first discusses work already accomplished in traffic control. The latter includes the special regulation of slow buses. Buses may no longer be hailed at any point but have four regular and two optional stopping places per mile. Efforts to reduce peak loads by staggering working hours have been inaugurated through the Treasury, the London Chamber of Commerce, the Early Closing Association and the National Union of Clerks. Pending the appointment of a permanent regulating body (traffic authority) by act of Parliament, the committee recommends the continued existence of an advisory committee, assisted by a technical committee, representing every interest.

PRESENT AND FUTURE NEEDS

Under this heading, the committee presented the accompanying table to show that London traffic has outgrown its facilities:

TABLE SHOWING LONDON TRAFFIC BY FORM OF TRANSIT

Form of Transit	Number of Passengers in Millions				Rides per Inhabitant
	1905	1914	1918	1919	
Tube railways.....	69	147	254	266	36
District railways.....	56	85	133	140	54
Other local railways.....	180	172	223	253	
Total local railways.....	305	404	610	659	
Street railways.....	478	844	992	1,053	143
Motor buses.....	291	757	682	861	117
Grand total.....	1,074	2,005	2,284	2,573	350
Population in thousands.....	6,858	7,420	6,784	7,357	
Riding index.....	157	270	337	350	

In addition, it is estimated that during 1919 the suburban traffic on trunk lines was 486,000,000, thereby increasing the number of rides per inhabitant per annum to 413.

It is admitted that further growth of the private London transportation systems is impossible today be-

cause they yield an inadequate return upon investment and in some cases they are not even meeting their operating expenses. Generally speaking, each undertaking ought to pay its own way. This has not been the case with the components of the London combine (tubes, buses and suburban tramways which are under one ownership), and such a policy may not always be practicable. Nevertheless, the issue is raised anew when the suggestion is put forward that fares should be substantially increased on a paying system in order to help a poorly paying member of the combine. The committee is convinced that with proper legal safeguards and better co-ordination of the several modes of transportation co-operative financing is justifiable.

When it comes to providing new money for transport schemes of admitted public importance but doubtful financial worth it may be necessary for the state or municipality to render some aid, as implied by Section 17 of the ministry of transport act.

CLEVELAND'S FRANCHISE MENTIONED

In discussing fares, the committee notes that the present laws specify the maximum rates permissible on railways and tramways, but the only curb on the motor bus is that imposed by the rates of its regulated competitors. Regarding fare regulations in general, the committee makes this significant statement: "We do not suggest that the traffic authority should have the power to fix or vary fares, for the obvious reason that these control the methods of operation, and any traffic authority claiming powers to settle the terms on which passengers are to be carried must be prepared to subsidize or, in case of need, to operate." However, the committee adds that when important variations are proposed the regulatory body should have the right and power to call for the production of all books and to require personal inspection of operating methods.

The committee then refers to the Cleveland service-at-cost franchise, including the arrangement for a city traffic commissioner, and says: "This franchise has become noteworthy in the United States, as other tramway undertakings have adopted it as a standard to which they look for a solution of the difficulties now besetting them, and it may be that, in time, we shall have to contemplate the adaptation of this principle to London."

The committee recommends that a bill be placed before the House of Commons by the Ministry of Transport to embody the following points as a basis for reaching a conclusion: (1) The present value of the share capital on which a reasonable rate of return should be paid; (2) rate of remuneration considered reasonable; (3) percentage of increase in fares necessary to attain a sound operating basis.

In conclusion, the committee suggests the character of personnel desirable for a regulatory body, practically along the lines of American public service commissions (a chairman and two commissioners). This body would not have to deal with most of the obstructive veto powers hitherto exercised by the London boroughs, but as a body with delegated powers would be subject only to the veto power of the Minister of Transport.

An appendix contains detailed statistics covering the traffic and finances of the larger transport undertakings in London, including the London County Council Tramways. A notable item in these reports is that the present replacement cost of rolling stock would be two and one-half to three times the original cost. This condition,

which applies also to other items, is a hard blow to the reserve and depreciation funds which had been set up on the basis of pre-war costs.

Energy Output Statistics

THE figures of kilowatt-hour output of public utility plants in the United States for the first three months of 1920 have just been published by the United States Geological Survey. The figures are based on the returns of about 2,800 power plants of 100-kw. capacity or more engaged in public service, including central stations, electric railways and certain other plants which contribute to the public supply. The capacity of the

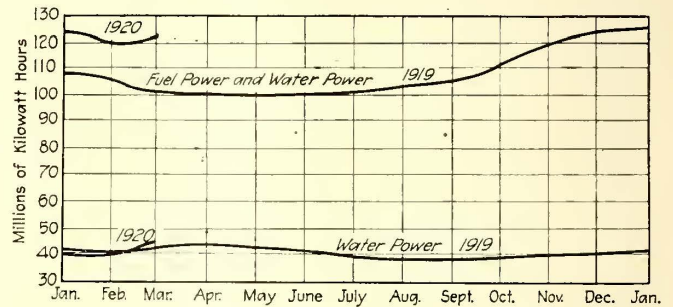


CHART SHOWING AVERAGE DAILY PRODUCTION OF KW.-HOURS BY PUBLIC UTILITY PLANTS IN THE UNITED STATES, 1919 AND 1920

plants submitting reports of their operations is about 90 per cent of the capacity of all plants listed. The average daily production of kilowatt-hours for the three months was as follows: January, 124,600,000; February, 119,800,000; March, 121,800,000.

The following figures relate to the year 1919: Total kilowatt-hours produced, 38,900,000,000, of which 37.9 per cent was produced by water power and 62.1 per cent by fuel. The total fuel consumption was: Coal, 35,000,000 short tons; oil, 11,050,000 bbl., and gas, 21,700,000 M. cu.ft.

Living Cost Doubled Since 1914

THE United States Department of Labor announced on May 2, 1920, that the cost of living in fourteen industrial cities of the country had more than doubled in the last five years, comparing the figures for December, 1919, with those for December, 1914. The highest percentage of increase was 107.87 for Detroit, with Norfolk second at 106.19. New York City ranked third with 103.81. Others in their order were Buffalo, 102.65; Jacksonville (Fla.), 102.14; Houston, 101.70; Chicago, 100.61; Savannah, 98.68; Baltimore, 98.40; Philadelphia, 96.49; Cleveland, 95.05; Mobile, 94.54; Boston, 92.30, and Portland (Me.), 91.59.

The accompanying table shows in detail the changes in New York year by year:

Items of Expenditure	Per Cent of Total Expenditure	Per Cent of Increase from Dec., 1914 to Dec., 1919				
		1915	1916	1917	1918	1919
Food.....	42.0	1.34	16.26	55.28	82.62	90.95
Clothing:						
Male.....	4.78	20.32	51.40	126.39	201.26	
Female.....	4.87	24.73	57.63	137.15	234.97	
Total.....	16.6	4.82	22.31	54.21	131.25	219.66
Housing.....	14.3	*0.10	*0.05	2.63	8.47	23.39
Fuel and light.....	4.3	*0.06	10.98	19.92	45.47	50.63
Furniture and furnishings.....	3.3	8.43	27.60	56.47	126.51	172.92
Miscellaneous.....	18.7	1.97	14.91	44.68	70.01	95.82
All items.....		1.97	14.91	44.68	77.28	103.81

*Decrease.

The Place of the Bus—V

Inherent Difficulties Concerning Satisfactory Motor Bus Regulation—Only Way Out Seems to Place Responsibility for All Mass Transportation Up to One Agency

By WALTER JACKSON
Consulting Engineer



A MOTOR BUS FOR CROSS-COUNTRY SERVICE

WE HAVE seen that more than fifteen years of motor bus operation in Great Britain has not yet led to legislation that places the electric car and the motor bus on the same plane of responsibility and taxation. It must not be assumed that this delay is due altogether to national inertia and that we Americans will settle our motor bus problems overnight. The fact is that the omnibus covers so wide a range, from the simple job of hacking from a railway station in connecting with each train to functioning exactly like a street railway, that adequate yet fair legislation is really difficult. A regulation concerning liability bonds, for example, might be absolutely fair and necessary to curb a city busman and at the same time be most unjust to the rustic operator who wants to give the public something better than two trains a day.

The fact that individuals can often run routes for less cost than a large organization discourages the formation of the latter, thus making regulation much harder. For example, a company with an established system of accounting could not readily deceive the municipality on so simple a matter as paying a fixed proportion of the gross receipts into the city treasury. On the other hand, it is impossible to supervise the doings of hundreds of individual operators, not only with regard to their earnings but with regard to their compliance with essential service and safety regulations. The individual ownership of the buses and the condition that they, at least temporarily, enhance the transportation service of the community also lead to a measure of public sympathy that makes motor bus legislation unpopular and its enforcement difficult.

Historically, of course, the bus is derived from the stage coach and the cab. In the old days all of these vehicles operated at fares and under conditions so different from those obtaining on horse and steam railways that no one thought of placing the two public services in the same category. But while the horse bus had to

give way to the horse car, the wonderful improvement of the internal combustion engine, the development of the rubber tire and the advent of smooth, durable paving have made the line of economic demarcation between their power-driven successors much less distinct.

If, for example, the street car charges 5 cents and is available at five to twenty minute intervals for twenty hours a day it will suffer no harm whatever from a motor bus service which charges, say, 25 cents for a like distance and which is available only during hours that the operator himself selects. In this case it is clear enough that the busman is really a hackman and naturally is subject only to those demands concerning character, license and safety of vehicle that have been characteristic of stage operation.

Mark now the change in his status if he decides that it is more profitable to carry more passengers at the street railway rate. He is no longer a hackman, temporarily renting his vehicle for the exclusive use of the first patron or group of patrons. His vehicle becomes an omnibus—literally a *carryall*—whereby he not only cuts deeply into the earnings of the street railway but is also morally bound to accept the same obligations and burdens as the street railway.

The many novel problems involved in this transition, with its concurrent appeal to the public's appetite for low-cost service regardless of high-cost prices, are only now nearing solution in Great Britain. Yet the electric railways of Britain, so largely municipalized, did not have to meet the "Here's a chance to get square" tactics that are characteristic of conditions here. It simply has proved easier to control an industry which has a fixed track with some claims to right of way than one whose pathway is the common road.

The writer, of course, is aware of the mass of anti-jitney legislation that has been passed, amended and discarded since the coming of that jaunty vehicle in 1914. These anti-jitney ordinances, however, do not go

so far usually as to be a real handicap to the operators of thirteen to twenty-four seat buses in good short-haul territory. They are drawn up primarily against the small touring car, which is generally put out of the running by a \$5,000 to \$10,000 liability bond; not so with larger buses taking in \$30 a day or more. Also, clauses concerning reliability of service are not readily enforceable against individuals who have no time-table departments to spread before a censorious public service commission.

In spite of the commendable co-operation that has been manifested recently between electric railways and civic committees, notably in the cities served by the Eastern Massachusetts Street Railway, there is no reason to expect the permanent elimination of the competitive bus through any other tactics than the giving of headways that are short enough to wipe out the jitney driver's margin of profit.

Nevertheless, as there is an ever-growing field for the motor bus used legitimately and used advantageously, it behooves us to study the general trend of motor bus regulation with a view to seeing what impositions an electric railway would be likely to bear if it undertook to operate co-ordinating services. To this end there is presented a summary of motor bus and motor truck legislation, based partly upon direct research by the writer in connection with studies for clients and partly upon the recent state by state compilation of vehicle charges issued by the American Electric Railway Association.

GREAT VARIATION IN LICENSE RATES

The association circular indicates at a glance the total absence of any systematic or uniform state taxation. In South Dakota and Wyoming no registration at all is required, whereas neighbor Idaho has a scale reading: 30 hp. or less, \$15; 31 to 40 hp., \$20; 41 to 50 hp., \$25; more than 50 hp., \$40. One might look for more uniformity in the better-populated states where motor trucks and buses have been a factor for some time. Here we find that Maine is content with a flat charge of \$10, that Massachusetts charges \$5 for the first ton and \$3 for each additional ton, that Vermont is kind to old customers by charging \$1, 75 cents and 50 cents per horsepower for successive annual registrations, that New Jersey recognizes the existence of trailers and that Pennsylvania knows that a pneumatic-tired vehicle should be assessed less than one with solid tires. There is the widest diversity also in charging by the horsepower or by the ton. However, no matter what the method of charging, the assessments cannot be said to be onerous or in any likely proportion to the wear caused to the roadways if comparison be made with the British petrol tax and road upkeep charges (see Article II for details).

SOME STATE REGULATIONS IN DETAIL

A step forward in differentiation between passenger and freight motor buses is presented by the Maryland law which became effective July 1, 1918. Vehicles weighing between 3,000 lb. and 7,000 lb., inclusive, pay annually $\frac{1}{8}$ cent per seat-mile operated, while those weighing more than 7,000 lb. are to pay $\frac{1}{4}$ cent per seat-mile operated. Thus a fifteen-seat bus coming in the first category and making 30,000 miles per annum would pay practically \$300 or \$600 for two such buses. A single thirty-seater would weigh in excess of 7,000 lb. and on the basis of $\frac{1}{4}$ cent per seat-mile would

pay 30,000 multiplied by 5 or \$1,500 per annum. This gives 5 cents per bus-mile for a thirty-seat vehicle, assignable largely to road upkeep, compared with less than 1 cent per mile for way and structure charges on one all-safety car system. On the same railway all taxes plus way and structure are still well below 5 cents per car-mile. So far as Maryland is concerned, therefore, large buses have little chance if in direct competition with modernized electric railways assuming worth while traffic density.

Reliability of service is also called for by specific co-operation between the Motor Vehicle Commission and the Public Service Commission. The latter authorizes operators to run over given routes and the former furnishes the necessary markers or plates. No deviation from the specified route or schedule is permitted unless authorized in writing by the Public Service Commission, a copy of the revised order going to the Motor Vehicle Commission, for the purpose of readjusting the charges. As previously observed, it is easier to enforce both of the Maryland regulations, namely, seat-mile charge and service responsibility, on a company than on the individual.

The freight motor bus law of Maryland says in effect that $\frac{1}{4}$ cent per ton-mile shall be paid for vehicles weighing 3 tons or less, $\frac{1}{8}$ cent per ton-mile for vehicles weighing 3 to 6 tons, inclusive, and $\frac{3}{8}$ cent per ton-mile for vehicles weighing more than 6 tons, carrying capacity included in all cases.

Although Providence, R. I., has a well-organized bus company in competition with the Rhode Island Company, over the same streets, there is no state or municipal law to regulate its operation as a public utility or to demand proof that public necessity and convenience require bus service. The Rhode Island Omnibus Company annually pays \$50 per bus to the city, \$10 to the State as registration fee for a 22.2-hp. vehicle and \$20 as a State tax on public service vehicles. This gives a total impost of \$80 a year for a twenty-three-passenger vehicle. A. Luff, president of this company, told the writer that he would be perfectly willing to pay the city a fixed percentage of gross earnings if permitted a monopoly of bus business.

So far as the State laws are concerned, the following charges are set forth for 1919: Registration fees, \$5 for automobiles up to 15 hp., \$10 for more than 15 hp. to 30 hp., \$15 for more than 30 hp. to 40 hp. and \$25 for automobiles in excess of 40 hp. Motor trucks of 1 ton or less pay \$7, of 1 to 2 tons \$10, of more than 2 to 3 tons \$13, of more than 3 to 4 tons \$16, and so on up to \$40 for motor trucks in excess of 9 tons carrying capacity. Special permits are issued for trailer operation, \$10 being charged for vehicles over 2 tons and not more than 5 tons, \$20 for vehicles over 5 tons and not more than 10 tons, and \$30 for vehicles more than 10 tons, load included in each case. One important rule with regard to the safety of electric railway passengers is that a self-propelled vehicle must not pass a trolley car stopped to receive or discharge passengers on the side between the car and the curb.

CONNECTICUT STATE AND CITY PRACTICES

The motor vehicle laws of the State of Connecticut define a "public service motor vehicle" as including "any motor vehicle used for the purpose of soliciting and receiving passengers upon any public highway or carrying such passengers upon the payment of an individual fare, but shall not include omnibuses running regularly

between railway stations or boat landings and hotels." The registration fee for a public service motor vehicle seating five persons or less is \$15, plus \$2 for each additional seat in excess of five and including twenty; \$5 for each additional seat in excess of twenty and including forty, and \$10 for each seat exceeding forty. However, almost all jitney buses used in Connecticut seat less than twenty. These fees are in addition to the usual motor vehicle registration fee of 50 cents per horsepower.

Those who desire to operate public service motor vehicles must procure a certificate from the local chief of police or first selectman before the State Commissioner of Motor Vehicles grants the special license required in such operation. While the applicant has the right to appeal to the Commissioner if this local permission is not granted, it would hardly help his health to do so. In practice, therefore, the municipality can exercise considerable control over bus operations, as in the case of Bridgeport. The personal State license of the operator of a public service vehicle is \$5.

Another part of the law, "more honored in the breach than in the observance," states that: "No public service motor car shall carry any person upon the running boards, mud guards or hood, nor shall the total number of persons carried at any time exceed two persons more than the regular seating capacity." It would be almost unnecessary to impose any other form of taxation if the penalty of \$25 per offence were really collected. The rather involved rule about refraining from passing a street car which has stopped to take on or discharge passengers is another legislators' ideal quite unenforceable in practice.

The Connecticut law does not permit towns, cities or boroughs to regulate the speed of motor vehicles, their lighting and their accessories. The powers remaining are those that relate to sanitation, stoppage of all vehicles in the case of processions, parades, etc., and the establishment and enforcement of ordinances fixing traffic routes and public stands for public service motor vehicles. The speed regulations prohibit vehicles from passing a standing street car at more than 10 m.p.h., and of running in thickly settled portions at more than a rate of 20 m.p.h. for a quarter of a mile.

Operators of public service vehicles must display a State sign to show that they are engaged in jitney or taxicab service, and if in the jitney service the standard fare must be shown. The first violation of this rule brings a fine of \$25 and a second violation brings indeterminate suspension. These signs are independent of the route signs such as are supplied through the Police Department of Bridgeport. The liability bond to be taken out with an approved surety company varies from \$5,000 to \$10,000.

Because of the extraordinary traffic development in Bridgeport, the chief city of Connecticut, the Board of Police Commissioners of that city had to adopt heroic methods to minimize congestion. The great traffic center of Bridgeport for every kind of vehicle is the intersection of Main St. and Fairfield Ave., respectively 34 ft. and 33 ft. narrow. No public service vehicle may be operated without the consent of the board. The police may refuse to issue a permit on the simple ground that a given route is already overcrowded and it may, and does, oblige the bus operator to run from terminal to terminal of the routes over which bus operation is permitted. In fact, the more important routes have start-

ers to maintain proper headways. These starters are paid by the drivers. An early evil was the tendency of drivers to cut back in the very center of the city in order to confine their operations to the fat side of a crosstown route, but this is no longer permitted.

Until late in 1919 an approved operator could purchase three standardized route signs from the Police Department at \$1.25 each and was at liberty to change over any time to any of the routes for which he had a sign. At the instance of the older and more conscientious operators an ordinance was passed specifying that a driver may obtain only one sign at a time and must give twenty-four hours' notice of a desire to change to another route.

In addition to the effective traffic control under the direction of Capt. Charles A. Wheeler, the Police Department also warns the operators on such matters as exhaust whistles and muffler cutouts. The popularity of jitney service at Bridgeport must also be due in good measure to the close scrutiny over the doings of the bus operators. Captain Wheeler, for example, keeps a continuous inventory of every man and his route.



A FIFTH AVENUE DOUBLE-DECK BUS

Even their visits out of town are noted, as when some adventurous ones left to try their fortunes on Mayor Hylan's New York lines.

MATTERS MIXED IN NEW YORK STATE AND CITY

Before adverting to the law surrounding de luxe and jitney motor bus operation in New York City a glance may be taken at a decision made by the Public Service Commission of the Second District (outside New York City) which vividly illustrates the dangers that must be faced by an electric railway because of the anomalous "is it a special service or is it a utility" position of the motor bus.

During the year 1916 a certificate of necessity and convenience to run a motor bus line was granted by the Public Service Commission to a realty organization in Albany known as the Woodlawn Improvement Association. In over-ruling the protest of the United Traction Company the commission said:

"In the opinion of the commission, the consent of the city to the operation of a bus or stage route required by section 26 of the transportation corporations law is not the granting of a franchise within the meaning of section 37 of the second class cities law. It is more in the nature of a license, such as those issued to hackmen and others."

The railway had urged that the authority of the Common Council was not valid because the permit purported to be a franchise, and as such had not been sold at auction to the highest bidder as the law required.

The commission did not admit the railway's plea that this competition was unjust, because the proposed bus route was 2,500 to 4,000 ft. from the nearest street railway in a fast-growing residential section and because a street railway route for the same street had been urged in vain. Despite the fact that the bus route was to start at the Union Station, the city's traffic center, the commission would not take cognizance of the fact that the buses necessarily would pick up possible railway patrons who were not going to the locality for which this service was specifically desired. This is not mentioned in criticism of the commission but as a proof that electric railways cannot afford to let others do something that will cause the loss of short-haul riders when it can undertake co-ordination instead of competition.

The situation is decidedly confused as regards New York City. The original rights of the Fifth Avenue Coach Company were obtained as standard monopoly franchises granted jointly by the State and the city. Between 1900 and 1913 the State law was so worded that only previously existent companies (and the Fifth Avenue Coach Company was the only company) could apply for franchises with any hope of success. However, in recent years the Fifth Avenue Coach Company has extended its routes on the score of "emergency" permits from the city without the specified review by the Public Service Commission of the First District. This point was raised adroitly by W. P. Burr, when Corporation Counsel of New York City, in a hearing held before the Public Service Commission concerning the complaint of residents against the establishment of a municipal bus service via Eighth Avenue, Borough of Brooklyn. If the Fifth Avenue Coach Company could exceed an emergency permit (because of a Billy Sunday revival) by two years or more, he argued, the city itself surely had the same right when it came to serving people whose trolley routes had been abandoned or disrupted. A few weeks later the complaint was withdrawn.

The Fifth Avenue Coach Company pays a city tax of 5 per cent on its gross earnings, the local license tax of \$20 per vehicle, the State license tax, income tax, property tax, etc. For the fiscal year ended June 30, 1919, taxes amounted to 6.02 cents per bus-mile. As the total earnings were 46.27 cents per bus-mile, taxes alone amounted to 13 per cent. It will be seen that the Fifth Avenue Coach Company has not been overlooked by city, State or nation.

In contrast we have the New York municipal buses. So far from paying anything into the State or city treasuries, they actually enjoy substantial subsidies. The Department of Plant and Structures, city of New York, which controls the service, furnishes the schedules, route signs, supervisory personnel, etc., without charge. The bus drivers carry no liability bond, nor does the city expect them to do so, because this scratch operation is confessedly temporary. The city on Friday, March 12, appropriated \$1,140,000 for the purchase of 200 buses, so that the busmen can hardly be blamed for refusing to take out a bond costing close to \$500. Responsibility for accidents lies definitely with the city.

Until jacked up by the Secretary of State, the municipal busmen had also refrained from paying anything to the State treasury. Under the New York law registration costs 25 cents per horsepower plus 40 cents for

each \$100 of original list price if the machine was made after Jan. 1, 1917. Grover A. Whalen, Commissioner of Plant and Structures, estimated on November 6, 1919, that the bus license costs would range from \$15 for a five-passenger bus to \$67.50 for a thirty-passenger bus. The driver's license would cost another \$5.

CALIFORNIA SUNSHINE GREAT HELP FOR AUTOMOTIVE VEHICLES

The combination of a splendid climate and excellent roads has led to a most extraordinary development of public utility motor truck and motor bus services in California. As this development has also accelerated automotive legislation, some regulations can profitably be presented as indicative of legislative needs that will have to be met in other States. Fortunately, there is at hand for this purpose an article on "Passengers and Freight Carried More Cheaply by Motor Transport than by Railway," by K. Q. Volk, published March 18 in the *Engineering News-Record*. An abstract of part of Mr. Volk's article follows:

Under Chapter 213 of the Laws of 1917 the California State Railroad Commission received jurisdiction over all public utility motor vehicles operating between fixed termini, one or both of which are outside the incorporated limits of a city or town. The commission may fix rates, classifications and rules and regulate the accounts, service and safety of such companies, which jurisdiction shall supersede any conflicting jurisdiction exercised by municipal or county authorities. This act, amended in 1919, further provides that any one desiring to engage in stage or truck transportation between fixed termini must obtain a certificate of public convenience and necessity from the Railroad Commission. To secure such a certificate, the applicant must state the places and intermediate points between which he desires to operate, the proposed fares, rules and regulations covering service, copy of his proposed schedule, description of equipment to be used, name of company and its officials, name of line, steam railroads and electric railways operating between points he expects to serve and general conditions of operation and service upon which the applicant bases his justification for a certificate.

Holders of certificates are not limited by the commission, but may be locally, as to the amount of money they may borrow to develop business. The State demands no license fee for commercial motor carriers other than the annual registration fee demanded for all automobiles and trucks (40 cents per horsepower if pneumatically tired; solid tired vehicles less than 2 tons unloaded pay \$5 more; 2 to 3 tons, \$10 more; 3 to 5 tons, \$15 more; more than 5 tons, \$20 more).

The license fees charged by counties and municipalities vary from nothing to \$200 a year for the initial vehicle and \$25 for additional cars, the standard of the city of Ontario in the case of interurban service. Other communities base their rates on seating capacity, as Riverside, which charges \$12.50 per seat per annum. Los Angeles charges interurban stages the following rates upon an annual basis (charges actually are made on a quarterly basis):

5 to 7 passengers\$27.00	16 to 20 passengers\$54.00
8 to 10 passengers 36.00	21 to 25 passengers 60.00
11 to 15 passengers 46.00	26 to 30 passengers 63.00

A quarterly rate of \$1.50 per ton (annual rate of \$6 per ton) or fraction thereof is charged for motor trucks operating as common carriers. The annual license fee for operating a ticket office and waiting room, as maintained by the larger companies, is \$120.

Los Angeles County has adopted the following annual charge for each interurban stage and freight truck operated between fixed termini:

LOS ANGELES COUNTY CHARGES FOR STAGES AND TRUCKS

Interurban stages:	Freight trucks:
Five seats or less.....\$18.00	1-ton capacity or less.... \$6.00
Five to twelve seats.... 24.00	1 to 2-ton capacity..... 9.00
Twelve to twenty seats.. 30.00	2 to 3-ton capacity..... 12.00
More than twenty seats.. 36.00	More than 3 tons capacity. 15.00

There is also an almost uniform regulation in cities and counties which requires automobile stage companies to file an indemnity bond of \$10,000 for each vehicle operated. The recovery under such a bond is usually limited to \$5,000 for the injury or death of one person, \$10,000 for the injury or death of two or more persons in the same accident and \$1,000 for injury of or destruction to property. The rate for liability insurance on interurban stages varies from \$150 to \$216 a year according to seating capacity.

Mr. Volk says he cannot find that any money collected from licenses by cities or counties is returned to a road fund. All money received from license fees by the State goes into a motor vehicle fund. One-half the remainder of this fund after paying administrative expenses goes to the counties from which the money was collected for the purpose of road construction and maintenance.

Mr. Volk notes that competition with the other carriers has led to a serious situation. All interurban stages are said to be giving quicker and more frequent service at lower rates than rail carriers. Routes up to 60 miles in length with sixteen to twenty-five-seat vehicles have proved the most satisfactory, and for still longer runs vehicles of nine to twelve seats are most popular. Most of the twelve-seaters are standard second-hand seven-seat passenger cars rebuilt and lengthened. It is stated that many of the interurban stage companies were not a success at first, owing to the competitive conditions, need for creating traffic and failure to use standard equipment. A table in Mr. Volk's article showing the principal stage companies operating out of Los Angeles and the rates of the railways with which they compete was published in the *ELECTRIC RAILWAY JOURNAL* for May 8, 1920.

Passenger transport has grown faster than freight despite the expenses enumerated. Late in 1918 the automotive interests formed the California Highway Association for general co-operative purposes, including encouragement of laws to put them on the same basis as other common carriers. Cost of membership is \$10 a year for the first car and \$3 a year for each additional car.

In Illinois motor vehicles may be registered locally. A motor bus can be run in the city of Chicago for an annual license fee of \$30, but the bus company must first obtain a certificate of convenience and necessity from the Public Utility Commission of Illinois. In the case of the Chicago Motor Bus Company, permission to operate on the north side had to come also from the Commissioners of Lincoln Park because part of the run is over a parkway.

The total taxes paid by the Chicago Motor Bus Company have been on the order of 2 cents per bus-mile, as

revealed by reports made during 1918 and 1919. This is equivalent to a range of 4 to 7 per cent of the gross earnings.

The latest de luxe 10-cent service is that of the St. Louis (or Missouri) Motor Bus Company, which inaugurated service on Feb. 10, 1920, with nine double-deck buses. The company agreed to pay the city a license fee of \$25 per vehicle and 5 per cent of the gross earnings. The State registration fee ranges from \$2 for motor vehicles of less than 12 hp. to \$12 for motor vehicles exceeding 72 hp.

In addition to New York, Chicago and St. Louis, negotiations are under way with the municipalities of Newark, Philadelphia and other places for similar services. The ever-rising cost of labor and material as against the fixed 10-cent fare, however, is not encouraging to the development of supplementary services unless conducted by the existing electric railways.

The following and concluding article will be devoted entirely to costs—from the humble, second-hand one-man car to the imposing vehicles known to Fifth Avenue and the Lake Shore.

German Electric Tramways

AN EDITORIAL in a recent issue of the *Electrical Review*, London, summarizes the plight of electric tramways in Germany, stating that the situation with regard to many undertakings is now becoming desperate. The chairman of one of the principal manufacturing companies, which is also interested in a number of tramways, recently stated that nothing further could be gained by increasing fares. This statement is more than confirmed by the directors of a tramway in Rhineland. They point out that it has been necessary to have recourse to raising fares in order to meet the increase in working expenses, but in this respect they have been opposed by the local authorities, who have placed great difficulties in the way of introduction of higher fares. On the other hand, the municipal tramway fares have been advanced time after time, and in some cases the municipal councils have also increased the taxes in order to endeavor to relieve the tramways at the expense of the taxpayers in general.

It is now proposed to attempt to solve the question of fares by arbitration, as in the case of the fixing of charges for the supply of energy, but experience has shown lately that the increases in fares, far from yielding a larger revenue, are actually resulting in a decreased income.

Continuing, the editorial says that the new advances made in the prices of coal with the consequent rise in the prices of materials, etc., will further prejudicially affect the working of the tramways. The charge made for power before the war to tramways not owning their own generating stations ranged from 5 to 10 pfennigs per kilowatt-hour; it now amounts to from 40 to 50 pfennigs, and will further advance in the next few weeks. The introduction of minimum fares of 60, 70 or even 80 pfennigs has been discussed by a number of tramway managements, but these have been vetoed by municipal bodies on the ground of political consideration, recourse being again had to the indirect method of increased taxes. The price of tramway rails, which amounted to 139 marks per ton at the outbreak of the war, reached 300 marks in March, 1919, and is now 3,200 marks. Copper has risen from 1½ to 62 marks per kilogram, and the cost of a motor tramcar from 15,000 to 200,000 marks.

Super-Power Scheme for Holland

THE acute fuel situation in Europe is evidenced by the many electrification projects that are now being initiated. Holland, through a committee formed by the Society of Directors of Electricity Supply Undertakings in Holland, has been investigating a proposal for making a national electrical power supply for industrial and transportation uses in order to reduce the national consumption of fuel and the cost of power. The project is estimated to cost about \$50,000,000 and much of the equipment must be purchased abroad.

The committee advocates the adoption of a minimum voltage of 50,000 and three-phase, 50-cycle current for the high-tension network. The network is to be supplied by power stations of 30,000 to 75,000 kw. capacity, using 15,000-kw. generators. It is estimated the country will need about fifty transformer substations, situated about 15 miles apart, feeding into 10,000 volt-distribution cables.

The scheme calls for state administration of the system and the taking over of existing plants. A stock company, with the government owning a large share of the stock, is one method advocated for carrying out the project.

The total load on the system is expected to be about 3,500,000 kw., with an annual output of about 1,000,000,000 kw.-hr., which will mean a power consumption of about 100 kw.-hr. per inhabitant per year, as against 40 at the present time.

The above figures are based on no electrification of the railroads or steam railways. It is estimated that an additional 200,000 kw. of station capacity will be needed in the next twenty years to carry this load. The road from Brussels to Antwerp is expected to be the first electrified.

At the present time the maximum load on the power stations is about 100,000 kw. with an annual output of 250,000,000 kw.-hr., so that the immediate development contemplates the expenditure of only about \$16,000,000 to purchase and co-ordinate existing plants and construct some badly needed interconnected transmission lines. The future development also depends on the developments occurring in adjacent coal regions, such as in the South Limburg district, as it may be cheaper to use high-tension lines with power plants in the coal regions than to develop the scattered power plant scheme. The committee considers it cheaper at present to transport the fuel than to use transmission lines excepting in the case of very low-grade fuel.

Austrian State Railways to Electrify

THE Austrian Railway Ministry through its electrification division has recommended the electrification of 1,000 miles, or 40 per cent, of the state railroads.

Austria has an estimated undeveloped water power of 2,000,000 hp. and the electrification plan calls for the immediate electrification of roads near easily developed water powers and distant from the coal fields. The state hopes to have 400 miles completed in the next seven years, as the present state of exchange permits of obtaining labor at a very low rate and at the same time the electrification will afford an opportunity for employment during the period of national industrial stagnancy.

The fuel situation in Austria is very acute as the available coal is very poor in quality and constantly increasing in price. The state estimates a saving of 30 to 50 per cent in national fuel consumption, using the

pre-war consumption as a basis for the estimate, through the projected water-power development.

The cost of the electrification contemplated during the next seven years is about \$16,500,000 and financial assistance is being solicited from neighboring states, as Austria is in a desperate economic condition. It is estimated that if the construction were done in Switzerland the cost would be \$80,000,000, due to the different labor and exchange conditions, so the Austrian government desires to take advantage of this situation to start work immediately.

A. E. S. C. Activities

IN THE report of the meeting of the American Electric Railway Association executive committee, given in the June 26 issue of this paper, the statement was made that the association will apply for representation in the American Engineering Standards Committee. This fact makes it desirable that all members of the association should be familiar with the plan and scope of the work of this committee. Its organization and early progress were covered in the issues of the paper for March 1, 1919, page 407; May 3, page 859, and June 7, page 1,100. Since the last report was printed the committee has established offices at 29 West Thirty-ninth Street, New York City, in charge of Dr. P. G. Agnew, formerly of the staff of the United States Bureau of Standards, as secretary of the committee. During the spring of this year Dr. Agnew represented the committee at the Brussels (Belgium) meeting of the International Electrotechnical Commission. During his trip, covering eight weeks, he personally investigated the work of the foreign prototypes of the A. E. S. C. and has issued a report of his investigations to the members of the committee. These foreign bodies were as follows: Association Belge de Standardisation (Belgium); Commission Permanente de Standardization (France); Hoofdeomissie voor de Normalisati in Nederland (Holland); British Engineering Standards Association. Dr. Agnew reported that the national engineering society of Italy is also forming a national engineering standards organization.

Bulletins are now being issued from the New York office at frequent intervals. Recent ones show that:

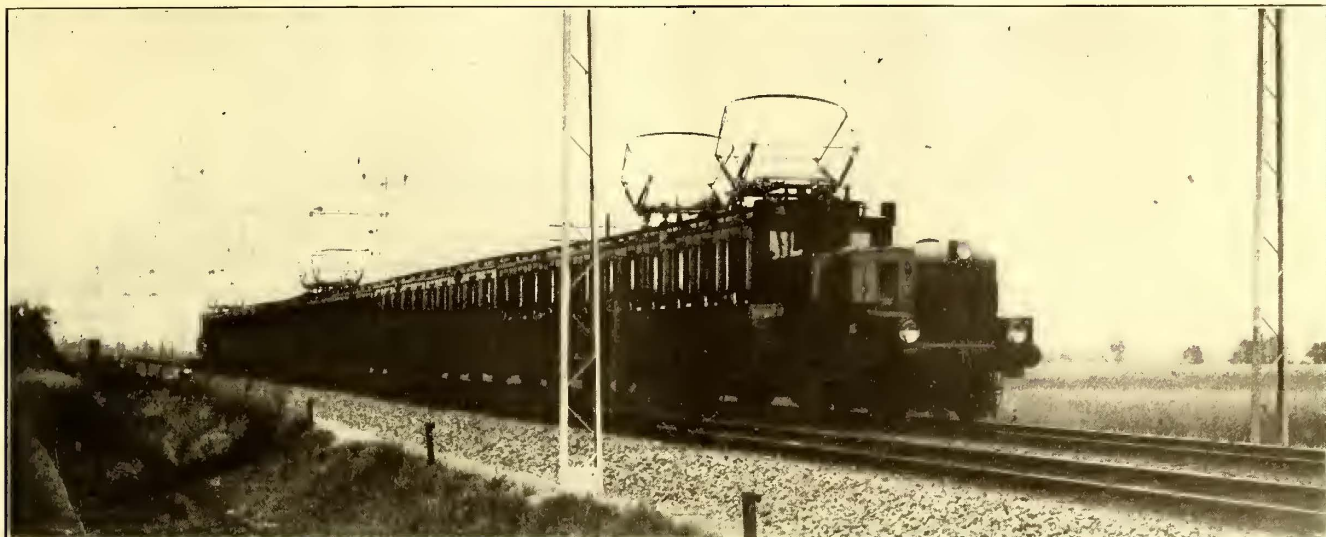
1. The A. S. M. E. and the Society of Automotive Engineers have been requested to act as sponsors in the matter of international standardization of widths across flats on nuts and bolt heads, as proposed by the Swiss Standards Association.

2. A sectional committee on steel shapes was organized under the auspices of the A. E. S. C. at the instance of the Association of American Steel Manufacturers, which has formulated recommendations regarding Anglo-American practice regarding the rolling of angles, channels and beams.

3. The A. S. M. E. has been asked to act as sponsor in the standardization of pipe fittings and of shafting.

4. A sectional committee has been organized to undertake the standardization of plain, cylindrical gages for general engineering work, under the sponsorship of the A. S. M. E. and at the instance of the British Engineering Standards Association.

Besides the five founder societies (A. I. E. E., A. I. M. & M. E., A. S. C. E., A. S. M. E. and A. S. T. M.) the committee now includes representatives of the Electrical Manufacturers' Council, the Fire Protection Group, the National Electric Light Association, the National Safety Council and the Society of Automotive Engineers.



CAB-LESS SINGLE-PHASE LOCOMOTIVE, WITH CURRENT COLLECTORS, CONTROL EQUIPMENT AND MOTORMAN ON LEADING PASSENGER CAR, AS PROPOSED FOR BERLIN SUBURBAN AND CITY ELECTRIFICATION

Rapid Transit Development at Berlin

Electrification of City and Suburban Lines Contemplates Use of 15,000-Volt, Single-Phase, with Cab-less Locomotives and Power Generated from Gasified Fuel — Total Mileage Small in Comparison with New York and London — Enormous Increases in Fares to Meet Higher Costs

BY DR. E. C. ZEHME

Privatdozent at the Technische Hochschule, Berlin

SINCE 1911 the metropolitan district of Berlin, Germany, has possessed a regulatory body known as Verband Gross Berlin, formed to secure joint action by the city of Berlin and contiguous municipalities with regard to regulation of housing, of public parks as acquired and of all forms of traffic on rails. This arrangement of the associated municipalities applies to a metropolitan district of 1,355 square miles (3,512 sq.km.), which, as will be seen from the accompanying comparative chart, constitutes the greatest metropolitan area in the world. The dotted rectangle S, covering 252 square miles (652 sq.km.), denotes the rapid transit (subway, elevated and surface) proportion of this area, excluding street railways, buses and all but the suburban divisions of trunk-line railroads.

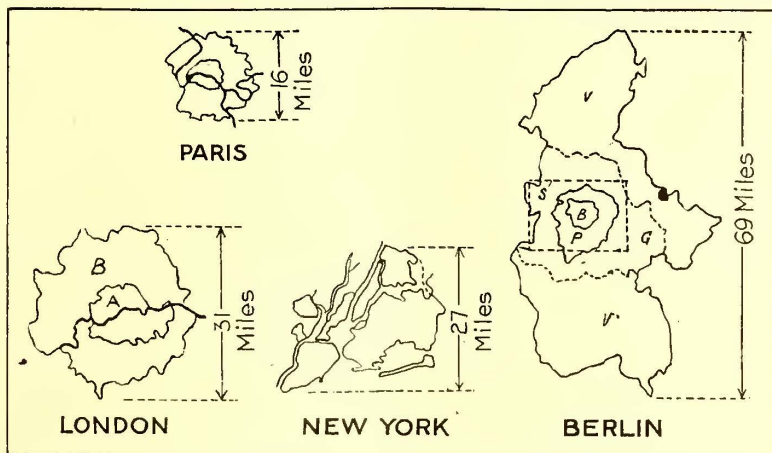
While the rapid transit area of Berlin's metropolitan district is greater than that of other cities, its population is less. London had 7,500,000 inhabitants in 1914, New York had 5,450,000 in 1913 and Berlin had 4,136,000 in 1914.

A second chart shows the growth of the several forms of transit used in Berlin in the period 1870-1917. It will be seen that the street railways still carry about one-half the traffic. The steam Stadt and Ringbahn

(City and Belt Railways), opened in 1882 and 1872 respectively, total only 30.5 miles (49 km.). The Stadtbahn serves the older and more thickly peopled sections, but the Ringbahn traverses some areas still in part unimproved. The steam suburban lines show the imposing total of 230 miles (370 km.), but most of their traffic is twice-a-day riding between Berlin and the more distant, smaller communities.

The Municipal Rapid Transit Lines and the Berlin Elevated & Underground Railway form so trifling a

part of the total mileage that one need not marvel at their small share of the total traffic. Their total route length was 6.3 miles (10.2 km.) in 1902, 7.9 miles (12.8 km.) in 1907, 11.5 miles (17.8 km.) from 1908 to 1912 and 23 miles (37.5 km.) from 1914 to 1917. This is shamefully small in comparison with New York. One reason for this small mileage is the policy of the Berlin Elevated & Under-



METROPOLITAN AREAS OF PARIS, LONDON, NEW YORK AND BERLIN, DRAWN TO THE SAME SCALE

ground Railway, which endeavored to monopolize rapid transit development from the time of its formation in 1902 by preventing competition and by refusing to build any mileage itself that would reduce the density of traffic on the pioneer route. A second reason was the unwillingness of the municipalities in the metropolitan

district, because of political jealousies, to co-operate. A third reason was the difficulty of securing right-of-way through public and royal parks and of avoiding the yards of trunk-line railroads.

There are now under way—to be completed at some indeterminate period—12.5 miles (20 km.) of north-south rapid transit lines. This will bring Berlin's total to 35.5 miles (57.5 km.).

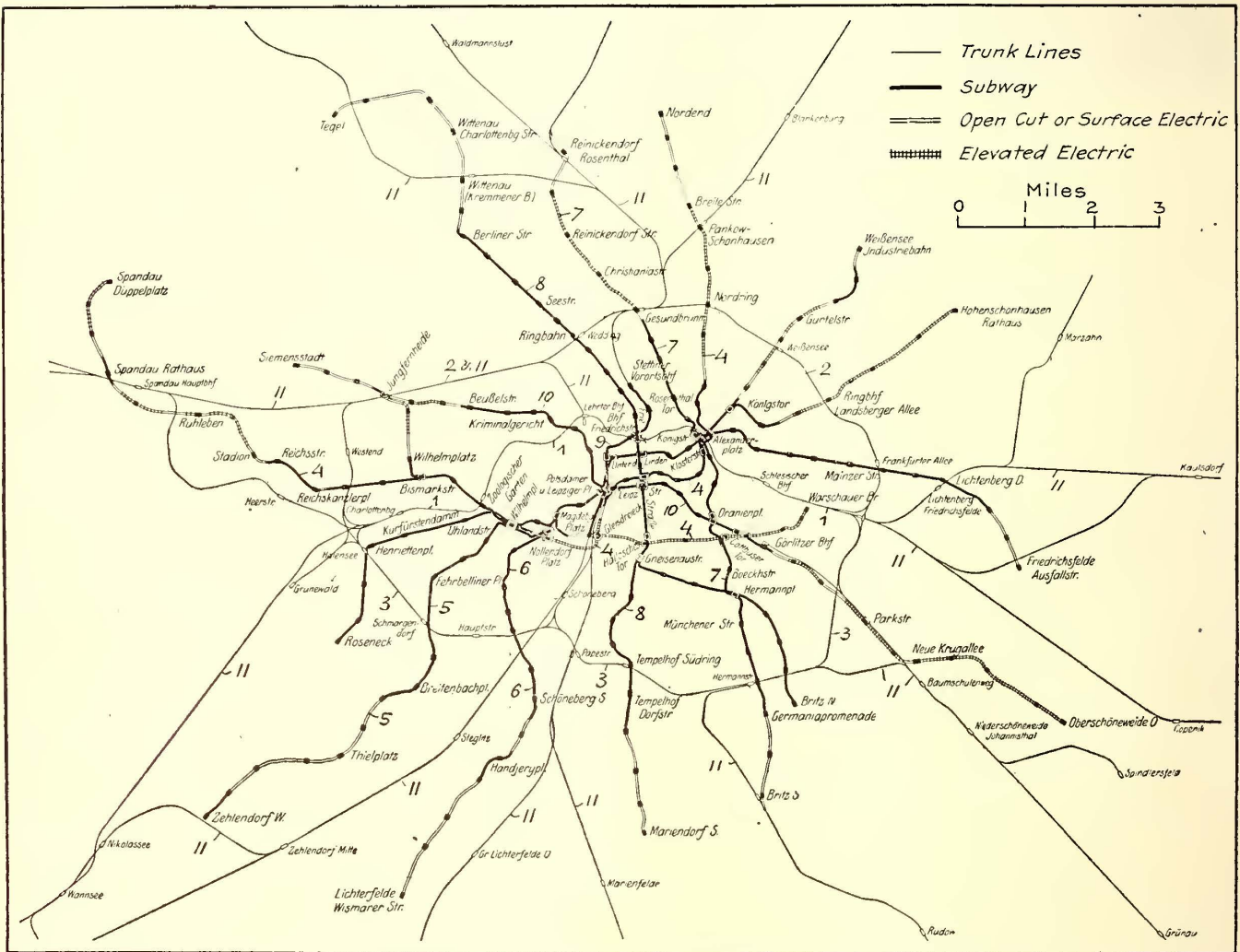
GREATER VALUE OF TIME MAKES MORE RAPID TRANSIT IMPERATIVE

It is generally agreed that the rapid transit facilities of Berlin are inadequate. As the struggle for existence has grown sharper during the past decade, there has come an increasing recognition of the value

large coin or bill, so that it is not uncommon for a person to see one or two trains go by before he has been able to purchase his ticket and reach the platform.

NEW ROUTES AND ELECTRIFICATION OF STEAM LINES THE REMEDY

The obvious way out is to electrify the present steam lines and to construct certain additional electric rapid transit routes. The accompanying map shows all rapid transit lines now in operation, under construction or planned. Of these lines it is noteworthy that the Stadtbahn reached the limit of its capacity two decades ago. As early as 1900 the Union Elektrizitäts Gesellschaft, connected with the Thomson-Houston Company of the United States (General Electric Company successor),



MAP SHOWING STEAM RAILROADS AND EXISTING AND PROPOSED RAPID TRANSIT LINES IN BERLIN

- | | | |
|---|---|---|
| 1—Stadtbahn (steam). | 5—Wilmersdorf-Dahlem (electric). | 9—Potsdam-Stettin Railway Stations (electric). |
| 2—North belt (steam). | 6—Schöneberg (electric). | 10—Moabit-Treptow (Görlitz-Lehrt Railway Stations, electric). |
| 3—South belt (steam). | 7—Allgemeine Elektrizitäts Gesellschaft (General Electric Company, electric). | 11—Suburban Railways (steam). |
| 4—Berlin Elevated & Underground Railway (electric). | 8—City of Berlin (electric). | |

of time. The waste of time now involved in going to and from employment, in handling mail and in transacting other business is well-nigh incredible. The rapid transit system itself is none too rapid. This is due in part to the loss of time to passengers in purchasing one of the great variety of tickets on this zone-fare and two-class system and to a poor arrangement of ticket booths, which is the cause of frequent congestion. Whereas the American rider usually tries to tender exact change, the Berliner generally offers a

proposed the American plan of 500-600-volt direct-current third-rail operation with motor and trail cars. It is to be regretted that the government refused to approve this project despite the proof that similar electrification had been a success in the United States. The present attitude of the government in favor of high-tension single-phase is due to the fact that this system has been adopted as standard for the trunk-line service, and adherence to this system is considered desirable even in urban electrification. For all that, a direct-

current electrification of the year 1900 could have been readily converted to twice the original voltage with comparatively few substations regardless of the use of high-tension single-phase for the primary current. As a matter of fact, the Berlin urban and suburban network is entirely independent of the trunk line operation and could therefore use an entirely different system of distribution. Furthermore, no single system will give the power station the most economical load factor.

In 1913 the state railroads were authorized to spend up to 25,000,000 marks for work preparatory to the electrification of the Greater Berlin lines. The experimental work was to include studies in the gasification of coal, in the building of novel locomotives and in the development of new methods of transmission and distribution. Most of this appropriation was used up for these and other experiments, with no tangible results other than the structures erected for the work in coal gasification.

GAS ENGINES AND CAB-LESS SINGLE-PHASE LOCOMOTIVES

The power stations would use gasified lignite or peat, the gas driving engines being direct-coupled to generators. Part of the peak loads would be carried by steam turbo-generator sets fed from gas-heated boilers. The byproducts of the gasification process would be tar, fertilizer salts, fuel oil, lubricating oil, illuminating oil and pitch, while the exhaust of the gas engines would yield saltpeter (potassium nitrate). Pending the completion of these gas electric stations, of which two are under way, power will be purchased. The electrification of the Oranienburg and Bernau suburban lines lying north of Berlin is now in hand.

Locomotive drive will be used in order to retain the present rolling stock. These locomotives are of cab-less type, as the motorman and his control and current-collecting equipment are domiciled on the leading passenger car. There is to be one cab-less locomotive at each end of the train, as illustrated in the halftone engraving. During hours of light traffic trains would be split, the front locomotive acting as a puller and the rear locomotive as a pusher.

The advantages of this system, according to the railway management, are: (1) The retention of existing rolling stock; (2) simplification of transformer installation on vehicles; (3) less shock to the track because the motors, as shown at *M* in the diagram of motor drive, are mounted above the floor of the locomotive with jack-shaft *B* and side-rod *K* possessing a crank-to-link connection to transmit the motor drive to the driving axles *A*. Nevertheless, experience has shown that not only motor car trains but locomotives carrying heavy armatures on the axles have not suffered through any supposed lack of flexible suspension of the motors. Furthermore, corrugation cannot be due entirely to electric motor drive of any kind, inasmuch as corrugated rail has been found on track operated with steam equipment only.

The success of a cab-less, collector-less and control-less locomotive is very problematical, but the plan is to be carried out nevertheless. The cost of installation and operation will offset the saving in rolling stock. Since the tractive effort is confined only to the locomotives and since these are too light to attain a rate of acceleration of say 0.7 meters per second per second (1.56 m.p.h.p.s.), as used on other rapid transit lines,

one must be satisfied with the low range of 0.25-0.3 meters per second per second (0.55-0.68 m.p.h.p.s.). This means that the number of trains per hour could not exceed thirty-five to thirty-seven, compared with forty-two motor car trains in the same period.

The locomotive outfit is also 54 metric tons heavier than a single-phase motor car train and 84 metric tons heavier than a direct-current multiple-unit outfit, which differences in weight will increase power expenditures by a sum equivalent to interest charges on an invest-

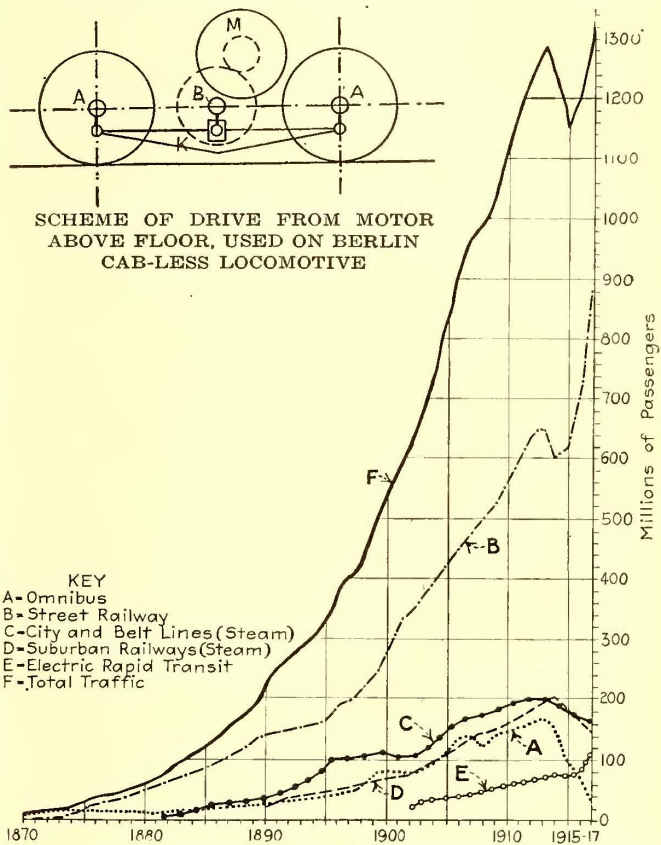


CHART SHOWING PASSENGERS BY VARIOUS FORMS OF TRANSIT IN BERLIN FOR THE PERIOD 1870-1917

ment of 30,000,000 marks, assuming the use of single-phase, and to fixed charges of 50,000,000 marks as compared with direct-current multiple-unit operation. These figures are conservative. In practice, the disadvantage of the drive adopted would probably be greater still.

RACK GEARING TRIED TO INCREASE ACCELERATION

In order to overcome the handicap of a very low rate of acceleration, with its limitation of headway to a maximum of thirty-seven trains an hour, the Ministry of Railways conceived the extraordinary plan of equipping the stations as rack railways with cog wheels on the locomotives, similar to the arrangement used on mountain railways with steep grades. About 1,000,000 marks were spent in experiments which are asserted to have been successful, but the idea was dropped because of the criticism which it aroused. However, the cab-less locomotive idea still lives, although it is obvious that with the rack expedient eliminated an economical rate of acceleration is out of the question. All that can be done now is to watch and wait upon the action of the Ministry. Probably the locomotives will be withdrawn from passenger service some day and placed in freight service elsewhere, whereupon the operation of

the Berlin lines will be carried out uniformly with multiple-unit motor car and trailer combinations. The history of the Central London Railway will be repeated.

It is proposed to use Diesel locomotives on sections where the loads are heavy but where there is no great density of traffic. On the other hand, motor car trains are considered necessary for lines with highly fluctuating traffic. The greatest confusion of thought appears to exist in connection with all of these questions, although the rest of the world seems to be pretty clear as to what is best for city and suburban electrification. Within the last few weeks (early in 1920) the locomotives have been subjected to further experimentation. It has been suddenly discovered that some form of hydraulic transmission, as devised in Germany for automobiles, ought to be tried for transmitting the torque of the motor to the driving axles. Should this succeed the inventors hope that they can substitute for the present commutator-type single-phase motor an asynchronous single-phase motor whose stator would take the 15,000-volt line potential direct and at a higher periodicity. If a 50-cycle instead of a 16 $\frac{2}{3}$ -cycle motor could be used special power-house equipment for railway purposes would be unnecessary. Experiments with this innovation, of which more particulars later, will assuredly cost a lot of money and delay electrification still further.

THE ELECTRIC RAPID TRANSIT LINES

The first of Berlin's electric rapid transit lines was opened in 1903 by the Berlin Elevated & Underground Railway. The parent line, indicated as "4" in the general map, runs west-east, with a branch midway leading north-west from Potsdamer Platz to Alexander Platz. This has always been a densely traveled and profitable route. By 1913 line 5 to Wilmersdorf and line 6 to Schöneberg, both westerly routes, had been added, while the original line had been extended from Alexander Platz as far as the North Belt of the steam system. All these routes run to Potsdamer Platz, the traffic center of Berlin.

A central north-south line is still lacking. The first proposition, as made by the Continental Company for Electrical Undertakings, associated with Schuckert-Nurnberg, contemplated the use of a suspended monorailway. The experimental section built proved the adaptability of this construction for narrow streets. The line was not constructed, however, owing to the opposition of the city authorities and the competitive project of the Allgemeine company, which had laid out exactly the same route as shown by line 7 in the map. Had the suspended railway been approved it could have been completed during the war and given service to eastern Berlin at very low fares. Instead, the Allgemeine company's plan, involving considerable subway work at about four times the cost, was accepted by the city. It was impossible to complete this during the war. Today it lies like a torso which can be completed only at an enormous cost which the contracting company is unwilling to undertake.

A second north-south line, 8 in the map, serving Friedrichstrasse, the busiest street of Berlin, was begun before the war by the municipality itself. This line is progressing slowly. Both the Allgemeine and municipal lines are very costly to construct because of heavy street traffic and sub-surface piping, aside from the increases in cost of material and labor over pre-war estimates. In view of the fact that the original rapid

transit system is charging three times the pre-war rates of fare, the fares on the later and costlier lines may be expected to be exceptionally high.

In accordance with a recommendation of the Associated Municipalities, the preceding lines 4, 5, 6, 7 and 8 are to be lengthened as shown in the map. The board also suggests the construction of line 9 to connect the important Potsdam and Stettin railway stations and 10 to connect the Goerlitz and Lehrter railway stations.

The Associated Municipalities have laid down the following fundamentals with regard to rapid transit routes: (1) Lines must not be radial, but must run across the city from suburb to suburb; (2) the lines must follow the principal thoroughfares of the inner city; (3) routes must be evenly distributed within the residential areas; (4) branches within the central district are to be avoided; they are in place only in the suburban districts, where they can act as feeders to the trunk line. To aid in planning such projects, the Associated Municipalities have worked up considerable data regarding the density of population and riding characteristics of the different districts.

Curacao Antedates Ford

THE accompanying photograph shows a gasoline street car in a street of Curaçao, Dutch West Indies, a city which is of special interest because it is one of the places to which it was proposed to send the ex-Kaiser

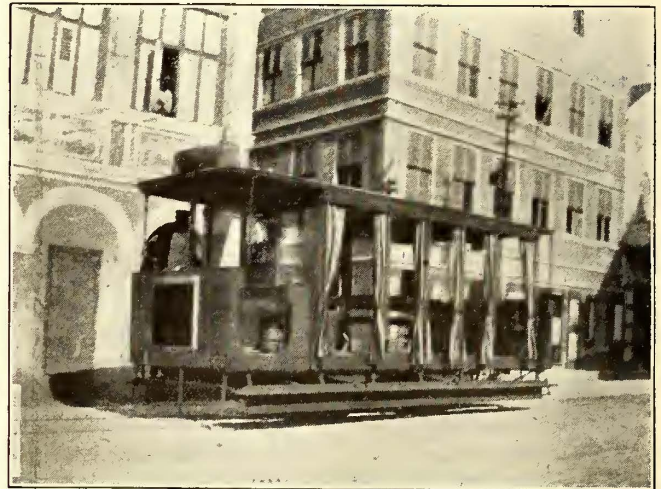


Photo by Dr. Pabst, supplied by International Film
GASOLINE-DRIVEN STREET CAR IN CURAÇAO, DUTCH WEST INDIES

to spend his days in exile—far from Potsdam and his beloved wardrobe of brilliant uniforms. Possibly this railway line could supply valuable information in connection with Mr. Ford's proposal to equip interurban and city cars with gasoline motive-power equipment.

Steam Railroad Electrification in Spain

E. N. CHASE of the Ohio Brass Company has spent the last two years in Spain electrifying a short steam road between Masef and Candes along the northern coast of Spain. Parts of the line run along the seacoast. The track is of 60-lb. rail, ballasted with hand-broken stone. The overhead is catenary construction, No. 0000 copper contact wire with $\frac{7}{8}$ steel messenger, suspended from pole brackets and cross spans. The cars are fitted with the bow trolley, the bodies being of local construction, but mounted on American trucks carrying American motors.

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A. S. T. M. Holds Interesting Meeting

Many Specifications of Interest to Electric Railways Were Adopted and That for Quenched and Tempered Carbon-Steel Axles Is the Same as That of the A. E. R. E. A.

THE twenty-third annual meeting of the American Society for Testing Materials was held June 22-25 at Asbury Park, N. J. Covering as it does the general subject of specifications for all constructional materials and being made up of both producers and consumers, its standards are becoming quite generally recognized as authoritative and the proceedings of the society are of interest to electric railway engineers.

The question of the proper nomenclature of different alloys was reported on by the committee on non-ferrous metals and alloys. This committee has been working with the committee of the British Institute of Metals on this subject. They recommend that wherever possible the commercial names which have become established by long usage, such as brass, bronze and cupro-metal, should be retained.

The proposed nomenclature of non-ferrous alloys is as follows:

Brass—1. The term "yellow brass" shall be used for zinc-copper alloys only containing from 63 to 80 per cent copper and having a yellow or brass color.

2. The term "red brass" shall be used for zinc-copper alloys only containing more than 80 per cent copper in which the color varies from a golden to a copper red.

3. The term "yellow red brass" shall be used for zinc-copper alloys only containing from 55 to 63 per cent copper, in which range the brass has a yellowish red color.

4. **Lead Brass.** Brass containing more than 0.50 per cent of lead shall be known as lead yellow, red or yellow-red brass, according to the percentage of copper it contains.

5. **Tin Brass.** Brass containing more than 0.25 per cent tin shall be known as tin yellow, red or yellow-red brass, according to the percentage of copper it contains.

6. In cases where other metals are added these shall be designated by the use of the proper prefix or prefixes.

Bronze—7. The term "bronze" shall be used for tin-copper alloys only containing over 50 per cent copper. In cases where other metals are added these shall be designated by the proper prefix or prefixes.

Cupro-Nickel—8. The term "cupro-nickel" shall be used for nickel-copper alloys in which copper predominates.

Nickeline—9. The term "nickeline" shall be used for nickel-zinc copper alloys only.

These are the materials known generally as "German silvers," a false designation, for, as one member wittingly remarked in the discussion, "there are none of them silver and many are not German."

An interesting paper was presented on fatigue and impact fatigue tests of aluminum alloys, particularly "duralumin," in the summary of which the author states: "In comparing the fatigue-resisting properties of forged duralumin with those of the common grades of steel forgings the conclusion is drawn that for sections of equal size the aluminum alloys are equal to, if not superior to, forged steel.

The composition of "duralumin" is approximately: Copper, $3\frac{1}{2}$ per cent; iron, $\frac{3}{4}$ per cent; silver, $\frac{1}{2}$ per cent; magnesium, $\frac{1}{2}$ per cent; manganese, $\frac{1}{2}$ per cent.

One of the most important reports presented at the meeting was that of committee A-5 on "corrosion of iron and steel." This gives the results to date of the test which has been under way in Pittsburgh since Dec. 12, 1916. In this test sheets of varying compositions were exposed to the weather, standing vertically in fence fashion. The particular purpose of the test was to

determine the relative resistance to corrosion of sheets having percentage of copper over 0.15 per cent (known as "copper bearing") compared to those having less than 0.15 per cent copper (non-copper bearing). While no conclusion is drawn by the committee, it is evident from the figures and photographs given that the copper-bearing sheets, no matter whether of iron or steel, are markedly superior to the non-copper-bearing sheets in their resistance to corrosion. While the test is not complete, it has progressed far enough to indicate this fact, and therefore this test may be considered of far-reaching importance. The committee now proposes to ascertain the effect of exposure to running water.

The committee A-2 on wrought iron presented a series of definitions for puddling, busheling, fagoting, muck bar or puddled bar, common iron, merchant bar iron, refined bar iron or refined wrought iron bars and double refined iron.

An exceedingly ingenious method of testing galvanized castings was the subject of a paper by Dr. Allerton S. Cushman. This "depends upon placing on the surface to be tested of a tinned iron ring properly shaped to fit any given surface, corrugated or otherwise. The ring is stoppered with a soft rubber stopper, thereby making a cell by means of which a hydrochloric acid, antimony-chloride solution can be run onto the surface and the resulting hydrogen which is formed by the reaction of the acid or the zinc can be collected and measured. A tight contact is preserved between the bottom of the metallic ring and the galvanized surface by using plastic modeling clay."

The advantage of the method is that it can be used in the field as well as in the laboratory and will determine the weight of the galvanized coating on the unit area regardless of the convolutions or corrugations, as, for instance, in a finished corrugated culvert, or roofing and sheathing metal.

An important feature of the society's work during the past year has been in connection with its membership in the American Engineering standards committee. The constitution of the committee has been revised (Aug. 16, 1919) to provide "for the admission of additional societies of national scope." A copy of the revised constitution is given in the report of the executive committee of the A. S. T. M.

Two A. S. T. M. standards were adopted as tentative American standards by the standards committee, *viz.*: Specifications and tests for portland cement and specifications for fire tests of materials of construction.

In addition to the foregoing, committee A-1 on steel recommended the following specifications to the executive committee of the A. S. T. M. for submission to the American Engineering standards committee as American standard: For carbon-steel and alloy steel blooms, for billets and slabs for forgings, for carbon-steel and alloy steel forgings, for quenched and tempered carbon-steel axles, shafts and other forgings for locomotives and cars, for quenched and tempered alloy-steel axles, shafts and other forgings for locomotives and cars, for carbon-steel forgings for locomotives, for carbon-steel

car and tender axles, for cold-rolled steel axles, for cold-drawn bessemer steel automatic screw stock, for cold-drawn open-hearth steel automatic screw stocks.

The second item on this list, namely, that for quenched and tempered carbon-steel axles, will be of interest to electric railways in that this specification had its inception in one of the large Eastern traction systems and then became the standard of the American Electric Railway Engineering Association. In modified form it was later adopted by the American Society for Testing Materials, which now is about to recommend its adoption as American standard. This should be and properly is a matter of congratulation to the American Electric Railway Engineering Association on the probable adoption of a specification for which it is responsible as one of the first American standards.

Committee A-1, as usual, presented an elaborate report. Certain minor revisions were recommended and accepted by the convention and will be published as tentative for one year covering the following specifications:

1. For quenched high-carbon steel splice bars; 2, for quenched carbon-steel track bolts; 3, for quenched alloy-steel track bolts; 4, for steel screw spikes; 5, for structural steel for locomotives; 6, for structural steel for cars; 7, recommendations with respect to normalizing of cold-drawn rivet bars, affecting the following specifications: (a) structural steel for bridges, (b) structural nickel steel, (c) structural steel for buildings, (d) structural steel for cars, (e) rivet steel for ships, (f) boiler rivet steel; 8, for lap-welded and seamless steel boiler tubes for locomotives; 9, for welded steel pipe; 10, for automobile carbon and alloy steels.

The committee also recommended certain revisions in its tentative standards: 11. For steel tie plates. 12. For low-carbon steel track bolts. 13. For steel plates for forge welding. 14. For carbon tool steel. 15. For electric cast steel anchor chain.

It also presented a new specification for commercial bar steels. This specification is not intended to take the place of any of the other standard specifications, but is prepared simply so as to provide a specification to which a purchaser may order who does not need any particular requirements.

The committee has been co-operating "with the track commission of the American Railway Engineering Association to the extent of presenting extensions and recommendations concerning the specifications of that association for tracks, spikes, screw spikes and tie plates." It has not been found possible to establish formal co-operative relation with the A. R. E. A. rail committee in regard to revising rail specifications, and accordingly committee A-1 will take up during the coming year the revision of the A. S. T. M. specification.

STEEL CASTINGS FOR RAILROADS

A most important development in the study of specifications for steel castings for railroads was the formation in January, 1920, of a joint committee on steel castings for railroads, consisting of representation of the A. S. T. M., the Mechanical Section of the American Railroad Association and the United States Railroad Administration.

Committee A-1 also recommended that action be deferred till next year on the removal of the war note permitting an extra point of phosphorus in acid steels and of sulphur in all steels. This refers to those specifications on which the note was permitted to stand last

year; some of the other specifications had the note removed at the last meeting.

The committee reported that the joint committee on investigation of phosphorus and sulphur requirements had been organized as follows: United States Bureau of Standards, American Railroad Association, A. S. T. M., American Association of Steel Manufacturers, United States War Department, United States Navy Department, Society of Automotive Engineers, Society of Naval Architects and Marine Engineers, Steel Founders Society of America, Engineering Division, National Research Council.

A comprehensive series of tests is planned by the joint committee and it has been determined to study first the effect of sulphur, inasmuch as that presents the most urgent problem economically.

RAIL FAILURES

An interesting paper was presented by J. E. Howard on "the shattered zones in certain steel rails, with notes on the interior origin of transverse fissures."

This paper is a continuation of the subject matter presented by Messrs. Warring and Hofamman at the last annual meeting of the society.

Committee D-7 on timber has recommended the following tentative specifications be advanced to standard: Southern yellow-pine timber to be creosoted, Southern yellow-pine piles and poles to be creosoted, wooden paving blocks for exposed pavements.

It also submitted a revised specification for structural Douglas fir.

Committee D-11 submitted a specification for adhesive insulating tape.

In Korea—The Land of Morning Calm

THE accompanying photograph shows one of the main entrances to the city of Seoul, Korea. The feature of this picture is the presence of modern trolley cars in the capital of this ancient country, installed there

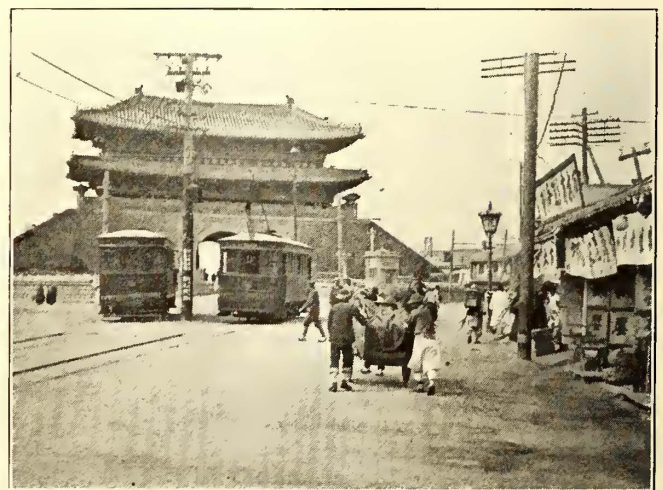


Photo by International Film.

MODERN TROLLEY CAR IN THE CAPITAL OF ANCIENT KOREA

since the Japanese occupation of the kingdom. While there is a certain element of incongruity in this close juxtaposition of the old and the new, there is no question but that by giving the Koreans the benefit of modern transportation the Japanese are conferring upon them a real benefit.

Philadelphia Director of Transit Reports

W. S. Twining Says Continuation of Present Practices Means P. R. T. Bankruptcy—Complete Co-operation Between City and Company Necessary—Again Recommends Benefit Assessments to Finance City Rapid Transit Construction

THE Director of Rapid Transit of Philadelphia, William S. Twining, has just filed his report for the calendar year 1919. Coming, as it does, so closely on the heels of the report of Mayor Moore's commission,* though dated Jan. 1, 1920, it is of particular interest in the analysis of the electric railway problems of the Quaker City. Because this report forms the fourth and final under the administration of the retiring Mayor, Mr. Twining not only records the results attained during the year 1919, but also reviews some of the work accomplished during the four-year period and makes recommendations with regard to a final solution of the problem as he sees it.

The following abstract is of necessity brief, but gives some of the outstanding points of general interest:

ABSTRACT OF REPORT

During the year 1919 the department struggled to carry forward construction work upon the authorized high-speed system, but notwithstanding the use by the department of its best efforts to make real progress the year 1919 was a year of disappointments in transit development, as the transit department was again the victim of conditions beyond its control. At the very beginning of the year, Jan. 14, the Public Service Commission refused to approve the lease and contract which had been agreed upon between the city and the Philadelphia Rapid Transit Company in February of 1918. While it was acknowledged that that agreement was far from the ideal at which the city aimed when the decision was made to construct high-speed facilities, yet it was hoped that the commission would realize:

1. That no pronounced public sentiment for the municipal operation of the city's lines as a branch of the city's activities existed.
2. That the city's system was designed to function as a part of a unified system under the Philadelphia Rapid Transit Company's operation and management, and such use was understood by the public when the building of the system was decided upon.
3. That the Public Service Commission itself had previously approved of the construction by the city of a system of lines and the city at that time apprised the commission that the alternative of unified operation must be municipal operation with consequent competition with the Philadelphia Rapid Transit Company.
4. That if unified operation was to be secured the city and the company each had to consider and recognize the conditions existing and the limitations of the other, and the contract submitted was simply a compromise which was agreed "to be fair alike to the city and to the company."
5. That the matter of fare should, in fact, be secondary to service, and that six years had been consumed in reaching that agreement and the public would be injured more by a continuation of delay than by the acceptance of a contract which, while not ideal, would probably have provided good service, but at a cost somewhat higher than the ideal cost.

However, the refusal of the commission to approve the operating contract made the immediate redesigning of the city's system imperative, but the Legislature of 1919 adjourned without giving the city permission to hold a "referendum" on the system which the people

authorized in 1916. A taxpayer's suit begun in August made it impossible to proceed with new contracts during the latter half of the year and work on older contracts has been much hampered by the insufficiency of funds.

The year 1919 closes with the outlook for progress during the coming year far from bright. The much-needed high-speed service for the entire city, which appeared so near at hand in 1916, now seems to be steadily receding and only by a realization that the effect of the same changes that have occurred since 1916 in all other lines of human activity must be faced in connection with transit matters also can any real progress be made toward securing the service which the city so sorely needs.

Expenditures made during 1919 total \$2,665,958.84, and the total expenditures made by the department from the initiation of the transit investigation on May 27, 1912, to the end of 1919 are \$11,600,518.23.

STATUS OF CITY'S LOANS FOR TRANSIT

The Legislature of 1919 adopted a revision to the city's charter intended to make illegal certain practices of the city in regard to paying current expenses by means of long-term loans. As the result of this legislation a taxpayer's suit was brought, resulting in a discussion by the Supreme Court that the unissued portion of transit and other authorized loans for capital use must be reenacted and readvertised in order to conform to the provisions of the new charter. The department has, therefore, been unable to start any new contracts since August.

In previous reports I have called attention to the dangerous situation liable to develop as the outgrowth of the plan of capitalizing the interest and sinking fund payments on transit loans. That my fears in regard to this have not been unfounded is shown by my letter to the comptroller (explaining the condition of affairs as of the end of this year), and I again urge that the financial features of the transit program be modified as soon as the necessary legislation can be secured, and that in the meantime Councils provide for these interest charges out of current funds until such time as it is fully demonstrated that the project will be at least partially self-supporting.

SERVICE RENDERED BY THE PHILADELPHIA RAPID TRANSIT COMPANY DURING THE YEAR

The service rendered by the company during the year has been far from adequate and appears to be growing far more inadequate with each passing month. The company, however, has endeavored to give the impression that the inadequacy of service has been due to the actions or rather inaction of the city.

Although the company's service was notoriously inadequate at the beginning of the year, yet the company did not increase its facilities to any appreciable extent. It is readily apparent that with the city's system in operation and carrying sufficient passengers to relieve the situation the company's income would be

*See extensive abstract, *ELECTRIC RAILWAY JOURNAL*, June 5, 1920, page 1160.

reduced to a point where its solvency would be seriously threatened. It is very evident, therefore, that the city's intention to construct a high-speed system to be operated by the company cannot be used as the basis for a claim that such intention warrants the company in furnishing inadequate service at the present time. The city's system, under the most favorable conditions, cannot be in full operation for several years and even when in full operation will not relieve the existing system enough to permit the existing number of cars to render adequate service. The company's claim, therefore, that the city's system is responsible for present conditions is wholly without foundation, and the claim is made for the purpose of directing attention away from the real cause of the inadequacy, namely, the company's inability to furnish adequate service and pay its present fixed charges out of the existing rates of fare.

This question of inadequacy of service is a matter connected with, but not dependent upon, the manner of operating the city's system. It is now coming to be regarded as the duty of the city to see that adequate transit service is provided the citizens, and the method by which that service shall be provided has been under discussion for several years and should be decided promptly and without unnecessary delay.

INCREASED NEED OF HIGH-SPEED SERVICE

Although the need of high-speed service was recognized years ago, the great growth in all kinds of street traffic, particularly during the last four years, has made the necessity of a speedy construction of a high-speed system absolutely imperative. This is the most prominently outstanding fact in the transit situation today.

The next most prominent fact is that the system as designed in 1913 and as authorized in 1916 is absolutely impracticable to build under present conditions and would be practically unfeasible even if built. Developments of the past year, beginning with the rejection by the Public Service Commission of the agreement heretofore reached between the city and the company, and the submission by the company of an absurd proposal in October, furnish most conclusive proof that the supply of unified service by the company based on a flat 5-cent fare and the use of the full city system as now authorized would be practically impossible. Many of the reasons for this conclusion are set forth in the reports made Nov. 14 and 21 to the street railways and finance committees of Councils upon the company's latest proposal, to which the company's proposals were submitted for consideration.

CO-OPERATION

The previous reports of the department have pointed out that co-operation between the city and the Philadelphia Rapid Transit Company, which is the ideal desired by both the city and the company, will only become possible in case concessions can be made by both parties. In thus seeking each other's co-operation they are dealing as two public service corporations and each is seeking its own advantage, without a corresponding outlay—that is, each is trying to get more for its side than it gives or would have without such co-operation.

The condition held out to the public as an inducement for the city to construct the high-speed system was the ideal one, *i. e.*, that by so doing advantages could be secured without incurring corresponding obligations.

The people were led to believe that if the high-speed system were constructed by the city out of city funds a unified system could be secured with universal free transfers, without adversely affecting either the tax rate or the carfare. Such a condition was not possible even at the time the promises were made and is absolutely impossible under present conditions. Although the company is adhering to the schedule of fares which has been in existence for many years, the service rendered by the company is so deplorably inadequate that additional facilities must certainly be supplied to meet not only present conditions, but to provide for the traffic anticipated for the immediate future. The company anticipates that the traffic within the next two years will require the transportation of upward of 3,000,000 passengers daily and to accomplish this with the surface car system now existing is not considered as physically possible. The point where facilities are most needed is in the business section, where the narrow streets and the great congestion make it impossible to operate any large number of cars in excess of those now operated. The company's earnings show a margin above the company's lease and other obligations far too small to warrant its assuming, under the present schedule of fares, the burden of the needed facilities. Therefore, the basis of co-operation between the city and the company must be entirely different from that which formed the basis of the proposed co-operation on which the city's system was authorized in 1916.

The testimony submitted to the Public Service Commission in justification of the rejected agreement between the city and the company showed that the present schedule of fares could not possibly meet the cost of service of the entire unified system as such cost was included in that agreement, and, as that contract was rejected by the commission as not being in the public interest, there seems to be no solution open except to start on a new basis which shall be radically different from the assumptions upon which the old one was based. It seems probable that the proper basis must be:

1. The valuation of the company's existing facilities used in the service of the public as the starting point for the capitalization to be supported.
2. A program of high-speed development suited to the city's financial abilities and the demands of the traffic.
3. A fare fixed by the Public Service Commission adequate to support unified service on the basis of 1 and 2.
4. A rental for the use of the city's system not contingent upon the company's dividend.
5. A liberal reward for good service to the end that management and labor shall thereafter work in the interest of the community and not to the exclusive interest of capital or the company.
6. A voice by the city in matters relating to service.

ASSESSMENT OF COST OF TRANSIT FACILITIES ON PROPERTY BENEFITED

As pointed out in my first report of March 29, 1916, the development of a city is dependent upon its transit facilities, and high-speed facilities built under the function of city government for the purpose of developing the city should be paid for in part at least by assessment of all or part of the cost upon the property benefited. For many years it has been deemed just to assess upon abutting properties the cost of opening streets and building sewers, laying water pipe, etc. At that time (1916) the city solicitor held that such method of assessment was impracticable and that no

such act of the Legislature would be sustained as constitutional. As this matter is so vital to the city in connection with the development of adequate transit facilities for the city, I urge that the city take all the necessary steps to the end that the new State Constitution shall recognize the equity and justice of the principle underlying local assessment where local benefit can be clearly shown. The result of this method of paying for the cost of facilities would be to greatly lessen the interest charges and to keep the carfares low, which in these days of high prices is a matter affecting every citizen in the community.

FUTURE OUTLOOK FOR UNIFIED TRANSIT SERVICE

If financial impracticability of the entire transportation enterprise in Philadelphia during the coming years is to be avoided several very disagreeable remedies must be applied to Philadelphia's existing transportation enterprise and certain very radical modifications must be made in the city's program for adding an additional transit system with its own serious problems to the existing defective financial structure.

The service provided by the present transportation lines of Philadelphia is neither adequate nor satisfactory. This is largely the result of the tendency of the management to fight off the inevitable effect of the present era of high operating and construction costs by refusing to increase service on existing lines and by the virtual cessation of constructing extensions. The company has not increased its service during the past five or six years to keep pace with the increase in traffic. It has been in this way that the company has succeeded since 1916 in showing net earnings sufficient to meet its heavy capital charges.

War conditions provided an excuse for the failure to build extensions and to keep up service, but the war is now over and the time is at hand when it is imperative that the company build the extensions that have been long promised. It is necessary also for the company to run more cars on many of its lines which during the rush periods of the day are overcrowded.

The company has been required to make large and frequent increases in wages during the past year and the time is undoubtedly near when, if the company is to provide the service which the public has a right to expect, it will find it most difficult to continue to meet its present capital charges with the present fares.

It will then be necessary to either raise the fares or reduce the capital charges. The patrons of the lines will strongly object to paying higher fares while the company is overcapitalized. The company will endeavor to procure an advance in fares without a valuation of the property or will urge that the value of the property substantiates the fixed charges which are now paid.

The company has not, during several years past, increased the number of cars operated proportionately to the increase in its revenue; the number of passengers carried per car-mile has reached the highest point during the history of the company. The company is therefore several years behind in its provisions of cars. Besides which, when the new rapid transit lines are placed in operation the large surface car requirements for transfer lines will probably cut deeply into the number of cars which it has been estimated might be disposed of during the early years of high-speed operation.

As there is little prospect of a return to pre-war

operating costs, the provision by the company of adequate service will in all likelihood bring it face to face with a financial crisis such as so many other companies have faced during the last two or three years. It will then be the company's problem to substantially increase its revenues and will apply to the Public Service Commission for permission to increase fares.

The welfare of the citizens demands that the city be prepared to meet this move on the part of the company with a well-defined statement of its policy.

CONCLUSION AND RECOMMENDATIONS

Before placing any contracts or beginning construction upon new rapid transit lines the new city administration should:

1. Adopt a definite policy as to the basis and extent upon which the city is willing to ally itself with the Philadelphia Rapid Transit Company in the joint supply of transit facilities and service in Philadelphia.

2. Arrange for such modification of the city's system as now authorized as will carry out that policy and along lines indicated in this report.

The completion of all outstanding subway contracts and the lack of any operating agreement between the city and the Philadelphia Rapid Transit Company leaves the matter of transit development in such shape that the city can readjust its program now more readily than at any other time since work was started in 1915, and the city should take advantage of this condition as a similar condition may not occur again.

On account of the importance of securing service on the Frankford Elevated Line as soon as possible, I recommend that the incoming administration arrange as soon as possible for the authorization and sale of a bond issue of say \$4,000,000, such to be applied primarily to the purchase of cars and equipment for this line to Bridge Street, and any surplus remaining to be made applicable to any of the general uses of the department in connection with the development of the adopted plan. Inasmuch as the equipment contemplated to be purchased out of this money is of a more or less perishable nature and subject to more rapid deterioration than the subway and elevated structures heretofore contemplated, I recommend that these bonds be issued for a term not exceeding thirty years, and as the period of construction will be short, I recommend that the interest and sinking fund charges be not capitalized during the construction period.

On account of the urgency of the situation this matter should be taken up promptly by the new administration in order that no unnecessary delay may occur in putting this line in operation.

At the next session of the Legislature a determined effort should be made to secure passage of an act enabling the city to hold a referendum on any transit matter which may have been approved by public vote and which due to later knowledge or developments requires reconsideration in the public interest. The passage of such an act will do more than anything else to expedite the ultimate completion of the badly needed high-speed lines.

Experiments are being tried in the United States and in Italy with the burning of pulverized coal on steam locomotives, the increasing price and scarcity of high-grade coal having directed attention to the possibility of burning lignite and other low-grade fuels by means of the pulverized systems.

Interurban Freight Service*

A Classification of Operating Expense Accounts for Freight Service Is Suggested

BY W. K. ZINSMEISTER

Auditor and Treasurer Rochester & Syracuse Railroad

DURING the past few years a great deal of time has been spent in working out ways and means to increase passenger fares and to economize in operating expenses, but little attention has been paid by the interurban electric railway to inaugurate and to build up the electric freight business. The steam roads have just been turned back to their owners in such a deplorable condition that the time is ripe for the electric roads to get into this branch of the service, as municipal and other governing authorities are less apt, at this time, to place heavy restrictions on building of terminals and operation of freight cars in cities and villages.

Since I was asked to write a paper on the cost of operating the freight business, I have taken up this subject with the auditors of several of the larger interurban roads and was surprised to find that in nearly all cases no records are kept or reports compiled which would show whether the freight business is profitable.

I believe that if a study of the possible profits of the freight business, operated as an adjunct to the passenger, were made most of the interurban roads would find that there are great opportunities along this line.

This industry has been supplied by the Interstate Commerce Commission and by the Public Service Commission of this State with a uniform system of accounts for passenger service, but we have not as yet been supplied with any accounting system which will give us the cost of operation of freight service. I believe that this branch of the service should pay its proportion of expenses of maintenance of roadbed, track, overhead, etc., measured according to actual cost and use; also with all additional taxes and interest paid on account of operation of the freight service. Such a system must be simplified as much as possible, and I will, therefore, adhere to the uniform system of accounts as adopted by the New York State Public Service Commission. I will take up the operating expense accounts, which are distributed as follows:

WAY AND STRUCTURES

Maintenance of Track, Overhead, etc. (1-23)

This account shall include a proportion of the cost of maintenance, including supervision of roadway, track, bridges, signals, telephone lines, distribution system and all miscellaneous way and structures expenses as shown in the uniform system of accounts, numbered from 1 to 23 inclusive. This account shall be charged with the proportion that the freight car-miles bear to the total car-miles operated.

Buildings and Fixtures (24)

This account shall include the cost of labor and material used in repairing freight stations, platforms and all other freight structures; also a proportion of the cost of repairing jointly used carhouses, shops, offices and other buildings, same to be proportioned on use or car-mile basis.

Depreciation of Freight Buildings and Structures (25)

This account shall include the amount set aside to provide a reserve for the retirement of freight stations, platforms and other freight structures.

EQUIPMENT

Repairs to Freight Cars (31, 33)

This account shall include the cost of all labor and material used in repairing bodies, trucks and electrical equipment of freight cars.

Miscellaneous Shop Expenses (29, 36, 37, 39)

This account shall include a proportion of the cost of shop supervision, repairs to shop equipment, cost of heating shops and other miscellaneous shop expenses, same to be proportioned on use or car-mile basis.

Depreciation of Freight Equipment (40)

This account shall include the amount set aside to provide a reserve for the retirement of freight equipment.

POWER

Power Delivered to Cars (45-62)

This account shall include the total cost of power, including generating, converting or the amount paid for power purchased and all expenses incident to delivery of power to cars, same to be charged to this account at the cost of power per car-mile.

CONDUCTING TRANSPORTATION

Freight Trainmen (65)

This account shall include the wages for motormen, conductors and other trainmen engaged in freight service.

Station Employees and Expenses (68, 69)

This account shall include wages of agents, warehousemen and others employed in freight stations; also the cost of heating and lighting stations and other miscellaneous freight house expenses.

Freight Collection and Delivery (38, 76, 96)

This account shall include the wages of chauffeurs, drivers and helpers employed on wagons or other vehicles used for collection or delivery of freight. This account shall also include the cost of repairing wagons, harnesses, trucks and all garage and stable expenses incidental to maintenance of wagon or truck delivery service in connection with the freight business.

Loss and Damage (77)

This account shall include the expenses incurred for losses and damages to freight entrusted to the carrier for transportation; also cost of settling such claims.

Miscellaneous Transportation Expenses (63, 66, 67, 70-73, 78)

This account shall include a proportion of the cost of superintendence of transportation, car inspection, operation of signals and telephone lines and other miscellaneous car service and transportation expenses, same to be charged on the car-mile basis.

TRAFFIC

Solicitation of Freight (79)

This account shall include the salaries and expenses of freight solicitors and clerks.

Advertising (80)

This account shall include the salaries and expenses of advertising agents, the cost of printing and distributing timetables, folders, notices to shippers and all other freight advertising matter; also freight advertising in newspapers and magazines.

Miscellaneous Traffic Expenses (82)

This account shall include miscellaneous traffic expenses of the freight department.

GENERAL AND MISCELLANEOUS

Officers, Clerks and Miscellaneous General Expenses (83-91, 95)

This account shall include a proportion of the salaries and expenses of general officers and clerks, law expenses, stores expenses and miscellaneous general office supplies and expenses, the charge to be made on the car-mile basis.

Accidents and Damages (92)

This account shall be charged with salaries and expenses of claim agents and attorneys and amounts paid in settling claims of accidents arising from the operation of freight cars.

Insurance (93)

This account shall include premiums paid for insurance on freight buildings and equipment.

Stationery and Printing (94)

This account shall include the cost of printing freight bills, waybills, milk tickets and other freight printing; also the cost of stationery and postage used by the freight department.

Rent of Tracks and Facilities (97)

This account shall include the amounts paid for rent or use of tracks and facilities by the freight department.

*Abstract of paper read at the annual meeting of the New York Electric Railway Association, Bluff Point, N. Y., June 26, 1920.

Rent of Equipment (98)

This account shall include the payments to other companies for rent or use of freight cars and equipment.

TAXES

This account shall include gross earnings and income taxes based upon the gross and net earnings of the freight department; also state, county, town, city, village, school and other miscellaneous taxes actually paid on freight structures and equipment.

INTEREST

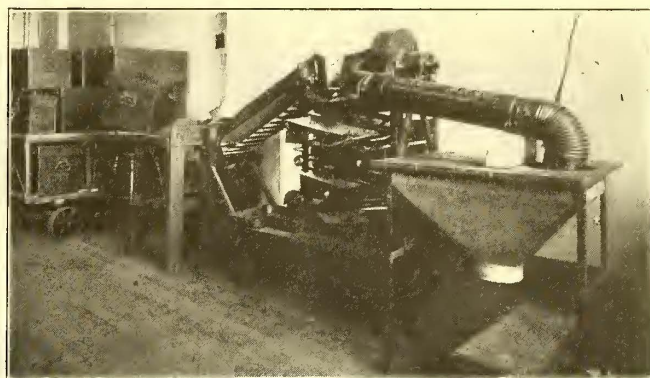
Technically the freight department should be charged with its proportion of interest, taxes, insurance and depreciation of roadway, tracks, overhead, buildings, etc., but inasmuch as the freight business is operated as an adjunct to the passenger service, it is practical only to charge this account with interest on equipment and facilities used exclusively for the freight business, at the same ratio that the general mortgage or indebtedness bears to the total value of all the railroad property covered by the mortgage. For example: If the total value of the railroad as covered by the mortgage amounts to \$15,000,000 and the mortgage amounts to \$5,000,000 at 5 per cent and the value of the equipment used exclusively for freight is \$100,000, interest at 5 per cent per annum should be charged on one-third of \$100,000 as, in this case, the railroad property is mortgaged for one-third of its book value. This account should also be charged with interest on any loans made for the purchase of freight buildings or equipment not covered by the mortgage.

failed to provide sufficient facilities for the business which they already have, and this information may be used to determine whether or not the business is profitable and whether or not it will pay to provide adequate equipment and facilities for the present business and further facilities for future growth.

Coin Counter at Kansas City

THE accompanying illustration shows the latest addition to the mechanical coin-counting equipment of the Kansas City (Mo.) Railways. This machine is a sorter and separator combined and is a development of several of the machines described in detail in the May 1 issue of the ELECTRIC RAILWAY JOURNAL.

The machine is a combination of a coin and ticket separator and a sorter of coins and tokens. The work which it does previously required two, and at times three, machines with operators. The new machine is operated by two people, one at the feed table and one at the tills. The contents of the fare boxes are emptied upon a revolving table, shown at the left of the picture. From this table they are fed onto a belt conveyor, and



NEW COIN AND TICKET SORTER USED BY KANSAS CITY RAILWAYS

the conveyor deposits its contents in the first jogging compartment. While the jogging process, which causes the coins and tokens to pass through a screen, is in progress the paper tickets are removed from the mass by means of a vacuum suction nozzle and are delivered through a tube to a hopper, from which they are checked and weighed. The coins and tokens pass through a series of screens, each with apertures for one denomination. From the tills the coins and tokens are delivered to the standard counting machines. The reversible table at the feed end of the machine provides for a continuous supply of material, for while one box is being counted the contents of another are arranged for the operator.

Two 1/2-hp. motors supply the power for the operation of the machine, one operating at 1,500 r.p.m. for driving the fan which produces the suction and the other operating at 1,700 r.p.m. for driving the conveyor belt and agitating the joggers. The machine has a capacity of 300,000 coins, tokens or tickets per hour. It is the work of a local mechanic in collaboration with L. M. Boschert, assistant treasurer of the railway company, under whose direction all tabulating of fare receipts is done.

What is said to be the largest jet condenser yet built was recently completed by the Westinghouse Electric & Manufacturing Company for the Alabama Power Company. It is capable of passing 13,000,000 lb. of water per hour.

FREIGHT DEPARTMENT REPORT OF EARNINGS, EXPENSES AND STATISTICS
SUMMARY OF OPERATIONS

Month of	Month of	Earnings	This year to	Last year to
		Freight (car load)		
		Freight (less car load)		
		Milk and cream		
		Other revenue		
		Gross Earnings		
		Operating Expenses		
		Accounts (Note)		
		Way and structures:		
		Maintenance of track, overhead, etc.	1-23	(B)
		Maintenance of buildings and structures	24	(C)
		Depreciation of freight buildings	25	(A)
		Equipment:		
		Repairs to freight cars	31, 33	(A)
		Miscellaneous shop expenses	29, 36, 37, 39	(B)
		Depreciation freight equipment	40	(A)
		Power:		
		Power delivered to cars	45-62	(B)
		Conducting transportation:		
		Freight trainmen	65	(A)
		Station employees and expenses	68, 69	(A)
		Freight collection and delivery	38, 76, 96	(A)
		Loss and damage	77	(A)
		Miscellaneous transportation expenses	63, 66, 67, 70-73, 78	(B)
		Traffic:		
		Solicitation of freight	79	(A)
		Advertising	80	(A)
		Misc. traffic expenses	82	(A)
		General and miscellaneous:		
		Officers, clerks and misc. general expenses	83-91, 95	(B)
		Accidents and damages	92	(A)
		Insurance	93	(A)
		Stationery and printing	94	(A)
		Rent of tracks and facilities	97	(A)
		Rent of equipment	98	(A)
		Total operating expenses		
		Taxes		
		Income less operating expenses and taxes		
		Interest		
		NET INCOME		
		Freight Statistics		
		Car-miles—owned tracks		
		Car-miles—leased tracks		
		Car-miles—total		
		Car-hours—total		
		Weight—foreign equip. carload		
		Weight less car load		
		Weight total		
		Gross earnings per car-mile		
		Operating expenses per car-mile		
		Net earnings per car-mile		
		Gross earnings per 100 lb.		
		Operating expenses per 100 lb.		
		Net earnings per 100 lb.		

Note:
Proportioned
A = Actual, B = Car-mile basis, C = Part at A, part at B

The distribution of operating expenses, taxes and interest will not be exactly the same on all roads, but the fundamentals as set up in this system of accounts will give the cost of operation of the freight business, from which we can obtain valuable information. Most electric railroads have neglected this business and have

Outing at Montreal

New England Street Railway Club Enjoys Trip—
Prominent Government Officials Speak
at Banquet

MONTREAL good fellowship and hospitality will long be remembered by the members of the New England Street Railway Club who participated in the trip to that Canadian city this week. The party, about eighty in number when it left Boston on the evening of June 28, was increased by delegates who joined at points along the route. Montreal was reached on Tuesday morning. Here another contingent, made up of some of those who had been in attendance at the Bluff Point convention of the New York Electric Railway Association, and others who had motored to Montreal, joined the party.

The first day was spent in an inspection tour of the city and system of the Montreal Tramways, personally conducted by officials of that company. The start was made about 11 o'clock from the Windsor Hotel, the delegates traveling in the official parlor car and the two open sightseeing cars of the company. A train of two



OFFICIALS OF THE MONTREAL TRAMWAYS AND OF THE CLUB IN FRONT OF THE POINTE AUX TREMBLES SUBSTATION

closed cars followed for use in case of rain, as the weather was threatening, but the services of this train were not required until during the last hour of the trip, when a short shower made this thoughtful provision of the hosts very acceptable.

After a tour around Mount Royal the party was taken to the new Pointe aux Trembles substation of the Montreal Tramways, where a bountiful lunch was served and the Montreal Tramways' band of thirty pieces played national and popular airs and cheers were given for Colonel Hutchinson, general manager; A. Gaboury, superintendent, and the other officials of the Montreal Tramways who had been so assiduous in looking after the comfort of the visitors. On the return trip the repair shops at Youville were visited.

While the members of the club were making this tour the visiting state officials who composed part of the party engaged in a game of golf at the Forest and Stream Club.

The banquet, held Tuesday evening in the Rose Room of the Windsor Hotel, was unique in that the guests included prominent state officials from each of the six New England states as well as leading Dominion and provincial officials. I. A. May, president of the club,

presided and Hon. John N. Cole, Commissioner of Public Works, Massachusetts, acted as toastmaster.

The speaking was introduced by a toast to the King, offered by Mr. Cole, followed by another to the President of the United States, offered by E. A. Robert, president Montreal Tramways. Both toasts were drunk standing. The representatives of the New England states who later delivered addresses were Hon. Channing H. Cox, Lieutenant-Governor of the Commonwealth of Massachusetts; Hon. Clifford B. Wilson, Lieutenant-Governor of the State of Connecticut and also the Mayor of the city of Bridgeport; Hon. Leon F. Higgins, president of the Senate of the State of Maine; Hon. Emery J. Sans Souci, Lieutenant-Governor of the State of Rhode Island, and Hon. Mason S. Stone, Lieutenant-Governor of the State of Vermont. Speeches were also given by Hon. L. Athanase David, Secretary of the Province of Quebec; Alderman Dickson, who represented the Mayor of Montreal, and E. A. Robert, president, and Col. J. E. Hutchinson, manager of the Montreal Tramways.

Many references were made by the speakers from New England to the hospitality shown on the occasion of their visit, to the distinguished services rendered by Canada during the war, to the sterling qualities which had characterized the Canadians, mostly from the Province of Quebec, who had settled in New England in the past, and to the close ties of amity and economic interest which existed between these two neighboring countries of North America. With these sentiments the hope was voiced that these ties would become even stronger in the future. This expression of friendship was reciprocated by the speakers from Canada, who were most cordial in their greetings and in testifying to their pleasure in the selection of Montreal as the place for holding the annual outing of the club.

A feature of the dinner was the display of moving pictures of groups and incidents taken during the day's excursion.

On Wednesday afternoon the members of the club, accompanied by representatives of the Montreal Tramways, took a trip on the harbor of Montreal in a boat placed at their disposal by the Montreal Harbor Commission. The greatest interest was taken in the extensive system of docks, warehouses and terminal railways which have been constructed and are under construction by the Harbor Commission. After the return to the hotel Wednesday afternoon the delegates presented a piece of table silver to W. C. Bolt as a testimonial of their appreciation of his services as treasurer of the party. The club returned to Boston on Wednesday night.

New Features in Winding Machine

THE Comstock armature and field coil winding machine, embodying several new features, has recently been put on the market by the Diamond Manufacturing Company, Wyoming, Pa. The head of this machine, which carries the face plate, can be placed at any angle within 90 deg., thereby enabling the operator to wind a coil in any desired position. The machine is stopped and started by means of a pedal operating a cone clutch. It is driven through a worm gear and is equipped with a three-step cone pulley.

A hand wheel on the front of the machine is used to turn the face plate backward when desired. This wheel can also be removed and a form can be attached to the spindle for high-speed plain winding. The machine weighs approximately 350 lb.

Association News

ATLANTIC CITY CONVENTION, OCT. 11 TO 15

Standards Exhibit Planned for Convention

THE American Electric Railway Engineering Association has sent a letter to members of its committees announcing that in the campaign for extending the use of the association standards an opportunity will be afforded at the 1920 convention for manufacturers to display the association standards. Arrangements will be made whereby all standards in each manufacturer's exhibit can be designated with appropriate cards.

In addition to this the association itself plans to have a complete and representative exhibition of standards in its own booth. Only one sample of each standard, however, will be shown in this booth. The manufacturer members of each committee have been requested to furnish for exhibition in the association's booth such of the standards as they can readily provide.

Program Committee of Engineering Association Meets

A TENTATIVE program for the Atlantic City convention was discussed at a meeting of the Engineering Association's committee on engineering subject matter held at 8 West Fortieth Street, New York, Monday, June 28, at 10 a.m.

Those present were President E. R. Hill of Gibbs & Hill, consulting engineers, New York, N. Y.; A. B. Stitzer (chairman), chief engineer Republic Engineers, Inc., New York, N. Y.; C. S. Kimball, engineer Washington Railway & Electric Company, Washington, D. C.; K. A. Simmon, Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa.

The committee hopes to equal, if not improve, the program of last year, as it has plenty of vital and live subject matter for discussion and an extended list of inspiring speakers from which to make a selection.

Meeting of American Association Fare Systems Committee

THE fare systems committee met Tuesday, June 29, in the Association headquarters at 8 West Fortieth Street, New York. Those present were: W. H. Sawyer, (chairman), vice-president E. W. Clark Management Corporation, Columbus, Ohio; L. H. Palmer, assistant to president, United Railways & Electric Company, Baltimore, Md.; Thomas Conway, Jr., Wharton School of Finance, University of Pennsylvania, Philadelphia, Pa.; J. K. Punderford, vice-president the Connecticut Company, New Haven, Conn.; R. F. Carbutt, Henry L. Doherty Company, New York; L. R. Nash, Stone & Webster, Boston, Mass.; Robert W. Feustel, president Fort Wayne & Northern Indiana Traction Company, Fort Wayne, Ind.

Reports were read by several members relating to details of the committee program. This committee hopes to present a complete résumé of fare systems used during the past few years and deductions to be made from actual experience with these systems. The committee has a wealth of material and every member is working hard to produce something worth while for the consideration of the convention.

A Post-War Opportunity

THE association office has received a communication from Robert Kraudnoil, manager Salzburger (Austria) Railway & Tramway Company, containing a request that employees of electric railways in the United States assist their Austrian fellow-workers through the medium of food drafts. The substance of the letter follows:

Owing to the high cost of living and the poor rate of exchange many Americans have been helping Austrians. Usually, however, packages are sent only to persons by relatives or acquaintances in the United States. There are many who have no such relatives or friends. To secure relief for such, and to eliminate profiteering, I take the liberty, as director of the Salzburger Eisenbahn und Tramway Gesellschaft, to ask whether you would place at the disposal of our employees a sum covering three hundred and forty-seven families at \$3 per package as per the accompanying list. The total cost therefore would be \$1,041. If each American electric railway employee will do what he can according to his will and strength, this amount would not be a hardship on these employees while helping ours to get through a difficult period.

Please do not consider this request as an impertinence, but necessity drives us on to do what we can to obtain better conditions. Salzburg must be known to many a traveling American as the prettiest city of Europe.

In case this request meets with your approval we shall ask the American auxiliary at Salzburg to arrange for the reception and distribution of these packages.

Valuation Committee Meets

THE American Association committee on valuation met on Wednesday, June 30, at the association headquarters in New York City. The following members were in attendance: Martin Schreiber, chief engineer Public Service Railway, Newark, N. J., vice-chairman; Prof. H. C. Anderson, Ann Arbor, Mich.; Cecil F. Elmes, of Sanderson & Porter, Chicago, Ill.; J. H. Hanna, vice-president of Capital Traction Company, Washington, D. C.; W. J. Harvie, general manager Auburn & Syracuse Electric Railroad Company, Auburn, N. Y., and W. H. Sawyer, vice-president E. W. Clark Management Corporation, Columbus, Ohio.

This meeting was largely an organization meeting at which the scope of the report to be made at the annual convention was finally and definitely fixed and progress made in determining its character. The committee members all reported that the 1919 report had, so far as they could learn, proved a really substantial forward step in valuation discussions and there was no sentiment to modify this report in the least.

Waterbury Entertains Section 7

PROMINENT business men of Waterbury and musical and dramatic talent recruited from the local division of the Connecticut Company instructed and entertained the 122 members and guests of company section No. 7 on June 3. There were four addresses on civic and general topics, some readings and a minstrel show. The usual dinner preceded the meeting.

Brown, Boveri & Company are reported to have made, a few weeks ago, some tests on a 1,200-volt d.c. rack railway, equipped with regenerative control, to determine the percentage of energy recovered on down grades. The maximum grades are 17.9 per cent. The locomotives carry two shunt-wound motors. The recovered energy was 53.8 per cent of that required to take the locomotive up hill, based on measurements at the locomotive, or 59 per cent as compared with the substation power supplied.

Recent Happenings in Great Britain

Extension of Central London Railway Completed—Tramway Wage Question Revived—London Tramways Plan Expansion

From Our Regular Correspondent

After long delay, mainly caused by the war, the Ealing extension of the Central London Railway is expected to be open for traffic on July 1. The extension is about 4 miles long. It runs from the present western terminus of the Central London Railway at Shepherd's Bush to the suburb of Ealing, on the extreme western outskirts of London. The total length of route from Ealing to Liverpool Street in the city of London is about 11 miles, of which 6 miles are in deep-level tube tunnels. All the extension is surface railway on its own right-of-way. There will be ten-minute service of trains each way. This will probably be increased later to seven and one-half minutes, and the time for the journey will be thirty-eight minutes.

THE additional rolling stock (multiple-unit trains) was delivered before the war, and as the railway was not ready for it it was utilized for the through service between the Baker Street & Waterloo Railway and Watford on the London & North Western Railway. New rolling stock for the service is now being delivered, so that the Central London Company's cars are freed for the Ealing service. There will now be three routes between Ealing and the city of London, namely, the Central London Railway, the Metropolitan District Railway, and the combined Great Western & Metropolitan Railways route. It is hoped that considerable relief will be given to the congestion during the rush hours on the District Railway. A peculiar feature is that the three stations in Ealing are alongside of one another, two being terminals and one a wayside station on the main line of the Great Western Railway.

On May 28 the tramway wage trouble broke out again. It will be recalled that the National Joint Industrial Council for the industry, after making an award of 6s. increase per week, which was not accepted in some districts, left each district council to try to settle matters locally according to existing conditions. Five district councils came to agreements, but the other four failed to do so. The National Council met on May 28 to try to settle the disputes, but was not successful. Meanwhile more trouble was threatening because the London omnibus men were, like the tramway men, pressing for an advance of 10s. a week. The Minister of Labor took up the matter and discussed it with the parties, and the final result, which was announced on June 4, was a settlement. The tramway men in the London area receive a flat rate increase of 9s. a week, the graded increase proposal being abandoned. For provincial districts the principle of the Lancashire settlement, namely a graded increase of 7s., 8s. and 9s., has been adopted. The London omnibus workers were thereafter granted an advance of 9s. The original demand was for a flat rate increase of 10s. a week for the whole country.

The National Wages Board on June 4 issued its award on the applications by railway (as distinguished from tramway) men for large increases of

wages. The increases granted are much more modest. They range from 7s. per week downward. The increases will necessitate further raising of fares and freight rates.

Lord Ashfield, chairman of the underground railway group, and one of the greatest authorities on London traffic problems, has an interesting article in the May number of the *Nineteenth Century and After*. He regards present difficulties as mainly due to a lack of foresight which allowed London to grow to its present size without proper plan or co-ordination. High speed he regards as the basis on which a healthy metropolitan city can be reared. The present underground railways will have to be supplemented by additional high-speed railways with fewer stations. What is wanted, he concludes, is:

1. A general plan for the development of the whole metropolitan area.
2. A scheme of facilities for rapid communication carried into effect ahead of development.
3. A transfer of all transport agencies to private enterprise, subject to public control, with a pooling scheme for co-ordination.
4. A unification of control in the hands of a statutory authority.

A. F. Buxton, chairman of the finance committee of London County Council, estimates a deficit on the working of the Council's tramways for the current year of £462,000. The reserve fund has already been exhausted. The expenditure on salaries and wages now amounts to 12.36d. per car-mile against 4.5d. in 1914. A special committee is now inquiring into the general conditions under which the tramways are being operated with the object of putting them on a self-supporting basis. Meantime help from the local rates is contemplated.

The London County Council does not intend to allow present financial troubles to prevent it from going forward in the path of tramway progress. There is a strong determination among most of the councillors that the tramways must be put in a strong position and to see that no charge shall come on the rates in respect of them. The traffic is growing on the existing lines and some others are to be opened. During 1919-20 there was an increase of 7.7 per cent in the number of passengers as compared with the previous

year. Further increases will come with the development of housing schemes in the suburbs. A. L. C. Fell, the general manager, estimates that for the growth of traffic on existing routes 124 additional cars are required, while for new lines to be opened eighty more will be necessary. Out of the total, seventy-nine will be available from existing stock when material on order is delivered. The remaining 125 are to be ordered as soon as tenders can be obtained from builders, but in the present condition of industry delivery is not speedily expected. The type of car will be the same as that now in use, namely, a double-deck roof covered, eight-wheel bogie car seating seventy-eight passengers. The Council, however, is not satisfied that the last word in design has been reached, because it is offering a prize of £1,000 for the best design which can be put forward. Officers and other employees of the Council are not to be eligible to compete, but otherwise the competition will be open to the world.

Another town which is trying a new type of car is Sunderland. The main feature is the provision of doors at the front to be used for exit, so that less time may be spent in loading and unloading.

The tramways (temporary increase of charges) bill received the Royal assent on May 20. It is accordingly now an act of Parliament and law of the land. This, it may be recalled, is the measure which enables the Minister of Transport to issue orders enabling tramway undertakings to raise the fares above the present statutory maximum. This in most cases is a penny per mile. In the case of municipal tramways the increases are to be such as will enable the undertaking to be carried on without loss, while in the case of company-owned tramways the increases are to be sufficient to provide for interest on loan capital and a reasonable return on share capital. At the end of May a first step was taken under the act, the Ministry of Transport authorizing an increase of the minimum fare on the London United Tramway Company's system from 1d. to 1½d. The increases granted for the long-journey fares are relatively small.

The annual conference of the Tramways & Light Railways Association will be held in London on July 2.

The introduction of the token system for ½d. fares, in lieu of the abolished ¾d. fares, for short journeys on the Glasgow tramways has caused a great deal of work to the officials. The tokens, which in substance resemble celluloid, are purchasable at twelve for 9d. The passenger hands the conductor a token and gets a ticket in return. The tokens are obtainable from employers, shopkeepers, etc., as well as from the tramway offices. The whole arrangement is of some magnitude, as hitherto more than 6,000,000 passengers per week have been carried for stages not longer than those to which the ¾d. fares apply.

News of the Electric Railways

FINANCIAL AND CORPORATE • TRAFFIC AND TRANSPORTATION

PERSONAL MENTION

Sixty Cents in Rochester

Award Announced in New York State Railways Arbitration Proceeding—Nine-Hour Day

Sixty cents an hour as the rate of compensation and a basic nine-hour day are prescribed for motormen and conductors employed by the New York State Railways on its Rochester, Syracuse and Utica lines, in the award announced on June 28 by the Board of Arbitration before which the wage-and-hour dispute was argued between the company and its employees. The new wage scale represents an increase of 33½ per cent over the present scale of 45 cents an hour. The award is retroactive to May 1.

MEN'S REPRESENTATIVE DISSENTS

The award brings to a close the controversy which resulted in the three-day strike in Rochester, Syracuse and Utica early in May when the railway refused to grant demands for a 100 per cent increase in wages and an eight-hour day.

James H. Vahey, who represented the men on the board, dissented from the opinion of the majority, as constituted by former Supreme Court Judge Arthur E. Sutherland, neutral and presiding member of the board, and B. E. Tilton, vice-president of the railway. Mr. Vahey declared for a higher wage scale than 60 cents an hour and an eight-hour day.

The board expresses the opinion that it is not possible to give the men a living wage on the basis of an eight-hour day and at the same time give the public adequate service at a 7-cent fare. The majority of the board also declares that in consideration of the increases the men already have received, 60 cents an hour is a fair wage.

DETAILS OF WAGE SCALES

Revisions in the working agreement between the railway and the Rochester, Syracuse and Utica divisions of the Amalgamated, as arranged by the arbitrators, indicate the following scale for motormen and conductors: City lines, for first three months, 56 cents an hour; next nine months, 58 cents; after a year, 60 cents; interurban lines, 62 cents an hour. Employees on the third-rail Oneida line are to receive 65½ cents an hour. Men on express and baggage runs are to receive an additional 5 cents an hour. Miscellaneous shop employees, except those otherwise provided for, are to receive an increase of 33½ per cent upon their rate of wages and classification as of May 1. Emergency truck men are to be paid \$175 a month.

Mr. Vahey declared that he was

“hopelessly at variance with the views of Mr. Sutherland and Mr. Tilton.” He says that he offered the arbitrators to join in an eight-hour award for the men at 62½ cents an hour. According to him, this would mean a daily wage of 40 cents less than that actually awarded, but the men would have accepted the sacrifice in order to get the shorter day.

Confiscation Cannot Be Justified Because of Past Fault

The Consolidated Gas Company, New York, N. Y., and six of its subsidiaries were granted a temporary injunction in the Federal District Court on June 29, effective July 1, on their application to restrain the State, County and Public Service Commission officials from enforcing the 80-cent gas law. The preliminary injunction permits the company to charge at the rate of \$1 per 1,000 cu.ft. until the final settlement of the case by the higher courts. The Kings County Lighting Company also obtained an injunction with permission to charge a \$1 rate.

Three separate opinions were handed down, one covering the case of the Consolidated Gas Company, one the Kings County Lighting Company, and one the six Consolidated subsidiaries taken together. With some slight modifications the three opinions were practically identical. The court held:

The objections made would not deprive the companies of their rights to be protected against the present confiscation of their property.

It would be impossible for the companies now to furnish the candle power they failed to furnish in the past and it will be well nigh impossible for the Mutual to divide with its then consumers its excess profits over 10 per cent that they were entitled to; besides the maxims relied on do not apply that he who comes into equity must come with clean hands and he who asks for equity must do equity.

A plaintiff denied relief in equity it left to his remedy at law, but there is no such remedy as will enable these companies to collect their losses which they may sustain pending final hearing of the requirements if the act is held unconstitutional. Confiscation cannot be justified because of past fault. The affidavits satisfy us that the 80-cent gas rate is confiscatory and that a rate of \$1 per 1000 cu.ft. will be well within moderate return on the capital investments of the companies. The preliminary injunction prayed for is granted on condition that the companies deposit the amount collected above the statutory rate with a special master who shall deposit it and distribute same in accordance with the decree in a final hearing.

The plaintiffs alleged that the 80-cent gas rate was confiscatory. The defendants objected that the companies had not furnished candle power as required by law and in the case of the New York Mutual Gas Light Company, one of the subsidiaries of the Consolidated Company, it had not divided its excess profits over 10 per cent with its consumers as required by its charter.

Arbitration Decision Awaited

Davenport Awaiting Report on Request for \$1 an Hour—Fare Injunction Continued

A board of arbitration is now attempting to settle the wage scale for the trainmen of the Tri-City Railway, Davenport, Ia. The board has been in session for more than three weeks without reaching a verdict. No immediate finding is expected, according to members of the board.

66 PER CENT INCREASE ASKED

Arbitration was provided for in the contract signed between the company and the trainmen a few weeks ago. The wage scale decided on will be retroactive to June 1. The men are asking \$1 an hour maximum. The present scale provides for 60 cents an hour maximum.

A 7-cent fare is now charged on both the Iowa and Illinois lines of the company. In Iowa this fare is collected under an injunction secured by leading retail merchants to prevent the socialist city administration from insisting on collection of the 5-cent fare as provided in the old franchise.

The city administration has filed an answer to the injunction, but no final hearing will be held by the court for several months.

In the meantime the city is having an audit made of the traction company's books and on this audit a valuation will be fixed for the steam, gas and electric railway properties.

The city's bill for this audit will be approximately \$25,000, Aldermen state. The appraisal work will be done by Burns & McDonnell, Kansas City, with whom the city has entered into a contract.

CITY QUESTIONS VALUATION

The city refused to accept the company's valuation figures and is going to considerable expense to procure valuations on which the socialists hope to found their argument for a 5-cent railway fare and a continuance of the present gas and electric rates before the courts. The Peoples Light Company, affiliated with the railway company, recently petitioned for an increase in the gas and electric rates. All these petitions for an increase will be held in abeyance until the audit is completed and valuations made.

A continuance of the 7-cent fare on the Illinois lines will be asked of the Public Utility Commission of Illinois. The petition will be submitted by J. G. Huntoon, general manager of the Tri-City Railway.

Many Angles to Detroit Affairs

Formal Statement Regarding Fares—Court Denies Company's Plea to Have Ouster Suit Dismissed

A formal statement has been issued by Judge Jayne of the Circuit Court of the agreement reached before him between the city and the Detroit United Railway regarding a temporary rate of fare. Both parties to the agreement, the city and the company, reserve all rights they have, and the agreement further sets forth that the company will at once permit an audit of its books and that a hearing will be held to determine the right of the court to determine the reasonableness of a universal rate of fare for the city. This can be revoked by either the city or the company at any time. It is agreed by representatives of the city and the company that the determination of the right of the Circuit Court to pass on the reasonableness of the rate of fare will give the contending parties a permanent forum for the adjustment of differences regarding fare.

THE arrangement whereby the city will build one track of a double-track line on Harper Avenue and allow the railway to construct the other is taken as evidence of an altered attitude of the municipal administration. It has met with favorable comment, especially among some of those who will be served by that extension.

The Detroit *Free Press*, while maintaining that the Detroit United Railway's total project stopped by the police would be more satisfactory, states that a half loaf is better than no loaf at all and perhaps the second half will be forthcoming later. The city, it is cited, should be as a whole encouraged as well as pleased, because it is justified in cherishing a hope that the arrangement regarding Harper Avenue is no mere sporadic concession to public interest, but that taken in connection with the recent fare adjustment it indicates the beginning of a definite reversal of policy in the city hall.

CITY PLANS BOND SALE

The sale of the first \$300,000 of public utility bonds, part of the \$15,000,000 issue, has been authorized by the Council. The bonds have been purchased by the city itself and are being sold by the treasurer. Although passed upon and approved by the bond expert to whom the issue was referred, the legality of the entire issue is being contested by the Detroit United Railway.

The company's motion to have the city's ouster suit dismissed was denied Monday by Judge Dingeman in the Wayne County Circuit Court. The ouster suit was instituted by the city in 1918, and, following Judge Dingeman's decision, the court will now proceed to try the city's suit to order the company off all streets on which its franchises have expired.

The Council passed a resolution in 1918 directing the Corporation Counsel to proceed to have the Detroit United Railway removed from the streets. This action was later confirmed by a resolution which went more into detail. Then with the passage of the Kronk ordinance fixing the fare at 5 cents on all franchise and non-franchise lines, the Detroit United Railway attacked the validity of the ordinance in the United States District Court. The Detroit United Railway appealed to the

United States Supreme Court when its application for an injunction was denied by Judge Tuttle, and the Supreme Court ordered the District Court to hear the application for temporary injunction and to determine the case on its merits. The case was not pushed until last month, when the company asked that the suit be dismissed, arguing that the Council should have directed the suit by ordinance instead of by resolution.

That the State Constitution and the new City Charter gave the Council a general right to control the persons or corporations using the streets, and that this would include the right to control the use of the streets, was held in the judge's decision. Under the provisions quoted, the local authorities are held

to have power to control within the use of their streets for any purpose whatsoever not inconsistent with the state law. The court held that the substance of the ouster resolution was administrative and therefore did not need to be by ordinance, since the resolution passed by the Council is considered to be merely a recital of the passed expiration of franchise rights.

There is serious doubt as to the validity of the Kronk ordinance. The intent of the Council in the ouster resolution was that steps be taken to terminate the company's rights in the streets where the franchises have expired and pending such action that proposed legal and reasonable restrictions be imposed, the decision recites. These restrictions the Council sought to impose through the Kronk ordinance.

It was further held that the Council had the right to assume that a year or more probably would elapse before such ouster proceedings, if begun immediately, could be heard and finally terminated in the courts, and it extended to the railway, whose rights in the streets had expired, the privilege of remaining there and operating its railway system, pending such determination of the contemplated proceedings, on the terms prescribed by the ordinance. There is nothing inconsistent in the position taken by the Council in this respect.

Toledo Ordinances Passed Again

Council Seeks to Insure Their Legality—Plans Being Made for Political Campaign

The members of the commission which formulated Toledo's twin municipal ownership ordinances for acquiring and constructing a transportation system for the city have resolved themselves into a committee to provide the nucleus for a summer campaign. They have planned to educate the people in favor of the public ownership plan before the primaries on Aug. 10. The Council passed the twin ordinances a second time last week to assure the legality of the special election. There is a conflict in state and city charter regulations providing for the referendum and the City Council was taking no chances. The last vote was fourteen to two in favor of submission.

THE campaign to be waged in behalf of the ordinances is to bring to the city Mayor Couzens of Detroit and many other exponents of the public ownership of street railways and to conduct open air meetings with local speakers in all parts of the city. The publicity of the campaign is being supported by only one of the three local newspapers. One afternoon paper, the *News-Bee*, a member of the Scripps-McRae league, is fighting for municipal ownership.

In offering an explanation as to the necessity for the two ordinances the commission gave out the following statement indicating its general plan:

This commission did not wish to recommend the acquisition of a bus system to the entire exclusion of electric lines. Nor did it favor the purchase, bodily, of the present street railway system, to the exclusion of bus lines. The members wished the city to be in a position where it could establish the most modern kind of a transportation system possible. Such parts of the present system as are of modern design and necessary for a permanent transportation operation should be purchased from the company. Where present tracks must be rebuilt or new lines laid, the city would

have the power to construct them. And where bus lines would be more economical or flexible the city should have the means to provide them.

For this reason the commission has designated \$3,000,000 for acquiring buses and modern parts of the present street railway system and another \$4,000,000 for replacing old tracks and constructing new lines.

The cost-of-service plan as finally agreed upon in all points except valuation was deposited with Judge John M. Killits of the Federal District Court by members of the commission which formulated it. This action was taken so that it might be revived at any time either the city or the company wished to open negotiations.

So far in the campaign the company has paid no attention to the efforts of those in charge of the municipal ownership campaign.

A noteworthy fact is the failure of the Doherty management to pay the interest and principal on the bonds of the Maumee Valley Railways & Light

Company, and also the interest on \$1,500,000 first mortgage bonds of the Toledo & Western Railroad due on July 1. This would indicate that the company is relinquishing its hold on some of the poor-paying lines taken over at the same time the Toledo Railways & Light Company property was acquired.

TEN-CENT FARE MATTER PENDING

These two lines were assumed as a part of the inheritance of the old parts of the present Toledo system. The Maumee Valley lines could be made a part of the city system to take care of future up-river growth. The Toledo & Western is a distinct interurban operating into Adrian, Mich., and some smaller villages in the northwestern part of Ohio.

No definite action has been taken by the Rail-Light attorneys relative to bringing up for hearing the cross-bill providing for a 10-cent fare with 2-cent transfers which was filed early in the spring by the Doherty interests.

Temporary Injunction Granted

Denver Tramway Restrained from Reducing Wages or Otherwise Impairing Its Service

District Judge Whitford on June 26 granted the application of the city of Denver, Col., for a temporary injunction against the Denver Tramway. The court overruled the demurrer of the company and denied its motion to dismiss the proceedings on the grounds that the court has no jurisdiction. The order is very broad and sweeping. It restrains the company from reducing the higher wage scale established by a local board of arbitration on March 18, 1920, and from taking any other action which might interfere with continued railway service.

CITY NOT REQUIRED TO GIVE BOND

In the absence of any pleadings or arguments by the employees, Judge Whitford declined to make a ruling with regard to them although the city of Denver in its application of May 29 requested an injunction against the local branch of the Amalgamated Association prohibiting them from striking for any reason. The restraining order was entered on May 29. It was made against both the company and the association.

The direct application by the company that the city be requested to furnish adequate bond to cover the losses of the company of some \$1,200 a day resulting from the injunction was denied.

The City Council on May 10, 1920, referred to popular vote during May, 1921, the 7-cent fare ordinance initiated by the company as an immediate means of relief in order to furnish the additional revenues required to meet the higher wage scales established by the arbitration board.

Short Strike in Toronto

Men Accept Compromise Offer After Being Out Four Days—Sixty-Cent Maximum Provided

Employees of the Toronto (Ont.) Railway, failing to receive the increase to 66 cents an hour demanded by them, went out on strike on June 23. After two or three conferences between representatives of the company, the men and the Ontario Railway & Municipal Board, the board made a proposition increasing the wages to 55, 57½ and 60 cents an hour, according to classification, and announced that if the men would accept these wages the board would enforce the agreement upon the railway.

MEN ACCEPT PROPOSAL

A mass meeting of the employees was held at midnight on June 26, when the proposal was accepted. Service was resumed on the morning of June 27.

The strike lasted four days, during which period a large number of jitneys operated under license from the city corporation, at a charge of 5 cents per mile.

On May 9 the employees at a mass meeting prepared draft of demands on the company with respect to hours, wages, etc. On May 26 a committee representing the men conferred with the officers of the company. On May 28 the bill which had been introduced into the Ontario Legislature permitting electric railway fares to be raised under certain circumstances was defeated by the Assembly. The Toronto Railway then, on May 30, applied for a board of conciliation and named William H. Moore, general manager of the Toronto & York Radial Railway.

On June 1 the employees selected John T. Vick, a prominent labor man of Toronto, as their representative. These two parties having failed to agree upon the third member, the Honorable Minister of Labor appointed Justice F. S. MacLennan, Montreal, who was also to act as chairman.

The conciliation board sat on June 9 and 10 and heard evidence submitted by both parties. On June 13 it brought in a unanimous report rejecting the employees' demands. These demands were an increase from the present maximum of 55 cents an hour to 85 cents and for an eight-hour day, as well as some minor changes in the present arrangement.

MEN WENT OUT ON SHORT NOTICE

The public announcement of the award created a very strong feeling of dissatisfaction among the men and on the next day Mr. Vick, the employees' representative on the Board of Conciliation, submitted a minority report declaring that he had signed the unanimous and joint report under a misapprehension. In his minority report he recommended that the present working conditions be continued until Aug. 31, 1921, which is the date of expiration of present franchise. He also recommended that the men should

receive the same rates of pay as the employees of the Toronto Civic Railway, namely, 60 cents an hour for first three months, 63 cents an hour for next nine months and 66 cents an hour thereafter.

The employees' union called a special meeting on June 15, and it was decided that unless the Toronto Railway made the rate of pay equal to that paid by the city of Toronto to employees of the Municipal lines, a strike would be called on June 17.

The Toronto Railway directors were called together, but it was impossible to obtain a quorum. When this was announced on Thursday afternoon, the officials of the union called another mass meeting for midnight on Thursday. The men then decided to postpone the time for striking until June 23.

Twin City Men Less Insistent

Employees of the Twin City Rapid Transit Company have fallen in with the ideas advanced by a committee of citizens to give Minneapolis and St. Paul more time in which to define their positions with respect to the company. In consequence, the strike by the men which it had been said would take place on July 1 has been put off on the promise to arbitrate the differences. The understanding is that if increased fares are granted, the wage increase shall be retroactive to July 1. The one disturbing element appears to be the fact that the Twin City Company may not be able to pay the retroactive wage if the increase in fare is delayed.

Mayor J. E. Meyers of Minneapolis insisted that separate figures be presented for the two cities at the joint Council hearing in Minneapolis upon the request by President Horace Lowry for a 7-cent fare in each city and four tickets for a quarter. No action has been taken by the Aldermanic Council of either city.

In Minneapolis a 7-cent fare and a 6½-cent ticket, according to the company, would produce \$1,966,743 in 1920 for the improvement of service, an increase of wages and a return to investors. If the service of the company were put on the 1917 basis and the men paid 20 cents an hour more, without the overtime feature and the eight-hour day, a total of \$1,955,000 would be required. In St. Paul on the same basis there would be a net deficit of \$900,339.

The estimated net income for 1920 at a 5-cent fare is \$870,743 in Minneapolis. On the same basis the deficit in St. Paul is estimated at \$119,339.

On the present basis of operation with a 5-cent fare Minneapolis produced in the first four months of 1920 \$870,743. In St. Paul the deficit for the same period is at \$119,330. On Sept. 1, 1919, a wage increase was granted of 5 cents an hour. Thus the net income in Minneapolis for the last four months of 1919 was reduced to \$294,448, while in St. Paul there was a deficit of \$40,869. In neither case is the full effect of this shown because service had to be reduced.

New Rochester Proposal

Service-at-Cost Measure with Graduated Return to Railway Submitted on June 30

The service-at-cost contract which was negotiated by the New York State Railways and Corporation Counsel Charles L. Pierce, representing the city of Rochester, N. Y., was presented to the Common Council at a special meeting of that body on the evening of June 30. The contract was immediately referred to the law committee, and it was announced that a public hearing will be held on July 6 before definite action is taken. Assurance is given, however, that the new contract will be accepted or rejected by the Common Council before July 15, when the grant is scheduled to go into effect.

A 15,000-WORD CONTRACT

The service-at-cost plan as presented to the Council is embodied in a 15,000 word contract, divided into nineteen articles. The plan was accepted by the board of directors of the New York State Railways at a meeting held on June 29 in New York. The object of the contract, as specified in article 2, is "so to arrange their affairs that the company shall provide in the city of Rochester the very best service which it is possible to give under any system of careful, scientific and economical management and to secure to the company a proper return upon the value of the property used in service."

The contract if adopted by the Council will take effect on July 15 and is to continue in force until July 15, 1930. Within five days after its execution the Mayor of Rochester is instructed to designate a person to be known as "Commissioner of Railways," with a salary of \$12,000 paid by the railway, whose duty shall be to administer the contract for and on behalf of the city. Three appraisers are to be appointed to determine the fair value of the property of the company.

Eight rates of fare are provided for, and rate E will be put in force at the beginning of operations. The rates are as follows:

- Rate A—3 cents, or six tickets for 15 cents.
- Rate B—4 cents, or seven tickets for 25 cents.
- Rate C—5 cents, or ten tickets for 45 cents.
- Rate D—6 cents, or nine tickets for 50 cents.
- Rate E—7 cents, or ten tickets for 65 cents.
- Rate F—8 cents, or ten tickets for 75 cents.
- Rate G—9 cents, or twelve tickets for \$1.
- Rate H—10 cents, or eleven tickets for \$1.

STABILIZING FUND PROVIDED

When the balancing fund provided for exceeds the sum of \$300,000 by the sum of \$200,000 on the first of any month, on the first day of the following month the fare will automatically change to the next lower rate, and will in the same manner by the same method continue to change to the next lower rate so long as the balancing fund shall, on being computed and determined on the first of each month, be found to

equal or exceed the sum of \$500,000. Likewise when the balancing fund on the first of any month is found to amount to less than \$200,000 the fare on the first of the following month will automatically advance to the next higher rate.

The company is to receive as its sole income and compensation an annual return on the base value according to schedule. When the fare is 3 cents, for instance, the return will be at the rate of 8 per cent per annum; when 4 cents 7.5 per cent per annum; when 7 cents (as it will go into effect) at 6 per cent per annum; when 10 cents, 6 per cent per annum.

Dayton Men Reject Arbitration Offer

On June 28 the railways at Dayton, Ohio, made a proposition to arbitrate the wage question, which caused a strike of the employees some days previously. They stated that wages of platform men only would be submitted to arbitration. When the suggestion was presented to the men, they refused to consider it on the ground that several of the strikers were employed in other capacities. Furthermore, they asserted that any arbitration proceedings must include wages, hours of labor and general working conditions.

New Orleans Negotiations Progressing

There will be no strike of the trainmen of the New Orleans Railway & Light Company, New Orleans, La., if the efforts of Rufus Foster, Judge of the United States District Court, Receiver J. D. O'Keefe and J. B. Lawson, executive committeeman of the men's union, can prevent it.

Mayor Martin Behrman has been called into the conference with the view of learning whether the Commission Council would favorably receive a proposition to advance the car fare to 7 cents, a request which had previously been denied the receiver. While he was noncommittal in his answer the Mayor asked for time to learn the attitude of the business interests toward the increase in fare. He also wants to hear from the labor organizations. The Mayor suggested that whatever solution of the present difficulty was arrived at by the conferees, any new wage award should be made retroactive to July 1, when the old contract expired. There is a disposition to meet some of the demands of the men, but a feeling prevails that a less arbitrary attitude by the men themselves would be helpful to their cause.

A resolution has been adopted by the local Stock Exchange asking that investors in the securities of the company receive equal consideration with the company's employees in the settlement of wage differences. It was reported on June 28 that the men are asking for 53 cents an hour and an eight-hour day. This would mean an average wage of about \$150 a month.

Jitneys Are Curbed

New London Decides That Buses Have Been Permitted to Run Unrestrained Too Long

With the jitney issue squarely before them the people of New London, Conn., have gone on record for reasonable regulation of the buses. First the local Council acted in the matter. Later, on appeal, the voters themselves backed up the restrictions which the Council sought to impose.

IDEAL JITNEY TERRITORY

New London is a mighty active little business place at all times. In the summer, however, it becomes the center of a very considerable shore colony with a greatly augmented population and a goodly number of excursionists. Heretofore the jitneys have run wild, particularly on Montauk Avenue, which extends from the center of the city to Ocean Beach. On this street the Shore Line Electric Railway operates. There are two parallel streets from the city to the beach that are free from trolley tracks.

After considerable deliberation the Council on June 7 passed an ordinance regulating motor traffic. Among other things, this measure ruled public autos designed to carry more than seven passengers off Golden, Green, Pearl and Tillery Streets, also Montauk Avenue from Bank Street to Lower Boulevard, to Pequot Avenue, in either direction, and in a southerly direction on Bank Street between State Street and Truman Street. Moreover, the measure provided that the operator of any such vehicle seeking to do business should file with the captain of police a statement showing among other data the route over which he intended to operate, a description of his vehicle and the fare to be charged. He was also required to carry such information upon the vehicles in the form of a placard. Failure to comply with any of the terms of the ordinance was made a misdemeanor punishable by a fine of from \$5 to \$30. Public notice is required to be given of any intended change in fare.

JITNEY MEN DEFEATED

The jitney men were quick to assert themselves. The city charter provides that within fifteen days of the passage of an ordinance the Mayor shall, if requested in writing by five members of the Court of Common Council and thirty other voters of the city, call a special meeting of the voters to pass upon the matter. The question of regulation was thus brought before the city on June 29. The jitney men retained counsel and solicited the electors personally. On the other hand the electric railway trainmen also appealed to the electors among their friends. When the vote was taken an overwhelming majority was cast for the regulatory measure. In consequence the ordinance will be continued in effect.

Shore Resort Employees Strike

The trainmen in the employ of the Atlantic Coast Electric Railway, Asbury Park, N. J., have returned to their jobs following a conference between officials of the company and a committee of the union. The company is to be allowed to continue its "open shop" policy in view of the peculiar circumstances existing at Asbury Park during the summer months. The men will receive 50 cents an hour for a ten-hour day, with a bonus of 5 cents an hour applicable during the summer. Overtime will be paid at the rate of time and a half. The men had asked for 65 cents an hour for a nine-hour day. The discharged men will not be reinstated.

The employees went on strike June 13 following the refusal of the company to reinstate six men who were discharged. Scott F. Hazelrigg, president of the company, declared that the men discharged were not dismissed because of their affiliation with the unions, but were laid off for "violation of company rules." Two of the discharged men do not belong to the union.

The men quit on the eve of the time set for an answer from the company to the demands for an increase of 25 cents an hour in pay and a nine-hour day. The company's answer to the demands was to have been an offer of 50 cents an hour with a 5-cent-an-hour bonus for faithful services throughout the summer. A ten-hour day was proposed. The company has an application before the Public Utility Commission for an increase in the rate of fare to 8 cents.

\$639,464 Asked for War on Chicago Utility Rates

The finance committee of the City Council of Chicago, Ill., was appealed to during the week ended June 26 by Chester E. Cleveland, Mayor Thompson's chief traction lawyer, for an additional appropriation of \$639,464 to carry out the fight against higher traction fares and telephone rates. The Council has already appropriated \$323,858 for the traction and telephone litigation this year. Should this new request be granted, the total sum to be spent this year will be \$963,322. This is in addition to the sum of \$250,000 which the Council made available to the Mayor to evolve his "people's ownership plan." With this sum included the grand total involved amounts to more than \$1,213,000.

The city having been rebuffed repeatedly in its attempt to reverse the decisions of the Illinois Public Utilities Commission, Mr. Cleveland's request states that appeals to the State Supreme Court and perhaps to the United States Supreme Court will probably be necessary in the surface railway, elevated and telephone cases.

Of the above new request for funds, \$449,600 is asked for specifically for contesting the increase in elevated fares, which have not been attacked up to the present time. The city has never

had any control over the elevated lines, since these are chartered under the state railroad law.

So the Foreign Born May Know

An information service for the benefit of employers of foreign born labor and for the workers themselves has been established by the Inter-Racial Council at the Woolworth Building, New York. The object of the service is to check the tendency of the foreign born to return to their native lands under the mistaken impression that prices are lower and living conditions better there than in America. This is done by circulating reports from the foreign language newspapers regarding actual conditions abroad and by reports from unbiased authorities, such as the Red Cross. There is no charge for this service. The information is designed for the use of editors of internal house organs, shop papers, etc., and may be adopted for use as shop bulletins, posters and pay envelope stuffers and similar publicity. The service is in line with the constant effort of the Inter-Racial Council for the welfare of the foreign born by promoting better relations between the various races in America and the native born.

Temporary Settlement Planned at Akron

City officials at Akron, Ohio, have had under consideration plans for allowing the Northern Ohio Traction & Light Company to establish a higher rate of fare temporarily, pending a final disposition of the proposed new franchise, in order that employees may be paid wages recently awarded by a board of arbitration. These officials are unwilling to grant a permanent franchise, containing an increase in the rate of fare, until an examination is made of the company's books and other investigations are completed.

The men voted on the question of an immediate walk-out on June 23 and 24 and it was lost by a very narrow margin. This insured continued operation of the cars until July 4, at least, and hope was expressed that by that date some step would be taken to make possible the payment of the new wage.

William Lemmon, of the Amalgamated Association, it is said, won a victory in the defeat of the strike movement. He stated that he was opposed to precipitate action as unfair to the public and for this reason he advised the defeat of any proposition that would result in a suspension without due notice.

Traction officials stated that they would pay the men the increased wage if it was possible to secure the funds. The men will receive the new wage from May 1, they said, as soon as the company receives additional revenue. The present rate is approximately 48 cents an hour for a ten-hour day, while the wage granted by the arbitrators is 65 cents an hour. The difference will be paid them as soon as it is made possible, according to the statements.

Jitneys Become Intolerable

Bridgeport, Conn., is to be called upon to choose between the electric railway and the jitney. Notification to this effect is said to have been given to Mayor Clifford B. Wilson. The notification states that unless something is done the trolleys may be withdrawn from service. According to one source of information the formal notice of the Connecticut Company's proposed withdrawal from Bridgeport was set to be presented on July 2. The date of the withdrawal was given as July 15. Morgan B. Brainard, Hartford, a trustee of the company, is reported to have said that the notice of discontinuance of service would be reasonable. Mr. Brainard is credited with the statement that after the Bridgeport matter has been settled the company will proceed to consider jitney competition in New Haven and Hartford. He is quoted as follows:

Of course, we will not spring any sudden ultimatum upon Bridgeport and say, "tomorrow we will take away the trolleys," but will give ample warning so that there may be time for deliberation and well-considered choice. The trustees are agreed that the case of Salem, Mass., where the community was given the choice between the trolleys and the jitneys, is the only way effectively to deal with the competition between the two forms of transportation.

If the community prefers jitney service, well and good. We have no feeling against such action, but will be governed accordingly and remove a form of transportation that is second choice. For three or four years' jitney competition has caused the Connecticut Company serious loss and the trustees feel that it is only sane business to settle the issue with the communities involved.

Richard T. Higgins, chairman of the Public Service Commission, when questioned in regard to the suspension of service, said:

Offhand, I would say that the factor of equity would greatly assist the company if it were able to show that its entire operation in Bridgeport was done at a loss. In cases of this kind the technical legalities of the franchise requiring utilities to give continued service on all lines does not weigh against the factor of equity when the latter is clear and outstanding. No public utilities commission would care to stand out for a full enforcement of the requirements of the franchise if that would mean permanent and serious loss to the utility from causes not under the utility's control.

Franchise Allowances Increased

According to information published at Youngstown, Ohio, the board of arbitration which has been considering the application of the Youngstown Municipal Railway for an increase in allowances under the service-at-cost agreement has fixed the operating allowance at 34 cents per car mile and has added 1 cent per car mile to the maintenance allowance, making it 9 cents. This increase, it is said, will not make it necessary to increase the rate of fare, which is now 9 cents cash and six tickets for 50 cents.

The Board of Arbitration is said to have ordered more than \$23,000, which had been put into a suspense fund, transferred to the stabilizing fund.

It was expected that the formal report of the board of arbitration would be completed and ready on June 28 for presentation to the Railway Commissioner, the company and the press.

People's Ownership Bill

Chicago Measure Provides Taxpayer Must Stand Deficit Under Mayor's Five-Cent Plan

The bill to be submitted to the State Legislature, which is designed to bring about ownership and operation of the electric railways of Chicago by the people, was made public by the Mayor's traction commission during the week ended June 26. The plan of the bill is to enable the voters to create a transportation district and elect five trustees to take over and operate the lines. One of the most interesting sections of the proposed bill is No. 10, which provides that the taxpayer will have to come to the rescue and pay the deficit if the Mayor is in error in his assertion that 5-cent fares would provide enough money to pay operating and maintenance charges.

This arrangement would virtually amount to a service-at-cost plan, except that the taxpayers, instead of only the car riders, would have to share in providing the necessary revenue. When the Mayor's request for \$250,000 to work out his "people's ownership" idea was before the Council traction committee, Attorney Walter L. Fisher, who drafted the 1907 ordinances in Chicago, attempted to insert the words "service at cost" in the ordinance providing for the inquiry, but the Mayor and his friends stopped the move. It was pointed out at that time that "5-cent fares" is a better campaign slogan than "service at cost."

The bill authorizes any 5,000 voters of the proposed transportation district to start the ball rolling toward public ownership by filing a petition with the county judge. It is made his duty to form a commission to be composed of himself and two Circuit Court judges to decide on the boundaries of the district after public hearings. The question would then go on the ballot, and, if approved, trustees would be elected at the following general election.

The operation of the entire scheme is of course contingent on the passage of the bill by the State Legislature.

Ten-Cent Increase Awarded

There is to be an increase of 10 cents an hour in the wage scale of the motor-men and conductors of the Portland (Me.) Railroad, included in the system of the Cumberland County Power & Light Company. This means an increase of about \$180,000 in the company's payroll for the coming year. The increase means a wage scale of 50, 52½ and 55 cents an hour.

This account was written before formal announcement had been made of the award. When asked if these figures were not correct, Judge Joseph E. F. Connolly, who represented the railway on the arbitration board, said he might be quoted as not denying the figures. The figures decided upon by the arbitrators are approximately 10 cents less than the rates of 60, 62½ and 65 cents an hour demanded by the men.

The scale just mentioned would have meant a total increase in the company's payroll of upward of \$400,000. The decision of the board, composed of W. R. Pattangall, Judge Connolly and James E. Vahey, cuts this sum more than half.

The hour wage scale did not come into force with the local railroad employees until 1916, when the wages amounted to 26, 27, 28 and 29 cents an hour, according to service. In May, 1917, there was an increase of 3 cents an hour in the scale, and the following year, 1917, there was an increase of 4 cents. In November of the same year the War Labor Board gave the employees of the Cumberland County Power & Light Company an award amounting to an 8-cent increase. The two advances in salaries that year amounted to 12 cents an hour. The day's work is reckoned on a ten-hour basis.

Legislation Urged to Reduce Electrolysis

Among the resolutions adopted by the Natural Gas Conservation Congress held at Washington recently is the following which relates to electrolytic damage to gas piping systems:

That the attention of the state authorities be called to the necessity, from a public interest, of establishing or enacting legislation and enforcing regulations to reduce and limit, and whenever possible prevent, the carrying of stray electric currents on underground gas transmission systems, because where such stray electric currents—that have leaked off of the grounded return of single-trolley electric railways—shunt around joints on the gas pipes or leave the gas pipes to go back into the soil, they must always remove a part of the metal, and thereby produce what is known as "electrolysis," which is a disintegration of the pipe that will ultimately produce a hole, and thereby increase the leakage, as well as a life and property hazard.

News Notes

Champaign Men Get More.—The Urbana & Champaign Railway, Gas & Electric Company, Champaign, Ill., has granted a 5-cent increase in pay to its trainmen, retroactive to May 1 and extending to May 1, 1921.

Maine Men Awarded Advance.—Employees of the Androscoggin & Kennebec Railway, Lewiston, Me., are granted an increase in wages by the award of a board of arbitrators made public on June 14. The new scale is 53 cents an hour, with 58 cents an hour for operators of one-man cars. The finding is retroactive to May 1.

Strikebreakers Go on Strike.—For the second time within a week service on the lines of the Fresno (Cal.) Traction Company was paralyzed on June 5 by a strike of strikebreakers themselves. About thirty-five men who had been imported to replace the regular employees walked out. As a result the company

was able to muster only sufficient crews to man about ten cars. This comprises about one-half of the rolling stock utilized for service during normal times.

Protests Holding Referendum.—The Houston (Tex.) Electric Company, which is seeking a new franchise in Houston granting increased fares on a service-at-cost basis, has filed a petition with the City Council not to hold the referendum election on the new franchise. The election has been practically decided on, but not definitely ordered. The company claims that with the City Council divided on the proposition, the public may turn down the franchise. The negotiations leading up to the present proposal extended over many months.

Must Vacate Streets.—An ordinance has been passed by the City Council of Martins Ferry, Ohio, providing for the ousting of the Wheeling (W. Va.) Traction Company from the streets of that city, this action being taken as a result of the raising of the fare to and from Bellaire from 5 to 10 cents. Under the terms of the ordinance the company must remove all tracks, poles, wires and equipment from the city limits twenty days after the ordinance becomes effective.

Ashtabula Endeavors to Purchase Railway.—If the Ashtabula (Ohio) Rapid Transit Company will agree to take the entire amount of \$350,000 of bonds authorized by the city in exchange for its property, the trade will soon be made. Recently the company agreed to accept \$296,000 in bonds for the line, but no buyers have been found for the other \$54,000 of the issue, which was the portion intended for extensions and new equipment. The city now asks the company to take the bonds for this purpose. Recent ordinances have put the jitneys out of business and the electric railway will have all the business, if taken over by the city.

Decision for Railway in Forfeiture Case.—The Supreme Court of Tennessee has decided the case of the City of Nashville vs. the Nashville Traction Company and Equitable Surety Company, in which the city was seeking to enforce the payment of \$200,000 on a bond executed by the traction company, to which a franchise was granted in 1913, the condition of the bond being to protect the city from liability in damages for accidents incident to the construction and operation of the railway and so secure the expenditure of \$500,000 in the construction of the system within two years. The construction of the system was abandoned after little work was done and the franchise was forfeited. The court held that the city was not entitled to any recovery on the bond because no special damages were averred or proved by the city, the bond being construed as one given for a penalty and not for liquidated damages, so that proof of special damages was necessary to any recovery thereon.

Financial and Corporate

Bankers Adopt Platform

Indeterminate Permits for Utilities and State Regulation by Appointed Officials Indorsed

The committee of the Investment Bankers' Association of America on public service securities, of which O. B. Willcox, Bonbright & Company, New York, is chairman, is sending out to 6,000 mayors, public utility commissioners and other public officials throughout the country a letter accompanied by a resolution passed by the board of governors of the association. The association has apparently sensed the need for placing itself on record in a definite way on the three important utility questions which have to do with the type of franchise, character of regulation and selection of public utility commissioners. The letter sent out by the bankers was as follows:

The enclosed copy of resolution passed at a meeting of the board of governors of the Investment Bankers' Association of America on May 3, 1920, reflects the opinion of representative investment bankers of the country with respect to three important subjects affecting the credit of public utilities and their ability to render adequate public service: the limited term franchise as compared with indeterminate permits; state regulation as compared with local regulation, and appointive commissioners as compared with elective commissioners.

SERVICE DEMAND CONTINUES

The operators of utilities throughout the country report that the demand for public utility service exceeds the available capacity and that there is great demand for the expansion of all classes of public service which contribute notably toward increased production and decreased production costs, so vital to our national welfare.

Expansion of public utility service requires capital which must be drawn from the free investment funds of the country by the sales of securities. The investment bankers of the country are security merchandisers; they cannot provide the large amounts of money required except through the sale to investors of securities in competition with other security offerings.

The re-establishment of the credit of public utility companies is therefore of prime importance and your attention is earnestly invited to the recommendation of the board of governors of the Investment Bankers' Association of America.

The resolution adopted by the association of bankers was as follows:

Whereas investment bankers are expected to purchase and distribute the securities of public utility companies which must be sold if utilities are adequately to supply the demands upon them for local transportation, light, heat, power and the transmission of messages; and

Whereas the credit of many of the public utility companies will not permit the sale and distribution of such securities, thus interfering with the development of many commercial enterprises, the welfare of many communities and the comfort and convenience of a great many people; and

Whereas the credit of the public utilities is largely dependent upon the attitude of the public as expressed through the various governing and regulatory bodies; it is hereby

Resolved, By the board of governors of the Investment Bankers' Association of America, that as steps in the restoration of the credit of the public utilities:

1. Term franchises should be superseded by indeterminate permits securing the right to operate under proper regulation during good behavior with provisions for equitable adjustment of rates from time to time, as

tending to eliminate controversies which inevitably impair the public service, the credit of the companies involved and the value of their securities.

2. The power of regulation and control of public utilities should be vested in state commissions as tending toward standardization of regulation which is not possible under local regulation.

3. Members of state commissions should be appointed.

If commissioners are elected they are frequently embarrassed by political policies and platforms in the consideration of questions which should be decided only on sound economic and financial principles.

Interborough Met Interest Payments

Announcement was made on June 25 that the Interborough Rapid Transit Company, New York, N. Y., would pay interest, due July 1, on \$160,585,000 first and refunding 5s, averting receivership on that date. Fixed charges and other obligations due on July 1 totaled \$6,222,900, in addition to \$1,100,000 taxes due at that time. To meet this liability of \$7,322,900 the company had on deposit on May 15 \$4,624,230. Net operating income and miscellaneous receipts brought this to approximately \$7,424,230 by end of June.

Thus the company had enough cash to pay current accounts and fixed charges, but not sufficient funds to meet in full the \$2,900,000 notes due June 30, although about half of this sum was realized from the sale of real estate pledged as part of collateral for the notes. This obligation was due to banking interests friendly to the company and no difficulty was experienced securing an extension.

In ten months to April 30, 1920, the daily average of passengers carried on the Interborough system, including subway and elevated lines, increased more than 400,000 over the same period of preceding fiscal year. The aggregate of passengers carried during the ten months was 789,167,629, an increase of 125,720,762. This increase in traffic reduced the operating deficit for the ten months to \$1,979,817, compared with a deficit of \$3,457,832 in ten months to April 30, 1919.

The Interborough's greatest burden at present is the elevated system. During the ten months ended April 30 the company received from subway operations net income amounting to \$2,165,005, but during the same period the deficit on the elevated lines was \$4,144,822, leaving a net deficit of \$1,979,816.

North Shore Bonds Offered

An offering of \$1,500,000 of Chicago, North Shore & Milwaukee Railroad ten-year 7 per cent secured sinking fund gold notes, Series A, is being made by Halsey, Stuart & Company, New York, at 92 and interest yielding 8.20 per cent.

Brooklyn \$1,040,362 Behind

Comparative Figures for Both Surface and Rapid Transit Lines Made Public by Receiver

Carl M. Owen, counsel for Lindley M. Garrison, receiver of the Brooklyn (N. Y.) Rapid Transit Company, has prepared figures on the financial condition of the company which show that the system as a whole has gone from a surplus of \$1,483,816 in 1918 to a deficit of \$1,040,362 in 1919. On April 30 of the current year the deficit had grown to \$1,891,995.

SURFACE LINES GO BEHIND

The company passed into the control of Mr. Garrison on Dec. 31, 1918, and on July 14, 1919, the surface lines of the company followed a similar course. Three tables are incorporated in the report showing the items comprised in the bookkeeping system of the company and covering gross and net operating and non-operating income, taxes and fixed charges. These tables disclose for the rapid transit lines a surplus of \$425,385 for the calendar year 1918, a deficit of \$775,508 for 1919 and a deficit for the ten months ended April 30, 1920, of \$1,159,489.

For the same periods the surface lines show deficits of \$646,141, \$2,030,863 and \$2,029,288 and for the B. R. T. System a surplus of \$1,483,816 for 1918, a deficit of \$1,040,362, for 1919, and a deficit of \$1,891,995 for the ten months period.

THE FIGURES IN DETAIL

The following figures for the two full years, 1918 and 1919, show the variation in the items:

	SURFACE LINES	
	1918	1919
Gross oper. revenue.....	\$15,860,182	\$17,110,363
Operating expenses.....	11,509,661	14,540,030
Net oper. revenue.....	\$4,350,521	\$2,570,333
Taxes.....	1,044,991	1,031,354
Operating income.....	\$3,305,530	\$1,538,970
Non-oper. income.....	476,562	474,291
Gross income.....	\$3,782,092	\$2,013,270
Fixed charges.....	4,428,233	4,044,133
	*\$646,141	*\$2,030,863
	RAPID TRANSIT LINES	
Gross oper. revenue.....	\$14,359,819	\$17,066,342
Operating expenses.....	9,200,110	12,787,479
Net oper. revenue.....	\$5,159,709	\$4,278,863
Taxes.....	844,833	916,813
Operating income.....	\$4,314,876	\$3,362,050
Non-oper. income.....	288,990	363,035
Gross income.....	\$4,603,866	\$3,725,085
Fixed charges.....	4,178,481	4,500,593
	†\$425,385	*\$775,508
	B. R. T. SYSTEM	
Gross oper. revenue.....	\$30,982,034	\$35,065,704
Operating expenses.....	20,055,790	26,513,833
Net oper. revenue.....	\$10,946,244	\$8,551,871
Taxes.....	2,613,750	2,200,633
Operating income.....	\$8,332,494	\$6,351,238
Non-oper. income.....	414,566	751,396
Gross income.....	\$8,747,060	\$7,102,634
Fixed charges.....	7,263,244	8,142,996
	†\$1,483,816	*\$1,040,362

*Deficit. †Surplus.

Mr. Owen explained that it was difficult to present the comparison be-

tween the present time and pre-receivership periods, because of unadjusted claims, "and particularly those arising from the deplorable Malbone Street accident of November, 1918." He added, however, that sufficient comparable data are obtainable to indicate the trend of results now accruing and these have been assembled.

Mr. Owen also explained that in October, 1919, the Brooklyn City Railroad lease to the Brooklyn Rapid Transit Company was terminated, which explains some marked changes in the figures of the surface lines.

Mr. Owen said further:

The figures presented do not reflect the currently excessive cost of maintenance met through charges to reserves prior to July, 1919, so far as the surface lines are concerned, or the excess outgo over charges as to rapid transit lines which the contract with the city requires shall be met from funds set aside on a tentative basis at the beginning of a year and revised at the end of the year. This item, it is estimated for the current fiscal year, will probably exceed \$600,000, indicating a deficit on rapid transit lines of over \$1,800,000.

During the week ended November 21, 1918, the total payroll of the B. R. T. system amounted to \$322,768, which was at the rate of \$16,783,936, and for the week ended April 15, 1920, the payroll was \$477,283, or at the rate of \$24,818,716 a year, an increase of \$8,034,780 annually, which is equivalent to an investment at 5 per cent. of \$160,000,000 absorbed by labor.

On the basis of the accounting called for under the city contract at the time of the receivership, Dec. 31, 1918, the amount of unearned preferential to which the company is entitled before the city gets any return on its investment was \$2,328,589. On April 30, 1920, those figures reached the total of \$5,664,194. The city's unearned charges on Dec. 31, 1918, were \$8,820,087 and on April 30, 1920, \$13,534,286.

Net Earnings of Chicago "L" Decline

The steadily declining financial condition of the Chicago Elevated Railways shown in the accompanying statement for April, 1920, points to the imperative need for an increase in revenue and explains the company's recent application for a 10-cent fare. Although the rate of fare in April, 1920, was higher than in April, 1918, the increase in gross revenue has not kept pace with the increase in operating expenses. In

Gross earnings	\$1,311,554
Total expenses	1,149,857
Balance for interest.....	\$161,696
Fixed interest charges.....	207,513
Net deficit for April.....	\$45,817
Payroll for April, 1920.....	\$685,572
Per cent of operating expenses paid to labor	59.62
Total passengers carried in April, 1920	16,150,898
Average rate of fare per passenger.....	7.73 cents
Cost of carrying each passenger.....	8.40 cents
Loss per passenger carried.....	0.67 cents

other words, a margin of \$88,326 above operating expenses in April, 1918, has turned to a deficit of \$45,817 for April, 1920. On the net earnings for April, 1920, the roads lost nearly 0.7 cent per passenger carried without any allowance for return to the stockholders. Beginning June 1, the operating expenses will take another jump owing to the new 82-cent maximum wage scale.

Twelve Large Companies Compared

More Traffic Being Handled, but Operating Ratio Continues to Climb Steadily

Comparative statistics were presented in the ELECTRIC RAILWAY JOURNAL of March 29 of twelve of the largest electric railways—six being suburban lines and the others being companies which operate rapid transit lines, some of the latter in combination with surface lines. Operating figures from the same properties have again been collected for the last fiscal year and some interesting contrasts are shown. They reflect the increased rate of fare, growth of traffic and heavier operating costs. When studied in connection with data from the United States census report for 1917, abstracted in various issues of this paper, and with other figures published in the issue of June 12, the latest returns present a comprehensive picture of the changing railway situation.

FOR OBVIOUS reasons, the twelve properties included in this study cannot be identified. It may be stated, however, that each of them does an annual business of more than \$6,000,000 and their average yearly receipts are more than \$20,000,000. To show how large a part of the electric railway industry they represent, it may be stated that they operated one-seventh of the railway mileage of the United States and hauled about one-half of the total passenger traffic last year.

FARE DATA

As evidence of the changing fare situation it is interesting to note that of the companies under consideration five of them, in 1918, charged 5 cents, two 6 cents, one 8 cents, two had zone systems, one a 2-cent transfer plus a 5-cent fare, and one a 3-cent transfer charge, whereas during the past year, four had 5-cent fares, three had transfer charges ranging from 1 to 3 cents, one a 6-cent fare, one a 7-cent fare, two 8 cents, and one 10 cents.

GROSS INCREASING RAPIDLY

In the item of gross earnings, these six large surface companies showed an increase of 18.6 per cent over the previous year, while operating expenses including taxes increased 25.9 per cent. The six rapid transit companies showed a gain of 15.5 per cent in gross revenue and 27.9 per cent in operating costs. The operating ratio for the surface group averaged 83.06 per cent, ranging from 73.71 to 96.23, while the other companies averaged 74 per cent and ranged from 60.73 to 83.88 per cent. It should be explained in this connection that three out of the six rapid transit companies include a large percentage of surface mileage. To show the difference where only elevated or subway company figures are treated, the operating ratio for three such companies was 71.04 in 1919 as against 60.74 in 1918.

Having been retarded in the develop-

sudden growth in traffic demand with an adequate increase in service. Therefore, while the revenue passengers on the surface lines increased 7.1 per cent the car mileage increased only 1.5 per cent. On the rapid transit lines the increases were 6.4 and 4.4 per cent respectively. There was practically the same proportionate increase in car hours. This meant that there was little change in the average speed on the properties studied. The benefits which were expected from skip-stop practice failed to materialize because these experiments were not permitted to continue long.

USE OF ROLLING STOCK DECREASED

There was a decrease in the use of rolling stock as indicated in the item "annual miles operated per car." The average for surface companies was 35,406 and for rapid transit lines 39,231, as against 35,299 and 42,045, respectively, in the previous year.

Due to the fact that some of the companies considered do not keep account of transfer and free passengers, a true statement of "total passengers per mile of single track operated" cannot be given. However, taking the figures as they are presented—that is allowing for omissions principally on the rapid transit lines—there was an increase of 3.3 per cent for surface companies and a decrease of 5.8 per cent on rapid transit lines. The number in the former group ranged from 781,509 to 2,187,623, while for the latter they were from 1,105,778 to 2,901,571.

One of the best analyses of results on these large properties is shown in the accompanying table.

One factor which renders unfair a comparison of figures between these twelve properties is that the data from five of the companies are for the fiscal year ended June 30, 1919. With wages and other operating costs increasing constantly the properties whose figures covered the full calendar year naturally showed at a disadvantage in many

STATISTICS PER CAR MILE AND PER CAR HOUR ON TWELVE LARGE ROADS

	Six Surface Roads	Six Rapid Transit
Transportation revenue per car mile (average).....	38.9 cents	33.1 cents
Expenses and taxes per car mile (average).....	32.5 cents	25.9 cents
Transportation revenue per car hour (average).....	\$3.26	\$4.21
Expenses and taxes per car hour (average).....	2.75	3.25

ment of their properties during the war period it was not to be expected that the railways would be able to meet a

items. On the other hand they had the advantage of larger revenues where fares were increased late in the year.

New York City Gross Increase

The July-September, 1919, quarterly summary of revenues and expenses of the surface and rapid transit electric railways operating in New York City has recently been issued by the Public Service Commission. The reports showed that passenger revenue had increased 14.78 per cent over the 1918 quarter, but that the net corporate in-

pany is facing a deficit to this amount in its permitted return.

During 1917 the settlement of the railway situation was submitted to the voters for a full discussion and at an election on April 3 of that year a franchise was granted to the Dallas Railway. The total property value determined in the manner provided by the franchise was \$8,857,045 at the close

Option on Augusta Lines

\$262,000 Needed to Secure Property with Present Value of About \$10,000,000

James U. Jackson, former vice-president of the Augusta-Aiken Railway & Electric Company, Augusta, Ga., is of the opinion that the city would take a long step in the direction of progress if it should acquire the control of that company, and, through a commission named for the purpose, undertake to operate the railway and the power plant. The property is now in the hands of the J. G. White Management Corporation as operating managers, with J. Q. Brown, president, and J. H. Pardee and J. K. Choate as vice-presidents.

MR. JACKSON EXPLAINS HIS OPTION

Mr. Jackson says he has an option on 20,000 shares of the common stock of the company at \$10 a share and on 2,500 shares of preferred stock at \$25 a share, making the total cost to the city \$262,500 for the control of a property that at present prices for material could not be duplicated for \$10,000,000. He further explains that the company is not in default on any of its bonded obligations.

The total outstanding funded debt of the company and its subsidiaries is \$6,539,000. There are also outstanding \$2,250,000 of preferred stock and \$2,250,000 of common stock. The preferred stock carries 6 per cent cumulative dividends. Dividends on the preferred were begun on Jan. 1, 1912, but were discontinued in July, 1914. The common has never paid any dividends.

SAVING POSSIBLE IF MANAGED LOCALLY

In concluding his statement Mr. Jackson said in part:

Appreciating the importance of bringing about such negotiation as would place the city in absolute control of the situation I have secured an option on control of the stock of the Augusta-Aiken Company. This control will be 20,000 shares of common at \$10 per share, and 2,500 shares of preferred, at \$25 per share, making a total cost to the city of \$262,500. To duplicate the Augusta-Aiken property today at present prices for material and labor would cost \$10,000,000. If this amount was to be raised by a bond issue, the bonds to yield this amount of money would have to bear not less than 8 per cent. The present outstanding bonds on the property—about \$6,000,000—bear 5 per cent, equal to a saving of \$500,000 per annum.

I appreciate the fact that the Augusta-Aiken property, like all public utilities, has suffered seriously financially, but it has managed to take care of its interest charges. If managed locally under the plan suggested a big saving would result from its operation.

Some objection to the plan will be presented by those who oppose municipal ownership, or government control. As long as the governments—national, state and municipal—have the power of controlling all revenue, such as rates for passengers and freight, and also revenue from power companies, it is only a question of time when private control is sure to cease, and I believe Augusta, by this negotiation, will be the pioneer in solving a most serious problem now confronting our country, especially in all communities where conditions are like those in Augusta; viz., the municipality already owning a power plant and selling current to users of power. As Grover Cleveland once said in a message to Congress: "It is a condition which confronts us, not a theory."

EARNINGS OF NEW YORK CITY COMPANIES

Quarter July-Sept.	1919		1918		Percentage	
					+Inc.	-Dec.
Passenger revenue.....	\$28,070,136		\$24,433,002		+14.78	
Other transportation revenue.....	173,916		176,126		-1.25	
Total revenue from transportation.....	\$28,244,052		\$24,609,128		+14.77	
Other railway operating revenue.....	1,811,666		1,402,310		+29.15	
Total railway operating revenue.....	\$30,055,718		\$26,011,438		+15.52	
Operating expenses:						
Maintenance expended.....	\$5,902,476		\$4,402,511		34.0	
Depreciation reserve.....	629,231	Cr.	272,238		331.9	
Operation of power plant.....	3,809,425		3,210,332		18.7	
Operation of cars.....	10,497,023		7,455,450		40.8	
Inquiries and damages.....	817,373		849,067		-3.7	
Traffic and general expenses.....	1,170,731		900,100		30.0	
Total operating expenses.....	\$22,826,259		\$16,545,222		38.0	
Net operating income.....	\$7,229,459		\$9,466,216		-23.6	
Street railway taxes.....	1,896,531		2,269,310		16.5	
Operating income.....	\$5,332,928		\$7,196,906		25.9	
Non-operating income.....	1,105,016		1,006,124		9.8	
Gross income.....	\$6,437,944		\$8,203,030		-21.6	
Deductions:						
Interest.....	\$5,459,702		\$4,272,271		27.8	
Rents.....	4,154,835		4,195,654		-1.0	
Miscellaneous.....	514,478		366,903		40.4	
Total deductions from gross income.....	\$10,129,015		\$8,834,828		14.7	
Net corporate income.....	*\$3,691,071		*\$631,798		-485.0	

* Deficit.

come had decreased to such an extent that there was a deficit of \$3,691,071, as against \$633,888 in the 1918 quarter. This is due entirely to the fact that the operating ratio increased 12.25 per cent. Higher wages and cost of materials, together with 7,000,000 additional car-miles made necessary to handle an 11.6 per cent increase in traffic, caused the higher operating costs.

of business on April 30, 1920. This represents the amount of money invested in the property as agreed with the city. The authorized return of this is 7 per cent per annum, or for April, 1920, was \$51,271. The gross income from all sources for April was \$246,341. The operating expenses for the same month were \$209,925. The balance earned was \$36,415. As the

TRAFFIC AND MISCELLANEOUS STATISTICS OF NEW YORK CITY COMPANIES

Quarter July-Sept.	1919		1918		Percentage	
					+Inc.	-Dec.
Miles of track, exclusive of storage and yard tracks.....	1,801.14					
Average daily maximum number of cars operated (Sept.) ..	8,311					
Passenger car miles (active).....	86,032,020					
Car seat miles.....	4,481,770,668					
Total revenue car miles.....	87,614,867		80,597,918		+8.75	
Passenger car hours.....	7,376,766					
Ratio CM-CH (speed M.P.H.).....	11.65					
Revenue passengers.....	557,320,585		494,753,741		+12.7	
Revenue transfer passengers.....	17,741,499					
Total revenue passengers.....	575,062,084		494,753,741		+16.3	
Free transfer passengers.....	63,448,080		77,456,688		-18.1	
Total passengers.....	638,510,164		572,210,429		+11.6	
Operating ratio.....	75.95		63.70		12.25	
Car mile statistics:						
Operating revenue (cents).....	34.30		32.30		6.2	
Operating expenses (cents).....	26.05		20.50		27.1	
Net income (cents).....	*4.21		*0.784		-436.0	
Passenger traffic (total).....	7.42		7.11		4.4	
Average seats per car mile.....	57.20					
Car miles per revenue passengers.....	0.1542		0.1629		5.3	
Seat miles per total passengers.....	0.702					

* Deficit.

Dallas \$516,214 Behind Permitted Return

Troubles of the Dallas (Tex.) Railway are being told to the public by the company in newspaper space. In the thirty-one months ended April 30, 1920, the company failed to earn the 7 per cent return on the money invested in the property by \$516,214. This means that for the period mentioned the com-

authorized return as previously stated was \$51,271, the shortage in the permitted return was \$14,856. This represents the difference between the amount of money the city franchise says the company is permitted to earn and the actual amount of money that was earned.

The statement was published with the sanction of the board of directors of the company.

Interest Not Paid

Company at Toledo Unable to Cope with Mounting Costs Under Limited Fares

Frank R. Coates, president of the Toledo & Western Railroad, notified the holders of the \$1,500,000 of first mortgage 5 per cent gold bonds that the company would not be able to meet the interest payments due on July 1. This is the first time that an interest payment on this issue has been passed. There is a second mortgage of \$500,000, the interest on which has not been paid for five years.

OPERATING PROBLEMS INSURMOUNTABLE

The road operates between Toledo and Pioneer with a branch to Adrian, Mich. The Doherty interests took it over in 1913. A statement of the company says:

The gross revenue between the years 1914 and 1919 inclusive increased from \$367,000 to \$533,000. During the same period the operation and maintenance increased from \$307,000 to \$546,000. The interest charge for the two issues of bonds amounted to \$75,000 a year, which has not at any time during this period been earned in full. In 1919 the road did not even earn enough to pay operating expenses by some \$12,000. During the first five months of 1920 the road has not earned its operating expenses by about \$34,000.

President Coates says that the company has made every possible effort to develop its business along profitable lines, but has been unable to cope with the problems of rapidly mounting costs of operation in the face of limited fares and rates for service. No early improvement is seen in the present outlook.

The Cleveland Trust Company is trustee under the terms of the indenture securing the first mortgage bonds on the property.

Approval of Reorganization Sought

Application has been made by the United Railroads, San Francisco, Cal., the Market Street Railway and by the reorganization committee of the United Railroads, headed by Frank B. Anderson, for approval of the reorganization plan of the United Railroads of San Francisco. The plan has been public for several months and the application is merely the formal presentation to the commission.

The application recites a gross value of the properties of \$56,442,527. It also estimates the outstanding funded obligation and stock of the Market Street Railway, which is to take over all of the properties and franchises of the United Railroads, to be \$47,973,000. Of this total \$15,823,000 are Market Street Railway bonds and five-year notes. The remainder is divided as follows:

Preferred stock	\$5,000,000
Second preferred stock....	\$4,700,000
Common stock	\$10,700,000

The details of the reorganization plan have been referred to previously in the ELECTRIC RAILWAY JOURNAL. They have been modified slightly several times.

Court Orders Suspension of Interurban Line

Justice Wheeler in the Supreme Court at Buffalo, N. Y., on July 1 handed down a decision allowing the Buffalo & Lake Erie Traction Company to discontinue its lines within the State of New York. The application was made thus early by George S. Bullock, receiver for the railroad, in order that people along the line may become accustomed to the change and be given time to devise other means for transportation and for the shipping of freight. The order reads that the discontinuance will not take effect until Sept. 15. The request of the company that it be allowed to dismantle the road is denied. The court directs that the receiver advertise for bids for the property in full or in part and to report such bids to the court on Sept. 1. The line between Fredonia and Dunkirk is excepted from the order. The court believes this section of the road can be operated successfully.

Financial News Notes

New Director for Southern Road.—J. P. V. Davis, vice-president of the National City Company, New York, N. Y., has been elected a director of the Piedmont & Northern Railway, Charlotte, N. C.

Call for Bids for Transit Bonds.—Bids for the \$4,000,000 city loan authorized recently by the Council of Philadelphia, Pa., for completing and equipping the Frankford elevated line will be opened on July 14 in the Mayor's office. The bonds will bear interest at 5 per cent per annum, the highest rate paid by the city for many years.

Must Borrow to Pay for Paving.—The Georgia Railway & Power Company, Atlanta, Ga., has filed a petition with the Railroad Commission asking permission to issue three notes to cover paving costs in North Marietta Street, Atlanta, assessed against the company by the city. The notes amount to a total of \$37,340, the company stating in its petition that the notes are necessary as funds are not available to pay the paving costs at this time.

Grafton Sale Set for July 14.—The period of ten days has expired in which the creditors of the Grafton (W. Va.) Traction Company and the Grafton Light & Power Company could have appealed to the United States District Court from the action of the referee in bankruptcy, Attorney O. E. Wyckoff, in ordering the property of the two concerns to immediate sale. In consequence the trustee in bankruptcy, Dr. T. F. Lanham, has fixed July 14 as the day upon which he will offer all the properties at auction.

Arranging for Houston Loan.—Luke C. Bradley, district manager for Stone & Webster, left Houston, Tex., on June 4, to arrange to borrow \$1,000,000 to finance the proposed extensions to the railway lines of the Houston Electric Company if the new franchise there is approved. He is quoted as follows: "We will of course not need the money if the franchise is not granted, but I want to make all arrangements so that we can carry out our part of the contract. On my return I will tell the people frankly whether we can get the money."

Consolidation Rumor Revived.—With a view of an early resumption of negotiations for the merger of the city lines of the Washington Water Power Company and the traction division of the Spokane & Southeastern Railway & Power Company in Tacoma, Wash., operating officials of the two systems have begun to revise plans, figures and estimates made two years ago, when the merger was actively under consideration. D. L. Huntington, president of the Washington Water Power Company, says it is planned to organize a new company to take over the local properties of the two companies. At one time the proposal was for the Washington Water Power Company to purchase the traction system.

New Successor Company Organized.—The trustees of Boston (Mass.) Elevated Railway have completed the organization of the Hyde Park Transportation District, which is a corporation created by recent act of the Legislature to take over and operate in behalf of the city of Boston the railway lines in Hyde Park district now operated by Eastern Massachusetts Street Railway. John F. Stevens, one of the trustees of Boston Elevated Railway, has been elected president of the new corporation. All preliminary steps required of trustees of the Boston Elevated Railway have now been taken, and they are in a position to take charge of the railway service in Hyde Park as soon as the act becomes operative under its terms.

Dissolutions and Reductions in Capital in Illinois.—Six companies included in the Illinois Traction System have filed notices of dissolution with the Secretary of State of Illinois and six other companies have filed notice of decreases in capital stock. The companies dissolved are as follows: Danville Street Railway; City Electric Railway, Ottawa; Springfield & Northwestern Railroad, Champaign; Peoria, Streator & Ottawa Railway, Champaign; and Springfield Belt Railway, Champaign. The companies decreasing capital stock are: Bloomington & Normal Railway, Electric & Heating Company, \$60,000 to \$5,000; Consumers' Heat & Electric Company, Bloomington, \$125,000 to \$5,000; Consumers' Light & Heat Company, Bloomington, \$100,000 to \$5,000; Decatur Light, Heat & Power Company, \$250,000 to \$5,000; and Decatur Traction & Electric Company, \$250,000 to \$5,000.

Traffic and Transportation

Fare Order Vacated

Circuit Court Judge Rules Commission Based Milwaukee Rates on Excessive Valuation

That there is no question as to the power of the State, acting through the instrumentality of its Railroad Commission, to change the rate of fare fixed in a franchise, was the opinion of Judge Stevens of the Dane County Circuit Court as expressed in a decision handed down June 21, 1920, in the case of *City of Milwaukee vs. Railroad Commission of Wisconsin, the Milwaukee Electric Railway & Light Company, et al.* Judge Stevens held, however, that the rates of fare fixed by the order of the commission of Oct. 30, 1919, and applying to the city and suburban areas of Milwaukee, were unreasonable because of claimed errors on the part of the commission in arriving at the valuation of the property of the Milwaukee Electric Railway & Light Company.

CITY APPEALS TO COURT

In June, 1918, the commission authorized the company to increase its rates of fare for the single fare area by discontinuing the sale of six tickets for 25 cents, making the fare 5 cents flat. A further increase to 7 cents cash, six tickets for 35 cents and eighteen tickets for \$1 was authorized by the commission on Oct. 30, 1919. This was later modified to permit the sale of nine tickets for 50 cents.

There was a provision in the franchise of the company that the fare "shall be not to exceed 5 cents." The city of Milwaukee claimed that this constituted a contract and that the fare could therefore never be raised above the rate fixed by the franchise. It appealed both orders of the commission above referred to to the Dane County Circuit Court.

VALUATION REDUCED

While the case was before the Dane County Circuit Court, the question of a further increase in rates was again brought before the Railroad Commission because of the necessity of increasing the wages of the employees in the transportation department of the company and because of an increase in the cost of coal. In an order issued June 24, 1920, a further increase in fare was authorized by the commission. It pointed out, however, that it based the latest rates established for Milwaukee on a valuation of the company's property revised to conform with the opinion of Judge Stevens. The commission's decision is discussed at length elsewhere in this issue.

In his opinion in the case Judge Stevens points out that the commission not only fixed a value that equaled the

cost of reproduction new, but allowed a depreciation reserve which was approximately \$2,000,000 in excess of the amount needed to keep the investment intact and the plant in 100 per cent condition, had it been given the depreciated value which should have been given to it in view of the fact that it was in only 86 per cent condition. These findings of the commission, says Judge Stevens, led it in its order of Oct. 30, 1919, to fix a rate of fare which would yield more than a reasonable return upon the fair value of the property of the defendant company. The court says further:

The rates here in question are all based upon the valuation made as of Jan. 1, 1914, with additions since that date. The fundamental error of the commission was in accepting the cost new as the fair value of the property, which was found by the commission to be in only 86 per cent condition * * *. In arriving at the conclusion that the rate fixed by the order of Oct. 30, 1919, is unreasonable, the court has not overlooked the fact that the commission in accepting the cost of reproduction new as the fair value made no additional allowance for working capital or going value.

The court concludes that the matter must be returned to the commission for further consideration. It is reported that the commission will appeal the case to the higher courts.

Asks 7 Cents in Fort Wayne

The Indiana Service Corporation, Fort Wayne, Ind., has filed with the State Public Service Commission a petition for increased fares on the Fort Wayne city lines. A 7-cent cash fare with four tickets for 25 cents is asked. The petition states that the revenues for the year 1919 were only sufficient to pay a return of 2.9 per cent upon the valuation of the city lines.

Revenue from city operation during the year amounted to \$691,342. Interurbans paid \$39,467 for the use of the tracks, making the total revenue \$730,809. Total expenses amounted to \$649,482, leaving net available, on an investment of \$2,780,000, the sum of \$81,327. A total of 14,026,200 revenue passengers were carried during the year. Transfer passengers carried numbered 2,805,202.

With the petition the company submitted a detailed report of the traction situation in Fort Wayne which will be issued in pamphlet form and distributed to patrons. Robert M. Feustel, president of the company, sums up the case as follows:

We are just as anxious as every one else to help reduce the cost of living. Our industry is necessary to the life of the community. We have not earned enough to maintain the property adequately and pay bond interest on the old rate of fare, and that fare has been increased only 18 per cent while the average wages and cost of materials has increased over 80 per cent. It requires no calculation to tell the answer. Every one of our patrons knows that the fares must be raised and they have known it for more than a year past.

Interurban Rates Up

Commission Allows Indiana Roads to Charge 3 Cents a Mile—Increase in Coal Cost

Three interurban systems operating in Indiana were granted increases in passenger rates by the State Public Service Commission on June 24, the increases to take effect July 1. The three companies are the Terre Haute, Indianapolis & Eastern Traction Company, the Union Traction Company of Indiana and the Indianapolis & Cincinnati Traction Company. Rates for traction lines in Indiana have been 2½ cents a mile since Jan. 1, 1919. The new ruling gives the three roads authority to increase their rates to 3 cents a mile, the same rate prevailing on steam roads. The action places these roads on a parity with similar roads in Illinois, Michigan and Ohio.

VALUATION OF \$32,000 A MILE

A valuation of \$32,000 a mile in the case of all three companies was used as a rate basis by the commission, which held that such a valuation was conservative. Advanced cost of coal is stated as the principal cause of the necessity for fare readjustment, though the evidence revealed continued upward trend in the cost of all other items of maintenance and operation.

At hearings before the commission the evidence showed that coal which ten years ago cost traction companies from 30 to 80 cents a ton at the mines, according to market conditions, and that was transported on freight rates which ran from 50 to 65 cents a ton, according to destination, now is costing approximately \$4 a ton delivered. Increased cost of coal, labor, materials and supplies used in the maintenance and operation of these utilities, as shown in the finding, would, if present rates were continued, reduce the earnings to approximately 3 per cent or less.

NEW RATES INADEQUATE

The commission's order further indicates that the advance from 2½ cents a mile to 3 cents a mile will not offset entirely the increased cost of the upkeep of the roads. Estimates of the commission indicate that in the case of the Union Traction Company of Indiana the earnings under the new fare system will be only 5 per cent on the valuation of \$32,000 a mile, with no allowance for depreciation.

In a similar estimate the earnings of the Terre Haute, Indianapolis & Eastern Traction Company would be 5.3 per cent, including 1 per cent for depreciation on equipment, and for the Indianapolis & Cincinnati Traction Company, 8.3 per cent with no allowance for depreciation. Officials of the various companies realize that these rates are inadequate, but they say that they cannot go beyond the fares of competing steam roads without largely cutting down their volume of business. It is planned to secure a further increase by an advance in freight rates.

Milwaukee Fares Again Advance

Commission Allows Company to Raise Ticket Rates to Meet Wage Increase—Valuation Reduced

An increase in fare within the single fare or city area of Milwaukee, Wis., is authorized by the Wisconsin Railroad Commission in a decision handed down June 24, 1920. The increase is intended to provide additional revenue with which to pay an increase in wages to the employees of the transportation department of the Milwaukee Electric Railway & Light Company, recently recommended by the State Board of Conciliation. The commission confirmed the wage award and now orders the company to make it effective. The fare increase is also partly intended to offset an increase in the cost of coal.

THE new rates of fare became effective June 27, and will remain in effect until Jan. 1, 1921, unless sooner modified by the commission. Outstanding tickets will be honored, however, until July 10, next, after which they will be redeemed. The fare increase is effected through a reduction in the number of tickets sold for 50 cents from nine to eight. The sale of six tickets for 35 cents is abolished. The cash fare is to remain at 7 cents as at present. The zone fares within the suburban area are also left unchanged. The wage increase ordered by the commission will, it is reported, amount to from 5 cents to 8 cents an hour.

THIRD RISE SINCE 1918

The present increase in fare is the third granted by the commission to the company since 1918. In June, 1918, the company was authorized to discontinue the sale of six tickets for 25 cents, making the fare 5 cents flat. On Oct. 30, 1919, the fare was further increased to 7 cents cash, six tickets for 35 cents or eighteen tickets for \$1. This was modified in January, 1920, to permit the sale of nine tickets for 50 cents. An appeal from both of the above increases was taken by the city to the Dane County Circuit Court.

In a decision handed down June 21, 1920, Judge Stevens of the Dane County Circuit Court held the rates of fares established by the order of Oct. 30, 1920, that is the rates of fare just superseded, to be "unreasonable" because of claimed errors on the part of the commission in arriving at the fair value of the property. In commenting on its present order, the commission points out that the new rates established thereby are based on a valuation of the company's property revised to conform with the decision of Judge Stevens. Judge Stevens' decision is discussed at length elsewhere in this issue.

LABOR SHORTAGE ALLEGED

In its decision in the case the commission points out that the Board of Conciliation acting under Chapter 530 of the Laws of 1919 reported to it that increased wages were necessary "because at the prices now paid for labor by the Milwaukee Electric Railway & Light Company not enough labor is attracted to its service properly to conduct its operations to the satisfaction and accommodation of the public." The commission then points out that the act above referred to provides:

That if the earnings of such public service business in which such employees

are engaged are found to be sufficient to meet the cost of making the determination of said commission effective without depriving said corporation of a fair return upon the capital employed in such business as determined by the Railroad Commission, said Railroad Commission should order such public service corporation to make effective the wages, hours of labor and working conditions as determined by it to be fair, equitable and just. Otherwise, the commission shall provide for such a revision of the rates of such public service business as will enable it to meet such cost and yield a fair rate of return upon the capital employed therein.

OPERATING COSTS UP \$900,000

Acting in accordance with the mandate of the act the commission says that it found that as a result of increased wages of employees and also increased coal costs there would be a total estimated increase in operating expenses per annum of approximately \$900,000. It then considered the railway income account for the Milwaukee city and suburban lines for the six months ended April 30, 1920, which, as adjusted, it believes reflects substantially the net results of operation under its order of Oct. 30, 1919. It found that the net revenue available for return under the rates of fare established by the last named order (the rates of fare just superseded)

would give an actual annual return on the basis of six months' earnings of 7.2 per cent on the lower valuation now used by this commission in accordance with the late opinion of the Circuit Court of Dane County. At present, public utilities of the highest class can secure funds only at rates of interest netting a cost of somewhere around 9 or 10 per cent. This company must secure funds for very heavy additions and extensions now being made and for new equipment which is being manufactured. The budget of capital expenditures for the year 1920 contemplates the expenditure of over \$9,000,000 in new property, of which \$2,560,631 is solely for the street railway department. It is perfectly evident, therefore, that the actual return earned by the company under the order of Oct. 30, 1919, is not unreasonably high from any point of view. In fact a rate of return somewhat in excess of 7½ per cent is not unreasonable under present interest rate conditions, and if large additions at present cost of capital are to be made the higher interest rates for the additional capital expenditure must be allowed for. In this connection, also, it is to be borne in mind that not all of this actual return is available for distribution to security holders, as at least \$140,000 a year has to be retained in the reserves.

On the subject of valuation the commission says that, by its order of Oct. 30, 1919, it found that the fair value of the railway property within the single fare and suburban area, inclusive of allowance for materials and supplies, was \$17,508,732. It then states:

The Circuit Court of Dane County has determined an appeal that the commission was in error in its treatment and use of depreciation in connection with the arrival at fair value. Pending final decision of the valuation matter, the commission will act in full compliance with the opinion of the Circuit Court of Dane County, and the order in this case will be based as nearly

as possible upon the conclusions of the Circuit Court of Dane County on the valuation question. The condition of the property on Jan. 1, 1914, was found by the State Engineering Department to be 86 per cent. As we understand the opinion of the court, it was that this percentage of condition should be used in arriving at fair value at the present time.

On this basis and allowing for additions to property and \$500,000 for going value, an item not previously included, the commission now finds a fair value of \$16,020,057. Basing its calculations on this value, the commission came to the conclusion that in order to meet the estimated increase in operating expenses and at the same time to permit the utility to earn a fair return, an increase in revenue was needed. It therefore authorized the company to increase its fare by readjusting the ticket rate.

In conclusion the commission said:

We have already called attention in several cases to the great difficulty in estimating future operating expenses during the present time. Present conditions made it peculiarly difficult to adjust fares to a nicety to bring about a stated amount of income. A change in riding habit would affect the revenues one way or the other and many other elements may also enter into the situation. In view of this fact, it is deemed advisable by the commission to make the order herein a temporary order, the commission to pass upon the matter again after it has the benefit of the actual experience during the next few months.

City Attorney Williams of Milwaukee has announced that the city will appeal the fare increase decision immediately.

Chicago "L" Wants 10 Cents

Recent Wage Increase Is Important Factor—Higher Rate Would Yield Return of 4½ Per Cent

Britton I. Budd, president of the Chicago (Ill.) Elevated Railways, has petitioned the Illinois Public Utilities Commission for permission to charge a 10-cent cash fare in Chicago between all stations south of Howard Street, the north city limits, a 6-cent cash fare north of Howard Street through Evanston and Wilmette, and 14 cents for an Evanston-Chicago ticket, instead of the present 12 cents. The rate of fare within the city at present is 8 cents cash or two tickets for 15 cents.

In his testimony before the commission, Mr. Budd estimated that the 10-cent fare would produce a gross revenue of \$18,853,750 a year; that the total operating expenses would be \$15,223,840, leaving \$3,629,910 for net earnings. This would provide a return of about 4½ per cent on the original cost of the system, which was fixed at \$85,554,355. It was pointed out that under the 5-cent fare in 1918, the company's net earnings were \$3,512,781.

\$1,756,512 WAGE ADVANCE

The chief item in the bill of expenses presented by the company is the labor cost. The new wage scale which was recently granted, retroactive to June 1, and providing an increase of 15 cents an hour to nearly all employees, produces an estimated increase in the payroll of the 5,564 employees of \$1,756,512 a year.

It was stated that on the present rate of fare the loss for the year would be

about \$2,000,000. In addition, the roads are now in debt about \$2,000,000 and defaulted last July on interest payments. No dividends have been paid on stock since 1914. Last month, it cost 8.4 cents to carry each passenger. It was also claimed that the companies need \$1,000,000 for improvements in order to lengthen platforms and put on eight-car trains. The following detailed statement during the consolidated income of the several elevated roads for February, March and April, this year, as submitted to the commission, follows:

Passenger revenue.....	\$3,717,874
Other transportation revenue....	159,165
Total	\$3,877,040
Way and structure.....	456,580
Equipment	408,736
Power	426,295
Conducting transportation.....	1,547,284
Traffic	7,015
General and miscellaneous.....	177,536
Total operating expense.....	\$3,023,450
Net operating revenue.....	853,589
Taxes, special assmts. and city compensation [est. accts.].....	272,324
Operating income.....	\$ 581,265
Non-operating income.....	24,547
Gross income.....	\$ 605,812
Deduct rentals	76,372
Bal. for interest charges.....	529,440
Interest on funded and unfunded debt	617,872
Sinking fund [three months' accruals]	31,350
Total interest and sinking fund charges	649,122
Net loss.....	\$ 119,681

Ten-Cent Fare in Seattle July 19

Mayor Hugh M. Caldwell of Seattle, Wash., has signed the ordinance providing for a 6½-cent ticket fare and a 10-cent cash rate on the lines of the Seattle Municipal Railway. The bill will become effective on July 19. The new fare schedule provides for the following rates on city cars: 10-cent cash fare; 7½-cent cash fare for each of two persons riding together; 6½-cent metal tokens, each good for one fare, to be sold on all cars in lots of four for 25 cents, eight for 50 cents, sixteen for \$1, but not singly; free transfers with cash or token fares; 3-cent fares for school children, except that two may ride for a nickel; ten school tokens for 25 cents.

A supply of 2,000,000 metal tokens has been ordered, at a cost of \$17,000.

In signing the ordinance, Mayor Caldwell said:

This may not be just the best plan, but we need additional finances for the railway, and seven members of the Council have agreed upon it. I am willing to try it out.

P. R. T. Suspends New Rates

The Philadelphia (Pa.) Rapid Transit Company on June 30 suspended the schedule calling for a universal 3-cent transfer charge, which it had planned to install on July 1. This action was taken at the request of the State Public Service Commission pending further hearings to determine the system's need of an increase in revenue. It is reported that the company plans to withdraw the 3-cent transfer charge and to substitute therefor a zone fare.

Dallas Increase Effective

Company Begins Charging Six-Cent Fare—Riders Prepared for New Rate By Publicity Work

The Dallas (Tex.) Railway put a flat 6-cent fare into effect at midnight on June 26. The fare ordinance as passed by the City Commission authorized the new rates to become effective at midnight on June 26, but the company desired additional time to change its fare boxes so as to receive the pennies and also to conduct a campaign of education so that the people might learn how best to pay the new fares.

The fare boxes on all cars of the company were changed so as to receive and register pennies. The bottom of the boxes were taken out and false bottoms installed so that a large receptacle would thus be provided for re-

count these, since counting machines will be installed. The additional fare is expected to increase the company's receipts between \$700 and \$1,000 a day, Mr. Meriwether said.

PUBLICITY WORK EFFECTIVE

The smoothness with which the higher rate was placed in effect was due in a large measure to the advertising and publicity campaign that had been carried on by the company under the direction of its publicity department. Large display advertisements were carried in the Dallas newspapers as soon as the fare increase was granted, explaining graphically how fares should be paid. Car cards were also posted in all cars, and extra issues of *Trolleygrams*, the company's publication, was published and distributed to car patrons. The publicity work in paving the way for the increased fares was carried on under direction of Frank Baldwin, assistant director of publicity of the company.

Mr. Baldwin prepared a series of newspaper advertisements, one of which is herewith reproduced. As editor of *Trolleygrams*, Mr. Baldwin also had published 20,000 each of four special editions of this publication which were distributed on the cars.

Seven-Cent Fare for Dayton

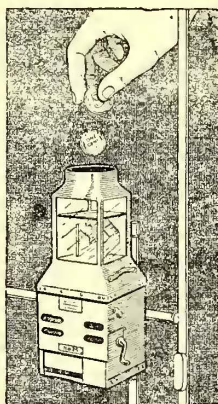
To end the tie-up of electric railway service in Dayton, Ohio, resulting from a strike of the companies' employees, the Dayton City Commission has authorized the several roads operating the local lines to raise their fares from 5 cents to 7 cents. Eight tickets are to be sold for 50 cents. Children are to be carried at 4 cents each. Universal free transfers will be retained under the new plan.

The new rates are to go into effect on the date when the companies come to an agreement with their striking carmen. The companies have offered the men a scale of 60 cents an hour. The increase in fares affects the Dayton Street Railway, the City Railway, the Oakwood Street Railway, the Dayton, Springfield & Xenia Southern Railway and the People's Railway, which operate the local lines.

The railways are still paying their share of improvements made under the \$1,000,000 bond issues that became effective under the regime of City Manager Henry E. Waite. Officials of the various roads have announced that the lines at the present moment are in need of new equipment that would mean an outlay of \$760,000. The City Railway needs at least twenty new cars, the Oakwood Street Railway at least ten, and the Dayton Street Railway ten. The roads are also in need of other equipment.

Charts recently submitted to the city authorities show that expenses during the first three months of 1918 and of 1919 were greater than revenues, but that during the first three months of the present year revenues exceeded operating expenses.

Add a Penny to Your Nickel When Paying Your Street Car Fare



How to pay the six-cent fare

IT WILL AID SERVICE AND EXPEDITE YOUR JOURNEY IF YOU HAVE EXACT CHANGE READY WHEN BOARDING CAR



Dallas Railway Company
INTERURBAN BUILDING

By Authority of Ordinance Passed by the City Commission—

Beginning Sunday, June 27, 1920

Street Car Fares in Dallas Will Be Six Cents with Half Fare for Children

Please have the exact change (a nickel and a penny).

Drop a nickel and a penny in the fare box.

Do not ask conductors for change unless absolutely necessary.

Tickets purchased prior to this date will be accepted as cash fare.

How to Pay Children's Fare

Half fare, or THREE CENTS, will be charged for children.

Do not drop three pennies in fare box, but give them to conductor, who will hand you a half fare ticket.

Drop the half fare ticket in the fare box.

THIS "AD" PAVED THE WAY

ceiving the pennies. For the present it is not possible to change all the fare boxes so that they will register pennies, according to Richard Meriwether, vice-president and general manager, and small boxes will be installed to receive the extra pennies. Mechanism for registering the 1-cent pieces has been ordered and should arrive in time to be installed in all fare boxes within six weeks.

Mr. Meriwether estimates that the company will receive on an average of between 75,000 and 100,000 pennies each day under the new fares. No additional clerks will be needed to

Transportation News Notes

Merchants Favor Higher Fare.—The Retail Merchants' Association of Port Arthur, Texas, has indorsed the application of the Port Arthur Traction Company for an increase in fare from 5 cents to 8 cents. The resolution states that business men recognize the necessity for an increased fare, and that the traction company cannot continue to maintain efficient service on the present fare.

Rate Plea Follows Wage Rise.—The Atlantic Coast Electric Railway, Asbury Park, N. J., was given a hearing before the State Board of Public Utility Commissioners recently on its application to increase its fare from 6 to 8 cents. The company claims that it has to face an additional cost of \$49,000 a year because of a raise in the wages of the employees. The company has paid no dividends on the capital stock since 1917.

Seven-Cent Fare, Skip-Stop Allowed.—The New Jersey Board of Public Utility Commissioners has authorized the Five-Mile Beach Electric Railway, Wildwood, to increase its fare from 6 to 7 cents and to install the skip-stop to facilitate service. The company stated that there was an increase of \$14,500 in operating expenses for the present year. There was no opposition to the application from the municipalities in which the company operates.

Higher Fare vs. City Ownership.—The City Council of Danville, Va., has adopted a regulation providing for a thorough examination of the books of the Danville Traction & Power Company to determine if the company is in need of an increase in fare from 5 cents to 6 cents. An appraisal of the company's property is to be made by public accountants. In the event that the city and the company fail to agree on the 6-cent fare the resolution stipulates that the city shall make an offer to buy the railway system.

Mid-Day Fares Reduced.—The London County Council of London, England, put into operation on April 19 its new scheme of reduced fares in the middle of the day and at the same time increased fares began at other hours. Between 10 a.m. and 4 p.m. the fare is 2d. for any distance beyond the 1d. stage. So far as one can judge by casual observation, the cars do not seem to be much fuller during the slack hours than they were before. The hope is to develop a much greater mid-day traffic.

Downpour Causes Suspension of Subway Lines.—Service of the Fourth Avenue and Broadway lines of the Brooklyn Rapid Transit subway and on

the Lexington Avenue line of the Interborough was suspended for six hours during the night of June 24 because of a heavy downpour. The sewers became overtaxed and the ventilator gratings of the subway systems served as drains. This resulted in flooding the subways. Pumps had to be used to check the rise in water. Service was restored in time for the morning rush hour.

Pay-Enter System in Los Angeles.—The pay-as-you-enter system is to be installed on all city lines of the Los Angeles (Cal.) Railway. The hand registers will be discarded. Lines running outside the city where the fare varies according to distance will retain the present system. The one-man safety cars, which are being delivered for service in the outlying districts, are equipped with the fare box which will be uniform throughout the system. The boxes are being delivered at the rate of 500 a month and some are now in use. The pay-as-you-enter system will be completed by the end of the year, according to present plans.

Asks Court to Bar Fare Rise.—Court action has been resorted to in an effort to set aside the recent order of the Shreveport (La.) City Commission granting the Shreveport Traction Company authority to charge a 6-cent fare. The order was passed by the commission after a referendum election in which a majority of the voters indorsed the higher fare. Huey P. Long, a member of the commission, has filed a petition in the State courts, seeking a restraining order against the City Commission and the Shreveport Traction Company to restrain both from enacting such an order and from putting the authorized increased fare into effect.

Jitney Routes Not Yet Decided.—The utilities committee of the City Council of Seattle, Wash., has indefinitely postponed the determination of the routes and schedules under which jitneys will be permitted to operate in the streets of the city. In the meantime, jitneys will be permitted to continue the use of their old routes. Members of the committee will make a study of the proposed schedules before announcing the routes to be followed. Two petitions, containing a total of 40,000 names, have been presented to the City Council by the jitney drivers, protesting against the proposed action to place the terminals for buses outside the central business district.

Rate Complaint Dismissed.—A complaint made by the commissioners of Stark County, Ohio, against rates charged by the Northern Ohio Traction & Light Company, Akron, Ohio, has been dismissed by the Ohio Public Utilities Commission. The county authorities charged the company with violating the terms of its Canton-Beach City and Canton-Massillon franchises by charging a higher rate to through passengers than it charged other riders. The commission held that the mere fact that a through rate, which

is not fixed by franchise, exceeds the sum of fares between intermediate points, some of which are fixed by contract, does not warrant the commission in holding that the through rate is unreasonable or unjustly discriminatory and should be ordered discontinued.

Wants More in Oklahoma City.—Application has been made to the City Commission of Oklahoma City, Okla., by the Oklahoma Railway for permission to raise its fare from 5 cents to 7 cents and to sell tickets at the rate of four for 25 cents. The company's request will be submitted to a committee to be appointed by Mayor Walton, which will determine if the higher rate is necessary. In asking the increase John W. Shartel, general manager of the company, stated that the company is now hauling 80 per cent more passengers with the same number of cars than in 1916. In 1916 the revenue was 25 cents for each car mile, while the expenses were 16 cents for each car mile. At present revenue and operating expenses amount to 40 cents a car mile, so that the system is just breaking even.

Still Fighting Buffalo Rate.—Failing in their attempt to secure a reduction in the fares charged by the International Railway, the municipal authorities of Buffalo, N. Y., have announced their intention to appeal the case to the Supreme Court of the United States. The 7-cent fare, which was placed in effect on April 18, was to have reverted to 5 cents on June 1. The company, however, has continued to collect the higher rate. The City Council has been asked to direct Corporation Counsel Rann to take steps to protect the rights of car riders if the city wins its fight to have the 7-cent fare order of the Public Service Commission vacated. It is also planned to demand that the company furnish rebate slips and file a bond of \$300,000 to guarantee repayments if it loses the case. The City Council has not yet acted formally in the matter.

Revokes Staten Island Franchise.—On the recommendation of Grover A. Whalen, Commissioner of Plant and Structures, the Board of Estimate of New York City has voted to revoke the franchise of the Richmond Light & Railroad Company, which operates in Staten Island. The company's fares were raised to 8 cents following the appointment of a receiver. Commissioner Whalen, in a report to the board, said the managers of the road had threatened "to compel the people to use the 8-cent cars by securing an injunction restraining the city from operating buses." Ten resolutions covering the termination of the franchise were passed by the board. Ninety days' notice was given the company in which to comply with conditions of the franchise, which, it is charged, were violated. At the same time it was voted to declare forfeited the company's agreement with the city through which it has been enjoying the use of the St. George viaduct.

Personal Mention

W. E. Riddle, superintendent of transportation of the Cleveland, Alliance & Mahoning Valley Railroad, Ravenna, Ohio, has been made general manager of the company, to succeed V. M. Loudon, who has resigned.

I. A. Cottingham, for twenty-eight years chief engineer of the lines of the Southern Pacific Company in Texas, has resigned to become chief engineer and assistant general manager of the Houston, Richmond & San Antonio Traction Company, Houston, Texas, which is building 225 miles of interurban line in Texas.

Howard A. Holmes, assistant electrical engineer of the Pennsylvania-Ohio Electric Company, Youngstown, Ohio, has resigned to accept a position with Morris Knowles, Inc., Pittsburgh, Pa. Mr. Holmes has been in the service of the Pennsylvania-Ohio Electric Company, formerly the Mahoning & Schenango Railway & Light Company for a number of years.

Robert H. Stevenson has recently been made chief clerk to the comptroller of the Connecticut Company, New Haven, Conn. For the past two years Mr. Stevenson has been special accountant in the comptroller's department. He is one of the accounting members of the committee on registration and collection of fares of the American Electric Railway Association.

Raymond G. Carroll, former general manager of the Savannah (Ga.) Electric Company, has arrived in Galveston, Texas, to assume his duties as manager of the Galveston Electric Company. Mr. Carroll succeeds W. E. Wood, who has been transferred to Houston, Texas, to become general manager of the Houston Electric Company and the Galveston-Houston interurban line.

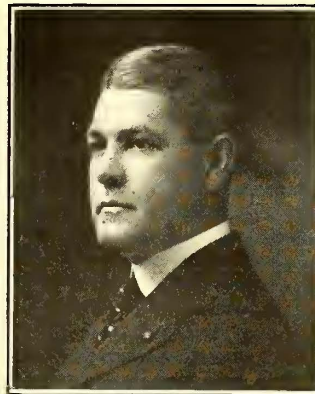
J. G. Phillips has been made general superintendent of the Mobile Light & Railroad Company, Mobile, Ala. Mr. Phillips was formerly general manager of the Gary (Ind.) Street Railway. Previous to that connection he was engaged on valuation work with Ford, Bacon & Davis, engineers. He was at one time connected with the Hudson Valley Railway, Glens Falls, N. Y., as assistant general manager.

M. S. Wade has been made treasurer of the Pacific Electric Railway, Los Angeles, Cal., to succeed the late I. W. Hellman, who died some time ago. Mr. Wade has also been made treasurer of the Fresno Traction Company and the other subsidiaries of the Pacific Electric. He entered the service of the company in 1902. Three years later he was made cashier and in 1913 he became assistant treasurer.

Heads N. Y. E. R. A.

T. C. Cherry Chosen President of State Organization at Its Annual Meeting at Bluff Point

At the annual meeting of the New York Electric Railway Association, held at Bluff Point, on Lake Champlain, N. Y., on Saturday, June 24, T. C. Cherry, vice-president and general manager of the Rochester & Syracuse Railroad, Syracuse, was elected president for the coming year. Mr. Cherry has long had a prominent part in the work of the State body and his election as president comes as a recognition of his many services in behalf of that organization. During the past year he has served as vice-president of the New York association.



T. C. CHERRY

Mr. Cherry is known to electric railway men as one of the most efficient operators of the Empire State. In the opinion of those who have been most closely associated with him in his work, his success in the transportation field has largely been due to the possession of two qualities: his thoroughgoing knowledge of electric railway problems and his ability to get things done. Electric railway transportation has been practically his life work and he has made a study of every part and phase of it. The knowledge thus gained he has put to good use in his work as an organizer.

Mr. Cherry was born in 1876. In 1898, after spending four years at Syracuse University and at the Syracuse Law School, he entered railway work as timekeeper on construction and track work and as rodman with the engineering department of the Syracuse Rapid Transit Railway. Two years later he was made superintendent of track of that company. Still later in 1900 Mr. Cherry went to Lorain, Ohio, as superintendent of construction of lines and

served as dispatcher of the Lorain Street Railway, and from August, 1901, to December, 1903, he was general manager of the company.

Later Mr. Cherry served as superintendent of the Saginaw Valley Traction, Light & Gas Company, and still later as general manager of the Ohio Central Traction Company. Subsequently he became connected with the Buffalo & Lake Erie Traction Company, as general superintendent, serving in this capacity for three years. In 1912 he was made superintendent of the Utica & Mohawk Valley Railway, resigning three years later to become general manager of the Schenectady traction system.

He resigned later in the same year to join Allen & Peck, and took charge as general manager of the Annapolis Short Line. In 1916 he joined the Auburn & Syracuse Railroad and in the following year was appointed general manager for the receiver of the Beebe lines, with the exception of the Auburn & Syracuse, which remained separate. Upon the discharge of the receiver Mr. Cherry was appointed vice-president and general manager of the Rochester & Syracuse Railroad, the position which he now holds. He is also vice-president of the Auburn & Syracuse Electric Railroad and president and general manager of the Syracuse & Northern Electric Railway. All three of these roads are under the management of the firm of Peck, Shannahan & Cherry, Inc., Syracuse, utility operators, of which he is a member.

R. H. Waldo, supervisor of equipment of the Eighth Avenue Railroad, New York, N. Y., has resigned.

G. M. Patterson, traffic manager and purchasing agent of the Fort Wayne & Northwestern Railway, Kendallville, Ind., has resigned.

B. F. Ross, chief clerk of the Eighth Avenue Railroad and the Ninth Avenue Railroad, New York, N. Y., has resigned.

George M. E. Vans has been made chief electrical engineer of the Pittsburgh, Harmony, Butler & New Castle Railway, Pittsburgh, Pa.

V. M. Loudon, general manager of the Cleveland, Alliance & Mahoning Valley Railroad, Ravenna, Ohio, has resigned.

E. R. Gordon has been appointed superintendent of the Union Depot Bridge & Terminal Company, Kansas City, Mo., to succeed O. S. Lamb, resigned.

A. M. Ginn has been appointed chief clerk of the Eighth Avenue Railroad and the Ninth Avenue Railroad, New York, N. Y., to succeed B. F. Ross, resigned.

William J. Boucher, whose appointment as assistant supervisor of way and structures of the Eighth Avenue Railroad and the Ninth Avenue Railroad, New York, N. Y., was recently announced, has been promoted to acting supervisor of equipment of these roads.

Manufactures and the Markets

DISCUSSIONS OF MARKET AND TRADE CONDITIONS FOR THE MANUFACTURER,

SALESMAN AND PURCHASING AGENT

ROLLING STOCK PURCHASES

BUSINESS ANNOUNCEMENTS

Stocks of Railway Type Lightning Arresters Good

Traction Companies Less Insistent on Protection of Safety Cars Than Those of Large Type

Light demand for the railway type of lightning arrester is causing good stocks to accumulate with distributors. Although thunderstorms are now a factor with which railways will have to reckon, orders at present are light; even during the past spring months, when most of the buying for this sort of material was to have been expected, sales were small as compared with other years.

One of the things bringing about this condition is the financial straits in which many electric railways find themselves, with a resultant tendency on their part to eliminate all expenditures but bare necessities. Consequently, lightning arresters are one of the first classes of equipment to suffer, as it is a gamble whether or not an installation will be put to actual use. Another feature of the slack market is the growing use of one-man cars, a much lower percentage of which are equipped with lightning arresters than the two-man type. Some manufacturers find that the traction companies are more willing to take a chance on equipping their safety cars without lightning arresters than their larger cars, because of the smaller loss at stake in the former case if lightning should injure the car.

Deliveries are fairly good compared with other railway material, averaging for this class of goods from one to six weeks. The market is firm, no price fluctuation having been recorded in some months.

Bare Copper Wire Shipments Longer

Labor and Material Shortage at Mills Reflected More in Finer Than Larger Sizes

Manufacturers differ on conditions of the bare copper-wire market. On one side it is declared that demand is rather quiet, with few orders for export coming in. Domestic demand, however, is fair, with little heavy construction work being undertaken. On the other side of the question it is asserted that the volume of orders is large, while at the factory there is under-production owing to a shortage of raw material and labor. It is stated that production could be increased 60 per cent if sufficient men for a night force could be obtained.

Finer sizes of copper wire are especially hard to obtain, and shipments take longer than for the coarser material. Large sizes average six to eight

weeks, while the smaller stuff runs from four to six months.

The market has held steady for the past three or four months with no prospect of fluctuation in sight, but if any change occurs the probability seems to point to its being upward. Bare copper wire is averaging about 22 cents base. Manufacturers report very few cancellations of orders, and collections are fair, most customers paying within the thirty-day or sixty-day time limit.

Results of Standardization in Brake Shoes

Number of Patterns Has Been Reduced—Price of Reinforced Shoes Often Less Than That of Cast Iron

In discussing the market situation in brake shoes an official of a large manufacturer of brake shoes for steam and electric railroads recently expressed gratification at the results from standardizing brake shoes on electric cars. Ten years ago or so, when the movement toward standardization was begun, a large number of patterns had to be carried in stock. Now there are practically only four styles of shoes, two for motor wheels and two for pony wheels. Different widths of wheel thread still require different widths of shoes, so that practically the makers of brake shoes have to carry some sixteen active patterns of shoes. This, in the opinion of the speaker, could be reduced somewhat. About 75 per cent of the tonnage of brake shoes turned out by this company for electric railway properties east of the Mississippi River is of the standard patterns mentioned.

While an increase has occurred in the price for brake shoes of this company, it has not been proportional to the increase in cost of materials, according to the statement. Formerly reinforced shoes sold for from \$40 to \$50 per ton. Now, while the price has more than doubled, the ordinary cast-iron shoe, obtained from a local foundry, will often cost the purchaser over \$100 a ton. Yet the ordinary cast-iron shoe will have possibly only one-third of the life of a reinforced shoe.

While production is not quite up to manufacturing capacity, the standard shoes can be shipped directly from stock. For orders requiring the manufacturer to make up other than standard shoes, these will be filled when an opportunity is given to do so. No encouragement is given to trade in other than standards.

Raw material stocks are not available in amounts formerly gathered. A six months' stock is considered good now, where heretofore sufficient for two years' business was available.

Good Outlook for Carbon Brush Supply

Better Deliveries Being Made and Electric Railways Are Well Stocked Up

Manufacturers of carbon brushes report the situation as being very favorable. Production has increased generally, and though only nominal stocks of finished brushes are on hand, stocks of unfinished material are in good shape to handle any orders likely to come in.

Deliveries are being made more promptly than heretofore, averaging from ten days to three weeks. Shipments of the standard railway type of carbon brush are a little slower because these orders are being placed in larger quantities. One local agent who recently returned from a tour of the country states that electric railways are quite heavily stocked up on brushes.

Demand is good, much of the ordering being for replacements as well as for the construction of new motors. The market has held steady for some months, and manufacturers say no fluctuation is in sight at present. Labor, however, is the chief item in the cost of carbon brushes, and because the labor market has been unsteady indications are that any price change would be upward.

Stocks of foreign brushes are in sufficient condition in this country to supply normal orders, while new material can be quoted on six weeks' delivery. French production is about 50 per cent above pre-war volume.

Banner Year Seen in Metal Culvert Industry

Increased Railway Demand and Prompt Deliveries Features of Strong Market

Manufacturers of culverts report an appreciable increase in buying on the part of the railways over the past few years. Although by far the largest percentage of culverts manufactured now go under highways rather than railways, demand on the part of traction companies has greatly increased over the war period. In fact, sales thus far indicate that this will probably be the biggest year in metal culvert history.

Conditions of culvert production vary considerably. Certain producers have an output that is above normal, while other producers declare that shortage of labor, freight troubles and the indisposition of workmen to speed up as formerly have greatly cut production. The common ground on which producers meet, however, is that more culverts could be used if

available. Stocks of culverts are undergoing a rapid turnover. A number of mills have several months' supply on hand, or enough to fill reasonable orders from stock. Labor unrest is lengthening deliveries somewhat; particularly is a shortage of help making it difficult to receive and ship material. In spite of this condition, immediate shipments are the rule for such preferential customers as state highway departments and railways, other orders being quoted at from five to eight weeks.

Some shortage of raw material has been experienced by the mills, attributable to both an actual scarcity and to the freight tie-up. Prices have increased materially, one manufacturer reporting an advance of about 10 per cent last Jan. 1, and another increase of the same amount on April 1. The consensus of opinion seems to be that quotations have about reached their top level.

Cancellations are few, slowness of delivery being responsible for those that are made, but in general customers realize it is better to let orders stand, even with tardy shipments, rather than cancel and take a chance on still slower delivery elsewhere.

Collections in this line are on the whole considered good, bills being met on an average of sixty days.

Timber Owners Hesitate to Cut for Railway Ties

As if the car shortage alone were not sufficient to curtail the supply of wood ties, construction and repair work on rights of way are further hampered by conditions at the tie camps, which are seriously impeding production. Many owners of timber land think twice before

cutting their trees for ties when the market is so strong for finished lumber at a much higher profit. And laborers will not work at tie camps when they can earn more money producing board lumber.

Consequently, although there is plenty of wood and plenty of labor, the wood tie situation does not offer much hope of improvement. Demand is holding strong and standard hewn ties of long leaf pine are being quoted around \$1.50 each.

Rattan Car-Seat Market Fair

Material in Good Stock to Make Shipments in About Six Weeks

Although traction companies have not been ordering rattan car seatings in very heavy amounts this spring and summer, there have been inquiries which show that the matter is being given some thought. The tendency to make double seats into two single seats has effected savings in rattan in that only half the double seat has to be replaced to repair broken spots.

Shipments can be made in from four to eight weeks for standard width rattan, but for extra wide the quotations are running longer. Stocks in this country are fair and material is coming through from the Far East in good shape. At the same time freight rates are high and prices of the rattan at point of shipment are increasing. Further price changes up would not be unexpected, for the rates here have not changed to any great extent this year.

One feature tending to hold back shipments of finished rattan seats is the shortage of steel used in the underframe.

Pin and Bushing Deliveries Excellent

Volume of Sales Steady—Larger Output Can Be Absorbed—Higher Prices Unlikely

Deliveries from stock are being made at present on treated pins and bushings used in trucks and brake rigging, notwithstanding the burdensome conditions imposed upon many manufacturing interests by the inadequacy of rail transportation. From month to month the sales volume totals about the same as that of last year to this time, but looking at shorter periods sales are rather spasmodic. A representative maker of these products has about six months' raw material supply on hand, and this is proving a wonderful "shock absorber" in connection with the irregularities of railroad service. Cold-rolled steel bars are very difficult to procure, some orders having been placed six months ago without a sign of the material. Tubing comes through in about three weeks and gives relatively little trouble. Manufacturers are well caught up on orders for pins and bushings.

Notwithstanding the fact that manufacturing costs have been climbing upward of late, there has been no increase in the price of at least one well-known line of pins and bushings for eighteen months. Fuel oil, used in heat treating, now costs this producer 13 cents per gallon against a former price of 6 cents, and process heating costs something like \$40,000 per year for oil alone. Certain chemicals used are obtained with no great difficulty and run to perhaps \$1,200 per year.

Of late the fuel oil received in this plant has been so thick that it has been

NEW YORK METAL MARKET PRICES

	May 1, 1920	July 1, 1920
Copper, ingots, cents per lb.	19.25	19.00
Copper wire base, cents per lb.	23.00	22.50 to 23.00
Lead, cents per lb.	9.25	8.00
Nickel, cents per lb.	45.00	43.00
Zinc, cents per lb.	8.45	7.95
Tin, cents per lb.	61.50	49.00
Aluminum, 98 to 99 per cent, cents per lb.	33.00	33.00

OLD METAL PRICES—NEW YORK

Heavy copper, cents per lb.	16.50 to 16.75	15.00 to 15.50
Light copper, cents per lb.	14.00 to 14.50	13.00 to 13.50
Heavy brass, cents per lb.	10.25 to 10.50	9.00 to 10.00
Zinc, cents per lb.	5.00 to 5.25	5.00 to 5.25
Yellow brass, cents per lb.	9.00 to 9.50	7.00 to 7.25
Lead, heavy, cents per lb.	7.25 to 7.75	7.00 to 7.25
Steel car axles, Chicago, per net ton	33.00 to 34.00	32.00 to 33.00
Old carwheels, Chicago, per gross ton	36.00 to 37.50	36.50 to 37.50
Steel rails (scrap), Chicago, per gross ton	29.00 to 30.00	27.50 to 28.00
Steel rails (relaying), Chicago, gross ton	31.50 to 32.50	31.50 to 32.50
Machine shop turnings, Chicago, net ton	12.50 to 13.00	9.50 to 10.00

ELECTRIC RAILWAY MATERIAL PRICES

Rubber-covered wire base, New York, cents per lb.	28.00 to 30.00	28.00
Weatherproof wire (100 lb. lots), cents per lb.	28.00	29.00
T rails (A. S. C. E. standard), per gross ton.	55.00 to 57.00	58.00 to 65.00
T rails (A. S. C. E. standard), 20 to 500 ton lots, per gross ton.	55.00 to 57.00	57.00 to 59.00
T rails (A. S. C. E. standard), 500 ton lots, per gross ton*	45.00 to 47.00	55.00 to 65.00
T rail, high (Shanghai), cents per lb.	3.00	3.00
Rails, girder (grooved), cents per lb.	3.00	3.00
Wire nails, Pittsburgh, cents per lb.	4.00	4.00
Railroad spikes, drive, Pittsburgh base, cents per lb.	3.00 to 5.00	3.85 to 4.25
Railroad spikes, screw, Pittsburgh base, cents per lb.	7.50 to 9.00	7.50 to 9.00
Tie plates (flat type), cents per lb.	3.00 to 4.00	3.00 to 5.00
Tie plates (brace type), cents per lb.	3.00 to 4.00	3.00 to 5.00

ELECTRIC RAILWAY MATERIAL PRICES

	May 1, 1920	July 1, 1920
Tie rods, Pittsburgh base, cents per lb.		
Fish plates, cents per lb.	3.00 to 4.00	3.75 to 4.75
Angle plates, cents per lb.	3.00 to 4.00	3.75 to 4.75
Angle bars, cents per lb.	2.45 to 4.00	3.75 to 4.75
Rail bolts and nuts, Pittsburgh base, cents per lb.	4.50 to 6.50	6.00
Steel bars, Pittsburgh, cents per lb.	3.75 to 4.00	4.25 to 4.75
Sheet iron, black (24 gage), Pittsburgh, cents per lb.	5.00 to 8.00	4.20 to 6.35
Sheet iron, galvanized (24 gage), Pittsburgh, cents per lb.	6.00 to 8.00	5.25 to 8.05
Galvanized barbed wire, Pittsburgh, cents per lb.	4.60	4.10 to 4.45
Galvanized wire, ordinary, Pittsburgh, cents per lb.	4.20	3.70 to 3.95
Car window glass (single strength), first three brackets, A quality, New York, discount.	17%	17%
Car window glass (single strength), first three brackets, B quality, New York, discount.	37%	37%
Car window glass (double strength, all sizes A.A. quality), New York, discount	79%	79%
Waste, wool (according to grade), cents per lb.	24 to 29	21 to 24
Waste, cotton (100 lb. bale), cents per lb.	18	16
Asphalt, hot (150 tons minimum), per ton delivered.		
Asphalt, cold (150 tons minimum, pkgs. weighed in), per ton.	32.00	32.00
Asphalt filler, per ton.	30.00	30.00
Cement (carload lots), New York, per bbl.	2.80	4.80
Cement (carload lots), Chicago, per bbl.	2.00	
Linseed oil (raw, 5 bbl. lots), New York, per gal.	1.90	1.63
Linseed oil (boiled, 5 bbl. lots), New York, per gal.	1.92	1.65
White lead (100 lb. keg), New York, cents per lb.	15}	15}
Turpentine (bbl. lots), New York, cents per gal.	3.00 and upward	1.75

* U. S. Steel Corp.

† These prices are f.o.b. works, with boxing charges extra

necessary to thin it with kerosene, costing 18 cents per gallon. Labor conditions are unusually good, however, in this establishment. It seems doubtful if prices of pins and bushings will go higher, and on some quotations there can be seen a tendency to shade former figures a little. If the railways come into the market well as the year goes on, giving the manufacturing interests plenty of work to do, it is highly probable that increased production will yield an output at unit costs which will permit the purchaser to secure material of this class without being obliged to pay more for it than present quotations imply.

Rolling Stock

Pacific Electric Railway Company, Los Angeles, Cal., has ordered new passenger equipment to the extent of \$1,400,000, for delivery early this fall.

Dallas (Tex.) Railway Company, having just been granted permission to charge a 6-cent fare, is to purchase fifty new double-truck cars for immediate service.

Appalachian Power Company, Bluefield, W. Va., and Graham, Va., expects to purchase three city cars during the summer.

The Interstate Public Service Company, Indianapolis, Ind., has recently purchased an electric locomotive for use in handling freight trains between Jeffersonville, Ind., and Indianapolis. The cost of the locomotive, which is the first electric to be used in this section, will be about \$24,000.

Burlington Traction Company, Burlington, Vt., has purchased two cars from the Emergency Fleet Corporation for immediate delivery. J. G. Brill Company is the maker.

The Louisville and Southern Indiana Traction Company, New Albany, Ind., lost a wire car recently in a head-on collision with a passenger car near Watson, Ind.

The Southern Pacific Company has completed arrangements for the purchase of twenty-two new Birney type safety cars for the San Jose Railroads. The St. Louis Car Company, builder, expects shipment the latter part of October.

Rochester, Lockport & Buffalo Railroad Corporation, Rochester, N. Y., has purchased for delivery the latter part of this year one double-end shear-nose snowplow and one new 20,000-lb. capacity express car.

Franchises

Central Texas Electric Railway, Waco, Texas.—The Central Texas Electric Railway will be granted a franchise by the Waco City Commission to permit the interurban line which it is now building from Waco to Temple to enter the city of Waco.

Track and Roadway

Connecticut Company, New Haven, Conn.—The Connecticut Company is making repairs on the Norwalk-Winnipank trolley line. The tracks have been torn up and will be re-laid level with the concrete.

Wichita-Walnut Valley Interurban Railway, Wichita, Kansas.—The charter for the Wichita-Walnut Valley Interurban Railway is about to be taken over by new interests. The road was organized with an initial capital stock of \$1,000,000 in 1917 to construct an electric railway from Wichita through Butler County, a distance of about 35 miles. The actual right-of-way was secured and the contract was let for the construction, but the coming of the war prevented the carrying out of the undertaking. It is understood that the interests which originally promoted the road will retire entirely from the property. The affairs of the company at the present time are in the hands of A. H. Hill, vice-president.

Eastern Massachusetts Street Railway, Boston, Mass.—The Eastern Massachusetts Street Railway has received permission from the Quincy city authorities to alter the location of certain tracks and to re-locate its present tracks on Franklin, School and Hancock Streets.

Power Houses, Shops and Buildings

Pacific Electric Railway, Los Angeles, Cal.—The Pacific Electric Railway's passenger station at Playa del Rey was recently destroyed by fire. The damage is estimated at \$3,500.

Cortland County Traction Company, Cortland, N. Y.—The Cortland County Traction Company has purchased one 1,500-kw. Curtis turbine and one 500-hp. Edgemore boiler.

Charlottesville & Albermarle Railway, Charlottesville, Va.—The Charlottesville & Albermarle Railway has purchased all the material for the rebuilding of its carhouse except the metal roofing.

Detroit (Mich.) United Railway.—The Detroit United Railway has received permission to lay a single-track line in Harper Avenue, Detroit.

Detroit (Mich.) Municipal Railway.—Bids are called for by the city of Detroit on approximately 20 miles of railway track comprising sections of the proposed \$15,000,000 municipal electric railway system. The work will include excavating, concrete foundation, ties, rails and all track equipment.

Portland (Ore.)—A route for the proposed municipal electric railway line which is to connect the St. Johns line of the Portland Railway, Light & Power Company with the municipal terminal has been decided upon. Kellogg Street from its intersection with Fessenden Street to the viaduct over the railroad tracks has been chosen.

Portland Railway Light & Power Company, Portland, Ore.—The Public Dock Commission will build an extension of the St. John's line of the Portland Railway, Light & Power Company to terminal No. 4. The line will be about 1 mile in length, and will cost approximately \$40,000. Bids will be called for at an early date.

Trade Notes

The Chicago Pneumatic Tool Company, Chicago, Ill., announces the election of Allan E. Goodhue as vice-president in charge of sales.

The Power Plant Supply Company, 707 Canal Road, Cleveland, Ohio, has recently been organized to deal in power-plant equipment and pumping machinery. William E. Berrington is secretary and manager.

The National Railway Appliance Company has established a New England district office in the Little Building, 80 Boylston Street, Boston, Mass. W. C. Peters, New England department manager, will be in charge.

Chicago Fuse Manufacturing Company has now remodeled the plant which it acquired several months ago from the Otis Elevator Company on Fifteenth Street, Chicago, and is in much better position to market its products after thirty-one years of growth.

Theodore Malm, formerly electrical and traction engineer of the Toronto Railway Company, Canadian Northern Railway Company and various other interests under McKenzie & Mann management in Canada, has formed his own company under the name Theodore Malm & Company, with offices at 507 Fifth Avenue, New York City. It will deal exclusively in new and used car and station equipment and material.

The Electrical Manufacturers' Council met in its new office, 522 Fifth Avenue, New York, on June 18. Officers were elected for the ensuing year as follows: Chairman, S. L. Nicholson, Westinghouse Electric and Manufacturing Company; vice-chairman, Le Roy Clark, Safety Insulated Wire and Cable Company; treasurer, E. B. Hatch, Johns-Pratt Company. Frederic Nicholas was reappointed executive secretary.

The Electric Controller & Manufacturing Company, Cleveland, Ohio, has opened a new office at 208 North Broadway, St. Louis, Mo., in charge of R. J. Ehrhart.

New Advertising Literature

Motors for Crane and Hoist Service.—The General Electric Company, Schenectady, N. Y., has issued bulletin No. 48119.1, describing its alternating-current motors for crane and hoist service.

Belt Fastener.—Crescent Belt Fastener Company, New York City, has just prepared an illustrated circular, form N. Y. 227, on "modern scientific methods in belt joining."