

# ELECTRIC RAILWAY JOURNAL

Consolidation of STREET RAILWAY JOURNAL and ELECTRIC RAILWAY REVIEW

Volume 54

New York, Saturday, September 27, 1919

Number 13

The printers of New York are proposing to go on strike Oct. 1, and the pressmen already decline to work overtime. This makes necessary a somewhat smaller issue than we expected to publish this week. The principal condensation is in the news department. For next week, and possibly for a few succeeding weeks, we may be under a handicap in reporting the important events in the industry, but we trust that the interruption to our regular service will not be for long.

## *What "Selling Transportation" Includes*

**S**UCCESS on the part of any commercial organization involves several elements. They may be enumerated as follows: The organization must have something to sell for which there is a market.

The quality of its product must be such that it will appeal to prospective purchasers.

The commodity should be sold in the quantity or quantities for which there is demand.

There must be some means by which possible purchasers may be informed as to the existence and the value of the product.

Last, but certainly not least, a price must be charged for the product which will not only defray the factory and selling costs but will be enough greater than these costs to yield sufficient return on the investment to attract the new capital necessary to cover the natural growth of the company's plant.

Any electric railway is quite as much of a commercial organization as a department store or a steel company, and the fundamental principles of business, economics and technical science apply to it quite as much as to any other business.

Transportation is the commodity in which an electric railway deals, and any discussion of the sale of this commodity logically divides itself along the lines indicated in the above paragraphs.

The plan of this issue has been to include a number of articles, some prepared by specialists in the field, others by members of the editorial staff, dealing with various phases of selling transportation. As the fare question is pre-eminent in the minds of electric railway operators today, the bulk of the issue has been devoted to this subject. The zone fare system seems to

be growing in popularity, and that now in operation in several important communities in this country are described at some length, the endeavor being to present not only a brief description of the layouts of the systems, but also to touch upon their operating features and general satisfactoriness. Articles by specialists in their respective lines deal with the more theoretical and general aspects of the fare problem. Other articles deal with the quality of service and the merchandising and advertising problems involved in the sale of electric railway service. No attempt will be made here to comment on all of these articles. They speak for themselves. But references will be made to the question of state subsidies and advertising, discussed respectively by R. W. Perkins and F. G. Buffe.

## *State Subsidies—What Form They Should Take*

**I**N THE extremity to which electric railways have been put by State laws it is not surprising that, as a possible form of relief, that of State subsidies should have been suggested. While not prepared to indorse them in all forms, Mr. Perkins declares that subsidies are often justified from an economic standpoint. At present, as he points out, the investors in the electric railway industry can do little but "stand and deliver" when one outside interest, the public, fixes the selling price of its product; another interest, labor, practically fixes the wages; and the economic law of supply and demand fixes the price of supplies.

Among other causes of the present plight of the electric railways Mr. Perkins notes that the fundamental idea underlying the early franchises was that the electric railway was a monopoly and as such must operate under certain restrictions, in order that the public might be protected from abuse. Since the advent of the automobile, the electric railway is no longer a monopoly but the restrictive hedges contained in franchises and in commission regulations, where commission permit has replaced the franchise, are still vigorously maintained. The situation in this respect is peculiar because, as Mr. Perkins points out, not only has the public failed to maintain the monopoly implied by franchise or regulation, but by reason of its activity in building high class roadways, it is actually assisting the competitors of the electric railway. Assuredly, the industry, privately owned, cannot go on rendering serv-

ice for less than cost. Some one must pay the bill.

Perhaps one of the most interesting points made in the article referred to is that if it is just for the State to own and maintain the way structure of the jitney and express truck, it is also just that it own and maintain the way structure of the electric car. The idea of governmental ownership of track structure has been propounded before. It was discussed at some length in the course of the recent hearings before the Federal Electric Railways Commission when Lieut.-Col. Charles W. Kutz, public utilities commissioner for the District of Columbia, advocated the leasing of municipally owned track to privately owned electric railway companies as a means of settling street paving and other way matter difficulties which are common causes of friction between municipal authorities and operating companies. But Mr. Perkins has stated the idea in a forceful way and his suggestion that the State subsidy take this form is a most interesting one.

It may be argued that the modern highway benefits the whole public, since it permits the farmer to market his foodstuffs and in general facilitates local transportation. But this argument loses some of its force when it is remembered that the type of highway necessary to stand the hard usage of heavy and high speed motor vehicles costs from \$30,000 to \$40,000 per mile to build, while a first class highway from the standpoint of non-motor driven vehicles costs only a little more than 25 per cent of this sum. When consideration is given to the fact that the way structure of the interurban railway is no more expensive than the better class of highways and its maintenance cost probably less, it would appear that, everything considered, more economical transportation for the public as a whole would result if some of the money now spent on so-called permanent highways were expended on railway tracks for the use of electric cars.

### *Making Publicity Produce Results*

**A**DVERTISING has not always been considered a necessary activity of the electric railway. That it can be used to perform a service which is fundamental to the commercial success of such an organization is discussed in an interesting way by F. G. Buffe. In this article Mr. Buffe points out the ends to be attained in advertising and the agents and means by which these highly necessary and desirable ends may be reached.

He classifies electric railway advertising into the main subdivisions, interurban and city line. Inasmuch as the interurban roads are to a large extent competitors of the steam roads and offer practically the same kind of service at nearly the same cost, advertising must dwell strongly on quality of service. The point made that much stress should be placed on the problem of acquainting the people served by the railway with its routes, organization and other physical equipment, is a good one. At best, a company or corporation is an intangible thing. Soldiers who have been through the horrors of war tell us that it was the

intangible things rather than those with a physical entity that caused fear and nervous strain. The human mind is much the same in peace as it is in war, and anything which can be done to give a company personality and physical form is well worth striving for.

With the thought that railway advertising should keep the public informed as to the new things the railway is doing, the quality of the service it is giving and other pertinent things relative to its operation we also agree.

Administrative officials, operating officials and engineers need only look over the advertising pages of popular magazines and trade journals to discover the type of advertisement that appeals to people. Nearly everyone likes those which give facts and performances. We do not care for those which plead with us for patronage. The red-blooded man has a pretty poor opinion of the "panhandler" as an individual. The panhandler type of advertisement runs true to form; it is a pretty worthless sort of thing. On the other hand, the right kind of advertising is responsible for most of the commercial successes now being attained in industrial and merchandising fields. The success of the publicity work of the government in connection with the Liberty and Victory Loans and other things pertaining to the great war shows how easily the public mind is molded by proper publicity.

### *Educate Away the Prejudices of the Public*

**T**HE electric railway has two means of securing approval of its customers, the public.

First, by giving the best service its revenues will permit. This is of course the greatest force in appeasing criticism, and electric railway companies should spare no effort in this direction.

Second, by applying the fourth principle of salesmanship stated in the first editorial, and taking full advantage of the continuous and far-reaching power of the printed word and picture. If the service is the best that can be rendered at the price paid for it, then advertising will prove effective in informing and convincing the public of the broad economic value and essential character of the service rendered as compared with the cost. It is with this aspect of salesmanship that the following paragraphs deal.

The electric railways have been doing a lot of good publicity work in defending themselves against professional political aggression. This should be continued as needed but should be supplemented and ultimately replaced with educational publicity designed to promote a co-operative spirit on the part of the railways' patrons. Potential customers must be convinced as to the value of transportation to them, and this must be done in a way to inspire the confidence of the entire community. The result will be a spirit of reasonableness on the part of the representatives of the public in permitting equitable fares to be charge and in removing unjust restrictions upon operation. Incidentally, it will stimulate traffic.

Two forms of advertising publicity are available—

local and national. Each company has at its disposal valuable advertising space within its own cars, which experience has shown to bring splendid returns to the users, but which the company has failed to capitalize upon substantially for itself. The cars may also be used effectively for the distribution of educational matter in the form of convincing leaflets. And then there are the pages of the local newspapers which reach thousands and in some cases millions of readers daily. Again, the industry is nationally organized. Through this organization it has the machinery essential to an efficient and thorough use of national advertising that will "sell" the nation on what the electric railways have done and how vital their prosperity is to the industrial and social welfare. Such a nation-wide campaign can be used to intensify the effect of local advertising.

A well planned program of national publicity, skilfully executed and enthusiastically supported by every factor in the industry, can be made to put the industry on a business basis with the public, restore and hold public confidence, eliminate the deadly blight of politics from the situation, and make the present influential mouthings of the political self-seekers and charlatans as harmless as "an empty sound driven by the wind."

The great need of the industry for effective action along these lines is an immediate one and plans should be laid to carry on and amplify the national publicity which the hearings before the Federal Electric Railways Commission have afforded and inspired.

### *The Amalgamated Association Makes Certain Decisions*

THERE was a time, not so long ago, as stated by Mr. Mahon in his opening address before the Amalgamated Association in its Chicago convention, when the delegates of that organization were not welcomed by governors, or mayors or their representatives. Neither were their views on railway problems or conditions of employment considered of special interest to the majority of utility companies. During recent years, however, it must be admitted that electric railway unions have gained considerably in membership and there should no longer be any question that their influence will have weight in settling some of the larger problems with which operators have to contend.

For this reason it should be of interest to know that the delegates approved a resolution favoring increased fares throughout the United States and Canada and that they declined to support a resolution in behalf of municipal ownership of public utilities. The convention also withdrew its condemnation of one-man cars and agreed to let each local division settle the matter for itself. Similar action was taken on a motion to have jitneys placed under strict regulatory measures.

President Mahon met with one rebuff during the convention and even in that defeat he proved himself bigger than the men whom he represents. This was in the debate which led to the shelving of his recommendation that members going on strike without authority should be deprived of all Association benefits. It impresses us that the men who voted thus have nothing

to be proud of in their refusal to come out boldly in behalf of the sacredness of contract obligations. The delegates showed a calmer frame of mind in refusing to follow the lead of radicals who would have changed the Association's laws as to arbitration. They also showed a strong front against several other resolutions which showed decided flavors of bolshevism.

Taken as a whole, the measures approved at the Chicago convention reflect credit on the men who represent the organized employees of the electric railway industry. We have reason to hope that the passing of another two years will show that these men have broadened still more and are coming to a real appreciation of the responsibilities involved in public utility work.

### *Needed—A Program on Which All Can Agree*

EXECUTIVES of the electric railways of New York State met in Syracuse last week under the auspices of the New York Electric Railway Association to visualize the present condition of the industry in the State and to devise some definite plan for securing relief. Reports from practically the entire State showed that the problem is rapidly becoming one of finding money to pay operating expenses, and in one case, at least, to cover the payroll. A few words of cheer from Schenectady served only to heighten the darkness of the background in the picture. Just what procedure will be followed remains to be determined by a committee appointed to capitalize the results of the conference, but that something vigorous and effective must be done immediately is painfully evident.

Jas. L. Quackenbush, general attorney for the Interborough Rapid Transit Company, hit the nail on the head in his remarks when he said that the Governor and the Legislature are the agencies through which relief must now come. The difficulty of getting drastic emergency relief through the commissions is illustrated by the situation in New York City where Commissioner Nixon is having the fight of his life in an endeavor to keep the New York Railways in a position to give service. Again, the New Jersey Public Utility Commission is being made a political foot-ball because, after a long series of hearings and studies, it ordered a zone system of fares installed on the Public Service Railway property. It is to the supreme representatives of the people that the railways must go again, in the hope of securing action which will neutralize the disastrous effects of the famous Quinby decision of the New York Court of Appeals. They must follow the example of the apostle of old when he uttered the now classic phrase—"I appeal to Caesar."

It is inconceivable that if the facts, as presented at Syracuse, can really reach the Governor and the Legislature in undistorted form something will not be done.

If only politics can be kept out of the tangle, there will be a very fair chance that it will be unraveled. But a definite program must be presented by the railways. They presumably know the traction business, and they must be prepared to state concrete and convincingly what they need to help them out.

# Discussion of Fare Systems

## Present Fare Systems Classified and Compared—Fundamentals of a Scientific System Outlined

**S**ELLING PRICE is always an important factor in the side of any commercial product, and electric railway fares appears to be no exception to the rule. In the case of the electric railway company, transportation is the commodity for sale. Inasmuch as the cost of producing this commodity in different localities varies rather widely, and as the commodity itself is so closely connected with the public weal, the problem of electric railway fares has always been a difficult one. Many solutions, some purely empirical or "rule of thumb," others with some scientific basis, have been proposed. As a considerable proportion of this issue is devoted to electric railway fares and fare systems, a brief general discussion of these systems seems to be in place here.

Electric railway fare systems may arbitrarily be divided into two fundamental classes—the flat-fare system and the graduated-fare system. Actually, of course, in addition to those belonging to these fundamental classes a large number of hybrid systems are in use.

### THE FLAT-FARE SYSTEM SUMMARIZED

The flat-fare system is a familiar one in this country, as until recently it has been in almost universal use. Its outstanding features are that a single fare unit is charged whether the ride is long or short, and if transfer is made to another line, no additional charge is imposed. It is purely a "rule of thumb" or empirical fare system. It seems to have been adopted in the early days of the industry, with little regard to the actual cost of transportation or of possible changes in this cost. Some pioneer in the horse-car days of the industry decided that a flat charge of 5 cents was sufficient in the way of selling price for his product to produce ample profit on his investment. The precedent once set was almost universally adopted, and the flat-nickel-fare system became almost a law of the land. So ingrained has it become in the minds of the American public that some one has said that it appears that no inconsiderable portion of the people of this country seem to feel that the flat nickel fare is either stated as a rule of Holy Writ, or is guaranteed in the Constitution of the United States.

The flat-nickel-fare system precedent was set when street railway systems were rarely more than 3 miles in length; when trainmen, even in metropolitan New York, worked fourteen hours per day for a wage of \$2; and when the materials used in the industry cost only about one-fourth as much as they do today. It was set in a day when passengers were willing to get off and help lift a derailed car back on the track, or in very cold weather to take a turn at driving while the driver warmed his hands. Also it was set in a day when accident claims were almost unknown, and the residents

of a community were proud to have a public utility in their midst. In its infancy the flat fare, in some few instances

at least, might have had some justification from both scientific and economic standpoints. Very probably, however, it could not have been so justified, and if it could the original basis was soon lost sight of in blind following of precedent.

The necessity or the desirability of a change in fares, on the part of the railway company because of the increased cost and extensions of lines, and on the part of the public because of the political influences and the desire of getting lower fares, has led to some modifications of the flat-nickel-fare system. One of these is the familiar plan of selling flat-fare tickets for less than 5 cents each. Another, and one in common use during the last year, involves the use of a flat fare higher than 5 cents, as 6 or 7 cents. Still another modification involves the use of a sliding-fare scale, either automatic or regulated in action, in which the fare is made to depend more or less on the cost of transportation. This modification is well exemplified in the now famous Tayler franchise system of Cleveland, although on some steps of the sliding scale of this plan a transfer charge is involved.

The important advantages claimed for the flat-fare system are: It promotes suburban development near large cities; it, like the flat postage rates of the Post Office Department of the United States, promotes the public welfare and development; permits readily of collection and auditing; allows for a freer labor market, since a laborer may live in any part of the city and reach any place of employment for the same transportation charge. Its disadvantages are: Being simple, it is naturally discriminatory, discriminating against the short-haul rider in favor of the long-haul rider, thereby reducing short-haul traffic; it is rigid in that it does not permit of ready adjustment to meet new operating conditions; it permits realty agents to speculate at the expense of the railways and of the car riders themselves; horizontal increases of fare cause marked reduction in the short-haul traffic, which is the most profitable part of the traffic of any street railway.

### THE ZONE-FARE SYSTEM OUTLINED

The graduated system of fares, or zone system, as it is commonly called, used abroad since the introduction of the tramways and now coming into favor in this country, is based fundamentally on a distance charge. As regards the layout of a zone system it may be either radial or linear. In a radial layout the lines of an urban system are divided into sections or concentric zones which start with a center zone in the heart of the heavy traffic district. This type of layout is particularly well adapted to a community which possesses only one heavy traffic center and in which the trans-

portation lines radiate from this center. The Milwaukee suburban zone system is a typical illustration of the radial type of zone-fare system. In the linear layout some important traffic point on each line is selected as an initial point from which zones are laid out by dividing the track into sections or zones. This plan is best adapted to a widespread urban district with a number of important traffic foci. The system just put into effect on the Public Service Railway is an excellent illustration of this type of zone layout.

In the zone system a certain fare is charged for each zone or section. A passenger who rides through only one zone pays a lower fare than one riding through several zones. This system has a more rational basis than the flat-fare system, in that the fare bears some relation to the length of ride.

Zone systems may also be classified as end-on and overlap systems. In the end-on system the fare is cumulative and a person getting on near the end of one zone, and riding into the beginning of the next, must pay the sum of fares for the two zones. The overlap system is an endeavor to eliminate some of the injustice imposed on the short-haul rider by the end-on system, as it permits the passenger to ride some distance into a second zone on a single fare.

#### MERITS AND DRAWBACKS OF ZONE SYSTEM

The advantages which have been cited for the zone system are: The car rider pays more nearly in proportion to the service rendered; fares may be adjusted readily to meet changes in operating expenses either by changing the fare per zone or by changing the length of ride given for a unit of fare; tends to cause a uniform development of suburban districts rather than the scattered development so common in American urban districts, and does not permit real estate operators so much chance to speculate in reality at the expense of the public and the railway company. The great objection to the zone system is the difficulty involved in fare collection. Other objections that are sometimes urged are: It tends to promote congestion of population in the center of cities; as compared with the flat fare it discriminates against the suburban or long-haul rider.

The application of the zone system calls for a great deal of study, and this and the unfamiliarity with it of both the public and the operating men have restrained managers from using it in this country. The fare collection system used with considerable success abroad considered by most American operators as not adapted to American service conditions. The objections urged to it are that it does not permit the use of prepayment methods; takes the conductor through the car and away from the position where he is best able to facilitate car operation and prevent accidents; and involves the use of inspectors whose work on a car would be objectionable to the American car rider. The systems now in use in this country are more or less deficient in certain important details. However, as the fare collection problem appears to depend to a considerable extent on the development of proper mechanical equipment, and as the problem now presents

itself in a fairly tangible form, a reasonable solution of it may be expected. It may be remarked that the collection of flat fares other than the nickel is likewise accompanied by some difficulty.

#### ZONE-FARE PRACTICE VARIES

Zone lengths in modern zone systems range from less than  $\frac{1}{2}$  mile to more than 4 miles, 1 mile being apparently a popular average figure. Recent zone-fare practice in several American cities is shown in the accompanying table. Center zones range in radius up to 5.94 miles, as on one line of the Milwaukee Electric Railway & Light Company, although with low initial fares the longer distances are now considered too great. Where the zone system has been put in use in this country it is common to have some minimum initial fare which is usually higher than that of a single zone. Examples of this practice are the 5-cent minimum fare in Milwaukee, the 3-cent minimum fare of the Public Service Railway, and the 9-cent minimum cash fare of the Cumberland County Power & Light Company, Portland, Maine. The zone fares of these companies are for the first two 2 cents and for the last 3 cents per zone. The zone lengths in each of these cases approximates a mile.

In the past but few attempts have been made to formulate a really scientific basis for street railway fares. At present the zone systems of the Milwaukee Electric Railway & Light Company and of the Public Service Railway are the most noteworthy of those which have a scientific basis for their background.

Between the pure flat-fare and the pure zone-fare systems a great many hybrid systems exist. To these belong those systems which in effect are the superpositions of two flat-fare systems, as for example the so-called zone system used in Pittsburgh during the last year. The familiar 5-cent zones formerly so common in New England were really a series of flat-fare systems tacked together rather than real zone systems. Tickets, tokens, etc., are not fundamental to any type of fare system. They may be used to facilitate fare collection, for the convenience of the passenger, or as a means of securing a fractional fare unit not otherwise possible with prevailing currency units. Some of the ticket systems involve transfer and other complications which make it difficult accurately to classify a system as belonging either to the flat-fare or the zone-fare type.

Despite the fact that it is not possible to make a profit on an article without selling it for more than its cost, street railway operators have given the matter of transportation cost analysis very little attention as compared with the attention given to their costs by electric power and telephone companies. Of course the small amount of money involved in a transaction and the absence of a physical connection between company and consumer has had an important bearing on the problem. Except for the physical connection the service rendered, however, is very like that rendered by the telephone company. It is worthy of mention here that power companies, except in some very small communities, changed to the metered service charge long ago and that the present tendency of the telephone companies is in the same direction.

It is of interest to view the present fare systems from the standpoint of a rationally constructed system. In doing this a better perspective of the problem can be gained by considering the hauling of something else than people—for example, stones. Let it be assumed that a company is engaged in the transportation of crushed stone. A little study of the possible costs in connection with this problem indicates:

First: Certain costs are in direct proportion to the distance hauled.

Second: Certain other costs are independent of the distance the stone is hauled, but are more or less dependent on the number of loads hauled for each party, and the time at which the party demands the haulage to be done.

Third: Still other charges are dependent only on the number of parties for whom stone is hauled in the course of a given period of time, as a month or a year.

When figured on a load-mile basis the first of these costs, hereafter designated as the movement cost, is

as one class or party, and a fare system with a rational basis, at least, may be evolved.

In this country the flat-fare system has been applied almost universally to the street railway, while another type of fare system, the mileage system, has been applied to the steam railway and interurban lines. In viewing these fare systems from the standpoint of the rational system just discussed, it appears that the flat-fare system reduced to the lower limit is rational when the movement charge is zero, that is, when the passenger rides no appreciable distance. Similarly, the mileage system is rational only on the basis that the second and third classes of cost previously stated amount to zero. Both systems approximate the true cost under certain conditions. The flat fare involves no serious error for short hauls, where the second and third charges are vastly more important than the first. The mileage system, on the other hand, involves least error when the haul is long, as in this case the constant charges are distributed over a large number of mile

AMERICAN ZONE-FARE PRACTICE

City	Company	Kind of Zone, System	Radius of Center Zone, Miles	Approximate Length of Zone Sections, Miles	Min. Cash Fare, Cents	Zone Cash Fare, Cents	Reduced Ticket Practice	Fare Collection	
								Inbound	Outbound
Milwaukee	The Milwaukee Electric Railway & Light Co...	Radial	3.12 to 5.94	1	5	2	None	Pay-enter	{ Pay-enter Pay-leave
Newark and other cities served.	Public Service Railway	Linear	.....	1	3	2	None	Pay-leave	Pay-leave
Portland, Me.	The Cumberland County Power & Light Co....	Combined	0.5 to 0.75 (approx.)	1	9	3	{ 5 @ 35c. = 7c. 15 @ 35c. = 2½c. 6 @ 45c. = 7½c.—1½ zones 7 @ 65c. = 9½c.—2 zones 5 @ 50c. = 10c.—2 zones	Pay-enter	{ Pay-leave Pay-leave Pay-leave
Springfield, Mass.*	Springfield Street Ry...	Radial	2.28 to 3.65	1.3 to 5.17	6	6	.....	Pay-enter	{ Pay-enter and Pay-leave
Holyoke, Mass.*	Holyoke Street Railway	Radial	1.37 to 3.7	1.47-4.0	7	5	.....	Inside collection with registration	
Providence, R.I.*	The Rhode Island Co...	Radial	2 (approx.)	{ 1.5 1.75 } (approx.)	5	5	None	{ Pay-enter Inside collection	{ Pay-enter Inside collection
New London, Norwich, Wilmantic, etc., Conn.....	The Shore Line Electric Railway Company....	Linear	Flat fare in cities.....	1.125 (approx.)	5	2½	None	Inside collections without registration	
85 cities and towns.....	Eastern Massachusetts Street Railway.....	Radial	3 (approx.)	2 (approx.)	10	5	None	Pay-enter	{ Pay-enter Inside collection

\* In each of these cases the company has petitioned the commission for an increase in rate to provide larger income.

the same whether the haul is  $\frac{1}{10}$  mile or 10 miles. The sum of the other costs figured on a per load basis is approximately constant except as affected by time, that is, at a certain time of the day, week or year it might be more or less than at some other time. When this sum, divided by the number of miles hauled for a given party, is added to the movement cost the total cost of haulage per load-mile is obtained. Obviously, the division of the constant charge by a short distance results in a very much larger charge per unit of distance than results for a long distance. The result is to make the total cost of hauling one load 1 mile very much higher for a  $\frac{1}{10}$ -mile haul than, say, for a 10-mile haul. Now, all of these classified charges exist in any transportation system, whether it be for stone, water, gas, electricity, communication or people, and since this is so it appears that a purely rational system of fares is possible of development. But from the practical standpoint it is not feasible, as each individual passenger fare would have to be handled as a separate transaction. However, service can be classified, that is, passengers who are receiving approximately the same service can be grouped together, and handled

units, resulting in a practically negligible charge per mile. Those zone-fare systems in which the charge per zone is the same for all zones of approximately the same length are in effect pure mileage systems, and are rational, therefore, only for comparatively long rides. A system in which the charge per unit zone is higher for the initial zone than for following zones, and where the following zone fare units for a given zone length decrease or, what amounts to the same thing, the zone lengths for a given fare unit increase and where proper account is taken of peak and off-peak riding, is a system with a fairly rational basis.

There is no reason, of course, why fares have to be exactly proportioned to the cost of supplying the service. This should be a good basis for their general establishment, but the purpose of fares is to bring in revenue. Hence, an electric railway company is justified in making somewhat higher or lower rates for different classes of passengers than the actual cost if by so doing a larger income is obtained. The theoretical expense for each class of traffic should be known, but variations can be made from it in setting the fare if the needs of the service and the company justify it.

## Zone Fares Have Been Found Satisfactory in Milwaukee

Few changes have been found necessary in this pioneer of the zone-fare system in this country—Fare collection offers no difficulties—Elasticity is an advantage



BIRD'S-EYE VIEW OF MILWAUKEE, SHOWING BUSINESS AND FINANCIAL SECTION

**Z**ONE fares have prevailed so long on the suburban lines of The Milwaukee Electric Railway & Light Company that both railway employees and the public hardly realize that other kinds of fare systems exist. While it is true that this system of fares applies only to those lines extending beyond the corporate limits of the city of Milwaukee, the problem of transportation in the Milwaukee district is not greatly different from that of any other large urban community with a radial line transportation system. The application of the zone system to the Milwaukee property was the first important attempt in this country to collect street railway revenue on anything like a logical and scientific basis, and the operation of the system has attracted a great deal of attention. The theories and data upon which it was based, together with complete details of its methods of operation, were fully described in the *ELECTRIC RAILWAY JOURNAL* at the time the system was inaugurated. It is felt, however, that a brief review of the original plan of working, the changes that have been made, and present operating methods is of especial interest at this time in view of the tendency toward zone fares.

The Milwaukee Electric Railway & Light Company operates more than 400 miles of urban, suburban and interurban lines in the vicinity of Milwaukee. The principal suburban communities are Fox Point, White Fish Bay, Shorewood, North Milwaukee, Wauwatosa, West Allis, Cudahay and South Milwaukee. The population of this urban district is about 500,000. Milwau-

kee has long been well known as a great industrial center, the industrial sections being located to the south and southwest of the city. To the west and north is located a great summer resort region. On account of this variety of community interests some of the lines are subject to large hourly variations in traffic, while on others the daily and seasonal variations are very great.

The zone system, practically as it exists to-day, became effective on Jan. 18, 1914, by a ruling of the Railroad Commission of Wisconsin. Prior to this time the company had in effect a 5-cent fare within the limits of the city of Milwaukee and irregular 5-cent fare zones in the suburban districts. On one of the suburban lines, viz., the Fox Point line, there were two 5-cent fare zones. The zones were unequal in length, varying from 1.24 to 7.17 miles. There was also a complicated and expensive system of overlaps. These were the result of agitations for fare concessions by the different communities, and with the rapid growth of some of these communities the old fare system had become highly discriminatory. The present system came into being as the result of long continued agitation on the part of the Milwaukee public for 3-cent fares and on the part of the suburbs for extensions of the 5-cent limits and other concessions.

In connection with the hearings on these petitions the Wisconsin Railroad Commission made a very extended study of the traffic and operating conditions in the district. The railway company also made a study



FIRST VIEW—AMUSEMENT RESORT SEEKERS PAY ZONE FARES IN MILWAUKEE. SECOND VIEW—THE WISCONSIN AND EAST WATER STREET INTERSECTION—AN IMPORTANT TRANSFER POINT. THIRD VIEW—LOADING WORKERS ON THE SOUTH MILWAUKEE LINE





of the traffic by having its conductors record on specially prepared blanks the number of passengers on their cars at each half-mile point along their routes for a day on which the traffic was considered as average. The results of this study checked those of the commission's study very closely. To meet the various petitions and secure a more rational and equitable fare system, the company, using the traffic studies as a basis, worked out a zone-mile fare system for the suburbs which it presented to the commission for approval. This plan included a central or city fare zone of about 3.5 miles radius and a number of 1-mile suburban zones. After protracted hearings as a result of which some modifications of the zone points were made, a system of zone fares was ordered placed in effect. These zones approximated 1 mile in length and in most instances the center zone extended beyond the corporate limits of Milwaukee. The old stations and stopping points were retained, and such new ones as were necessary were created. The present zone limits, together with the distances from the center of gravity of traffic, are shown in the accompanying map.

Previous to August, 1912, reduced fares were available in the form of tickets, six tickets selling for 25 cents, twelve tickets for 50 cents, and twenty-five tickets for \$1. Zone commutation tickets, 7½ cents for two 5-cent zone fares, were also available. At the time noted, the Railroad Commission ruled that tickets should be sold on the basis of thirteen tickets for 50 cents and twenty-six tickets for \$1. This ruling resulted in a great deal of litigation, and at the time the zone fare system was inaugurated the company was selling six tickets for 25 cents, twelve tickets for 50 cents and twenty-five tickets for \$1, with an attached coupon redeemable in case the courts upheld the August, 1912, ticket ruling. Zone-fare tickets were sold on the basis of 10 cents for a strip of five tickets and 20 cents for a strip of ten tickets.

Under the mile-zone plan of operation inbound passengers paid to destination by depositing in a fare box either

7 cents in cash or one city ticket and one zone ticket if in the first zone. If the point of origin was in the second zone either 9 cents in cash or one city ticket and

TABLE 1—ZONE DATA FOR MILWAUKEE SUBURBAN LINES

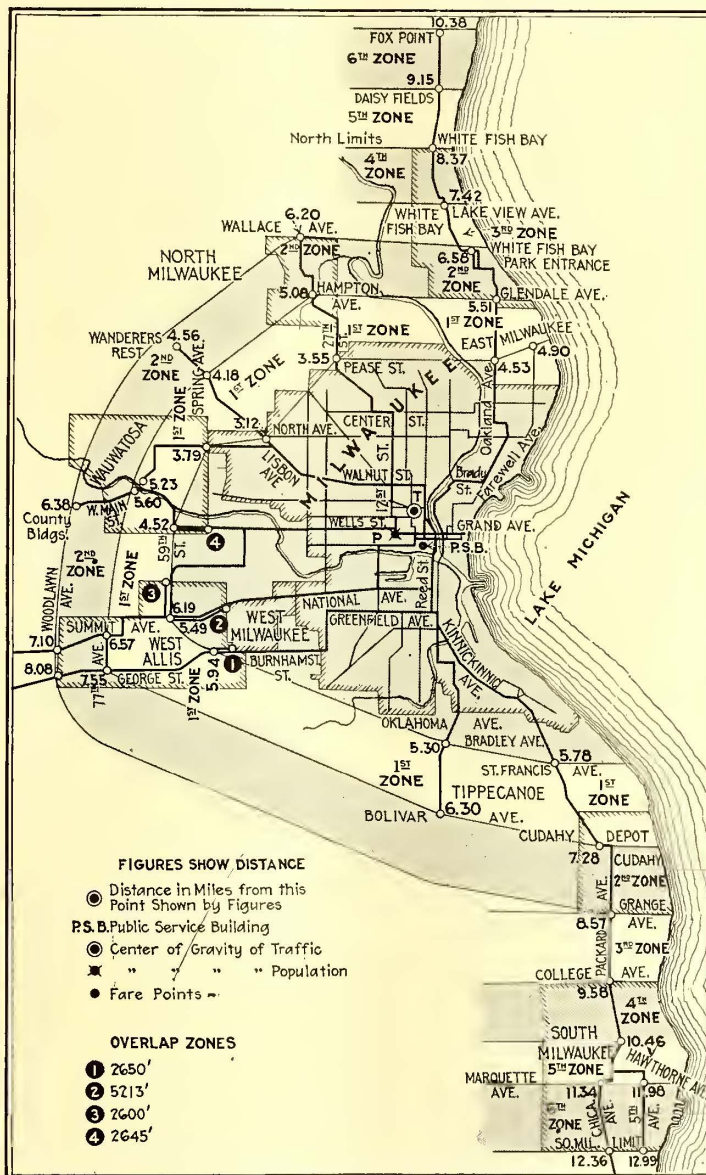
Name of Line	Total Route Miles	Route Miles within City Fare Limits	Original Number of Zones	Present Number of Zones	Fare for Total Distance, Cents, Zone System	Fare for Total Distance, Cents Original System
Fox Point	10.38	4.53	6	6	17	15
North Milwaukee	6.20	3.55	2	2	9	10
Wanderer's Rest	4.56	3.12	2	2	9	10
Wauwatosa-Walnut	5.23	3.79	1	1	7	10
Wauwatosa-Wells	6.38	4.52	2	2	9	10
West Allis-National	7.10	4.49	2	2	9	10
West Allis-Burnham	8.08	5.94	2	2	9	10
Tippecanoe	6.30	3.30	2	1	7	10
South Milwaukee	12.99	5.78	7	6	17	10

two zone tickets were deposited. For local riding in zones a minimum of fare of 5 cents was charged.

If the ride was through three zones or fractions thereof, three zone tickets or 6 cents were collected. Except on the South Milwaukee line there was, and for that matter is now, very little local riding, and the only precaution employed to prevent over-riding was that of having conductors "spot" riders paying local fares while the car was running through suburban zones. When the city fare zone limit was reached, the conductor glanced through the car to see if any local passengers were overriding, collecting the city fare in case they were. Transfers to other city lines were issued on request at the time the fare was paid.

Outbound passengers paid on entrance to the car a 5-cent city fare and at each zone limit the conductor carried the fare box through the car, collecting zone tickets or cash fares, as the case might be.

As indicative of the care with which the zone system was planned and carried into effect, it may be stated that comparatively few changes in operating methods



ZONE MAP OF MILWAUKEE AND VICINITY

T.M.E.R. & L.C.O.		JUL - 8	
WELLS-FARWELL	3045	1	115
Downer College Jan 20	215	2	15
Murray & Belmont	3045	3	15
W. & N. North	3045	4	15
W. & E. West	3045	5	15
Grand & W. Water	3045	6	15
Grand and 2nd	3045	7	15
Grand and 9th	3045	8	15
Wells and 15th	3045	9	15
Wells and 27th	3045	10	15
Wells and 35th	3045	11	15
W. & E. West	415	12	15
Grand & W. Water	3045	13	15
Grand and 3rd	3045	14	15
Grand and 9th	3045	15	15
2nd & Duane	3045	16	15
Grand and 15th	3045	17	15
Wells and 27th	3045	18	15
Wells and 35th	3045	19	15
W. & E. West	615	20	15
Downer & Fenton	3045	21	15
W. & E. West	3045	22	15
Grand & W. Water	3045	23	15
Grand and 3rd	3045	24	15
Grand and 9th	3045	25	15
2nd & Duane	3045	26	15
Grand and 15th	3045	27	15
Wells and 27th	3045	28	15
Wells and 35th	3045	29	15
W. & E. West	815	30	15
Downer & Fenton	3045	31	15
W. & E. West	3045	32	15
Grand & W. Water	3045	33	15
Grand and 3rd	3045	34	15
Grand and 9th	3045	35	15
2nd & Duane	3045	36	15
Grand and 15th	3045	37	15
Wells and 27th	3045	38	15
Wells and 35th	3045	39	15
W. & E. West	1015	40	15
Downer & Fenton	3045	41	15
W. & E. West	3045	42	15
Grand & W. Water	3045	43	15
Grand and 3rd	3045	44	15
Grand and 9th	3045	45	15
2nd & Duane	3045	46	15
Grand and 15th	3045	47	15
Wells and 27th	3045	48	15
Wells and 35th	3045	49	15
W. & E. West	1215	50	15
Downer & Fenton	3045	51	15
W. & E. West	3045	52	15
Grand & W. Water	3045	53	15
Grand and 3rd	3045	54	15
Grand and 9th	3045	55	15
2nd & Duane	3045	56	15
Grand and 15th	3045	57	15
Wells and 27th	3045	58	15
Wells and 35th	3045	59	15
W. & E. West	1415	60	15
Downer & Fenton	3045	61	15
W. & E. West	3045	62	15
Grand & W. Water	3045	63	15
Grand and 3rd	3045	64	15
Grand and 9th	3045	65	15
2nd & Duane	3045	66	15
Grand and 15th	3045	67	15
Wells and 27th	3045	68	15
Wells and 35th	3045	69	15
W. & E. West	1615	70	15
Downer & Fenton	3045	71	15
W. & E. West	3045	72	15
Grand & W. Water	3045	73	15
Grand and 3rd	3045	74	15
Grand and 9th	3045	75	15
2nd & Duane	3045	76	15
Grand and 15th	3045	77	15
Wells and 27th	3045	78	15
Wells and 35th	3045	79	15
W. & E. West	1815	80	15
Downer & Fenton	3045	81	15
W. & E. West	3045	82	15
Grand & W. Water	3045	83	15
Grand and 3rd	3045	84	15
Grand and 9th	3045	85	15
2nd & Duane	3045	86	15
Grand and 15th	3045	87	15
Wells and 27th	3045	88	15
Wells and 35th	3045	89	15
W. & E. West	2015	90	15
Downer & Fenton	3045	91	15
W. & E. West	3045	92	15
Grand & W. Water	3045	93	15
Grand and 3rd	3045	94	15
Grand and 9th	3045	95	15
2nd & Duane	3045	96	15
Grand and 15th	3045	97	15
Wells and 27th	3045	98	15
Wells and 35th	3045	99	15
W. & E. West	2215	100	15

T.M.E.R. & L.C.O.		JUL - 8	
Fare Paid to Station Punched			
6000 THIS DAY AND TRAIN ONLY			
Milwaukee	X		
St. Francis Ave.	X		
Cudahy Depot	X		
Orange Ave., Cudahy	X		
College Ave., So. Milwaukee	X		
Hawthorne Ave., So. Milwaukee	X		
Marquette Ave., So. Milwaukee	X		
So. Limits, So. Milwaukee	X		
195			
Park Road	X		
Carrollville Road	X		
Carrollville Church, Ryan's Road	X		
Fitzsimmons' Road	X		
Oakwood Road	X		
This Receipt is not Transferable and MUST be presented to Conductor when Leaving Car.			

FORM 2218-11.12-2000 600000

The Milwaukee Electric Railway and Light Company.  
REFUND ACCOUNT DROPPING EXCESS IN FARE BOX

Name \_\_\_\_\_  
Address \_\_\_\_\_  
Date \_\_\_\_\_ 191\_\_ Time \_\_\_\_\_ M  
Conductor \_\_\_\_\_ Badge \_\_\_\_\_ Car No. \_\_\_\_\_

Amt. dropped in \_\_\_\_\_ Amt. to be refunded \_\_\_\_\_

PLEASE PRESENT THIS FOR SETTLEMENT TO SUPT. TRANSPORTATION,  
ROOM 214, PUBLIC SERVICE BUILDING, SYCAMORE ST., 2nd to 3rd STREET.

FORM 6014-2, 24 19-2000

The Milwaukee Electric Railway and Light Company  
CASH RECEIPTS IDENTIFICATION CARD

LINE \_\_\_\_\_  
Denomination \_\_\_\_\_ Counted by \_\_\_\_\_  
Counter Head Number \_\_\_\_\_

Ending Reading									
Beginning Reading									
Difference									
@ each AMOUNT									
CHANGE									
TICKETS CASH									
1c Pieces									
5c "									
10c Silver									
25c "									
50c "									
1.00 "									
Regular 5c (Metal)									
Zone 2c "									
TOTAL									

First, typical transfer zone receipt used on Milwaukee suburban lines.  
Second, fare receipts used on South Milwaukee line.  
Third, refund slip issued to passengers dropping too much money into the fare box.  
Fourth, card used in recording daily receipts from a given line.

have been found necessary during the past five years. Most of the changes which have occurred have been either the result of progress in the art or for financial reasons rather than because of defects in the zone system. Petitions to the Railroad Commission from some of the communities involved have resulted in some slight changes in the zone limits. These changes are noted in Table I. Possibly the most important of these has been the change from seven to six zones on the South Milwaukee line. The rolling stock has been gradually undergoing the change from open-door to the closed-door construction, and some modifications have been made in the rates of fare since the inauguration of the mile-zone system. As the result of an agitation in the community for lower fares, the commission ordered the sale of zone tickets at the rate of thirty

tickets for 50 cents in October, 1914. On account of the increasing cost of operation the company in January, 1915, finally secured from the commission an order rescinding the ruling requiring the sale of thirteen tickets for 50 cents and twenty-six tickets for \$1, and in June, 1918, the reduced rate on city and suburban tickets was also rescinded. The city fare was thus made 5 cents straight and the zone fare 2 cents. The company discontinued the sale of paper tickets as it was found that their use permitted some fraud.

METHODS OF FARE COLLECTION

Possibly the most important change made since the inauguration of the mile-zone system has been the change in the method of fare collection. This change was made not so much to reduce the number of acci-

SUBURBAN LINES ONLY—REPORT OF PASSENGERS CARRIED IN ZONES															
LINE		OUTBOUND													
Trip Number	CITY FARE LIMITS TOTAL PASS. IN CAR ENTERING SUBURBAN ZONE	1st ZONE		2nd ZONE		3rd ZONE		4th ZONE		5th ZONE		6th ZONE		FREE TICKET PASS. CARRIED	ZONE RECEIPTS COLLECTED
		Number of Pass. Boarding Car	Number of Pass. Leaving Car	Number of Pass. Boarding Car	Number of Pass. Leaving Car	Number of Pass. Boarding Car	Number of Pass. Leaving Car	Number of Pass. Boarding Car	Number of Pass. Leaving Car	Number of Pass. Boarding Car	Number of Pass. Leaving Car	Number of Pass. Boarding Car	Number of Pass. Leaving Car		
1															
2															
3															
4															
4															
TOTAL															
IN BOUND		INBOUND													
Trip Number	IN BOUND START HERE	1st ZONE		2nd ZONE		3rd ZONE		4th ZONE		5th ZONE		6th ZONE		FREE TICKET PASS. CARRIED	ZONE RECEIPTS COLLECTED
		Number of Pass. Boarding Car	Number of Pass. Leaving Car	Number of Pass. Boarding Car	Number of Pass. Leaving Car	Number of Pass. Boarding Car	Number of Pass. Leaving Car	Number of Pass. Boarding Car	Number of Pass. Leaving Car	Number of Pass. Boarding Car	Number of Pass. Leaving Car	Number of Pass. Boarding Car	Number of Pass. Leaving Car		
1															
2															
3															
4															
TOTAL															

Conductors must report total number of passengers boarding car and leaving car in each zone  
Transfer zone receipts must be used on all lines having more than one zone.  
Transfer zone receipts should not be turned in with the transfers collected on city lines, but should be mailed separately.



dents, missed fares and cases of fraud, as to locate the conductor at the rear of the car where he could be of most assistance in speeding up car operation. Under the present plan of operation outbound passengers on all of the suburban lines, except the South Milwaukee line, pay a city fare of 5 cents as they enter the car. If they are transferring from another car line the conductor is handed a transfer. All cash fares are deposited in a fare box, which is of the lock type and was designed and built by the company in its own large,

ployees. These tickets are all numbered and carefully accounted for.

All zone limit points are marked with a pole sign and the passing of a zone point is called to the attention of the passengers by the conductor. Passengers entering the car beyond the city fare limit pay either the minimum 5-cent fare or if riding through more than two zones, as on the Fox Point line, pay their fare to destination, receiving a punched receipt. This receipt, as shown in an accompanying illustration, is

FORM 653

The Milwaukee Electric Railway and Light Company

### RAILWAY CASH RECEIPTS

DATE \_\_\_\_\_ 191\_\_

FOR \_\_\_\_\_ 191\_\_

Currency							
Gold							
Silver Dollars							
" 50 Cents							
" 25 "							
" 10 "							
Nickels (In Bags)							
Pennies (In Bags)							
CHANGE \$1.00							
" .50							
" .25							
" 10							
" .05							
" .01							
CHECKS							
<b>TOTAL</b>							
Wells Street-Farwell Avenue							
Fond du Lac-National Avenues							
Walnut Street							
Eighth Avenue-Third Street							
" " Stub							
Burnham-Third Streets							
Oakland-Delaware Avenues							
Holton-Mitchell Streets							
Eighth Street Viaduct							
Clybourn-Michigan Streets							
Twelfth-Wisconsin Streets							
Twelfth Street Viaduct							
State-Wisconsin Streets							
First Avenue-Vliet Street							
Howell Avenue-Vliet Street							
North Avenue							
Public Service Building-South Milwaukee							
Center Street							
35th Street							
27th Street							
North Avenue-8th Street							
Private Cars							
Interurban							
<b>TOTAL</b>							

### COIN COUNTER READINGS

COUNTER HEAD NO.	NICKEL READINGS		NUMBER COUNTED
2259	Ending Number		
	Beginning Number		
	Difference		
2260	Ending Number		
	Beginning Number		
	Difference		
2261	Ending Number		
	Beginning Number		
	Difference		
2264	Ending Number		
	Beginning Number		
	Difference		
2265	Ending Number		
	Beginning Number		
	Difference		
2459	Ending Number		
	Beginning Number		
	Difference		
2807	Ending Number		
	Beginning Number		
	Difference		
2835	Ending Number		
	Beginning Number		
	Difference		
2867	Ending Number		
	Beginning Number		
	Difference		
<b>TOTAL COUNTED</b>			
<b>TOTAL AMOUNT @ .05</b>			
<b>DIME READINGS</b>			
3677	Ending Number		
	Beginning Number		
	Difference		
3685	Ending Number		
	Beginning Number		
	Difference		
<b>TOTAL COUNTED</b>			
<b>TOTAL AMOUNT @ .10</b>			
<b>PENNY READINGS</b>			
1163	Ending Number		
	Beginning Number		
	Difference		
1664	Ending Number		
	Beginning Number		
	Difference		
1688	Ending Number		
	Beginning Number		
	Difference		
<b>TOTAL COUNTED</b>			
<b>TOTAL AMOUNT @ .01</b>			
<b>GRAND TOTAL</b>			

FRONT AND BACK VIEWS OF RECEIPT SUMMARY FORM

well-equipped shops. Metal tokens have been provided for the convenience of telegraph and telephone companies, department stores, and other organizations who prefer supplying transportation to their messenger boys and other traveling employees in some form other than money. The company is planning to increase its supply of tokens as it is felt that a number of employees in industrial plants would prefer to purchase a week's supply of transportation very much as they purchase a week's supply of flour or other provisions.

At present the only paper tickets used on the city and suburban lines are those issued to company em-

ployees. These tickets are all numbered and carefully accounted for. After passing the city fare limit, the conductor passes through the car supplying those passengers who entered the car within this limit with penny change to facilitate the payment of their zone fares. The conductor then moves his fare box to the front end of the car closing the rear entrance and exit doors. As the passengers leave the car those having entered while within the central city limits deposit 2 cents in the fare box, if the car is in the first zone, or 4 cents if in the second zone. These passengers who entered the car after it passed the city



fare limit return the zone fare receipt to the conductor. This prevents over-riding. Conductors are not permitted to handle fares, the passengers being expected to place the proper fare in the box. Each conductor when he enters the employ of the company is given \$15 for change money. This he keeps as long as he is in the employ of the company. The men are expected to supply themselves with penny change, and facilities are provided at the carhouses and ticket offices to assist them in doing this.

For inbound passengers the fare collection is handled in a slightly different manner. The passenger upon entering the car pays his full fare to destination. For example, if he enters the car in the second zone and wishes to ride into the city proper, he deposits 9 cents in the fare box. Should he desire to ride only into the first zone, his deposit is 5 cents. Over-riding is prevented by the conductor spotting the passengers who pay only 5 cents. This is not a difficult matter, as very few passengers ride within outer zones only. Should a passenger wish a transfer, it is obtained when he boards the car and pays his fare.

The only overlaps in the suburban system are those noted on the accompanying map. These overlaps permit rides through the towns of Wauwatosa and West Allis on 5-cent fares.

To facilitate car loading at congested corners during the rush hours, the company employs ground conductors, or fare collectors. These men carry a

fare box slung over their shoulder by means of a strap. They station themselves at the front doors of the cars and thus permit loading at both ends.

As noted elsewhere, a different method is followed on the South Milwaukee suburban line. The reason for this is that this line serves a heavy traffic industrial district and passes through a densely populated foreign district. Foreigners representing nearly all of the nationalities on the globe reside here. The line also includes a number of zones and passes through the town of St. Francis and the cities of Cudahy and South Milwaukee. In Cudahy are located the plants of the Federal Rubber Company, the Cudahy Packing Company, the Worthington Pump & Machinery Company, the Ladish Drop Forge Company, the Helmholtz Knitting Company, and the Froedtert Lumber Company. In South Milwaukee the principal industrial plants are those of the Bucyrus Steam Shovel Company, the Stowell Manufacturing Company, the Badger Malleable Manufacturing Company, and Pfister & Vogel Leather Company. These companies employ about 15,000 people, of which more than 3000 use the South

Milwaukee suburban line going to and from their work.

Fare collection on this line is handled as follows: Upon entering the car an outbound passenger names his destination, the conductor gives him the necessary change, if change be necessary, and a fare receipt, the passenger depositing the fare in a locked fare box. On this line the Cleveland fare boxes are used. One of the fare receipts is here reproduced. It will be noted that the punch mark shows the point to which the fare was paid. The passenger retains this receipt until he leaves the car, at which time it is collected by the conductor. Over-riding is prevented by the conductor checking the receipt to see whether the punch mark agrees with the point at which the passenger leaves the car. Should a passenger not have a receipt he is required to pay full fare from the beginning of the run to the point in question.

In case of dispute the conductor is instructed to collect the fare and refer the passenger to the office of the transportation department at the Public Service Building in Milwaukee.

Fares are collected from inbound passengers in the same manner, except that upon reaching the city limit the conductor passes through the car and collects the fare receipts. This simplifies the collection of fares from passengers entering the car within the city fare limits. Transfers are given upon request at the time the fare receipts are collected.

Some idea of the density of the traffic on this line during rush hours can be



LOOKING EAST ON GRAND AVENUE FROM THIRD STREET, MILWAUKEE, WIS.

gained from the fact that three-car trains are operated on five-minute headways from 5.55 a.m. to 6.20 p.m. between Cudahy and Milwaukee. The loading of industrial workers near one of the Cudahy plants is shown in an accompanying illustration on page 614.

#### TYPES OF CARS USED

Since June, 1916, the zone system of suburban fares has been effective on three interurban lines which run through suburban zones. Single-truck cars are operated on the Fox Point, Wanderers' Rest and Tippecanoe lines. Except during rush hours, and on Saturday afternoons, Sundays and holidays, these cars are operated by one man, the traffic being very light. These single-truck cars weigh 10 tons, seat twenty-six passengers, have manually operated doors, and are arranged for double-end operation with front-door entrance.

The motor cars ordinarily used on the South Milwaukee line are of the company's standard interurban type. They weigh 65,000 lb. and seat sixty-four passengers. They are of the open-door type and are arranged for double-end operation, the passengers entering and

leaving through the rear car. At times a type of center-entrance car is used on this line. These cars are arranged for multiple-unit operation, weigh 43,000 lb., and seat fifty-six passengers. They were built in the company's Cold Spring shops in 1917. The cars used on the other suburban lines range in size from small double truck cars to the center-entrance cars just mentioned. Zone fares in Milwaukee, therefore, are being collected on cars varying greatly in size and type.

#### ACCOUNTING METHODS

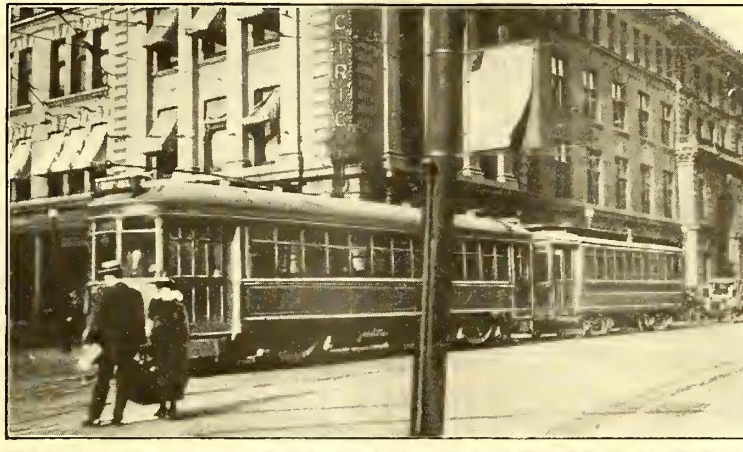
Fare receipts, transfer zone receipts and transfers are all handled in exactly the same manner. They are bundled separately by the conductor and wrapped with

conductor fills out a form which shows on the one side the number of passengers in the various zones. On the reverse side blanks are provided for reporting extra car mileage, trip number, leaving time, and data relative to the number of transfers issued and collected.

In case a passenger by mistake has dropped more than the required fare into the fare box, he is supplied by the conductor with a refund slip. This is refunded by the company upon presentation at the transportation department office in the Public Service Building in Milwaukee. The reverse side of this slip is a receipt which the passenger signs upon receiving his refund.

At the end of his tour of duty each conductor turns in his trip sheets and transfer zone receipts. The

### The Milwaukee Company Operates Its Cars in Trains



At top, a two-car train in front of the Public Service Building.

Below, multiple unit train used on some of the suburban lines.



what is called a transfer band, which is nothing but a manila sticker with a printed form on one end to be filled in by the conductor for the purpose of identification. These are not placed in the fare box, but are turned in separately. On the South Milwaukee line employees' tickets are placed in the cash opening of the Cleveland fare box. On the other lines which employ a fare box of the company's own design the tickets are placed in a small opening designed for this purpose. Cash and metal tokens are dropped into the main cash opening. When the zone system was first inaugurated an overhead register was used in connection with the fare box. The overhead register was dispensed with several years ago, and the method now used for accounting is comparatively simple. For each trip the

fare boxes are turned in at the end of a day's run by men assigned to that work at the carhouses. In the cash opening of each fare box is placed a slip to indicate the line on which the car was operated. No attempt is made to segregate the fare collections by cars or by conductors. From the carhouses the cash fare boxes are taken to the auditing department, where they are assembled by lines. The contents of all of the boxes for a given line are then dumped upon the hopper board of a coin counting machine. After the contents of the fare boxes have been run through the coin machine the dial records are recorded on a 3-in. x 5-in. card, which is also reproduced in an accompanying illustration. There is one of these cards for each line for each day's operation.



The transfers, transfer zone receipts and South Milwaukee line fare receipts are checked in order that some check on the conductors can be maintained.

RESULTS OF THE ZONE SYSTEM

The effect of the application of any new fare system on the riding habit of the public and the revenues of the company is always a matter of great interest. The traffic on the Milwaukee suburban lines, however, has been so affected by the fluctuation in industrial conditions incident to the war that it is practically out of

TABLE II—TRAFFIC STATISTICS OF MILWAUKEE SUBURBAN LINES

Year	1913	1914	1915	1916	1917	1918
Number of revenue passengers per year	3,513,691	4,256,232	4,400,700	4,889,378	5,149,217	5,244,313
Per cent.	100	121	125	139	146	149
Number of revenue car-miles per year	759,190	833,366	772,181	810,672	850,892	845,153
Per cent.	100	110	102	107	112	111
Number of revenue car-hours per year	73,053	75,516	73,188	76,982	79,678	78,645
Per cent.	100	103	100	105	109	108
Revenue passengers per car-mile	4.62	5.06	5.70	6.03	6.05	6.20
Revenue passengers per car-mile per cent.	100	110	123	130	131	134

the question to draw any really trustworthy general conclusions from traffic and revenue statistics. Some of the traffic statistics are given in the Table II.

It will be noted that the revenue passengers per car-mile have increased from 4.62 in 1914 to 6.20 in 1918. This represents a total increase of 34 per cent. The corresponding increase in total revenue passengers is 49 per cent. It seems impossible, however, to determine the influence of the fare system upon these increases.

Some idea of the magnitude of the zone traffic at present can be gained from Table III, which shows the passenger flow through the two zones of the North Milwaukee line. With the exception of the South Mil-

TABLE III—TOTAL ZONE TRAFFIC NORTH MILWAUKEE LINE, APRIL, 1919

	First Zone		Second Zone	
	Outbound	Inbound	Outbound	Inbound
Number of passengers entering zone	26,738	16,553	18,626	.....
Number of passengers boarding car	4,341	12,947	195	16,675
Passenger flow	31,079	29,500	18,821	16,675
Number of passengers leaving car	12,453	3,966	18,821	122

waukee line, for which similar data are given in Table IV, this line carries heavier traffic than any of the other suburban lines. These tables show very clearly the lightness of the local traffic in the zones as compared with the long haul traffic to the city proper.

In any attempt to draw conclusions from the operation of the Milwaukee zone system it must be borne in mind that in the inauguration of this system no great changes were made, or have been made since, in the limits covered by a single city fare. The zone

system as applied affects the suburban and not the shorter-haul city rider. On all of the lines except the South Milwaukee and Fox Point lines the net result of the zone system has been a fare reduction, the amount of the reduction depending on whether one or two 2-cent zones replaced the old 5-cent zone. The 2-cent zone charge was a compromise between the figured cost of transportation, which was nearer 3 cents per mile, and the charge which in the opinion of the commission would increase the traffic within the zones. As has already been noted, there has been an increase in traffic since 1914 but the territory served is for the most part so sparsely populated that the increase in number of fares as yet has not been sufficient to make the suburban lines paying property from the investor's standpoint.

In other respects the experience in Milwaukee with zone fares has been highly satisfactory. The old argument that congestion is produced by the zone system has not been borne out in Milwaukee, as the lower rents and property values in the suburbs to which the total fare was increased, more than offset the higher fares. The matter of fare collection has not proved to be a difficult one. The method may sound somewhat complex to one familiar only with the straight 5-cent fare system, but the actual operation works out nicely as the bulk of the riders are those who live in the city and are familiar with the local transportation methods. That zone fares can be collected with speed and certainty under difficult operating conditions the satisfactory operation of the South Milwaukee line is convincing evidence. The inauguration of any new scheme, as for instance the collection of fares by a different method, always causes more or less trouble at first. In time, however, the public becomes familiar with the operation of the new plan and the trouble disappears. This has been the case in Milwaukee. When the zone fare system was first inaugurated, maps showing the fare limits were printed on posters, and considerable publicity was given to the method of collecting fares.

As far as the company has been able to determine, the use of the zone system has in no way influenced the number of accidents. The method of accounting used involves no serious difficulties. As a matter of fact, the present method requires only about 50 per cent of the work required by the system formerly in use, which involved the overhead fare register, since troublesome overages and shortages no longer occupy a great deal of time in checking up.

One of the most important advantages of the zone system has been its flexibility as compared with the rigid flat-rate system. This flexibility is indicated in part by the fare history reviewed in earlier paragraphs of this article. So firmly convinced of the inherent merits of the zone system is the company that it hopes in time to be able to apply the system to the central zone which at present is too large to secure proper flexibility in the matter of fares.

TABLE IV—TOTAL ZONE TRAFFIC, SOUTH MILWAUKEE LINE, APRIL, 1919

	First Zone		Second Zone		Third Zone		Fourth Zone		Fifth Zone		Sixth Zone	
	Outbound	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound	Inbound
Number of passengers entering zone	73,185	25,776	25,845	18,401	20,244	17,697	19,870	13,451	16,351	759	811	.....
Number of passengers boarding car	3,714	45,695	5,176	12,247	866	2,097	370	5,255	195	13,077	14	825
Passenger flow	76,899	71,471	31,021	30,640	21,110	19,794	20,240	18,706	16,546	13,836	825	825
Number of passengers leaving car	51,054	4,679	10,777	4,872	1,240	1,393	3,889	1,009	15,735	385	825	66



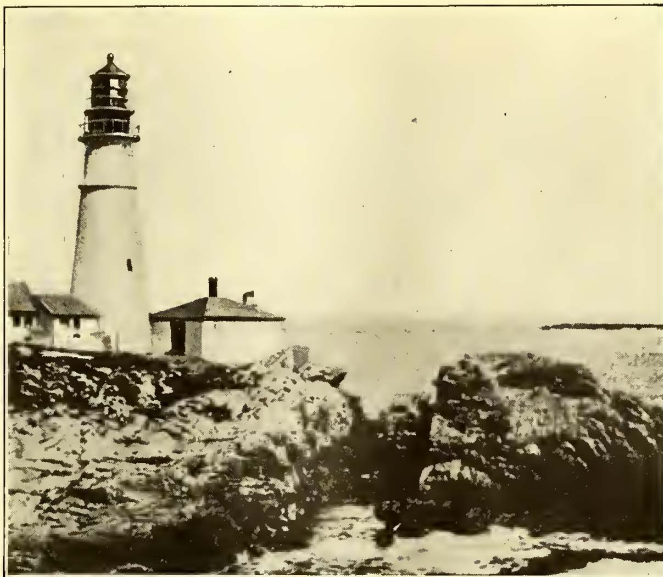
## Zone System in Portland

Maine Public Utilities Commission helps to solve fare problem—Special tickets used for collection purposes — System works satisfactorily on all types of cars

**T**HE Portland Railroad Company, which is leased and operated by the Cumberland County Power & Light Company, connects Portland (Me.) with the outlying cities and towns of Saco, Old Orchard, Cape Elizabeth, Windham, Falmouth, Cumberland and Yarmouth. The system comprises slightly more than 100 miles of track. It is estimated that the population served, with the exception of the four summer months approximates 100,000, but that during the months of June, July, August and September, due to the influx of vacationists from all parts of the country, the tributary population is increased to 175,000.

Previous to August, 1918, when the Public Utilities Commission of Maine first authorized a change in fares, the rate of fare was based on the nickel as a unit with free transfers, with the exception of the lines extending to Old Orchard, Saco, Yarmouth, Westbrook, Riverton and Cape Elizabeth where the fares were in 5-cent increments, as a rule one for each of the towns traversed. On July 25, 1918, the commission authorized the establishment of a zone system with a central area, comprising practically all of the built-up section of the city of Portland, and with mileage zones beyond. The rate of fare was 5 cents on three lines wholly within this central area, with a 1-cent charge for a transfer, while on all other routes nearly all of which extend beyond this area, the rate was 2 cents per zone, with a minimum fare of 6 cents. Free transfers, however, were given upon request to other city cars. These rates were put into effect on Aug. 2, 1918. The increase in revenue derived from this change of fare was almost nothing, and after two months of operation the company filed a new petition asking that the minimum fare on all lines, irrespective of whether they were within or without the central area, be made 6 cents.

Something should be said relative to the publicity campaign planned and carried out for the purpose of acquainting the car-riders with the system of fares which the company desired to have established. The methods employed are probably unique in the annals of the electric railway industry in that other companies have never actually carried out the plan in all its details



OVERLOOKING PORTLAND HARBOR

as was done in Portland.

In order that the car riders might become better acquainted with the officials of the company, its financial affairs, and the reason for increasing fares, an extensive educational campaign was planned, and put into effect. This plan called for the hiring of halls in various communities, extending invitations to the residents to come and talk over the affairs of the railway and for public spirited citizens of the communities involved to be the leaders of the meetings. Officials of the company were in attendance and had full authority to

talk on all subjects pertaining to the railway and also to grant any reasonable concessions in the way of improvements in service that might be asked for by anyone in the audience. It was realized that in order for these public meetings to accomplish the desired results the same spirit of co-operation desired of the public should be shown by the railway employees, especially those on the cars. In order to secure this co-operation the company held two meetings at the headquarters of the local union of the Amalgamated Association of Street & Electric Railway Employees of America.

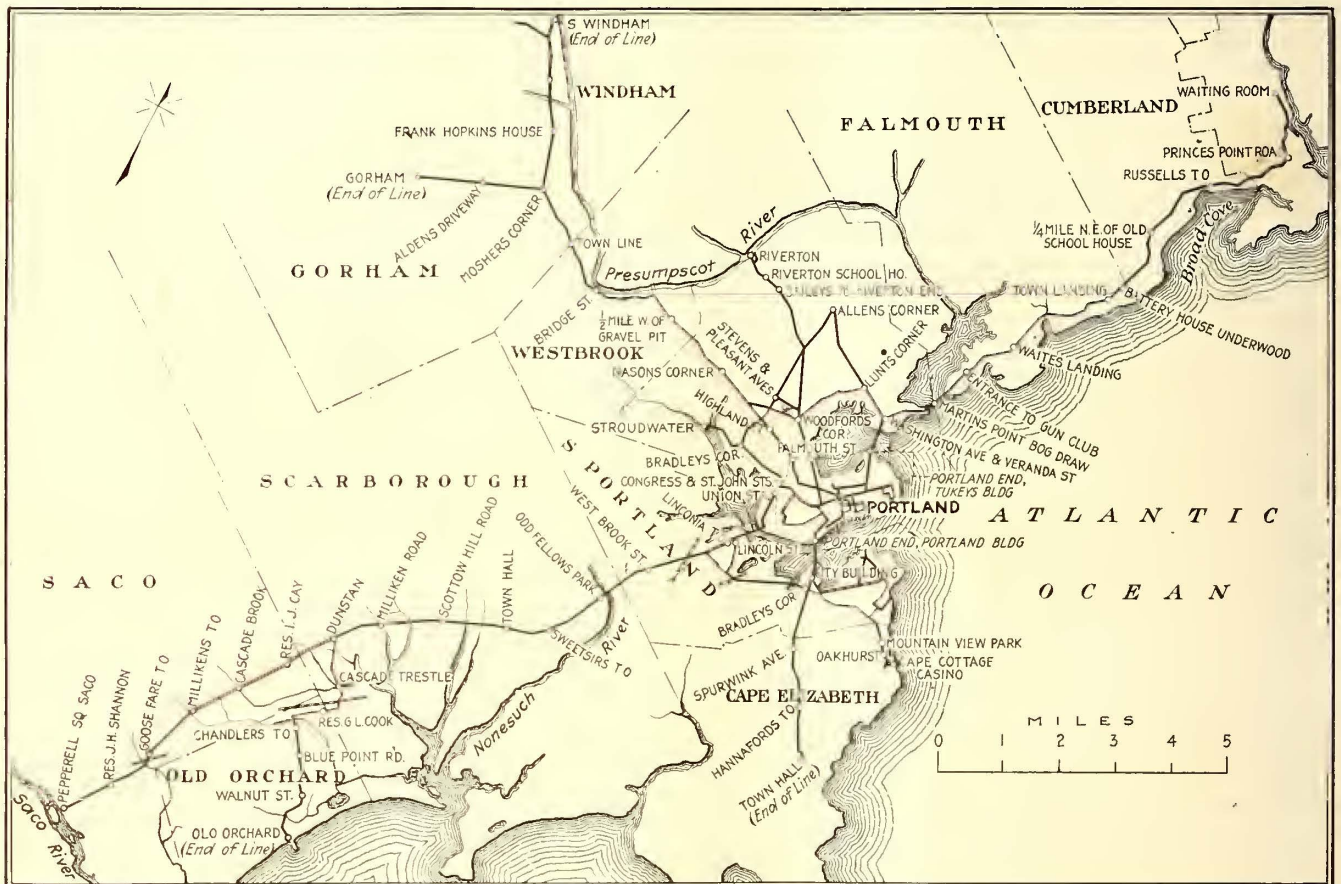
These meetings were addressed by A. H. Ford, vice-president and general manager, who outlined his plan for community meetings, the need for more revenue and how the company was planning to obtain it. The need of co-operation from the men in putting the new fares into effect was pointed out, and every effort was made to have them feel that the campaign was as much for their benefit as for the benefit of the community and of the company; that without the co-operation of the men on the cars, the traveling public, and the city government, any increased rate of fare when put into effect would not produce the desired results.

The second step in insuring the success of the plan was to secure proper publicity in the daily press. Space for paid advertisements was contracted for in each of the several papers, but in addition reading notices and reports of the meetings were desired. To secure these and to obtain further suggestions as to publicity, the newspaper men, not only the reporters, but in some cases the city editors, were gathered together and the matter fully discussed. As they were fully convinced of

the needs of the company for increased revenue, the newspaper men readily agreed to co-operate in the undertaking to report each of the community meetings and, further, to give the subject the widest publicity possible. About ten community meetings were held. The company's representative, after being duly introduced at these meetings, discussed the need for increased revenue, the general plan of a zone system, the proposed zone limits as they affected the community in question, the method of fare collection, and brought out the fact that if this plan or schedule of fares did not bring forth the necessary revenue within a two-months trial period the company would be forced to ask

Where possible, suggested changes were promptly adopted. It was this show of the company's attitude toward its patrons that made the people feel the company wanted to do what was just and fair to the community.

After the usual hearing, the commission, in order to aid both the company and the community interested, held a meeting and dinner in connection with the Portland Chamber of Commerce, at which the members of the city government and other prominent men of the city were invited. The purpose of this meeting was to discuss public utility affairs, and the importance of a street railway to the welfare of any community. The



MAP SHOWING ROUTES AND LAYOUT OF ZONES IN PORTLAND AND VICINITY

for another increase. To show that the company desired the full co-operation of all the communities served, the company held another series of meetings in the course of which the reasons for the deficit were outlined in detail so that everyone could satisfy himself as to the real need for higher fares. An opportunity to ask questions and make suggestions for bettering the service was always given the audience.

Throughout all of these meetings the interest taken by the public was manifest, and the spirit of criticism which it showed led the company to feel that its patrons were entirely in sympathy with its endeavors, and if the service wants were provided the public would pay its share of the transportation expenses. Much good, it was felt, was obtained from several of the criticisms of the service that were brought up at these meetings.

commission at this meeting gave out the information that it was about to issue an order allowing an increase of fare to 6 cents on the lines of the Portland company, and asked that each and every one connected, not only with the city government but with the city's industries, do all that they could to further the welfare of the railway, for that without such co-operation the railway could not exist.

#### COMMISSION ORDERS ZONE FARES

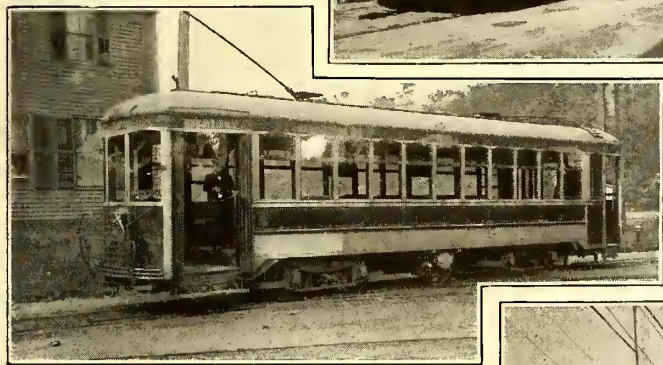
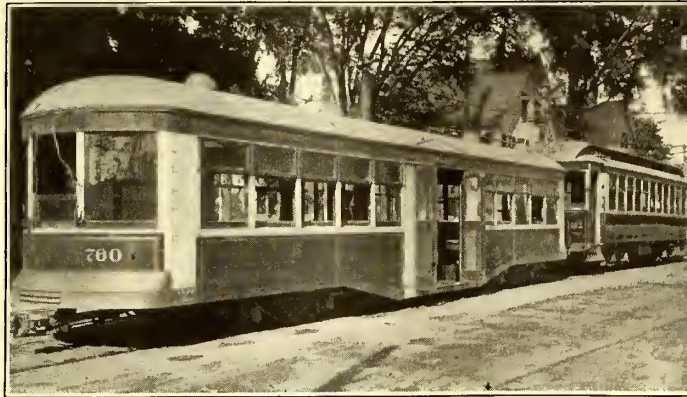
While the company had petitioned for an increase in the minimum fare to 6 cents, the commission in its decisions of Jan. 7 and Feb. 3, 1919, felt that the best results would be obtained by an entirely new system of fares based solely on distance traveled. On March 2, 1919, the zone system of fares, which had been designed



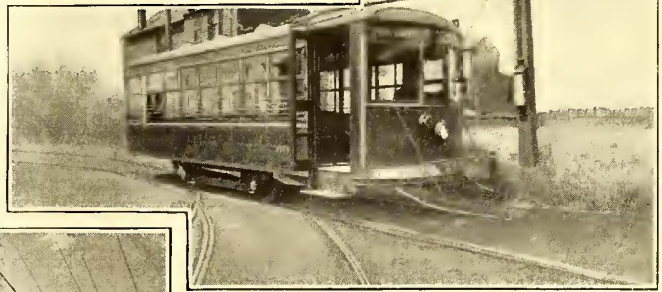
by the railroad company to accord with the above-mentioned orders of the commission, was put into effect for a trial period in order to determine whether it would produce the necessary revenue. This plan was outlined in detail in the *ELECTRIC RAILWAY JOURNAL*, April 12, 1919, page 728, and inasmuch as it failed to produce sufficient revenue to pay the increased cost of operation it was changed to the present schedule on June 15, 1919.

The present schedule of fares was presented to the commission for approval in a petition filed on May 26, 1919. This schedule, suggested by A. S. Richey of Worcester, Mass., was that the previous zone limits or transfer privileges,

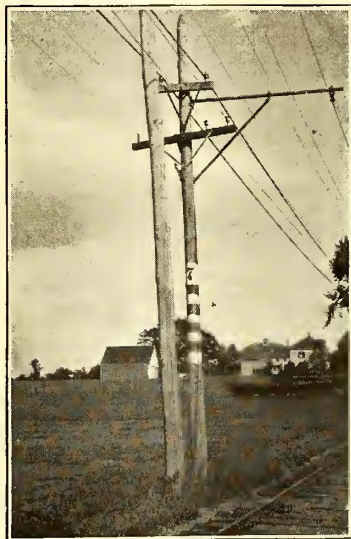
STANDARD CLOSED CAR AND CENTER ENTRANCE TRAILER ON WESTBROOK DIVISION



STANDARD TYPE OF PREPAYMENT CAR OPERATED ON UNION STATION ROUTES



SAFETY CARS OPERATED ON SPRING STREET ROUTE IN PORTLAND



STANDARD METHOD OF MARKING ZONE LIMITS

effective March 2, 1919, remain unchanged, but that the minimum cash fare be made 9 cents, or 3 cents a mile, with a reduced ticket rate of 7 cents or  $2\frac{1}{2}$  cents per mile, tickets to be sold in lots of five, or fifteen for 35 cents.

The general layout of zones, the central area for transfers around Monument Square, and the number of zones per route are all shown in the accompanying map. Zone limits are marked with distinctive black and white bands on the poles with the zone numbers stencilled at the top, as shown in the illustration. The central zone, in the downtown district where transfers are issued, has Monument Square as the center. The limits of this zone on the various lines are shown by the dotted lines on the map, and are the same as the outer limits of the first-fare zone from Monument Square, viz., Union Station, junction of Congress and St. John Streets; Falmouth Street, southerly end of Tuykey's Bridge, and the Portland end of the new bridge to South Portland.

A cash fare of 9 cents entitles the passenger to ride

three consecutive zones or less. The cash fare per zone, however, for each zone beyond those covered by the payment of the minimum fare is 3 cents for each zone or fraction thereof traveled. Coupon tickets can be purchased either from the company at its Monument Square waiting room and other regularly established agencies or from conductors on the cars. For convenience in handling, the tickets come in pads of fifty with an agent's stub as the first leaf so that when a pad is given to a conductor, record can be kept by the issuing agent.

The illustrations show the form of ticket good for five three-zone or minimum fare rides, sold for 35 cents giving a

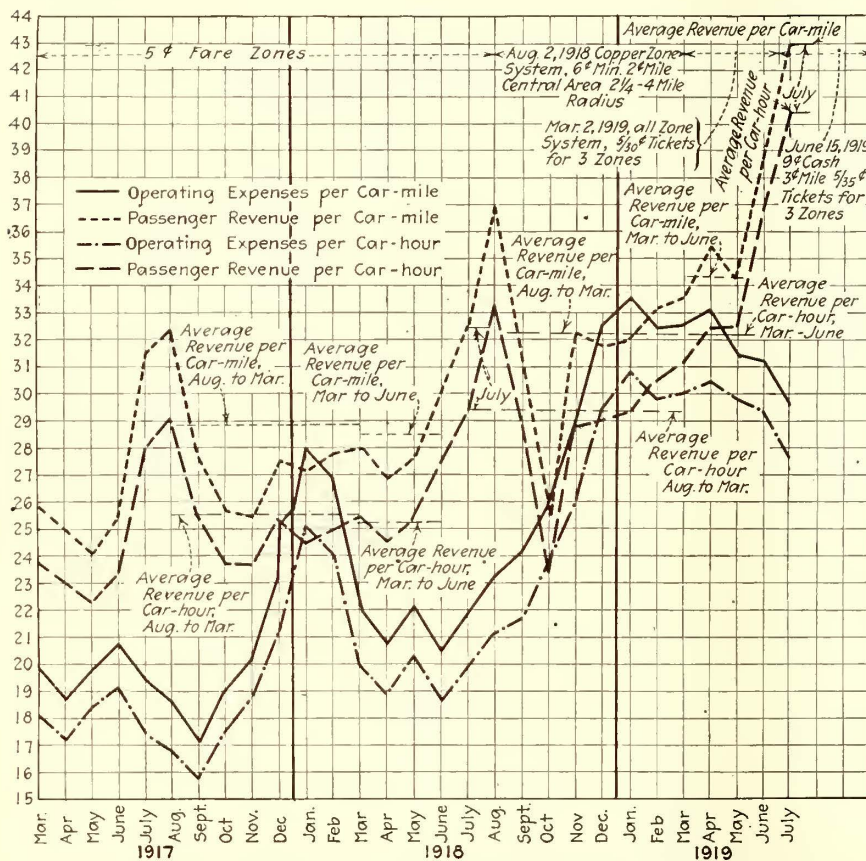
fare of 7 cents; the form of ticket good for fifteen single-zone rides, sold for 35 cents giving an average fare of  $2\frac{1}{2}$  cents per zone; also the form of ticket good for six five-zone rides, sold for 70 cents. This ticket is sold only for the convenience of passengers who frequently ride through five zones. The minimum ticket fare for each continuous ride is one coupon from the 7-cent three-zone ticket or three coupons from the single-zone ticket. It is possible, however, for a passenger to use a 7-cent ticket as an initial fare and to pay cash at the rate of 3 cents per zone for all zones beyond those covered by the 7-cent ticket, or to use a fifteen-zone ticket, one coupon for each zone. School tickets in coupon strips as illustrated are sold only to the cities of Portland and Saco and the towns of Old Orchard, Scarborough and Falmouth, which in turn furnish them to pupils for transportation to and from school. In general the rate is 7 cents, less  $33\frac{1}{3}$  per cent discount, each ticket being good for a three-zone ride. Between Falmouth and Yarmouth and between Falmouth and Portland

a twenty-ride strip ticket is sold for \$1.40. These tickets, however, are good for a five-zone ride. All tickets are of the same style except in color and the name of city or town.

TRANSFER PRACTICE IN PORTLAND

The passenger who has paid a single minimum fare is entitled to ride through three full zones, and having ridden only a part of these on one car is entitled without payment of additional fare, to a transfer, which will enable him to complete the balance of his ride on a connecting car. All inbound passengers paying fares to Monument Square are entitled under this rule to a transfer to any connecting car within the central zone described and bounded by the dotted line on the map.

If a passenger has ridden three full zones and desires to change at a junction point, which is also a zone limit, the conductor issues a transfer punched for month, date, time and "Zone 0." A transfer so punched shows the accepting conductor that the passenger has paid at least the minimum fare on a previous car, and is therefore entitled to ride with him for the sum of the zone fares traveled, that is, if only one zone is desired this can be obtained on payment of 3 cents or one coupon from the 2½-cent green ticket. Transfers, however, are not issued to allow a passenger to return to a point on another route near where he originally boarded the car, nor are they issued to another line which passes over the same route or by the point where the passenger boarded the car. Transfers to be valid must be presented on the first car passing the transfer point designated after the time canceled and then only by the person to whom issued. It is a rule of the company to allow free transportation to its employees, and effective on Aug. 1, 1919, a card form of pass good for 40 rides superseded the 100-ride coupon book which heretofore had been used. Two colors of passes are used to prevent manipulation, viz., gray for the men, white for the women employed. Conductors are required to punch out a block number for each fare collection made, using the regular ticket punch. In order to renew the pass it is necessary to return what is left of the pass previously issued. Passes are renewed only by one person at the central office of the company. Conductors on going to work are furnished with a supply of the different kinds of commutation tickets estimated to last for the day on the line on which he works. A ledger account is kept with each man, and to facilitate matters in handling these accounts an auditor's stub is attached to each pad of fifty tickets, which is signed by the conductor and sent by the disbursing agent to the auditing department for billing. If the conductor has to obtain additional tickets during the day they are charged to him in the same manner.



CURVES SHOWING RELATIONSHIP OF CAR-MILE AND CAR-HOUR EARNINGS AND EXPENSES UNDER VARIOUS RATES OF FARE

The form of transfer used, in addition to being punched for month, date, time, and destination, must be punched for the number of zones that the passenger is still entitled to ride on the connecting car for the fare paid to the initial conductor. For example, a passenger boards a car at the Union Station (Zone 1) and pays his fare with a 7-cent ticket or 9 cents cash. The conductor, on request at the time of payment of fare, issues a three-zone transfer by punching the large figure three shown in the lower right-hand corner. If a passenger boards a car at or between Ligonian turnout and Union Station (Zone 2) the conductor punches out Zone 2, similarly, if a passenger boards a car within Zone 3, the conductor punches out Zone 1.

At the end of the day's work the conductor makes up his day card record and settles with the receiver at the car house for the number of tickets sold. His ledger account is likewise credited in accordance with the day card record. In this way the daily balance shown by the conductor's ledger account must agree with the conductor's day card record.

For canceling these coupon commutation tickets conductors carry a special punch which will clip off a quarter inch square with one operation. These punches are left-handed in that the right-hand side of the punch is blocked in order to force the conductor to clip off the numbers of the tickets in their numerical order. This punch is generally carried on a string so

as to be readily available, for the conductor has to use it practically every time a fare is collected.

The company operates cars of five distinct types: safety cars on the Spring Street route; prepayment type cars with folding steps and doors on the Union Station-Munjoy Hill and the Union Station-Grand Trunk station routes; ordinary closed cars; center-entrance trail cars to Westbrook; cross-bench open cars on practically all routes with the exception of the Westbrook line. All cars carry either a double-face register at one end or two single registers, one at each end.

On routes entirely within the central zone such as Spring Street, Union Station-Munjoy Hill, or Union Station-Grand Trunk Station the cash registers have a value of 9 cents, while on all other lines the value is 3 cents. Ticket registers are the same on all cars and are used to register stubs of commutation tickets collected by the conductors when last used for a ride; school tickets; and coupons from Boston & Maine and Grand Trunk railroad tickets that are good for fare across the city of Portland. Transfers and complimentary tickets are not registered, but are accounted for on the day card each half trip and inserted in a trip envelope properly marked on its face. At the end of each round trip the envelope is deposited in a box in the car provided for the purpose. All revenue tickets and commutation stubs rung up on the ticket register are likewise included in this envelope. The conductor also keeps a record on his day card of the tickets, transfers, free tickets, etc., inserted in the envelope, so that when he makes up his report at the end of the day his total on the day card must agree with the number of tickets deposited in the envelope.

In general with the exception of four routes which are operated entirely on the prepayment plan, fares are collected pay-leave on outbound trips from Monument Square and prepayment on inbound trips. At Monument Square, and also at Union Station, the company maintains ticket sellers on the streets, whose duty it is to announce cars and sell commutation tickets to passengers before they board the cars. This is done with the idea of relieving the conductor from extra duty in connection with fare collection, and it has been found that by so doing considerable time is saved in getting the cars started, especially at Union Station where they are operated on the prepayment plan.

**COLLECTION METHOD DEPENDS ON ROUTE AND TYPE OF CAR**

Cross-bench open cars which are operated to some extent on several lines have received special study in relation to fare collection. In general the routes are divided for fare collection purposes so that conductors make collections every three or six-fare zones. On the Old Orchard and Saco cross-bench open cars, a ticket seller is put on with the conductor as the car leaves the heavy traffic terminal to sell tickets to all passengers. Inasmuch as it takes a 35-cent ticket to go to either of these

places, each person must of necessity purchase a ticket. Experience with the use of these ticket sellers has shown that schedules can be maintained better as the motorman is not required to slow down in order to allow the conductor time to collect fares before points are reached where a large number of passengers desire to leave the car. Observations indicate that the speed with which fares are collected varies largely with the conductor, as some are able to work a fifteen cross-bench open car in three to four minutes, while others take as much as eight or ten minutes.

The plan of collection followed on the various routes extending beyond the central dotted area on the map is as follows:

*Portland-Yarmouth, (eleven zones)*—On closed cars, outbound passengers pay as they leave to Martin's Point Bridge, three zones. Beyond this point an inside collection to destination is made. Inbound passengers pay to destination on boarding the car. On open cars

330 NON LATER DAY MILE METER MILE METER	320 NON LATER DAY MILE METER MILE METER	310 NON LATER DAY MILE METER MILE METER	300 NON LATER DAY MILE METER MILE METER	290 NON LATER DAY MILE METER MILE METER	280 NON LATER DAY MILE METER MILE METER	270 NON LATER DAY MILE METER MILE METER	260 NON LATER DAY MILE METER MILE METER	250 NON LATER DAY MILE METER MILE METER	240 NON LATER DAY MILE METER MILE METER	230 NON LATER DAY MILE METER MILE METER	220 NON LATER DAY MILE METER MILE METER	210 NON LATER DAY MILE METER MILE METER	200 NON LATER DAY MILE METER MILE METER	190 NON LATER DAY MILE METER MILE METER	180 NON LATER DAY MILE METER MILE METER	170 NON LATER DAY MILE METER MILE METER	160 NON LATER DAY MILE METER MILE METER	150 NON LATER DAY MILE METER MILE METER	140 NON LATER DAY MILE METER MILE METER	130 NON LATER DAY MILE METER MILE METER	120 NON LATER DAY MILE METER MILE METER	110 NON LATER DAY MILE METER MILE METER	100 NON LATER DAY MILE METER MILE METER	90 NON LATER DAY MILE METER MILE METER	80 NON LATER DAY MILE METER MILE METER	70 NON LATER DAY MILE METER MILE METER	60 NON LATER DAY MILE METER MILE METER	50 NON LATER DAY MILE METER MILE METER	40 NON LATER DAY MILE METER MILE METER	30 NON LATER DAY MILE METER MILE METER	20 NON LATER DAY MILE METER MILE METER	10 NON LATER DAY MILE METER MILE METER	0 NON LATER DAY MILE METER MILE METER
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CUMBERLAND COUNTY POWER & LIGHT CO.  
(PORTLAND RAILROAD CO.)  
**5-RIDE TICKET 35 CENTS**  
EACH COUPON ATTACHED GOOD FOR ONE CONTINUOUS RIDE OF THREE FARE ZONES OR LESS  
Valid when coupons are detached.  
Subject to conditions on other side.  
Conductor will file this ticket when paying out tickets.  
FORM 16-35  
2402

PORTLAND RAILROAD  
Town of Falmouth Special School Ticket  
Good for one fare for students only while away to or from school in the Town of Falmouth.  
No fare after 1 P.M. on Saturdays or Sundays.  
NOT TRANSFERABLE.  
006976

CUMBERLAND COUNTY POWER & LIGHT CO.  
(PORTLAND RAILROAD CO.)  
**15-ZONE RIDE TICKET 35 CENTS**  
EACH COUPON ATTACHED GOOD FOR RIDE THROUGH ONE ZONE. MINIMUM FARE FOR ONE CONTINUOUS RIDE. THREE COUPONS  
Valid when coupons are detached.  
Subject to conditions on other side.  
Conductor will file this ticket when paying out tickets.  
FORM 16-36  
90351

CUMBERLAND COUNTY POWER & LIGHT CO.  
(PORTLAND RAILROAD CO.)  
**EMPLOYEE'S COUPON PASS**  
issued to: \_\_\_\_\_  
Occupation: \_\_\_\_\_  
Department: \_\_\_\_\_  
Subject to Conditions on other side.  
NOT TRANSFERABLE  
40 39 38 37 36  
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

CUMBERLAND COUNTY POWER & LIGHT CO.  
(PORTLAND RAILROAD CO.)  
**6-RIDE TICKET 70 CENTS**  
EACH COUPON ATTACHED GOOD FOR ONE CONTINUOUS RIDE OF FIVE FARE ZONES OR LESS  
Valid when coupons are detached.  
Subject to conditions on other side.  
Conductor will file this ticket when paying out tickets.  
FORM 16-70  
152

FORMS OF TICKETS: READING FROM THE TOP AND LEFT TO RIGHT, UNIVERSAL TRANSFER; FIVE-RIDE COMMUTATION TICKET; SCHOOL TICKET; FIFTEEN-ZONE RIDE COMMUTATION TICKET; EMPLOYEE'S COUPON PASS; SIX-RIDE FIVE-ZONE COMMUTATION TICKET

operating in either direction, fares are collected to destination.

*Westbrook Division, (ten zones)*—On these lines closed cars are used. Outbound passengers pay as they leave to Nason's Corner, Portland, five zones. Beyond this point an inside collection is made to destination, either Westbrook, Gorham or South Windham. This applies to both motor and trail cars. Outbound passengers boarding cars in Zone 2 get a blue check, in Zone 3 a yellow check; and in Zone 4 a white check. Such passengers pay as they leave, the amount depending on the destination and the color of the check. Such passengers pay as they leave, the amount side collections to destination for all passengers boarding between Gorham or South Windham and Westbrook and issue identification checks for collection as the passenger leaves the car. Passengers boarding at or



east of Bridge Street pay as they enter to destination.

Portland, Old Orchard or Saco, (fifteen zones)—Closed cars are used on this line. Outbound passengers pay as they leave to Westbrook Street, three zones. From there on two inside collections, six zones at a time, are made. On inbound runs three inside collections are made.

On open cars hand collection is used in both directions. The first collection is made between Portland and Westbrook Street, the second, between Westbrook Street and Dunstan's Corner and the third, between Dunstan's Corner and either Saco or Old Orchard.

South Portland Heights or South Portland and Meeting House Hill either via New Bridge, (three zones);

Riverton Line, (five zones); Brighton Avenue Line, (three zones); Stroudwater Line, (three zones)—

On closed cars, outbound passengers pay as they leave to the commencement of the last zone, when the conductor enters the car and collects the fares before the passengers leave. This does away with delay in unloading at the end of the route. Inbound passengers pay to destination at the time of boarding. On open cars the conductor always collects to destination and tries to remember if passengers over-ride.

CUMBERLAND COUNTY POWER & LIGHT CO.					
Date _____ 191__					
Line _____					
Cond. _____ No. _____					
Trip No. _____					
CAR No.	FIRST HALF		LAST HALF		
	STARTING		STARTING		
	Point	Time	Point	Time	
Transfers					
Employee					
Passes					
Special					
Transfer Register					

CONDUCTOR'S TRIP TURN-IN ENVELOPE

As illustrated, a simple form of day card is used. On the face of the card the conductor keeps, by half trips, records of the car-miles and car-hours operated and also the cash and ticket receipts. In order that the record of car-miles operated may be correct a booklet giving distances in miles on each route from or between all regular terminals and the various turnouts and cross-overs en route is carried by each conductor. From these distance tables the conductor can determine the proper mileage to insert in the required column. The conductors are required to post the readings of the register dials whenever taking or leaving cars. Trip readings are read directly from the dial before the clocks are turned back at the end of each half trip.

In the column headed "Ticket-Other" the conductor posts the numbers of all kinds of revenue tickets rung up on the ticket register with the exception of the stubs from commutation tickets. The "B & S Trans." column is used only by conductors on the Portland-Saco cars. This column is used to keep the record of Biddeford and Saco Street Railway transfers accepted in part payment of fare. In the column "Transfer-Ending No." is listed the serial number on the face of the transfer pad for each half trip, and inasmuch as trans-

fer pads are kept by the conductors until used up this is the only report of transfers issued. In the last column on the face of the day card the relieving conductor's number is posted. The back of the day card provides means for the conductor to balance his day's business, both as to tickets sold and fares collected. The auditing department fills out the cash value of tickets turned in but other than this all columns are filled out by the conductor.

The envelope boxes on the cars are emptied in the carhouse each night and the contents sent to the auditing department for checking. These envelopes show the conductor's number so that they can be sorted and tickets counted to show each conductor's collection for the day.

RESULTS OF OPERATION

The system in operation works very smoothly irrespective of the type of car. Safety car operators on the Spring Street line take to the system readily and do not report any serious difficulty in collecting fares. Some of the older men do not work as rapidly as the younger ones. The company, however, plans to equip the safety cars with electrically-driven foot registers in place of the hand-operated clocks. This will be done simply as a refinement in the method of handling fares. Conductors handle their work satisfactorily, whether on prepayment, center-entrance, old-style closed cars or cross-bench open cars.

This system of zone collection is one which requires little or no capital expenditure, the only charge being for punches which cost approximately \$3.60 each in lots of 100 or more. The same, however, cannot be said of the cost of operation, as it is large in comparison with other systems due to the fact that paper tickets are used which do not permit of their being used more than once. Ticket sales for July were in the following ratio:

Five for 35 cents—7-cent tickets.....	65.3%
Fifteen for 35 cents—2½-cent tickets.....	26.7%
Six for 70 cents—11½-cent tickets.....	2.5%
Cash fares .....	5.5%

Tickets cost approximately \$2.00 per thousand and the company orders quantities of 500,000 in anticipation of each month's use.

About 95 per cent of the passengers riding on the cars pay fare with either one of the classes of commutation tickets. The only lines on which cash fares are paid to any extent are the lines running between Monument Square and the depots. Most of the cash fares are paid by transients in the city who do not care to avail themselves of the reduced rate ticket.

A conductor in his day's work will sell on an average of from 250 to 300 tickets, and of all the tickets sold 80 per cent are sold on the cars. Ticket sellers on the street and on the cars operating to Saco and Old Orchard sell about 10 per cent of the total, and from 10 to 12 per cent are likewise sold by the ticket agents in the Monument Square waiting room.

FINANCIAL RESULTS OBTAINED

The present schedule of zone fares is the third that has been in effect during the past year, these schedules being:

On Aug. 2, 1918, the copper-zone system with a central area was established and continued in operation



until March 2, 1919, when the central area previously established was cut up into three belts or zones and the rates of fare established at 3 cents per zone—or 2 cents if tickets were used. This plan continued in operation until June 15, 1919. All of these different schedules produced more revenue than the original 5-cent fare, but due to the fact that wage increases to motormen and conductors and the steady increases in the cost of materials so increased the cost of operation, the net operating revenue in reality decreased all the time, and made it necessary to change radically the basis of fares so there would be a greater increase in revenue than in the cost of operation. The chart on page 624 shows the relationship between the earnings per car-mile and per car-hour as well as the expenses per car-mile and per car-hour for the past two years. The chart likewise is marked so as to show the fares in effect during various periods, and should be of much interest to those who are trying to determine what different scales or rates of fares are likely to produce.

A comparison of some of the increases shows that in the first month of operation, August, 1918—passenger revenues increased 1.27 per cent over August, 1917, whereas the passenger revenue per car-mile and per car-hour both showed 14 per cent increase over the previous year.

Taking the whole period of operation, that is from Aug. 2, 1918, to March 2, 1919, when the second system of fares was put in effect, the financial results showed

REPORT OF TICKETS SOLD AND RECEIVED									
DIV.					LINE DATE				
KIND OF TICKETS	ON HAND		TICKETS RECEIVED		BAL ON HAND		No. of Tickets Sold	Per Price	AMOUNT FOR TICKETS SOLD
	Start	End	No. of Tickets	Start	No. of Tickets	Start			
35c-15 ZONE									35
35c-5 RIDE									35
70c-5 RIDE									70
DESCRIPTION OF TICKETS	NO. RECEIVED	UNIT VALUE	TOTAL VALUE	AMOUNT OF TICKET SALES					
33c-15 ZONE	35			1c RECD WITH 6c TICKETS					
35c-5 RIDE	25			2c RECD WITH 5c TICKETS					
70c-5 RIDE	70			2c RECD WITH 5c TRANS					
6c STRIP TICKETS	06			9c CASH FARES					
5c STRIP TICKETS	35			3c CASH FARES					
SCHOOL-MUNICIPAL	04			TOTAL CASH					
SCHOOL-P & Y	07								
ORIGIN TICKETS	07								
TOTAL TICKETS									
TICKETS NOT REGISTERED									
TRANSFERS-LOCAL									
TRANSFERS-B & S									
FARES									
TOTAL									

CUMBERLAND COUNTY POWER AND LIGHT COMPANY RAILWAY DEPARTMENT									
Div.					Line Date				
TRIP NO.	Car No.	Miles	Hours	Station	Initial	Final	Initial	Final	Rate
1									
2									
15									
TOTAL									
MOTORMAN _____ CONDUCTOR _____ No.									

FACE OF CONDUCTOR'S DAY CARD

REVERSE SIDE OF CONDUCTOR'S DAY CARD

the last schedule shows that with an actual increase in the unit of fare from 5 to 7 cents, that is, a 40 per cent increase, the passenger revenue increased 32 per cent over the corresponding months of 1918. Passenger revenue in each year constituted 95 per cent of the total operating revenue. Car-mile passenger revenue which, in the month of July is exceeded only by that of the month of August, showed an increase of 10.89 cents or 33.4 per cent over the corresponding months of 1918. Car-hour passenger earnings increased from \$2.94 to \$4.05 or 37.7 per cent for the same period. This system affords by far the largest increase in revenue and can be said to hold the traffic far better than some of the schedules previously tried, although it might be said that this is largely due to the publicity and educational campaign carried on by the company to show the people the correct status of affairs.

OTHER FARE SCHEMES TRIED SINCE JULY, 1918

For the copper-zone system effective Aug. 2, 1918, the theoretical increase was 20 per cent and it was estimated to return 60 per cent of the theoretical increase, which amounted to \$185,700. The actual results were far less than estimated, being less than \$4,000 a month, and on analysis it was found that the sale of transfers on the three so-called "Island lines," that is on the lines that were entirely within the central area, provided \$1,400 per month of the increase.

an increase only of 3.42 per cent in passenger revenue with about 15.5 per cent increase in passenger revenue per car-mile or per car-hour. Decrease in traffic during this same period caused a decrease of 246,000 and 26,000 respectively in car-miles and car-hours, or about 11.5 per cent. This accounts for the increase in car-mile and car-hour earnings without any material increase in gross revenue.

The schedule of fares in effect between March 2, 1919, and June 15, 1919, was the first real zone system tried out and had a 10-cent cash fare with a 4-cent rebate and a minimum fare of 3 cents per zone with a 1-cent rebate. Tickets sold five for 30 cents made the fare 6 cents for regular patrons. Under this fare system passenger revenue increased \$46,000 or 17.3 per cent and car-miles operated were still further decreased 61,700 or 6.43 per cent. Car-hours were decreased about 8500 or 8.04 per cent. This decrease in car-miles and car-hours was not brought about by a cut in service but by the elimination of layovers in schedule runs; the average speed in miles per hour being increased from 9.12 in 1918 to 9.3 in 1919. The revenue per car-hour increased 27.8 per cent, while the revenue per car-mile increased only 24.4 per cent.

This article was prepared from information furnished by A. H. Ford, vice-president and general manager, and George T. Fisher, general superintendent.

## Zone Fares in Springfield

Are based on central city zone with outer zone belts and two reduced-rate tickets to points in first outside zone—Pay-enter and pay-leave system of fare collection

**S**PRINGFIELD, MASS., in August, 1919, had in effect a schedule of fares based on a central area with an outer belt or zone in which a second fare was charged. The rate per zone was 6 cents with two overlapping ticket rates from the central area amounting to 37.5 per cent reduction in fare to points approximately 5 miles from the center of the central area, and 23.2 per cent to the end of the second zone.

The Springfield Street Railway owns and operates twenty-three routes over 187.5 miles of track. It is not a city system entirely, but operates lines into interurban or rural territories. The road is divided into three divisions, Springfield, Westfield and Palmer. The Springfield division takes in all of that city and the adjacent towns of West Springfield, Longmeadow, East Longmeadow, Agawam, Ludlow, and the city of Chicopee. The Westfield division connects at West Springfield with the main line extending through Westfield and Russell to Huntington, and includes the local lines in the city of Westfield itself. The Palmer division connects at Indian Orchard, and takes in the lines of Palmer, Monson, and Ware, with the main line extending to Brimfield through Wilbraham and Palmer and then on to Worcester.

Through service is given to Holyoke in connection with the Holyoke Street Railway; to Hartford in connection with the Hartford & Springfield Street Railway; and to Worcester, in connection with the Worcester Consolidated Street Railway.

The mileage and population served are shown in the following table:

Division	Miles of Track	Per Cent of Total Mileage	Estimated Population Served 1915	Per Cent of Total Population
Springfield*	115.07	61.4	158,975	76.70
Westfield	27.96	14.9	20,942	10.12
Palmer	44.47	23.7	27,275	13.18
Total	187.50	100.0	207,190	100.00

\*Has 61.5 square miles area.

On May 1, 1918, ten months after filing, the Massachusetts Public Service Commission approved a new tariff, which reduced the length of ride possible within



CITY HALL, SPRINGFIELD, MASS.

the central area of the city of Springfield from a maximum of approximately 15 miles to one of 7 miles

The zone limits were located by taking Court Square as the center on a map of the Springfield division, and with the aid of a compass describing a circle having a radius of 3 miles and then spotting the nearest traffic points, of course exercising reasonable discrimination. This gave an area having an average track distance of 3.2 miles from Court Square to the outer limits of the central zone. The balance of the Springfield division was made into an outer zone belt, with the outside limits those of the former 5-cent fare, with the exception of the Westfield route where the limit was

extended from Tatham to the Westfield town line, a distance of 1.3 miles. The fare established, when the zones were first laid out, was fixed at 5 cents per zone, with two reduced-rate tickets, but due to increased cost of operation, particularly the cost of transportation, the company on Sept. 15, 1918, was again permitted to increase its fares to those now in effect, 6 cents per zone, with two overlapping reduced-rate tickets.

Table II shows the track system in miles from Court Square to the limits of the Springfield division, and how each route extending beyond the central area, Zone A, is divided into zones.

### TICKET PRACTICE IN SPRINGFIELD

The nearest zone limit to Court Square is on the Brightwood line to Chicopee, and is fixed at a distance of 2.28 miles. This point was chosen for two reasons, viz.; Had it been placed farther out Chicopee would not have the advantage of a single fare within its own limits; the territory immediately beyond the zone limit which is the Springfield city line is sparsely settled and so would be of small advantage in any event. Similar conditions governed the fixing of the limits on the Glenwood and Liberty Street lines to Chicopee and Chicopee Falls.

The longest distance from Court Square within the central area is on the St. James Avenue line. This limit was placed at the Westinghouse plant, which when the fare schedule was laid out, was employing a large number of men and women on government con-

TABLE II—SPRINGFIELD STREET RAILWAY FARE SYSTEM, IN MILES, FROM COURT SQUARE

Route	Central Zone Fare Limit		7½c. Ticket Limit		Outer Zone Limit 9½c. Ticket	
	Distance from Court Square, Miles	Point	Distance from Court Square, Miles	Point	Distance from Court Square, Miles	Point
Chicopee and Chicopee Falls:						
Via Liberty Street.....	3.155	City Line	4.595	All points in Chicopee and Chicopee Falls, except east of corner of Broadway and Main Street on Bircham Bend Line	.....	Springfield
Via Brightwood.....	2.284	City Line	4.262		.....	Chicopee Line via Bircham Bend only
Via Glenwood.....	2.747	City Line	4.135		.....	
Via St. James Avenue (East Springfield).....	3.653	Cottage Street and Paige Boulevard	5.763		8.610	
Ludlow.....	3.201	Pine Street (St. Michael's Cemetry)	4.505	Harvey Street	8.371	End of line
East Longmeadow.....	3.155	City Line	5.081	End of Line	.....	.....
Longmeadow.....	2.874	City Line	.....	Gates House	6.136	Mass.-Conn. State Line
Agawam.....	3.350	Agawam Bridge	5.474	Agawam Cemetary	7.759	Mass.-Conn. State Line
Feeding Hills.....	3.350	Agawam Bridge	5.210	O'Brien's Corner	7.794	End of Line
Westfield.....	3.324	Silver Street, West Springfield	5.118	Tatham Turnout	6.235	West Springfield-Westfield Line
Holyoke.....	3.504	County Club	.....	Wayside Avenue	6.262	West Springfield-Holyoke Line

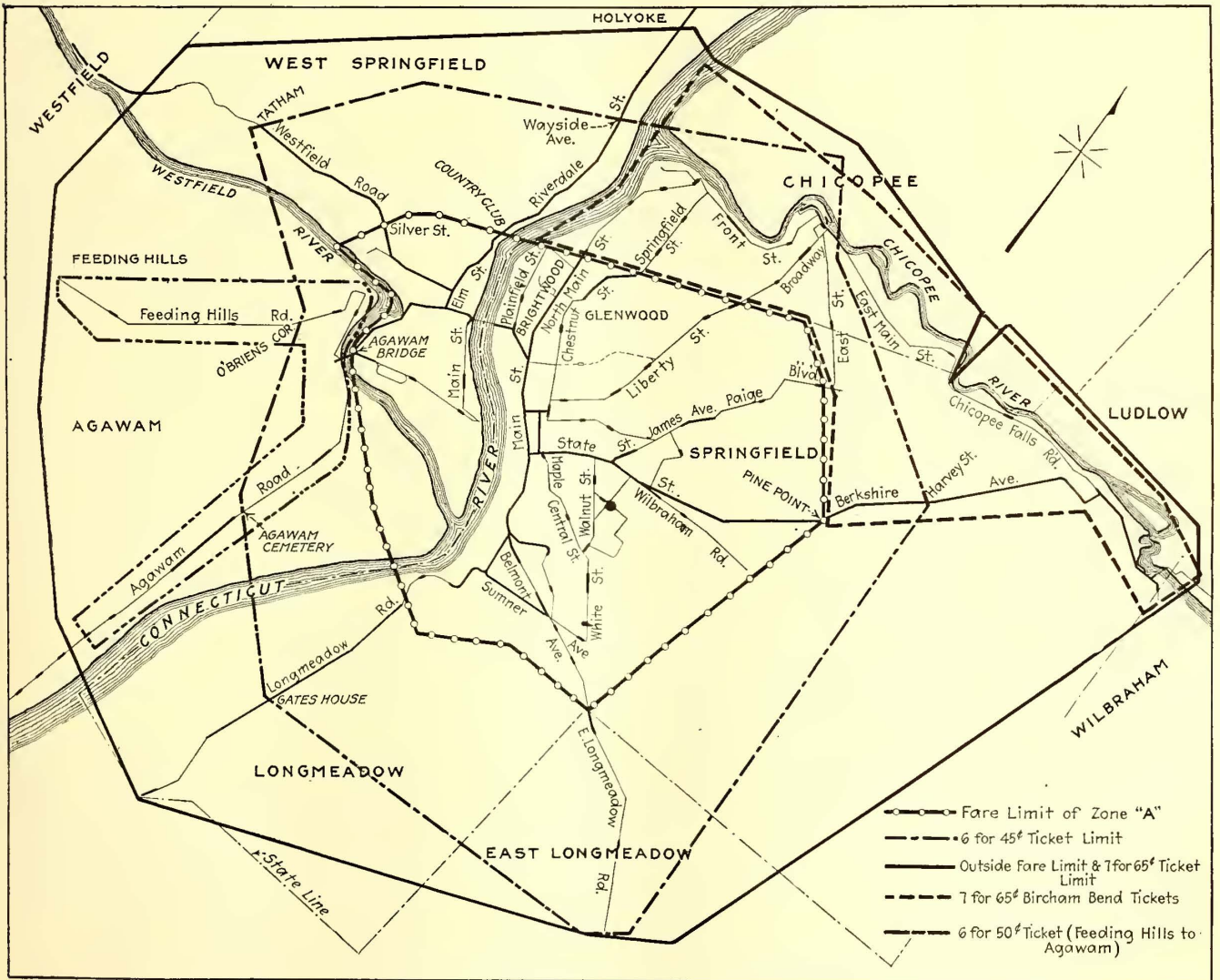
tracts. The distance is 3.65 miles. By having the zone limit at this point, it enables workmen living in Springfield or Chicopee to reach their place of employment for a minimum fare.

All zone limits and ticket limits are indicated by yellow bands painted on street poles about 5 ft. above the ground. These bands are about 3 ft. in width, and show up very prominently.

The Massachusetts Public Service Commission in approving new layouts for fare zones has always taken

the stand that unless the "copper zone" system is established, reduced rate tickets must be sold to points between the central zone and the first outer zone, this being so the fares of regular riders are not unduly increased, and the loss in traffic is kept as small as possible.

Two general classes of reduced rate tickets are sold at some fifty agencies in and around the city and suburban towns. Conductors on cars do not sell any form of tickets, whatsoever. Six-ride coupon tickets are sold for 45 cents. These tickets give a maximum ride



LAYOUT OF SPRINGFIELD DIVISION AND FARE ZONES

SPRINGFIELD STREET RAILWAY COMPANY  
7 CONTINUOUS RIDES  
between  
ZONE A-1 (CHICOPEE) Via Broken Bond  
and  
ZONE A-2 (LUDLOW) & (PINE POINT)  
Subject to Conditions Printed on  
Reverse Side  
NOT TRANSFERABLE  
This Feature of Ticket MUST be Collected with Last Coupon

Form 291-8  
15M-8-18

30

SPRINGFIELD STREET RAILWAY COMPANY  
6 CONTINUOUS RIDES NO Cts.  
between  
ZONE A-5 (AGAWAM) (State Line)  
and  
ZONE A-6 (AGAWAM) (Feeding Hill)  
Subject to Conditions Printed on  
Reverse Side  
This Feature of Ticket MUST be Collected with Last Coupon

Form 318-B  
10M-4-18

45

GLOBE TICKET COMPANY, PHILA., Pa.

ROUTES NO.  
1-2-3-4A-4B-5-6-7  
8A-8B-9-13-14-16-17  
19-21-22-23-24-26

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24
25	26	27	28	29	30	31					

Transfer Ticket Issued by  
Springfield St. Ry. Co.

856700

GLOBE TICKET COMPANY, PHILA., Pa.

FROM  
KING &  
GLENWOOD (CHICOPEE)  
LINE

ROUTE NO. 3

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24
25	26	27	28	29	30	31					

Transfer Ticket Issued by  
Springfield St. Ry. Co.

534140

SPRINGFIELD STREET RAILWAY CO.  
Form 278 S  
ZONE 6 FARE 3  
SPRINGFIELD STREET RAILWAY CO.  
Form 278 S  
ZONE 6 FARE 2  
SPRINGFIELD STREET RAILWAY CO.  
Form 278 S  
ZONE 6 FARE 1

SPRINGFIELD ST. RY. CO.

If accompanied by contract ticket bearing same number, these coupons are good for ONE CONTINUOUS RIDE

U.S. Patent  
ZONE A (SEE GLENWOOD) and  
LIMITS OF ZONES A-1 to A-8  
Inclusive named on back, subject to conditions on last coupon  
Collect in Zone A Collect in outside Zone

Form 341-a FROM ZONE A TO ZONE A

039191 039191

- Seven-ride commutation ticket between Chicopee and Ludlow.
- Six-ride commutation ticket between State Line and Feeding Hills.
- Emergency transfer.
- Standard route transfer.
- Full fare ticket, seventeen rides for \$1.02.
- Seven-ride commutation ticket between Zone A and limits of first adjacent outlying zone.
- Six-ride commutation ticket between Zone A and points approximately 5 miles from Court Square.
- Employees' tickets.

SPRINGFIELD ST. RY. CO.

If accompanied by contract ticket bearing same number, these coupons are good for ONE CONTINUOUS RIDE

Between  
ZONE A (SPRINGFIELD) and  
points in ZONES A-1 to A-8  
Inclusive named on back.  
Collect in Zone A Collect in outside Zone

Form 315a FROM ZONE A TO ZONE A

00020 00020

Springfield Street Ry. Co.  
EMPLOYEE'S TICKET  
NOT TRANSFERABLE  
86 Good for one fare when attached to book of same number. Subject to conditions thereon. Form 106-9  
President

Springfield Street Ry. Co.  
EMPLOYEE'S TICKET  
NOT TRANSFERABLE  
87 Good for one fare when attached to book of same number. Subject to conditions thereon. Form 106-9  
President

Springfield Street Ry. Co.  
EMPLOYEE'S TICKET  
NOT TRANSFERABLE  
82 Good for one fare when attached to book of same number. Subject to conditions thereon. Form 106-9  
President

050452

Some Forms of Tickets and Transfers used in Springfield





of about 8 miles for 7½ cents, or less than 1 cent per mile. They are good between any point in the central zone "A" and a point in the first outer zone approximately 5 miles from Court Square, Springfield.

Seven-ride coupon tickets are sold for 65 cents, good between any points in the central zone and any point in the first outer zone. These tickets give a possible maximum ride of 11.5 miles for 9¾ cents, or practically 0.8 cent per mile.

These two kinds of tickets constitute the largest percentage of the tickets used, although other tickets are sold in order to provide a reduced rate from Chicopee to Ludlow, on account of the mill districts in the last named town, and also between separate parts of the town of Agawam. The first named ticket is sold in lots of seven rides for 65 cents, and the latter in lots of six rides for 50 cents.

CONDITIONS OF TICKET SALES

The conditions under which all of these tickets are sold are:

A continuous ride between points named thereon; coupons must be detached by, or in the presence, of the conductor, and are worthless unless attached to a contract bearing the same number; the contract portion of the ticket is not good for a fare, but is collected by the conductor with the last coupon. Transfers are issued on all tickets, with the exception of the six for

company also sells for \$1.02 pads of seventeen 6-cent coupons for the convenience of its patrons, who buy in quantities, each coupon representing one 6-cent fare.

All employees are entitled to receive free transportation on the cars of the company, and are furnished with a coupon pass book containing 102 coupons. Books can be renewed at the office of the company only upon presentation of the cover of the old book. One employee's coupon is collected for each 6-cent zone or fraction thereof traveled.

TRANSFERS AND HOW THEY ARE HANDLED

The form of transfer in effect is shown in an illustration on page 630. There is a separate form for each route, and the transfer points and destinations are arranged geographically for each direction.

Conductors assigned to regular day runs, before taking a car, obtain a sufficient supply of route transfers to last the entire length of time the car is out. This practice cuts in half the waste in unissued transfers. A conductor when taking a supply of transfers makes a record on the face of his day card of the lowest serial number issued to him. At relief points, the conductor who is being relieved turns over to the relief conductor all unissued transfers still in his possession and makes a record on his day card of the highest serial number which he has issued. The relief conductor makes his own record of opening numbers of transfers received.

FORM OF DAY SCHOOL PUPILS' TICKET

FORM OF EVENING SCHOOL PUPILS' TICKET

50 cents Agawam tickets, but only if requested at the time fare is paid. The so-called 7½-cent and the 9¾-cent tickets are printed in pads of six and seven leaves respectively, each leaf having two coupons. The last leaf of coupons is on green stock with the conditions printed on the back. The left hand coupon, which is tinted blue, is good only in Zone A, while the right hand coupon is good in outer zones to points printed on the reverse side.

The tickets good between Chicopee and Ludlow or in the town of Agawam are printed in strips, with a center stub, which is not good for a fare, on the reverse side of which are the conditions of sale. Coupons good in the same zone are printed consecutively on the same side of the center stub.

In addition to these special tickets the company is required by the Massachusetts laws to sell tickets in lots of ten at one-half the regular fare to pupils attending day and evening public schools, and also private schools giving equivalent education. To care for this requirement there are two distinct forms of tickets, one printed on white stock and the other on pink stock. Each coupon is good for a fare in a 6-cent zone. The

The conductor, who returns the car to the car house, turns in all unissued transfers in an envelope provided for that purpose, making records on the face of the envelope as required.

Conductors assigned to extra runs or trippers obtain a sufficient supply of transfers for such trips as are operated.

The time of arrival at transfer points is punched by conductors to the nearest five-minute period, and the destination, opposite the proper transfer point for the direction in which the car is traveling. On special transfers the transfer point and direction in addition to the time, must be punched.

Conductors found punching regular transfers "Emergency" other than those allowed (when line is blocked or proper destination is not provided on transfer or upon orders from proper officials), are required to pay full cash fare for all transfers so punched.

Passengers desiring to transfer to a car that does not pass a point on the route ridden are entitled to a transfer that will take them to the nearest transfer junction, and an issuing conductor in addition to punching the transfer for time and destination, punches out







instructions. In addition two punch marks are put in the space at the top of the transfer where the route number is printed. This indicates to the conductor collecting the transfer that the passenger is riding on a reduced rate ticket. When the passenger presents this transfer for fare the conductor requests the second zone coupon of the reduced rate ticket, and registers it on the ticket and transfer register, allowing the passenger to retain the transfer as an identification check. The transfer is collected and registered on the second collection in the place of the usually accepted second coupon ticket.

Conductors refuse to accept punched ticket-coupons for fare unless accompanied by a transfer punched in

boxes. In case the car becomes disabled on the road, and it is necessary to change off, fare boxes are shifted to the new car. On setback trips when crews change to regular time and regular car the fare boxes are also changed.

So far as the passenger is concerned closed cars are operated pay-as-you-enter outbound from Springfield, and pay-as-you-leave when inbound from Holyoke, and all passengers riding on these cars are required to pay for two zones; that is, 12 cents.

Conductors when taking charge of cars either at the car house or on the road fill out and deposit in their fare box an identification slip, showing the date, conductor's number, and name, line, etc. Notation is also

M. 1000-3-12-20M-M. E

**Springfield Street Railway Co.**

**FOR TRANSFERS COLLECTED ONLY**

**TO BE TURNED IN DAILY.**

---

Date .....

Run No. ....

No. Transfers Collected .....

---

Conductor's Name .....

Badge No. ....

FACE OF ENVELOPE FOR TURN-IN OF TRANSFERS COLLECTED

M 1521 7-19-30M-O'M

*Springfield Street Railway Co.*

**CASH AND TRANSFERS**

Run No. ....

Date. ....

Name..... No.....

Cash Received \$.....

Receiver.

---

**TRANSFERS**

Transfers Received .....

Receiver.

Conductors will make out slip for each Day Card. This slip to be signed by each receiver and deposited in box provided for that purpose.

FORM OF RECEIPT FOR CASH AND TRANSFER TURN-IN

M. 1000-3-12-20M-M. E

**Springfield Street Railway Co.**

**ONLY FOR TRANSFERS NOT ISSUED.**

---

Date .....

Conductor's Name .....

Badge No. ....

---

Ending No. ....

Commencing No. ....

Total Not Issued .....

FACE OF ENVELOPES FOR TURN-IN OF UNISSUED TRANSFERS

accordance with the above rules. Conductors when issuing transfers on reduced rate tickets explain to passengers why they must show both the transfer and cancelled coupon to the collecting conductor.

**LOCKED FARE BOXES ARE USED ON SPRINGFIELD-HOLYOKE LIMITED ROUTE**

In the Springfield-Holyoke Limited service Cleveland fare boxes are used when closed cars are operated. Open cars are usually operated during the warm summer days except during inclement weather. This route is jointly operated by two companies, and each has an equal number of cars assigned to the line. The Springfield Street Railway Company operates all cars to the West Springfield-Holyoke city line where they are turned over to the crews of the Holyoke Street Railway Company. Inasmuch as the rate of fare and the method of accounting used by the Holyoke company is entirely different from that used in Springfield, conductors in changing off also change overhead registers and fare

made on this slip as to the condition of the fare box tell tale, if in good order or otherwise.

Since all the cars on this route are operated express to the outer limit of the central area passengers on boarding a car in Springfield Zone A, are required to deposit fares to the second zone limit, the West Springfield-Holyoke city line. These fares may be 12 cents cash, 6 cents cash and transfer, transfer and outer zone coupon of 9 $\frac{7}{8}$ -cent ticket, two coupons of 9 $\frac{7}{8}$ -cent ticket, two 3-cent pupil's tickets, two regular 6-cent tickets, or two coupons from an employee's ticket book. Both cash and ticket fares are deposited in the fare box. Transfers are collected by hand, and reported in the regular manner by the conductor on his day card, but are not registered. Transfers collected on outbound trips from Springfield are placed in the regular transfer envelope and deposited on the next inbound trip in a box on the pole at the junction of Main and Carew Streets.

On inbound trips from Holyoke, conductors, after tak-





ing the car, immediately go through and issue transfers on request and at the same time make change so as to reduce to a minimum the time required for the payment of fare on alighting from the car. Conductors, so far as possible, considering the lack of overhead registers, keep the same day-card records.

When open cars with two registers are operated, conductors make but one running board collection of the full fare to destination as outlined above. Cash fares

another form is for use on regular prepayment type cars having International fare boxes as part of their equipment.

On the face of the day cards conductors keep the usual records of destination, time and fares collected in each zone, and for convenience in keeping records ordinarily turn back the trip dial on the overhead registers at each 6-cent zone limit. The time worked by the car crew, together with conductor's and motorman's name and

M 2092 11-18-50M-03M		<b>PREPAYMENT DAY CARD</b>				PUNCH HERE <input type="radio"/>	
<b>SPRINGFIELD STREET RAILWAY COMPANY</b>						.....Division	
Run No.....		Conductor.....		Badge No.....		Date..... 191.....	
Motorman.....		Badge No.....		Route.....		Motorman.....	
Badge No.....		Motorman.....		Badge No.....			
<b>CASH REGISTERS</b>				<b>TICKET AND TRANSFER REGISTERS</b>			
Car Number.....		Register No.....		Car Number.....		Tkt. & Trfr. Reg. No.....	
" Ending \$.....		" Starting \$.....		" " " Ended.....		" " " St'rt'd.....	
Cash Reg'd \$.....		Fares.....		Registered.....			
Car Number.....		Register No.....		Car Number.....		Tkt. & Trfr. Reg. No.....	
" Ending \$.....		" Starting \$.....		" " " Ended.....		" " " St'rt'd.....	
Cash Reg'd \$.....		Fares.....		Registered.....			
Transfers Ended.....		" Started.....		" Issued.....		Car Taken..... M. Car Left..... M.	
						M. Total Cash Fares Registered.....	
						M. Total Tickets and Transfers Registered.....	
						Total Time Worked.....	
						Total Passengers.....	
Specify Terminal Points and Exact Time of Arrival and Departure				Fares on Registers at Turning Points		TRANSFERS	
Starting Point		Time		Terminus		Time	
Car No.		Motor-man's No.		Cash		Total	
1st Col.		2nd Col.		1st Col.		2nd Col.	
Total Cash Fares Regd.		Total Tickets & Trfrs. Regd.		Revenue Tickets		Free Passes	
Col-lected		Issued		Reading		Mileage	
1							
2							
11							
<b>TOTAL ALL COLUMNS</b>							
Cash Fares.....@ c. \$.....							

FACE OF DAY CARD USED ON PREPAYMENT CARS

of 12 cents are rung up on a 6-cent cash register, two rings for each fare collected, and each ticket coupon or transfer is rung up on the ticket and transfer register.

**RECORDS KEPT BY CONDUCTORS**

Each car is equipped with a car register card on which conductors record the "taking" and "leaving" numbers of all fare collection registering devices. Two forms of car cards are used, one being for cars equipped with fare boxes, and the other for cars carrying but two overhead registers.

The form of day card used depends on the fare collection devices on the car, two forms being available for use on the cars having two overhead registers, while

number is also kept. On the reverse side of the day card the conductor keeps a record of all honored pass numbers of passengers that are rung up on the overhead registers. This covers Massachusetts Public Service Commission inspectors riding on card passes. These numbers are kept by 6-cent zones ridden so as to allow the accounting department to keep a true record of all zone riders.

At the Hooker Street carhouse a 12 x 12 ft. room has been fitted up with shelves for the storage of current transfer stock. Space is also provided for a V-notching machine and it is the duty of the clerk on the night shift to notch out the month and date of a sufficient quantity of transfers for the day's use and to have





them all sorted out and ready to be signed off to conductors with a minimum of delay when the conductor reports for duty. To facilitate sorting of the transfers a portable rack is used which can be pulled up to the window where the transfers are issued. A separate record form for each route is kept showing run number, conductor's number, serial numbers of transfers, and the quantity issued to each conductor.

All unissued transfers, having been put in the transfer envelope by the conductor on returning the car at night, are checked off by the car house receiver, the differences are then totaled to show the numbers of transfers issued during the day. This amount is then checked against the conductor's day card for verification.

The company is establishing a new practice in making

The checking plan contemplates that these forms will be made out in duplicate by the examiner, one copy being sent to the conductor at fault and the other filed away in his record envelope by the superintendent.

Conductors on completing their runs foot up their respective day cards and turn in all cash and tickets to a carhouse receiver. They receive a receipt from the receiver for the total amount of cash and number of transfers turned in. It is the rule of the company to allow a conductor one-half hour for making this turn-in—15 minutes was formerly allowed prior to the fare schedule calling for so many tickets—which on the request of the local union was however increased to one-half hour.

Conductors are also required to make up a ticket envelope showing the different kinds and number of

Badge or Pass Number Record of Free Passengers Not Registered										
TRIP NO.	STARTING POINT	TIME	TERMINUS	TIME	BADGE OR PASS NUMBERS					
1										
2										
3										
10										
11										
REMARKS _____										

REVERSE SIDE OF BOTH FORMS OF DAY CARD

a definite endeavor to check as many of the transfers collected per day as possible, checking not only the manner in which they have been issued but also their acceptance. A form was prepared to cover many of the discrepancies practised in the collection and issuance of transfers by conductors so that the examiner could more readily standardize the complaints lodged against them. The system has not been in effect a sufficient length of time for the examiner to become fully accustomed to all the different transfer points and junctions on the system and to be able to really determine all that can be accomplished by the close checking of transfers. What checking has already been done has demonstrated that some benefits will accrue, for it has been found that a large number of conductors do not punch their transfers correctly and that others, in accepting transfers, do not seem to appreciate that each invalid transfer is just so much loss in revenue.

revenue tickets collected. Tickets are not put in the envelopes by the conductors but are turned into the receiver who puts them in a ticket counting machine and posts on cash receipt the number turned-in by the conductor. After the tickets have been counted they are put in the ticket envelope for future checking.

**FINANCIAL RESULTS OF OPERATION**

The schedule put in effect on May 1, 1918, calling for two 5-cent zones and two reduced rate tickets, was estimated to produce a total increase of passenger revenue of \$400,000, or 17.5 per cent based on the year ending June 30, 1917. Of this \$400,000 the Springfield division was to produce \$340,000. Actual results from operation during the first month this schedule was in effect showed a gain in passenger revenue of \$30,000 or 16 per cent over the previous year. The number of revenue zone fares collected increased 570,000 or 15.5





per cent while the number of transfer passengers carried decreased 83,000 or 13.82 per cent. Later months of operation failed to show such gains, these being approximately 11.5 per cent in revenue while the revenue zone riders increased only 10.7 per cent and transfer passengers decreased nearly 25 per cent.

An increase in wages awarded in September, 1918, by H. B. Endicott, then executive manager of the Massachusetts Public Safety Committee, called for an increase of \$400,000 per year in expenses. The schedule of fares established on May 1, 1918, had also failed to earn

riders of 4.7 per cent and a decrease of 14.5 per cent in transfer passengers. In regard to the decrease in transfer passengers carried, some of this can be attributed to the perfection of the transfer system over the previous year. The month of August, 1918, the second month of the new transfer schedule, showed a decrease of 37 per cent in transfer passengers, while the month of June, with the old transfers, showed only 26.4 per cent. It would therefore seem that the new transfers cut down the transfer abuse and decreased the number of transfer riders nearly 12 per cent.

<b>SPRINGFIELD STREET RAILWAY COMPANY</b>																						
M 2239 5-19-3M-O'M		Run No.....			Cond.....			Badge No.....			Date.....			Mot.....			Badge No.....			PUNCH		
Route.....		" " " " " "			" " " " " "			" " " " " "			" " " " " "			" " " " " "			" " " " " "			" " " " " "		
<b>6c CASH REGISTERS 6c</b>																						
<b>TRANSFER READINGS</b>																						
Car Number		Register No.			" Ending			" Starting			Fares			Transfers Ended			" Started			" Issued		
Car Number		Register No.			" Ending			" Starting			Fares			Car Taken.....M.			Car Left.....M.			Total Time Worked.....M.		
<b>TICKET AND TRANSFER REGISTERS</b>																						
Specify Terminal Points and exact time of Arrival and Departure				CAR NO.	Motor-man's No.	FARES ON REGISTERS AT TURNING POINTS						Total Revenue Tickets	FREE PASSES	TRANSFERS			MILEAGE					
STARTING POINT		Time		TERMINUS		Time		1st Col.	2nd Col.	3rd Col.	Total Cash Fares Registered	1st Col.	2nd Col.	3rd Col.	Total Tickets & Transfers Registered	Collected	Issued	Reading				
1																						
2																						
11																						
12																						
TOTAL OF ALL COLUMNS																						
Cash Fares @ .06, \$																						

FACE OF DAY CARD USED ON NON-PREPAYMENT CARS

its estimates by 25 per cent and in order to comply with the award the company again petitioned for an increase in fare. On Sept. 16, 1918, the 5-cent zone fares in the Springfield division were increased to 6 cents and the reduced-rate tickets to points in the outer zone, from 6 $\frac{3}{8}$  to 7 $\frac{1}{2}$  cents and from 8 $\frac{3}{8}$  to 9 $\frac{7}{8}$  cents. This increase, it was estimated, would increase the passenger revenue \$208,839, or a little less than 10 per cent.

Actual results from operation, however, show that the passenger revenue increased 31 per cent in April, 1919, over April, 1918, the last month of the universal 5-cent fare in the Springfield division, while the number of revenue zone fares increased only 9.5 per cent and transfer passengers decreased 26 per cent.

Comparing the first two months operation of the 5-cent zones with the corresponding months of the following year with 6-cent zones, shows that a 20 per cent increase in zone fares produced an increase of only 12.8 per cent in passenger revenue, a falling off in zone

Due to a further increase of 32.5 per cent in wages granted in August, 1919, by Henry B. Endicott to all employees the company has been forced to file a new petition with the Public Service Commission for additional increases in rates to make up the increased cost of service. The company contemplates keeping the zone system and establishing a 7-cent cash fare with a 6 $\frac{1}{2}$ -cent ticket and a special 10-cent rate between Springfield and Chicopee. These rates, however, are subject to the approval of the Public Service Commission.

On the whole it can be said that the two schedules of zone fares tried have increased the revenue over the previous schedule. It is felt, however, that the reduced rate tickets and transfers offer large opportunity for improper use. The company by agreement with its employees is forced to register each fare collected and inasmuch as all ticket and transfer fares, whether valued or not, are rung up on the same register, it is difficult properly to check the work performed by the conductors



## Zone-Mile System of the Public Service Railway

Full details are given of how the zones are laid out, how the fares are collected, and how the trainmen and public were educated to the new plan



COURT HOUSE IN NEWARK, N. J.

**O**N SUNDAY, Sept. 14, 1919, the new zone fare plan of the Public Service Railway, authorized by the Public Utility Commissioners of New Jersey, went into effect. The plan provides a fare of 3 cents for the initial zone on any car and 2 cents thereafter for each zone or fraction thereof traversed, and with 5 cent zones on three routes, operating over heavy grades where pleasure resorts are located at short distances from terminals. School tickets are sold at the same rate and in the same places as heretofore.

The first day's operation proved successful, except that on lines where the travel was heavy some loss in schedule was caused by both the public and the trainmen not being entirely familiar with or accustomed to the working of the system. However, in the opinion of the management, no fundamental difficulties developed and the existing causes of friction will disappear after the public and men become more fully versed in the operation.

The real test of the system came on the first Monday morning rush, which was aggravated to some extent by inclement weather. In anticipation of delay in the operation of the pay-leave plan, ticket sellers handling full fare tickets, which were sold singly or in strips of ten, were assigned to board cars terminating at heavy loading points not having post-payment areas. Material advantages were gained from this innovation, for at points not covered by ticket sellers there was some delay in unloading and the schedules became considerably disarranged, due to passengers not knowing the fare and the slowness of conductors in making calculations. Except for violence in the southern division, which started

on Monday morning, by shipyard employees wrecking cars so as to evade payment of fare, things went as planned. On Tuesday the violence in Southern New Jersey continued and although confined to Camden and vicinity became so general that the trainmen of that division refused to operate the cars and on Wednesday it was necessary to enlist the aid of the authorities to patrol the streets over which the cars operated.

From the results obtained in Northern Jersey, however, the company is enthusiastic over its ultimate outcome and predicts that within a very short time the newness will wear off and the plan will then be much liked by all its patrons. At the time of going to press the car riders have become sufficiently acquainted with the plan so that crews are able to maintain their schedules without much difficulty, and the company looks forward to successful operation of the plan.

The Public Service Railway is one of the largest electric railway properties in the United States and operates in over 140 different municipalities having a combined population of slightly over 2,000,000 people. The company for convenience of operation has divided the property into six divisions. To care for the traffic originating on the system about 1400 cars are operated daily from twenty-eight different car houses, requiring a force of 4100 trainmen.

Zero or starting points were taken at Edgewater terminal; Hudson Place terminal; Exchange Place terminal; Federal Street Ferry terminal; Main and Market Sts., Paterson; Railroad Arch, Elizabeth; Albany and George Sts., New Brunswick, or at West Front and Somerset Sts., Plainfield, points where a very large pro-

portion of the traffic either originates or terminates.

In starting from these zero points, zones of approximately 1 mile in length were laid out as nearly as possible, departure from this distance being made only in cases whereby a reasonable exception would bring the location of the zone point at a natural traffic dividing line, such as an intersection with another route, or a point of heavy loading due to the existence of traffic controlling industries, a railroad station or the like. In general, a tolerance of 500 ft. was adopted in either direction. Wherever possible, former transfer junction points and other heavy loading points were fixed as zone limits. In cases where cars operate between common points but via different routes, the number of zones on each route has been made the same, holding, however, to the standard length on the shorter of the two routes. All routes jointly using the same track have been zoned so that the limits are common to all routes passing that point, this becomes necessary not alone as a protection to the company's patrons, but as an

point or in fact at similar points in other parts of the system, gets out at the near side and that those who remain are going to points considerably beyond.

#### EDUCATION OF CAR RIDERS AND TRAINMEN

Immediately after the promulgation of the order of the commissioners on Aug. 1, 1919, giving both a definite rate and effective date, steps were taken to utilize all possible means of publicity and to that end plans were formulated for newspaper advertisements, supplemented by posters and leaflets in the cars, dashers on the fronts of the car vestibules, as well as moving pictures in the various theatres on the system.

Newspaper advertisements had been carried in all daily and weekly publications throughout the entire system since the company had submitted its report to the Commissioners to place before the people the merits and necessity of the zone system and to show that it was by far the most equitable basis for fares, due to the fact that it required a passenger to pay only for the

**RIDERS WILL BOARD  
CARS AT  
FRONT END  
AND LEAVE AT  
REAR END  
UNDER THE ZONE PLAN  
Effective Sept. 14**

**BEGINNING SEPT. 14  
—  
PAY-AS-YOU-LEAVE  
UNDER THE ZONE PLAN  
INSTEAD OF  
Pay-As-You-Enter**

**GET ZONE CHECK  
FROM MOTORMAN  
GIVE TO CONDUCTOR  
WHEN PAYING FARE  
PAY-AS-YOU-LEAVE**

POSTERS CARRIED IN CAR VESTIBULES PRIOR TO INAUGURATION OF ZONE-FARE PLAN

aid to the company in the proper collection and registration of fares. In all 510 zones were laid out. All zone limit poles are marked by a yellow band on the pole at the right hand side of roadway. On the side of the pole is stencilled the approaching zone number in 6-in. black letters. Where vision of the poles is obscured by trees, etc., a sign is suspended from the trolley span wire. On joint routes the number of the zone for each route appears on a bracket hung from the face of the pole. It is a rule that passengers riding beyond the zone point must pay for that zone, but at junction points such as Broad and Market Sts., Newark, where the zone limit has been extended in all cases for alighting passengers to the far side of the crossing, and the reverse is true for boarding passengers who are allowed to get on at the near side of the crossing.

The company points out that this is not an arbitrary ruling but is determined by statistics which show that practically every passenger wishing to alight at this

**ENTER FRONT  
EXIT REAR  
PAY AS YOU LEAVE**

CAR DASHER

ride taken. A full account of the publicity carried on by the company was given in *ELECTRIC RAILWAY JOURNAL* for Sept. 6, 1919, page 484. After the Utility Board had rendered its decision, the newspaper advertisements were utilized to explain the proposed methods of boarding and leaving cars, and how passengers should pay their fare and to pointing out that the new plan of boarding and leaving cars was but a change in habit and a reversal of former procedure. The company plans to continue this class of advertising as long as the necessity for public information through the press continues.

More than 3,000,000 leaflets, separated as to routes and bearing the zone points were printed and were put in the "Take one" boxes in all the cars, commencing Sept. 1, 1919. Signs were also displayed to supplement the signs on the boxes, reading, "Zone limit leaflets in boxes: Take one.". Plans are for three weeks' distribution of these leaflets, and it hoped that



in that time all passengers riding regularly on the various routes will become familiar with the zone locations and the fares between their regular points of travel.

Commencing Aug. 31, a series of posters was carried in all the car vestibules, explaining the procedure to be followed in boarding and alighting from cars after the zone fare plan becomes effective. These posters were changed weekly and on the effective day the third poster of the series was displayed. The poster will be carried for some time to come on all the cars.

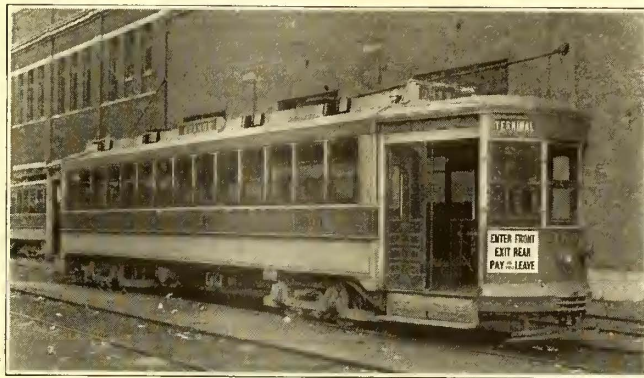
In addition to these posters all cars have, since the day the zone fares became effective, carried a large dasher sign on each end, printed in type sufficiently large to be easily read by people on the sidewalk.

During the week prior to the inauguration of the plan, moving pictures of "Taking a Trolley Ride" were displayed in some ninety moving picture houses throughout the system. These pictures give in complete detail

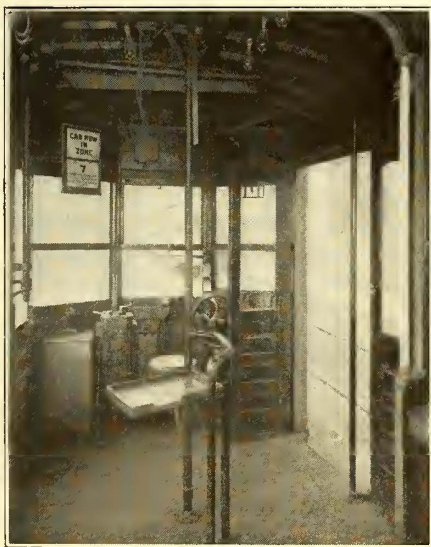
In the early part of August a general meeting of division superintendents, supervisors, carhouse foremen, inspectors and those who had been selected as instructors was held at the assembly hall in the Public Service Building, Newark, where the plans for instructing the rank and file of the men on the cars as to the fare collection methods on the various routes was explained in detail.

This plan was to equip eight or nine cars with the actual fare collection devices and send them around to the various carhouses in charge of some member of the general instructing force. At each of these car-

houses all the trainmen were called to the car, and the fare collection scheme was thoroughly explained in detail and demonstrated, so that each man whether motorman or conductor had individual instruction as to his duties. After this demonstration all trainmen were given a special questionnaire on the zone system which they were required to fill out and turn in to the depot



SHOWING SIGNS ON FRONT DASHER OF CAR



VIEW OF FRONT VESTIBULE—TRAY FOR HOLDING CASH REGISTER IS NORMALLY ON REAR PLATFORM



FRONT ENTRANCE SHOWING ZONE INDICATOR FROM STREET



ARRANGEMENT OF REAR VESTIBULE SHOWING CASH REGISTER AND ZONE INDICATOR

all the enjoyments of taking a trolley-ride, showing in sequence of happening how a passenger should conduct himself from the time of boarding by the front end of the car and receiving zone check from the motorman, entering and taking his seat as near the rear of the car as possible, signaling for his stop at his destination, immediately paying the conductor the fare as shown on the reverse side by the zone check and then, when the car is at his destination, being ready to leave without further delay as soon as the conductor opens the rear door.

instructor, and in case the answers were not given correctly it was his duty to take the man in hand and see that he was thoroughly acquainted with the necessary details. The company took every means possible to insure that a man did not go to work after the zone system became effective unless he had been properly instructed and could answer the questionnaire. All new men were put through the regular instruction schools maintained at various points.

Two printed booklets were issued to all concerned—the first of which was in the early part of August



**GET ZONE TICKET FROM MOTORMAN**      **PAY AS YOU LEAVE**

**ZONE FARE PLAN**  
**PUBLIC SERVICE RAILWAY**  
 EFFECTIVE SEPTEMBER 14, 1919.

**Board Car at Front End—Leave at Rear End**

Each line is divided into Zone Miles. Passengers will board car at Front End only. Each passenger will receive from motorman a Zone Ticket with number of zone in which car is boarded. Number of zone in which passenger gets on car will be plainly shown on front platform. To leave car passengers will go to rear platform. Signal for stop in usual way. Passengers will surrender numbered Zone Ticket to conductor when leaving car. The fare is 3 cents for any part of first zone and 2 cents for each additional zone, or part thereof, in which a continuous ride is taken. The number of Zone in which passenger leaves car will be plainly shown on rear platform. Fares will be collected as passenger leaves car, according to length of ride as shown by Zone Ticket presented by passenger. Rates of fare will be conspicuously posted. The co-operation of the riding public is earnestly solicited in the carrying out of the Zone Plan in order to provide quick and safe service.

**BOARD CAR AT FRONT END  
 HOLD YOUR ZONE TICKET  
 HAND TO CONDUCTOR ON LEAVING  
 PAY AS YOU LEAVE REAR END  
 (SEE OTHER SIDE)**

**Fare Zone Limits**  
 — ON —  
**WEST SIDE LINE**

BETWEEN	AND	ZONE No.
Sip Ave. Terminal (Summit Station)	Montgomery St. and Bergen Ave.	1
Montgomery St. and Bergen Ave.	Communipaw and West Side Aves.	2
Communipaw and West Side Aves.	End of Line, Culver Ave.	3
(Trippers)		
Sip Ave. Terminal (Summit Station)	Montgomery St. and Bergen Ave.	1
Montgomery St. and Bergen Ave.	Communipaw and West Side Aves.	2
Communipaw and West Side Aves.	Hackensack River & Lincoln Highway	3
Hackensack River & Lincoln Highway	End of Line, (Fed. Ship. Co.)	4

**PUBLIC SERVICE RAILWAY**

**READ CAREFULLY**

The zone-mile system of fare collection will be installed on all lines on Sunday, September 14, 1919.

The full co-operation of all trainmen is necessary in order that the new system may be operated smoothly and efficiently.

Under the zone-mile system, each passenger will pay a fare proportionate to the distance he has traveled. All lines have been divided into zones. These zones are about one mile in length. The points at which zones begin are marked by yellow bands painted on poles. On the yellow band the number of the zone is shown. At points where more than one line of cars is operated, this number will appear on a bracket hung from the pole, the number of the zone for each line being shown.

You should immediately learn the zone points on your line. Remember that the number you see on the yellow pole, as you approach the zone point, is the number of the zone you are about to enter, and not the one through which the car is traveling.

Zone indicator cards which show the zone in which the car is traveling and also the rates of fare from all other zones, will be placed in all cars. One will be on the front platform for the information of the motorman and boarding passengers. Another will be on the rear platform, for the use of the conductor and of passengers paying fares.

All the motorman is required to do is to turn the zone indicator at each zone point and hand a ticket to each passenger as he boards the car.

As the car arrives at a new zone point, the motorman will change his zone indicator so that it shows the zone number of the zone he is entering, as shown on the pole at the zone point. Motorman will change his zone indicator before any passengers board the car at the new zone point.

Under the new system, all passengers will board cars by the front platform.

As the passengers board the car, the motorman will hand them each a ticket which will show the number of the zone in which they board. The form of ticket that is to be used is such that it will be easy for the motorman to issue the proper tickets to passengers, and as all passengers board while the car is stopped, this issuing of tickets will not interfere in

ZONE LEAFLETS PUT IN "TAKE ONE" BOXES IN CARS

PAGES FROM PRELIMINARY FOLDER ISSUED TO TRAINMEN

entitled "Facts About the Zone System for Motormen and Conductors" and covered in a general way that was explained more in detail in an appendix to the company's rule book which was given out a few days prior to the inauguration of the plan. Fac-simile pages of both these booklets are reproduced herewith to show the manner in which they were prepared. The first booklet mentioned had an added feature of two blank pages that proved of material value for making notes. These pages were headed "Memorandum—Note any questions that may occur to you and ask your supervisor."

Johnson registering fare boxes and two or three overhead registers depending on whether or not they operated into either postpayment or prepayment terminals.

**THE CAR EQUIPMENT ADOPTED**

The company however plans in the next thirty or forty days to change over and equip all cars operating on routes having more than three zones with cash registers. This will make about 1300 cars so equipped. The company's plans contemplate the continued use of fare boxes on all cars operating on short lines of three zones or less. One man cars and cars operated only in a single zone are operated as prepayment cars.

At the start two general plans of fare collection were effective. On 650 cars equipped with class 700 cash registers, two of the overhead registers formerly used were locked, and the cash register located in approximately the space occupied by the fare box. No change was made in the other cars as they carried

**GENERAL METHOD OF FARE COLLECTION**

All cars with the exception of two or three short-routes, entirely within a single zone, are operated under the pay-leave plan. Under this plan all passengers must board by the front and leave by the rear door. On boarding, the motorman issues a zone check torn from a pad in a holder at a point to correspond with the zone number in which the passenger boarded. A zone indicator, illustrated, is displayed at the left of the motorman to show the boarding passenger the number of the zone in which he boarded the car. This number must agree with that shown at the left end of the check he receives from the motorman.

<p><b>ZONE INDICATOR.</b></p> <p>Upon boarding car for his run, conductor must see that zone indicator is on rear platform and that it is properly set to indicate the number of the zone the car is about to enter. As the car leaves each new zone point, and AFTER all passengers have alighted who wish to leave the car in the zone in which the car has just traveled, conductor must change zone indicator to show the number of the zone the car has just entered as indicated on the pole at the zone point. Conductor must be sure to see that indicator at all times shows zone in which car is traveling.</p> <p><b>COLLECTION OF FARES.</b></p> <p>A passenger on leaving car at his destination, passes to the rear door and presents to the conductor the zone check handed him by the motorman. The number at the torn end of the zone check indicates the zone in which passenger boarded car. Conductor lifts this check and collects from the passenger proper fare for the number of zones in which he has traveled as indicated clearly on the schedule of fares shown on the zone indicator and on the zone check as well. If car is equipped with fare box, passenger deposits fare in fare box as at present.</p> <p>As conductor collects fares, he places zone check received, and also the ticket if such is presented) upon the file provided for that purpose which is close to his register or fare box. As car leaves zone point, conductor removes from the file the zone checks and tickets</p>	<p>collected in the zone just concluded and places them in an envelope furnished which bears a number corresponding to the number of the zone just passed through. He seals the envelope as soon as he leaves the zone point and marks on the outside of envelope the number of zone checks and tickets enclosed therein. If no zone checks or tickets are collected in a zone, conductor seals envelope for that zone as he leaves zone point, and marks envelope with a zero to indicate no checks or tickets collected. IT IS IMPORTANT THAT CONDUCTORS FOLLOW THIS PROCEDURE EXACTLY.</p> <p><b>REGISTRATION OF FARES.</b></p> <p>Conductors register each fare separately on the cash register, if car is equipped with cash register. If not, passenger deposits fare in fare box and fares are registered in accordance with procedure heretofore generally effective. EACH FARE MUST BE REGISTERED SEPARATELY. For instance, if one passenger pays for two or more persons, say fifteen cents for three five-cent fares, these must be registered on cash register, not altogether as fifteen cents but three times on the five cent key. On cars equipped with cash register, all tickets and passes must be registered on cash register by pressing the key marked "Ticket." Where fare box is used, tickets and passes will be registered as heretofore.</p> <p><b>LOST ZONE CHECKS.</b></p> <p>If passenger fails to present zone check, claiming that he has lost same</p>
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Zone checks are issued to all passengers on boarding except employees, policemen and firemen riding free in uniform or children under seven years of age when accompanied by an adult, irrespective of whether such passenger is paying cash fare or riding on a pass.

Tin boxes are supplied by the company to carry the supply of zone checks. These are marked by route and run number and are kept ready for service in special racks in each carhouse.

The motorman is held responsible for all zone checks issued to him, and in case one is mutilated by mistake when it is being torn off it must be retained and turned in along with the stubs and unused portion of pad. Motormen are not allowed to tear off more checks for a zone than they need for issuance in that zone.

Two checks of different color and a holder for each



are issued to each motorman for use on his route. One color denotes outbound trips and the other is used only on inbound trips. On an average a motorman during the day's work of nine hours will issue approximately 750 checks. The number at the left hand end of the check indicates the zone in which the passenger boards the car. As a convenience to passengers in learning the fares, and to enable them to have the exact fare ready when leaving the car, thereby avoiding delay not only to themselves but to following fellow passengers, there is set up in tabular form on the reverse side of the zone check the fare to all other zones on the same route to which it is possible for passengers to ride. For example, suppose a passenger boarded a car in zone 4 on an outbound trip and wanted to ride to zone 9. The fare would be found in the column headed "From zone 4 to" where, opposite "Zone 9" the fare would be found to be 13 cents.

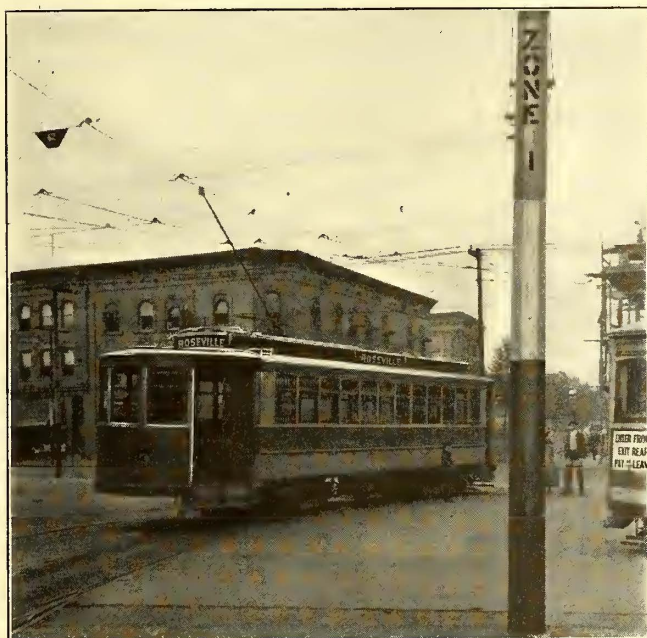
Passengers must retain the zone checks issued to

in use at any one time. Single end cars have only one in each end.

One indicator is hung at the left of the motorman from the top of the window sash and the other is just back of the conductor's position, being on the inside of the folding door next to the bulk head. Trainmen are required to turn one indicator in each end of the car in proceeding from one zone into another. The motorman turns his indicator at a zone limit prior to the time he opens the door to allow passengers to board, while the conductor at a zone limit allows all passengers to leave prior to turning the one in the rear vestibule.

The zone indicator is so constructed that on the bottom portion is given a zone number and a table showing the fares from that zone to any other zone en route.

Company employees are allowed free transportation over the entire system. In order that the number of persons riding on passes may be accurately determined, books of coupon passes are issued to each employee.



AT LEFT, METHOD OF MARKING ZONE POLES WHERE ONLY ONE ROUTE IS CONCERNED. AT RIGHT, METHOD OF MARKING POLES AT JUNCTION OF BROAD AND MARKET STREETS, NEWARK, WHERE MORE THAN ONE ROUTE IS CONCERNED

them. If the checks are thrown away or lost en route the conductor is obliged to charge the passenger on leaving the car for the entire number of zones from the beginning of the line to the zone where the passenger alights. Should a car terminate in a postpayment area a passenger failing to present a zone check is required to pay the full fare for the longest line entering that terminal.

Special zone checks are issued for each route regularly operated and also for trippers and night cars that travel over parts of more than one route. In all, some 300 different forms of zone checks were printed.

On the platforms of each car are located zone indicators placed so they can be readily seen by passengers and also conveniently turned by the motormen when entering a zone. On double-end cars two indicators are located in each vestibule, only one of which however is

An employee on presenting these coupons for a ride must fill them out, so as to show the ride taken and hand them to the conductor along with the zone check when he leaves the car. Similar coupon books except for the color are issued to police inspectors, and for others entitled to free transportation.

#### CHECKS AND TICKETS USED

Under the "three and two" plan, the use of transfers is eliminated entirely. There are however instances when continuous trip checks of some character must be issued to allow a passenger to take the ride for which he pays. This is required by the ruling of the Commission that continuous trip checks must still be issued at some twenty-four places under the zone system just as they were formerly issued under the old fare schedule.





this same charge is retained and on tickets permitting a change in cars an extra cent is charged for each coupon. On request pupils presenting this form of ticket can receive a school second-car ticket which will be good on the transfer car to the destination named on the holder's identification card. This ticket must also be filled out by the pupil.

**WORK OF THE CONDUCTOR**

A conductor on going to work obtains from the station office his day card, continuous trip tickets, three pads of fifty emergency tickets, school continuation tickets and a sufficient supply to last the day of trip

as each fare must be registered separately. If the car is equipped with a fare box, the passenger is expected to deposit his exact fare in the fare box and the conductor to register each fare deposited on the overhead register. Tickets are also registered on this same register. As the conductor collects fares, he places the zone checks, passes and tickets collected in each zone on a filing spindle attached to the side of the cash register or the fare box. When the car completes that zone the conductor removes from the spindle all checks and tickets thereon and inserts them in the envelope marked for that zone. He seals the envelope and marks on its face, in the space provided, the contents. If no

**PUBLIC SERVICE RAILWAY CO. CONTINUOUS TRIP TICKET**

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24
25	26	27	28	29	30	31					

This ticket certifies that bearer has paid the zone fare to GREENVILLE CAR HOUSE on GREENVILLE LINE and is entitled to a continuous trip on connecting car upon regular fare for additional zones. NEVER NOT TRANSFERABLE

HOUR A.M. 1 2 3 4 5 6 7 8 9 10 11 12  
 HOUR P.M. 1 2 3 4 5 6 7 8 9 10 11 12  
 MINUTES 10 20 30 40 50

Issued by PUBLIC SERVICE RAILWAY CO. (Pupil Must Fill In Blank Space)

**3c SCHOOL TICKET**

Line Sample Date \_\_\_\_\_

SIG. NATURE \_\_\_\_\_ School \_\_\_\_\_

Zone On \_\_\_\_\_ Zone Off \_\_\_\_\_

Good for one (1) ride to or from school on a single car within the School Zone in which the holder boards the car. Good only during school term between 8 a. m. and 5 p. m. Pupil's signature on ticket and identification card must correspond. Show card when paying fare.

NOT GOOD ON SATURDAYS, SUNDAYS OR HOLIDAYS

No. 04593

**PUBLIC SERVICE RAILWAY COMPANY**

Line SAMPLE Date \_\_\_\_\_ 1919

Signature \_\_\_\_\_ BADGE DEPT. \_\_\_\_\_

Zone On \_\_\_\_\_ Zone Off \_\_\_\_\_

Good for transportation of the season to whom this book is issued when signed and properly filled in with the date used, line on which used, his badge number or department and zones in which he boarded and left the car.

VOID AFTER DECEMBER 31st, 1919

No. \_\_\_\_\_

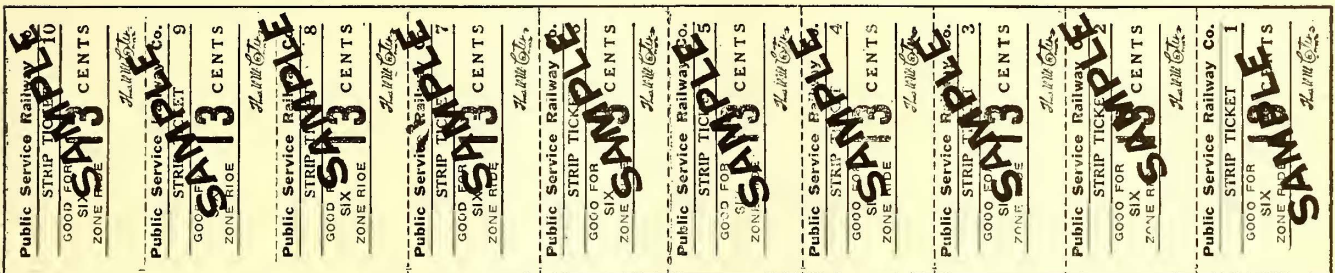
**PUBLIC SERVICE RAILWAY CO. Emergency Ticket**

JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24
25	26	27	28	29	30	31					

This emergency ticket certifies that bearer has paid the zone fare to end of zone punched in the margin hereof and is entitled to a single trip on connecting car upon paying fare for additional zones. This ticket is issued due to emergency only, and is good under no other circumstances, when the proper zone, direction, day and hour are punched.

HOUR A.M. 1 2 3 4 5 6 7 8 9 10 11 12  
 HOUR P.M. 1 2 3 4 5 6 7 8 9 10 11 12  
 MINUTES 10 20 30 40 50

ZONE		
1	2	3
4	5	6
7	8	9
10	11	12
13	14	15
16	17	



- NO. 1. CONTINUOUS TRIP TICKET
- NO. 2. GENERAL FORM OF SINGLE-ZONE SCHOOL TICKET
- NO. 3. GENERAL FORM OF FREE TRANSPORTATION
- NO. 4. EMERGENCY TICKET
- NO. 5. FORM OF FULL FARE OR PAY-TICKET

envelopes in which to place the zone checks and tickets collected in each zone. A tin box is provided for holding the envelopes, etc., and is marked for his line and run number.

The zone envelopes are sewed at the bottom into sets, each set including one envelope bearing the zone number in each half trip. Thus on an eight-zone route a set consists of eight envelopes numbered 1 to 8.

Passengers on leaving the car do so by the rear door and pay their fare to the conductor, depending on the zone check surrendered and the zone in which the car happens to be when the passenger alights, who registers the fare of each passenger on the cash register only. The bunching of amounts collected consecutively from several passengers on the cash register is not allowed,

zone checks or tickets are collected in a particular zone the conductor simply seals up the envelope and marks on its face "zero" to show that nothing was collected.

**VARIATION IN METHODS OF COLLECTING**

On the routes terminating at heavy unloading points such as Broad and Market Streets, Newark, or the H. & M. tube station at Park Place, especially where there are no terminal facilities, special ticket sellers board all cars at the commencement of the last zone and sell to passengers a ticket covering their fare to the terminal in accordance with the zone check held. In other words, in order to speed up the unloading of passengers at heavy junction points, it was found necessary to help out the conductor, due to the fact that many of the pas-





## State Subsidies for the Street Railway Companies

State ownership and maintenance of the way structure is suggested as a remedy for present conditions and justified by public expenditures for improved highways

By R. W. PERKINS

*President the Shore Line Electric Railway Company, Norwich, Conn.*

**E**VERY industry, whether private or public, aside from those that are purely charitable, should be self-sustaining, that is, the revenue derived from its operations should be sufficient to meet the operating needs of the industry and leave a sufficient margin for the investor in order that the new money needed for development and extension may be attracted. This is particularly true in the case of the street railway, for the business is not static. The service it renders tends constantly to develop the community, increase the grand list, as well as the population, and extend the borders of the settlement. These things call for a further investment for extension of tracks, more and better equipment, and added facilities of every nature that can be met only by further capital expenditures.

That virtually every industry, except the public utilities that come under government regulation and control, has been able to maintain itself as an industry in a healthy financial condition, even though the strain of the Great War, is reason to assume that regulation and control without responsibility is to a large extent the direct cause of the desperate plight in which the street railway industry is now placed. With the natural laws of supply and demand affecting the cost of all material and supplies, with negotiation by intimidation fixing the wages paid, and with the public dictating the selling price of the product without consideration of the cost of production, the industry is forced to violate all the laws that govern every other form of merchandising. The fact, now so generally admitted, that the industry as a whole is threatened with extinction, should satisfy any thinking man that the trouble is not personal or managerial but fundamental.

In a study of the present, or in prophesying for the future of any business, one naturally goes back to the history of the business, if it has a history. Without going back to the genesis of the street railway industry—the old horse car days—we find that the roads have in

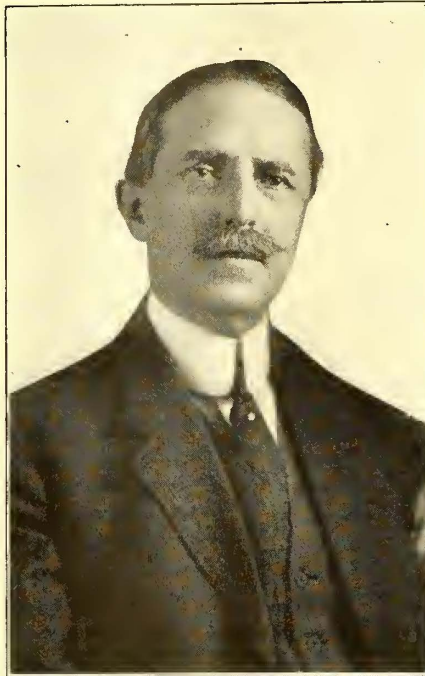
general been built and extended by a grant from the legislature that gave the corporation the assurance, if not the guarantee, of monopoly of highway transportation. Local franchises, where these govern, were granted with this understanding, for it was then recognized that the nature of the business, and the perma-

nency of the investment necessary to establish it, demanded a monopoly. In order to protect the public against abuse that might perhaps follow, certain restrictions were made in charters, and by ordinance or franchise that were designed to protect the public against abuse of the monopolistic privilege.

The amazing thing in connection with the early development of this great industry is that shrewd business men were willing to accept the risk that accompanied an enterprise deprived by law of the right to conduct its affairs on sound business principles, for it goes without saying that no business can safely obligate itself to continue for an indefinite time to sell its output at a fixed price, unless at the same time its cost of production is in some way permanently fixed. Changes and improvements in the generation and application of electricity during the early days of its application to the street railway industry called for such changes in the in-

dustry itself that the costs of service were somewhat clouded. It is doubtful if the business could have survived the pressure from above and below, even though no new form of transportation had come into being to retard its natural growth.

But the constantly increasing use of the self-propelled vehicle, both private and public, has had a most disastrous effect upon the gross revenue of the business, and has increased its operating expense to an extent that is little appreciated by those who are the greatest sufferers; namely, the street car riders. The advent of the automobile produced a demand for improvement in the highways of the state, and this demand met a ready response that resulted in the expenditure by the state of vast sums of money for the almost exclusive con-



R. W. PERKINS



venience and comfort of one class of tax payers, while, because of the operation of laws that should not now apply, another class of tax payers, the car riders, were shouldered with a burden that was never contemplated when those laws were enacted—a burden that bore no proper relation to the ordinary conduct of the business and over which the management had no control. For in the old days of the gravel road the cost of maintenance of the street car company, even though its rails were in the highway, was not materially affected by the action of the highway department of the state or city. But with the adoption of the macadam, brick and concrete modern, so-called, permanent pavement, the maintenance of way instead of being a modest and legitimate item of the operating expense has become an oppressive burden demanding an increase of capital which, in many cases, it is impossible to secure.

Added to this abnormal burden of expense, the state, through its failure properly to regulate and control the automobile passenger bus and freight truck, has violated an implied contract or obligation to the street railways by permitting parallel transportation lines, thus destroying the monopoly originally granted to street railways. And, worse than this, it has actually become a partner in the transportation business that is cutting into the earnings of the street railways to a tremendous extent. This partnership has resulted in direct loss to the state which has been paid out of the general tax receipts of the state.

#### CAR RIDERS PAY FOR AUTOIST'S WAY

It is an unusual situation that apparently has attracted but little attention, in spite of the fact that in a sense it operates as class legislation, for the State of Connecticut, since 1895, at which time the highway department was established, has expended, up to December 31st, 1918, \$24,493,475.30 for the construction and maintenance of trunk line highways, and, in the meantime, its receipts from automobile and drivers' licenses have been but \$5,166,673.00. The users of one class of transportation have enjoyed, at the expense of all of the people of the state, an investment of \$19,331,402.30. The users of the other class of highway transportation, namely, the street car riders, have been obliged to contribute, through passenger fares paid, a tax equal to an average of about 4.5 per cent of gross revenue, and, in addition to this, have paid a considerable part of the cost of the highways devoted almost exclusively to the use of automobilists. These figures do not include the amount expended within the cities of the State, where the burden of the car rider is much greater in proportion to the total amount involved.

It is a pathetic and almost tragic thing to see cities, by the action of their common councils and the vote of their citizens, plan for highway improvements involving the traction companies sometimes in more expense than that assumed by the city itself and in other city meetings vote to oppose increases in passenger fares suggested by the street railway companies in the hope of securing the funds necessary to produce such results in net revenue as would help them to establish credit and thus secure the funds that the city was forcing them to expend without benefit to the corporation. Had this

industry been permitted to observe and follow the natural laws that govern the conduct of other businesses, it is safe to say that it would have protected itself as other businesses have protected themselves by promptly adapting itself to modern conditions, even though this meant abandonment of properties and a diversion of assets to other lines of industry offering greater opportunity. Having been by law deprived of this right, is it not reasonable to demand that the state go just one step further than regulation and control, and assume the responsibility that should always go with regulation and control? That responsibility in this case means income obligation, for since that state has virtually, through its own acts, brought the industry into a condition of bankruptcy, is it not morally bound to re-establish it on a sound basis and restore to its owners the property which it has, through depreciation, confiscated.

The construction, development and operation of the highway transportation properties has had a greater influence upon the commercial, social and economic development of the state than any other single factor. Their continuance in operation is a matter of vital importance to every citizen of the state, regardless of his occupation or residence, for whether he be manufacturer, tradesman, professional man, employer, employee or farmer, he is benefited in some way by the commercial and social circulation which is furnished by these arteries of trade. This fact, while applying to every community, whether served directly or not, is most apparent when the growth in appraised value and population of the towns directly served is compared with those that are not so served.

An individual who deliberately, though innocently, destroys the property of another is holden responsible for his acts, and it would seem that the conscience of an enlightened people should be as sensitive as that of an individual and as ready to correct a wrong. It should be necessary to bring only convincing proof of the wrong. How should this wrong be righted, the investors' rights protected, and this necessary utility preserved for the use of the people?

#### WHY NOT LET THE STATE OWN THE RIGHT-OF-WAY?

State subsidy as provided for in the Act affecting the Boston Elevated Railway Company recognizes the state's obligation to the creators and owners of the property by guaranteeing a fair return on investment, any deficit resulting from the operation to be made good by general taxation of the community served. But the payment of a deficit is wrong in principle, for it destroys the incentive for efficient and economical management without which there is quite likely to be a letting down of the high standards that prevail where personal advancement and financial gain are the incentives. The same is true of government or municipal ownership, and while economics and morals, in this particular instance, strongly suggest public ownership and operation as expedient, if not absolutely necessary to right a great wrong, is it not possible to retain all the manifold advantages that accompany private ownership and operation with responsible public regulation and control by letting the state own and maintain the right of way of the trolley riders' means of conveyance just as it now





owns and maintains the right of way of the automobile riders and the jitney bus riders' conveyance? Is there any real distinction between these several means of transportation except that one is operated for both private pleasure and profit and the other for public convenience and pleasure and private profit but under such conditions of regulation and control that the investment is virtually dedicated to the use and enjoyment of the public at a very low rate of interest return? So low, and accompanied by such risk is this rate that it should be possible to forget the corporation and think only of the trolley rider as contrasted with the automobile rider.

It would then appear that the highway, like the navigable water ways, should be constructed and maintained at public expense for the use and benefit of all the people. The water ways while dredged, charted and maintained at public expense are just as freely used by the freighter

and the passenger boat as by the private yacht or pleasure craft. To discriminate and legislate against one class of people and in favor of another is indefensible.

Then let state subsidy take the form of a publicly maintained right of way, let mileage be extended or contracted in the interest of all the people under control of the Public Utilities Commission, in co-operation with the Highway Commissioner, and let the properties continue under private ownership and operation, and under conditions that will remove unfair competition. Repeal laws that are destructive in their effect; add responsibility to regulation and control, or give the owners and operators of this great industry that which is enjoyed by all industries free from the strangling effect of government regulation, the right to conduct their affairs in response to fundamental law, the enforced violation of which has so nearly accomplished their ruin.

## The Possibilities in Readiness-to-Serve Fare Schedules

“Readiness-to-serve” charge as applied to fares analyzed—Modifications of “service-at-cost” franchises suggested—Railway fares and central station rates compared

By L. R. NASH

*Stone & Webster, Boston, Mass.*

**T**HE street railway industry in the United States has been unique in its merchandising methods in that it has offered its wares at a fixed price without regard for the scope of individual sales. The only extended adoption of similar methods is found in our postal service, but in recent years the universal flat postal rate has been limited to very light-weight matter. Furthermore, the business methods of the Post Office Department have never been seriously considered as a model for any sound commercial enterprise.

A flat street car fare was not wholly illogical in the early days of the industry. The distances between homes and business or industrial centers were short, and it seemed to make little difference whether passengers rode all the way between these terminals or not. With the growth of our cities, with more and more widely separated industrial developments, there came of necessity a corresponding extension of car lines, a lengthening of the average passenger ride, and a still greater expansion of transfer privileges. This evolution, together with refinements in service and equipment, paving and other municipal burdens, was so gradual that the industry failed fully to realize the resulting inadequacy and illogical character of the conventional nickel fare until the present period of war disturbances and prices made such realization universally inevitable. The belated efforts of the railways to secure added revenue to take care of increasing costs are recorded on the current pages of history.

A feeling exists in the minds of a number of people,

within as well as outside of the industry, that the railways have not yet applied the most effective remedies in their efforts to secure necessary increased revenues. To the extent that this critical attitude is the result of an intelligent study of the effects of fare increases upon revenues and traffic, it should have the careful attention of railway executives. A brief historical summary of experiences with various fare increases, typical of the kinds so far made, may throw some light upon the shortcomings of the past and suggest the direction in which improvements should be sought in the future.

It is not surprising that the first move in the program for increased revenue was a straight increase in the flat fare. The cost of all commodities and labor had gone up. If, with the reduced purchasing power of money, it required 8 cents to buy what formerly cost 5 cents, and if incomes had so increased as to make the 8 cents equally available, the increased flat fare seemed quite as logical as the old 5-cent fare, and it should not have involved permanent loss in traffic. Furthermore, the flat fare has been one of our cherished national institutions and we have boasted of its effect in distributing population through large suburban areas. While this claim is by no means without foundation, it must be remembered that our own cities contain the highest population density of the world, and that fundamental economic laws tend to equalize living costs, so that where transportation costs are high, rents and other factors will be low.

The revenues resulting from higher flat fares have

so far been disappointing to a material extent. With only a 1-cent increase, theoretically yielding a 20 per cent increase in revenue, the actual increases have averaged little more than half that amount except in quite large cities. With greater increases in fare the traffic losses have been proportionately larger and, the losses being in short riders, the unit cost of carrying the remaining passengers has increased. With increasing actual as well as unit costs, successive fare increases, even to double the original rate, have been necessary in some cases to cover the full cost of service. This means a very large though not proportional loss in traffic and inconvenience to many former patrons.

The reasons for the large traffic losses are not clear. They appear to be more psychological than economic. Many cases still exist where wages or salaries have not been advanced in proportion to the cost of living, but in others the advances have been greater and general equalization is ultimately to be expected. The practice of many politicians of vehemently opposing needed fare increases and consistently stirring up public resentment against utility corporations has had an important effect, harmful to communities as well as utilities. There is no reason why these and other less-important causes of traffic losses should not in time lose a large part of their effect. In the meantime the losses and inconvenience, for which the public are to a large extent responsible, remain an uncertain and disturbing factor.

In a number of large cities and mixed urban and interurban territories the zone system of fares has been adopted. The economic soundness of a tariff based on distance is not seriously questioned except as to the disturbance in real estate values and other living conditions which follow the substitution of a zone system for a flat fare. Our experience so far with zone fares in urban and suburban service has not been wholly successful. In several cases they have been abandoned after a not very extended trial. There are reasons for thinking that in most such cases the original zone schedules were not properly designed or were based on inconclusive data or were rendered inadequate by increasing costs. The zone system itself has apparently not been primarily responsible for its failures but rather the conditions of its application. In other cases where the application has been more carefully worked out the whole system has been a demonstrated success. A suitable zone fare collection and accounting system of general applicability has apparently not yet been perfected and its lack has had much to do with past failures. The results of the novel system devised by the Public Service Railway of New Jersey will be watched with much hopeful interest. To the extent that the zone fare difficulties lie in the machinery of application rather than in the system itself, there is every reason to suppose that inventive genius will not fail in a reasonably prompt and satisfactory solution.

#### HIGHER FARES FOR CASUAL RIDERS

Other recent fare systems have sought to avoid the annoyance of odd change for increased urban fares by the combination of a comparatively high cash fare, usually 10 cents, with a lower ticket rate, the cash fares

making up whatever deficiency may exist in the ticket rate. This system is not entirely new, although in the past it was generally used to give a ticket fare somewhat less than the prevailing 5-cent cash fare.

As it has been common practice with odd cash fare rates to minimize the annoyance of odd change by the sale of tickets or metal tokens at full price or an approximation thereto, it is evident that another principle is involved in the system just described in which the cash fare is materially higher than the ticket fare. The principle is that of a higher fare for an infrequent patron than for a regular one. That it may be deserving of more than passing attention is indicated by suggestions from several sources that this principle might be more specifically and widely applied to street railway service.

It is at once apparent that if two tickets are sold for 15 cents where the cash fare is 10 cents, as has been done or proposed in several cities, only an occasional stranger or other very infrequent rider will pay the cash fare. A resident who is only a casual rider would usually buy tickets. In order to force the casual rider to pay the higher fare intended for him it would be necessary to sell tickets only in considerably larger numbers, say twelve for 90 cents, this number to be carefully adjusted in each city so that the poor but regular rider would not find them beyond his means to an unnecessary extent. This practice would not differ essentially from that of the steam railroads which sell twelve-ride suburban tickets at about one-half the normal cash fare. All such practice is, however, a makeshift or compromise rather than a definite application of a principle. If a more definite application is theoretically possible and might have practical advantages it should be given careful attention, particularly at this time when the whole question of fares is so unsettled.

#### RAILWAY AND CENTRAL STATION RATE PROBLEMS COMPARED

Successful precedents involving conditions in some degree comparable should always be helpful in the solution of new problems. In this case we may gain useful suggestions, without going far afield, from the central station industry. This industry is somewhat older than the electric railway and has maintained, particularly in recent years, a higher degree of prosperity. Generally speaking, the central stations started with fixed rates per unit of service and continued them for a term of years covering a very considerable portion of their whole history. The leaders of the industry were not satisfied with its development under these conditions. Much desirable business could not be secured because the rate schedules were not suitable. A careful study of rate theories and structures was made by experts; in fact, such studies are still actively continued by a national organization. It became early apparent in these rate investigations that discrimination was being practiced between customers, that some were paying less than cost, others were paying more, and a large volume of profitable possible business was lost because of inequitable rates.

New schedules of the so-called "demand" form were

developed under which extended users paid less per unit than the limited users. The initial rate, for what may be called casual use, was the same for all customers, but for excess use a much lower rate was offered. This form of charge is not essentially different in its effect from the fare schedule already discussed having a combination of high-cash fare for casual riders and low-ticket fare for frequent riders. The demand electric rate served a very useful purpose in developing business and it still retains a prominent place in the schedules of progressive companies. It has complications which have restricted its use, particularly for small business of fairly uniform characteristics to which class rates may be applied. Furthermore, it is to a considerable extent a compromise in that it does not accurately represent the cost of service. For this reason it has failed to reach a volume of large business which the central stations coveted.

Resort was finally had to a still more complicated rate, devised years before by Hopkinson, which could be made to conform closely to costs of the service and to vary with operating conditions encountered in competitive isolated plants. This so-called "readiness-to-serve" rate has brought a large amount of otherwise unobtained business to the central stations and has contributed in very large measure to their success.

#### THE "READINESS-TO-SERVE" CHARGE IN FARES

If the readiness-to-serve form of rate is of such usefulness to central stations, may it not also find some place in electric railway fare schedules? Its fundamental demonstrated advantage to the utility is that an enrolled customer is encouraged to make liberal specific uses of service because of low direct cost. Surely if by some such means the use of street cars can be made an inexpensive habit for those whose need of transportation is reasonably frequent, it should receive most serious consideration.

There are wide differences between central station service and transportation by street cars, and many obvious objections will of course be raised to a readiness-to-serve fare schedule. They include its general complications, the periodical payment of a comparatively large fixed charge at a railway office or agency, the difficulty of distinguishing passengers who are subscribers to the readiness-to-serve plan from the casual riders (which in reality involves a plan to prevent loaning or transferring subscribers' identification cards), the difficulty of checking conductor's fare registrations, and others which would doubtless disclose themselves through an intimate study or trial of the plan.

Assuming for the moment that these objections, ad-

mittedly serious, can be successfully overcome, the practical workings of the plan may be further considered. Some discussion of the subject and specific suggestions have already appeared in recent issues of *ELECTRIC RAILWAY JOURNAL*. They do not, however, conform fully to the principles applied in central station rates of the same form. These rates involve the determination of the investment involved in each unit of customer's demand, the fixed charges thereon and other costs varying with the customers demand, also the costs varying with the units of energy furnished. The rate is therefore a combination of two factors, one a function of the facilities used by or reserved for each customer (kilowatts), the other based upon the cost of the service actually used (kilowatt-hours).

#### READINESS-TO-SERVE CHANGE ANALYZED

A determination of analogous charges entering into a readiness-to-serve fare schedule would involve the investment in railway facilities per unit of passenger carrying capacity, the fixed charges thereon and other costs independent of the extent of actual use. Supplementing this would be a charge, based on cost, for the passenger mile or passenger haul. The latter charge would probably be so comparatively small that a mileage charge would be an unnecessary refinement for city service.

Actual calculations in any specific case would involve numerous complications and approximations. The investment in or value of the property would be determinable without serious difficulty. With the return to investors, taxes and provision for depreciation there should be included a material portion of maintenance costs and other routine expenses of operation, possibly amounting to 10 per cent of the total operating expense, to arrive at the costs which would continue regardless of the amount of service offered. Under average ordinary conditions considerably less than one-half the facilities offered by

street railways are utilized, measured by the ratio of seat-miles to passenger-miles. If this condition is inherent in the nature of the business, it would be logical to include not less than one-half the variable expenses of operation among the stand-by costs and this has been done in recent careful analyses of service costs.

If the normal investment in a street railway is five times its annual revenue, not less than 50 per cent of this revenue will be required for charges independent of the service rendered and, as stated above, at least one-half the balance may also be considered as applicable to stand-by costs. It therefore appears that less than one-fourth of the revenues derived from passenger service are directly assignable to the passenger haul, the balance being largely independent of the actual traffic.



L. R. NASH

Under conditions permitting a profitable 5-cent fare, only about 1 cent would be paid for service actually used, the balance being wholly for readiness to serve. It follows that a passenger whose riding was an exact average of all passengers could logically enjoy a certain number of additional rides at one cent each without loss to the railway. With the old uniform 5-cent fare, if this average passenger takes an additional ride he contributes 4 cents toward the cost of carrying the casual riders.

The foregoing analysis is very general and throws no light on the necessary passenger stand-by charge per year or per month to supplement the low haulage fare indicated. To determine this charge it is necessary to divide the total annual stand-by costs by a figure representing the passenger capacity of the system. This might be the maximum number of seats normally available or this number increased by a standing factor, or still further allowance might be made for the diversity which doubtless exists to an unknown extent and which is an important factor in similar central station rate calculations.

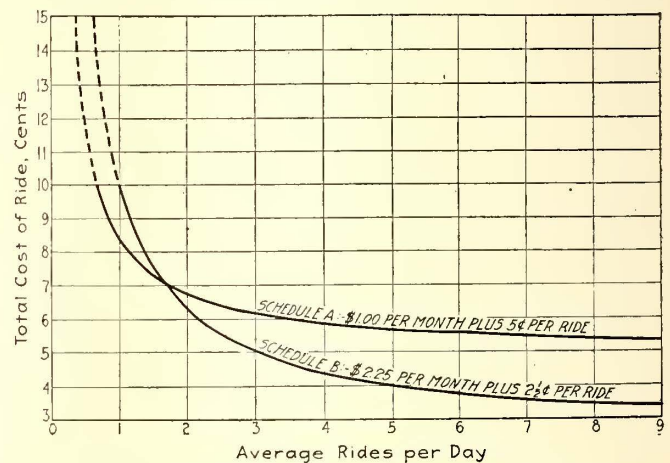
#### FIGURING A "READINESS-TO-SERVE" SCHEDULE

Some typical figures may here be of assistance to illustrate the essential calculations and the limitations on their accuracy. These figures do not apply to any specific railway but are representative of moderate-sized systems not overburdened with paving or other special construction requirements. The investment in such a system will be not less than \$1,000 per seat of total passenger car equipment. Allowing for equipment necessarily out of service for repairs or inspection, and for a conventional number of standing passengers, it will be found that the annual fixed charges for return, depreciation and taxes amount to about \$100 per annum per unit of passenger carrying capacity of available equipment. This equipment is usually sufficient to accommodate at any one time only about one-fifteenth of the total population in the area served. If every person in the served area used the cars at some time and all subscribed to the readiness-to-serve fare system, the subscription per person, to make up \$100 per year per unit of capacity, would be a little over 50 cents per month. But there are many people to whom street cars are accessible who never use them. There are no statistics to indicate the proportion of tributary population which never rides but it is quite large. It is probable that when it has been excluded from the present calculations the monthly subscription to the readiness-to-serve fare system for charges on the investment by the entire balance would be not less than one dollar. With large and expensively constructed systems with a proportionately large non-riding population, the readiness-to-serve subscription might be much higher although greater density of service would tend to offset an increase. The monthly charge so far considered does not cover the entire readiness-to-serve cost, as it does not include that part of operating expenses which are independent of actual traffic. If allowance is made for this additional element of cost, the total charge will be increased by about 50 per cent, making it somewhere near \$1.50 per month for systems of moderate

size and possibly twice as much for our largest surface railways. The \$1.50 charge would be equivalent to about 3 cents per ride for a person who rode twice on each working day.

#### EXPERIMENTAL DATA ON FARES ARE NEEDED

If, as has been assumed, the direct cost of the passenger haul is 1 cent per mile, the cost for a normal, average haul would be in the neighborhood of 3 cents. If the readiness-to-serve charge for the average rider is added to this, we have 6 cents or more as the total average charge for a ride. This is not far from the present actual cost in many of the smaller cities. In the large cities, which have longer hauls and larger unit investments, both factors in the charge



COST OF A RIDE UNDER TYPICAL READINESS-TO-SERVE FARE SCHEDULES

would be higher and their sum might easily reach the 7 cents, 8 cents or more which is found by experience to be the actual cost.

The uncertainty existing in the readiness-to-serve charge calculations, as above illustrated, is so great as to make the problem for the present largely one of experimental determination, complicated by the effect of the casual and indifferent riders who would pay the arbitrary alternative higher cash fare which might not fully cover the cost of their service.

The uncertainties mentioned, the rather high stand-by charge involved, the small change required for the actual cost of the passenger haul, the convenience of a 5-cent fare, the general need of a charge of more than 5 cents to cover the full cost of service, all suggest the compromise ready-to-serve schedule which has been proposed, of a 5-cent cash payment for the haul plus a monthly readiness charge adjusted from time to time to make up the deficit in total service cost. The initial risk in establishing such a system would be comparatively small and a payment of the order of a dollar-per-month readiness charge would not be unduly burdensome to the average rider.

If such a system was successfully established and resulted in a definite traffic stimulus, it might be clearly desirable to take at least one more step toward a true readiness-to-serve schedule, namely, a ticket fare optional with the 5 cents cash, at a rate of six for 25

cents or four for 15 cents, plus a readiness charge more nearly approaching the readiness cost, to make up the balance of the full service cost. If changes in the direction of a lower charge for the haul continued to stimulate traffic, they might be extended indefinitely or until the increase in rush-hour traffic required an unprofitable added investment in equipment not otherwise used. In any case the alternative full cash fare should be not less than 10 cents. This amount would probably not cover the cost of very infrequent rides but the deficits would not be appreciable when spread over the remaining business, and the inexpediency of a possible prohibitive charge to cover actual cost would be avoided.

A diagram is shown herewith more clearly to illustrate the workings of readiness-to-serve schedules. The two curves included in the diagram show the cost of a ride for a wide range of daily use under monthly and haul charges which represent the extremes beyond which it probably would not be expedient to go in actual use. The curves show equal cost at fifty rides per month, and the lines are broken for costs in excess of 10 cents on the assumption that an alternative cash fare would then be effective. If either of these curves represents actual costs with any approach to accuracy, it is quite clear that the very casual rider is an unprofitable one at any obtainable rate of fare.

#### FARE COLLECTION A SERIOUS PROBLEM

An obvious problem in any such fare system is that of identifying subscribing passengers. The writer does not share in the opinion that it would not be a serious difficulty. Identification has been attempted in connection with transfers but without sufficient success to warrant extended use. Close, extended scrutiny of identification cards is not practicable in connection with expeditious fare collections. A miniature photograph attached to the card, such as required on some railroad commutation tickets, would be effective but unduly expensive and otherwise objectionable. However, it may not be at all impossible to devise some system or combination of sizes, colors, notches, perforations, etc., to accomplish the necessary result.

It is not entirely clear without experimental data that full prevention of transfer of cards would be necessary. If a subscriber to the readiness-to-serve system who had paid to have certain facilities available for his use saw fit to loan them to a friend, the railway might thereby gain a passenger who would otherwise walk, and the subscriber himself could not use the loaned facilities until his card had been returned. But, even if a noticeable increase in traffic resulted from failure fully to restrict the use of cards to their original purchasers, it does not follow that it would be equitable or that revenues would be similarly increased if the charge for the card was fixed, as assumed, on the basis of individual use. If, on the other hand, the cards were issued on a good-for-bearer basis, there might be a further stimulus to traffic in certain directions, but the charge for such a card would necessarily be considerably higher than for an individual card to offset the reduction in number issued, and this higher charge might be prohibitive for a large class of riders who

would not find the transferable feature of any advantage to themselves. A possible compromise in the form of a family ticket suggests itself with a monthly rate between that of individual and unrestricted tickets. The rate would necessarily approach that for unrestricted tickets because identification would be impossible. The problem of registration and accounting for fares under this system should not involve insurmountable difficulties if that of identification were successfully solved.

#### THE CASUAL VERSUS THE REGULAR RIDER

Even if the railways should be able effectively to solve the difficulties in connection with a readiness-to-serve form of fare schedule and the system was acceptable to the riding public as a whole, it should not have indorsement unless it squares with sound economic principles, conforming to "cost of service" rather than "what the traffic will bear." The basic question is as to whether it costs more to haul the casual rider than the regular rider. Casual riders may be divided into two classes as to whether their movements from place to place, regardless of the means, are casual or regular. The latter groups may ordinarily walk or use automobiles, resorting to the cars only in unpleasant weather or under other unfavorable conditions. They are more apt to ride during rush hours than otherwise. The former group, including shoppers, strangers, amusement seekers, etc., may ride at any time but probably much more in off-peak than rush hours. The point may be raised that any casual riding in off-peak hours requires no additional investment in facilities and therefore costs less than the regular rush-hour riding. The facts are that, while certain investment is used only during rush hours the balance is used both in these hours when the traffic density is at its maximum and in the off-peak hours when the load factor is comparatively quite low. The charges on this continuously used investment should properly be spread over the entire traffic which it handles, and the cost per passenger would in equity be highest during the hours of lightest travel.

Except on small systems the facilities furnished are adjusted through headway changes to meet expected travel. Normal rush-hour travel is fairly uniform, while at other hours, when the casual rider is more in evidence, there is more fluctuation and a lower load factor. In other words, the casuals make less use of the service furnished for them than do the regulars, this being true of the casuals as a group regardless of the diversity in individual riding. It necessarily follows that to the extent that casual riding leads to low load factors it also necessitates higher cost both for investment charges and operation. If diversity is ignored and the casual rider is considered as an individual rather than part of a group, his responsibility for costs would appear much greater.

#### COMPLICATED FARES MAY HAVE AN EDUCATIONAL VALUE

With respect to the second group of irregular car riders, those who ordinarily use other means of travel, it may be stated that they are not only largely rush-hour riders but also there is comparatively little divers-



ity in their riding because of the similarity in their motives or needs for car service. They therefore impose a doubly added demand for facilities which are not otherwise needed, or they impose added burdens upon regular facilities and inconvenience and discomfort upon the riders who regularly use and pay for these facilities. In either case the justice of a higher charge for such use of street railway service cannot be questioned. A charge on the basis of "all the traffic will bear" would naturally be favored by both railway officials and their regular patrons for those casual riders who ordinarily and preferably use automobiles. It appears from the above reasoning that a higher fare for all casual riders is justifiable.

The electric railway fare problem of the past was primarily one of expediency and simplicity. In the very early years the promise of liberal profits made refinements seem unnecessary. In the later years, when railway executives realized such profits were dreams rather than reality, the public had come to regard the fixed flat fare as an inalienable right. The eradication of this idea is essential to the life of the industry. It may be brought about through systematic publicity regarding railway finances by which the public will become familiar with their complicated character and through service-at-cost franchises or other modern methods of regulation under which fares are systematically adjusted to cost. The closer the adjustment, the greater will be the departure from the rigid simplicity of the past. Other classes of public service have successfully handled constantly increasing complications in their rate structures. It is not improbable that the complica-

tions themselves and occasional minor adjustments therein have aided in establishing confidence in the justice of the rates as a whole.

The suggestion is made that in some of the various service-at-cost franchises which will doubtless be negotiated in the near future, a trial might be made of the readiness-to-serve fare schedule by establishing a fixed full cash fare of, say, 10 cents and a fixed fare for a ride by readiness-to-serve subscribers of 5 cents, leaving the automatic feature, characteristic of such franchises, to apply only to the monthly readiness subscription. There would be a definite psychological advantage in such an arrangement. A large part of the difficulties and loss in traffic occasioned by fare increases lies in the frequency with which the passenger is confronted with the fact of the increase. Daily, whenever he boards a car, he is irritated by the odd change or special tickets which have taken place of the time-honored nickel. The monthly payment of a higher electric light bill does not worry him much more than the higher grocery bill, although the professional politician will maintain that he is being robbed in the former case. A similarly complacent frame of mind would logically attend the monthly payment of a possibly variable subscription to the excess cost of his street car service over the old established standard and his daily contact with the problem of the increased cost of living would disappear, as far as street cars are concerned. It is believed that too much emphasis cannot be placed upon the psychological aspects of the fare situation, and any fare system which recognizes them should receive consideration.



### *The Need of the Hour*

**I**N THE PRESENT PERIOD it is necessary that we as operators be allowed the greatest latitude in devising ways and means for bringing service into proper relation with the cost and cost into relation with the service—that we be allowed to experiment with modifications of service, with various systems of charges and fare collection and with the many ingenious devices which have been suggested for reducing the cost of operation and consequently lessening the burden of fares imposed upon the car riders.

—JOSEPH K. CHOATE *in an address before executives of electric railways of the New York Electric Railway Association, Syracuse, N. Y., Sept. 18, 1919.*



# The Collection of Odd Street Railway Fares

The speed of their collection is greatly increased by the proper design of car—The sale of tickets at reduced rates is also helpful—Ten-cent fares often justified

By R. T. SULLIVAN

*General Manager Mahoning & Shenango Railway & Light Company, Youngstown, Ohio*

**T**HE collection of any street car fare, whether 5, 6 or 7 cents or more, interests railway operators from two angles. One of these is the convenience of collecting the fare, or, in other words, the separation of the fare from the passenger with the greatest ease to the passenger. The other is the efficiency of the collection or the turning over to the treasury of the maximum number of exact fares from passengers carried. It is not the purpose of this article to discuss the question of the reasonableness of any particular fare, although it is difficult to treat the subject of odd fares without some consideration of what is a reasonable fare, especially since the choice of an increased fare should be made with full consideration of the two aspects mentioned above, as well as of the increase desired in receipts.

The problems of collecting odd fares unfortunately are presented at a time when the methods of collecting even a straight 5-cent fare are far from perfect. In consequence, it is not possible to consider any standard method for the collection of 5-cent fares as one to be followed in collecting odd fares.

Odd fares have been effective on a large number of properties for periods of such length that certain phenomena are self-evident and need only be mentioned. Thus, it has been found that any fare higher than and replacing the 5-cent fare has caused a reduction in traffic. The extent of the reduction has been dependent upon the class of traffic, average length of ride, amount of service, feeling in the community for or against the utility, the type of publicity campaign preparatory to making the fare effective and the financial ability or disposition of the railway company to make some noticeable expenditure in the community where the fare has been raised.

There are several communities that have experienced a year or more of higher fares, but this includes the period of the influenza epidemic of 1918, thus impairing the

value of any statistics that can be cited as indicative of the true effect of higher fares. The 6- and 7-cent fares, as previously mentioned, have caused decreases in traffic which have not been the same even in cities of the same size. One city of approximately 50,000 inhabitants, most of whom are engaged in the steel

industries, when changing from a 5-cent cash fare, with tickets eleven for 50 cents, to a 6-cent cash fare, with tickets eleven for 60 cents, experienced a 17 per cent increase in revenue as compared to the previous month. The increase declined monthly and gradually for a period of six months, at the end of which time no increase was shown. Then the conditions changed, and inside of two months there was a 15 per cent increase. This was in September, 1918, when the influenza epidemic occurred and heavy decreases were shown for three or four months. However, after a period of one year, there were increases of from 18 to 20 per cent. Some of this increase might have been experienced regardless of the fare, but it would indicate that from a psychological standpoint the antipathy against higher fares wears off with time. Therefore, it would seem that the riding habit under a 6-cent fare tends to reach the same



R. T. SULLIVAN

value as under a 5-cent fare with the progress of time and provided a proper provision has been made to make the collection of fare as convenient as possible for the passenger.

In another community of 40,000 population the fare was increased from 5 cents cash to 7 cents cash, with tickets sold six for 40 cents. It was estimated that tickets would constitute 15 per cent of the total paid passengers and that riding would decrease 15 per cent, producing an increase in revenue of 18 per cent. The figures for the first month of the increase show an actual increase of 18½ per cent. This increase has varied somewhat during the first year and has ranged between 14 and 18½ per cent. In this particular instance the variation of increase in revenue was not

as great as in the case of the 6-cent fare, but in the latter case the average haul per passenger was not as great as in the community operating under the 7-cent fare. In the 6-cent fare community, the average haul was approximately 1½ miles, a distance so short that, under good weather conditions, traffic would naturally decrease when the higher fare became effective.

The City of Youngstown operated under a 5-cent cash fare with a 1 cent charge for transfers from Jan. 15,



UNLOADING MOVEMENT FROM PETER WITT TYPE OF CAR AT CENTRAL SQUARE, YOUNGSTOWN

1919, to July 1, 1919, at which date the fare became 6 cents cash with tickets sold nine for 50 cents. On Aug. 1, a 7-cent fare became effective, with tickets sold eight for 50 cents. The transfer charge was retained with both increases.

Although the 6-cent fare was in effect for only one month, some interesting comparisons can be made. The increase in receipts amounted to 8.4 per cent, with a decrease in paid passengers of 6.45 per cent. It had been estimated that 50 per cent of the passengers would use tickets and therefore the theoretical average fare would be 5.775 cents, or an increase of 15½ per cent. At the time that this article is being written August figures only are available for comparing the results with the 7-cent fare.

During the first week of the 7-cent fare, increases were shown of 5.63 per cent over the 6-cent fare and 15.8 per cent over the 5-cent fare. The second week produced an increase of 14.2 per cent over the 6-cent fare and 22 per cent over the 5 cent fare. The paid passengers for the first comparative week of the 7-cent fare decreased 7.9 per cent as compared with passengers under the 6-cent fare, and 12.2 per cent as compared with the passengers under the 5-cent fare. In the second week of the 7-cent fare, the paid passengers showed an increase of almost 1 per cent as compared with the 6-cent fare and a decrease of 7.3 per cent as compared with the 5-cent fare.

From this it is apparent that after the 7-cent fare had been in effect two weeks the paid passengers were equal in number to those carried under the 6-cent fare, and when it is considered that the 6-cent fare had been in effect only one month and therefore afforded little opportunity for traffic to regain its former value, it is evident that gradually the riding habit will increase and the paid passengers will be equivalent to those carried under the 5-cent fare. On the assumption that 50 per

cent of the passengers would use tickets, the theoretical increase of the 7-cent fare over the five is 32½ per cent. The actual results for the two weeks of this 7-cent fare has been 22 per cent. Since the 7-cent fare followed the 6-cent fare after a period of one month, the effect upon decreased riding was no greater than under the 6-cent fare, and while it is true that if the 7-cent fare had followed a 5-cent fare the decrease in riding would be greater, the same effect did not occur under the circumstances of this case. Moreover, I believe that the fact that the change occurred automatically according to the provisions of the service-at-cost franchise was another reason why the decrease under the 7-cent fare was no greater than actually resulted. There was an entire absence of agitation and comments when the fare increased from 5 to 6 cents and from 6 to 7 cents.

Previous mention has been made of the fact that a penny charge for a transfer was made under all fares. The use of transfers did not vary to any great degree for any one of the various changes in rates. This is another proof that it is the short haul passenger who is affected by an increase in rates. The percentage of transfers of total passengers under the various rates was as follows:

Fare	Per Cent
5 cents	17 1
6 cents	18 0
7 cents	19 0

TICKETS INCREASE RIDES

With the 5-cent fare there was little call for tickets, but with the arrival of odd fares, tickets seemed to be a matter of both convenience and necessity. Moreover, if the inauguration of higher fares can be accompanied with the sale of tickets at reduced rates, much of the popular feeling against street car companies and against the higher fare largely disappears.

On our own property we have had experience both where tickets have been sold upon the cars and where they have been sold only at ticket offices and certain



PASSENGER BOARDING PETER WITT CARS AT CENTRAL SQUARE, YOUNGSTOWN

stores. In the former case the percentage of tickets to total paid passengers has been over 30 per cent and in the latter case the percentage has been only 10 per cent. This condition applies to two cities of approximately the same size, namely, 50,000 population. In the City of Youngstown which passed from a 5-cent cash fare to a 6-cent fare, with tickets sold at the rate



of nine for 50 cents, the percentage of tickets to the total number of paid passengers for the one month was 45. In this case tickets were sold upon the cars, as has been a custom in Youngstown for several years. With 7-cent fares, the percentage of tickets to the total paid passengers was 52.5 per cent, an increase of 12 per cent in the actual number of tickets used as compared with those used under the 6-cent fare. The average fare per passenger for the 6-cent fare, including transfer, was 4.95 cents, and for the 7-cent fare was 5.55 cents.

The sale of tickets upon the cars is an application of a principle of selling transportation. The possession of a ticket by a street car patron is apt to increase his inclination to ride more than if he did not have a potential ride in his pocket. With the collection of odd fares, some passengers with the intent of getting by the conductor without paying full fare, have dropped in pennies of a less number than the proper fare. The number of such passengers probably do not constitute a very high percentage of the total carried, but in view of such possibility the greater the encouragement for the use of tickets the fewer the opportunities there will be of dropping short fare in the fare box. The sale of tickets in multiples of 25 cents will tend to increase their use. This is because there is a decrease in the riding habit with the adoption of an odd fare.

It is interesting to know whether tickets are used more in rush-hour traffic than in the off-peak periods. In an effort to find the exact condition, a check was taken on one line where tickets were sold eleven for 60 cents. Results are given in the tabulation below, where total ticket passengers, total paid passengers and the per cent of tickets to the total are shown for hourly periods:

TABLE 1—SHOWING PERCENTAGE OF TICKET PASSENGERS AT DIFFERENT HOURS

Time	Ticket Passengers	Paid Passengers	Per Cent Tickets of Total
5 to 6 a.m.	6	22	29
6 to 7 a.m.	22	177	12
7 to 8 a.m.	33	212	16
8 to 9 a.m.	23	203	11
9 to 10 a.m.	21	148	14
10 to 11 a.m.	12	169	7
11 to 12 a.m.	20	166	12
12 to 1 p.m.	33	193	7
1 to 2 p.m.	28	202	14
2 to 3 p.m.	13	152	9
3 to 4 p.m.	16	219	7
4 to 5 p.m.	19	235	8
5 to 6 p.m.	59	378	16
6 to 7 p.m.	25	259	10
7 to 8 p.m.	18	256	7
8 to 9 p.m.	13	235	6
9 to 10 p.m.	4	254	2
10 to 11 p.m.	30	247	12
11 to 12 p.m.	11	305	36
	406	4,129	10

The falling off in ticket riding during the off-peak hours, indicated by the above table, lends great interest to experiments being carried on to stimulate off-peak riding by issuing weekly passes at a fixed sum good for off-peak hours.

For the collection of odd fares the Peter Witt type of car has a decided advantage over the double-end pay-as-you-enter type. The reason for this is obvious. The collection of an odd fare undoubtedly involves more time than the collection of the 5-cent or ticket fare, and with the pay-as-you-enter type, with the conductor stationed near the entrance, some congestion is unavoid-

able. With the Peter Witt car, the front portion of the car serves as a huge platform, enabling the ready entrance of a large number of passengers before the congestion of fare collection starts. As the car proceeds with a rush-hour load, half of the fares have been collected, and it has been observed that as the rest of the passengers in the front portion of the car unload, no greater delay has been experienced than with the 5-cent fare. At heavy points of unloading also it has been noted that the passengers pass from the car as rapidly as with the 5-cent fare. Statistics of passenger interchange time for Peter Witt and double-end car are given in Table II and III.

#### FARE BOXES AND TRANSFERS

There has been a serious question as to whether a fare box was efficient in collecting odd fares. It has been claimed that with the collection of odd fares it has been impossible with heavy loads for a conductor to observe whether all passengers drop in the exact fare. To determine the correctness of such a contention observations were made on a car operating in rush-hour traffic where a total of 340 passengers was carried in three trips. Two checkers were assigned to the car so as to guarantee correct data. It was



PASSENGER BOARDING PETER WITT CAR AT CENTRAL SQUARE, YOUNGSTOWN

found that 229 tickets and transfers were collected during this period, leaving a total of 111 passengers on board of the car for whom there should be 6 cents each. Therefore, the cash in the fare box should have been \$6.66. Actually, the amount of cash was \$6.59. This difference of 7 cents might have been a case of one passenger getting by and another depositing one cent short, or the entire amount might have been distributed among several passengers. On the basis of this test, the efficiency of collection was 99 per cent.

The fare box is surely a very convenient method of collecting the fare so far as the passenger is concerned. If he has the exact fare, either in cash or in tickets, he has only to deposit it in the box, and there is no delay such as occurs when there is a physical transfer of the fare to the conductor.

Transfers should be issued with the smallest delay, therefore the design of the transfer should be such as to make this possible. The form of transfer which seems preferable for this purpose is the one upon which it is necessary to punch only the time at which the



transfer will be good. The transfer points at which the transfer is valid are printed upon the back of the transfer. With such a transfer a conductor at the beginning of this trip can generally estimate the number of transfers to be issued and upon them can punch the proper time. Thereafter, the only operation required in issuing the transfer is its presentation to the passenger.

The title of this article indicates that its scope is limited to odd fares, but the discussion will inevitably bring about the thought, why should there be odd fares?

of higher fares. One of the reasons is simply hatred and distrust of public utilities. A second reason has been that the passenger feels that the spending of an odd fare has been equivalent to using 10 cents, inasmuch as the breaking of the dime has practically destroyed its purchasing power. If there is any merit to the view that the last reason has had any effect, the effect in decreasing riding following fare increases after the first raise up to 10 cents should be less marked.

When a company that has been compelled to adopt

TABLE II—TIME OF PASSENGER INTERCHANGE ON PETER WITT CAR, WITH COLLECTION OF 7-CENT CASH FARE AND TICKETS SOLD EIGHT FOR 50 CENTS

Time of Trip	Total Time in Seconds	Passenger Movement	Interchange per Passenger in Seconds
2:12 p.m.	283	202	1.40
2:38 p.m.	95	46	2.06
3:04 p.m.	223	162	1.38
3:30 p.m.	207	162	1.28
4:38 p.m.	151	114	1.32
5:04 p.m.	224	176	1.27
5:30 p.m.	253	204	1.44
5:56 p.m.	321	278	1.14
6:22 p.m.	84	60	1.40
6:48 p.m.	153	104	1.47
	1,994	1,508	1.32

NOTE—Tickets constitute 52.5 per cent of total paid passengers, and transfers 19 per cent of total passengers.

TABLE III—TIME OF PASSENGER INTERCHANGE ON DOUBLE-END CAR

Time of Trip	Total Time in Seconds	Passenger Movement	Interchange per Passenger in Seconds
3:24 p.m.	93	46	2.04
3:48 p.m.	95	52	1.83
4:12 p.m.	192	68	2.82
4:36 p.m.	108	78	1.38
5:00 p.m.	306	156	1.74
5:24 p.m.	125	58	2.16
	919	458	2.00

Fares on inbound trips are paid as passengers enter and on outbound trips as passengers leave the car.

Time of passenger interchange on double-end car..... 2.00 seconds  
 Time of passenger interchange on Peter Witt car..... 1.32 seconds

Increase per passenger with double-end car..... 0.68 or 51.5 per cent

The end of high operating cost is not in sight as long as there is a prospect of increased trainmen's wages, and as operating costs are now double those existing in 1914 it follows that 6- and 7-cent fares are not going to provide the necessary revenue except under the most favorable circumstances. The only traction companies that can survive under a 5-cent fare, 6-cent fare, or even a 7-cent fare, are those which under pre-war conditions could have maintained successful operation under a 3- or 4-cent fare. Inasmuch as no substitute has been found for street railway facilities, civic authorities must recognize the justice of a fare that will not only pay for the service rendered but will enable the utility properly to maintain its lines, provide for extensions and protect the capital investment.

In a great many cases such a fare will be 10 cents and not an odd fare. Psychological reasons have been the chief cause of decreased riding with the adoption

of a 6- or 7-cent fare must reduce service, skimp maintenance and refuse extensions on account of inadequate revenues, the result from every standpoint, both of the public and the company, must be less satisfactory than if it had squarely faced the issue and demanded a 10-cent fare, at the same time providing the service that formerly went with the 5-cent fare. Ten cents will be a fare of such convenience for both patron and railway company that if operating expenses should subsequently decrease, I believe there would be a preference for more service rather than a decrease to an odd fare with the inconvenience of handling pennies, the delay in change making and other difficulties of an odd fare.

This 10-cent fare condition might be termed visionary, but if the public is convinced that the service rendered must be in direct proportion to the fare paid, I believe it will prefer maximum service for a convenient fare rather than odd fares and skimmed service.



TESTS ON THIS DOUBLE-END CAR HAVE SHOWN THAT THE TIME OF PASSENGER INTERCHANGE WITH IT WAS OVER 50 PER CENT GREATER THAN ON A PETER WITT CAR



# Advantages of Higher Schedule Speeds

They are of benefit to both the company and to the public — What the railway company should do and how the city officials can help to secure the desired results

By **JOHN A. BEELER**  
*Consulting Engineer, New York City*

**F**EW electric railway operators realize how completely their prosperity is dependent on their schedules. It is a fact that schedules may either make or break a company. Earnings come in by the car-mile and expenditures go out by the car-hour. A failure to keep these fundamentals in mind may defeat what otherwise would be a successful management.

Volumes might be written concerning the advantages of higher schedule speeds. The subject has been approached from various angles, but always with the same conclusion: that the schedule speed should be as high as possible consistent with the safe operation of the cars. But the tremendous advantage to be gained through the higher speed is rarely brought out.

The best way of illustrating the subject is through a concrete example. The following tables relate to two systems of similar size, doing the same business, but with different schedules. They may be known as A and B. Their principal statistics are given in the first table in this column.

These systems so far are identical. Their trackage, earnings, and wages are the same. The two would stand on the same plane as to ultimate results were it not for the difference in their schedule speeds, which from now on is the controlling factor in the operations of the two systems. (See second table).

	A	B
Miles of track operated.....	40	40
Car-miles per annum.....	2,857,000	2,857,000
Gross earnings.....	\$1,000,000	\$1,000,000
Earnings per car-mile.....	35c.	35c.
Earnings per mile of track.....	\$25,000	\$25,000
Average trainmen's rate per hour.....	50c.	50c.

While the car-mile earnings are the same as shown before, note the effect of the difference in speed on that most vital factor, the earnings per car-hour. The large-

	A	B
Speed, miles per hour.....	7.0	10.5
Expenses per car-hour.....	\$2.20	\$2.20
Earnings per car-hour.....	\$2.45	\$3.68
Operating ratio.....	90%	60%

est single item in operating expense today is trainmen's wages. After this item (\$1 per hour for two men) is deducted, system A has left \$1.45 to pay all other operating expenses and fixed charges, while B has \$2.68, or more than the entire receipts per car-hour in the former case. The resulting operating ratios are respectively 90 per cent and 60 per cent.

System A has but 10 cents of each dollar of gross receipts left, while in the case of B 40 cents or four times as much remains after operations that is available for interest and other charges.

### HIGHER SPEED REDUCES INVESTMENT ALSO

Neither in the amount of fixed charges to be paid are the two roads on a par, although the interest rate is the same. While both systems operate the same amount of trackage and the same number of car-miles, the slower speed of A necessitates the use of more cars to provide an equal amount of service. This in turn requires a greater investment not only for cars but also for car house, shop, and plant facilities, greatly increasing the interest, depreciation, replacement and overhead charges generally. This is shown in the investment table in this column.

From the above it is seen that system B is doing as much business with sixty-six cars as A is doing with 100. In one case each car has annual gross earnings of \$15,000 and in the other but \$10,000; consequently, the more extensive plant required by the slower schedules of A make an invest-

	A	B
Number of passenger cars required....	100	66
Total system investment.....	\$4,500,000	\$3,500,000
Investment per dollar of business.....	\$4.50	\$3.50

ment of \$4.50 for each dollar's worth of annual business, while B with its better schedules has but \$3.50 invested. B is thus given a further advantage in interest charges of 6 cents on each dollar of income, which alone will equal \$60,000 annually for the system.



JOHN A. BEELER



The financial difference between the two roads is summed up in the condensed operating statements below:

	A	B
Gross earnings .....	\$1,000,000	\$1,000,000
Operating expenses .....	900,000	600,000
Net earnings from operation.....	\$100,000	\$400,000
Interest on investment:		
Six per cent on \$4,500,000.....	270,000	
Six per cent on \$3,500,000.....	.....	210,000
Surplus .....		\$190,000
Deficit .....	\$170,000	.....

Thus after providing for all outgo one system shows a huge deficit and the other a splendid surplus. One is prosperous while the other is in the hands of a receiver. It must be remembered that these roads and the volume of business done by them are identical, the difference being entirely in their schedules and the effects resulting therefrom.

In some cases an even greater difference between two roads similarly situated will be found. A large portion of the public desire more rapid transportation. Even comfort seems to be a secondary consideration to many. This is seen in the survival of the jitney evil in many places even at the same rate of fare. People will put up with all kinds of inconvenience and poor service because they are taken to their destinations quickly. This will naturally result in greater receipts for a fast line than for a slow one. Higher schedule speeds have the effect of increasing the per capita earnings, and so of making the property more prosperous.

It may appear difficult to understand how there can be such a wide difference in the speeds of two different roads. A and B represent the two extremes of operation found in city service. One maintains exceptionally slow schedules, the other exceptionally fast. Extremes have been selected purposely to illustrate the vital importance of this subject.

**MANY OPERATING EXPENSES, BESIDES WAGES, ARE LOWER PER CAR-HOUR WITH HIGH SPEED**

The expenses per car-hour, on the other hand, are practically the same on the two systems. The wages, which comprise by far the largest single item, are identical. Since the higher speed in road B is largely due to the fewer stops and less running on resistance the power is slightly less in spite of the higher speed. Every stop eliminated saves almost one-half pound of coal. A car operating on the full running points takes nothing like so much as one running on resistance. The track maintenance is virtually the same in the two cases, as the maximum speed has but a limited effect unless the track is in very bad shape. The car maintenance, however, is very largely increased with the added stops and resistance running, due to the increased wear and tear on the brake shoes, trucks, armatures, controllers, doors and car bodies.

While it appears almost paradoxical, the accident cost for the high-speed road is less per car-mile than for the slow one. This same condition has been borne out on other roads that have reduced the number of stops and increased the schedule speed. Figures from Philadelphia show that the introduction of the skip stop there caused a decrease in accidents. My experi-

ence as an operator showed that there was a 50 per cent decrease in accidents when the speed was increased from 8 m.p.h. to 10 m.p.h. The slow, halting progress of cars in some cities tends to make for carelessness on the part of public and employees, while fast movement requires the motorman to be on his toes, with his hands on the controller and brake and his eyes watching the track. He is the first one to get hurt in the event of a collision, and naturally the higher the speed the more he will be on the lookout to avoid accident.

Because of the smaller investment, and smaller number of cars and of employees on road B the items of general expense are lower. Taxes and insurance are also less. On the other hand the items of general expense will be divided by a smaller number of car hours, so that the various items of operating expense offset each other, resulting in the same cost per car hour in the two cases.


**HOW TO GET INTO CLASS B**

For the average street railway system the question today is how to get out of the class of roads in the condition of A and get into the B class. The problem is much more difficult than might appear at first glance, in fact, so much so that the manager usually makes a few attempts, excites the opposition of the public and the employees, and gives up in despair. True, there are physical limitations on some properties, that make it impossible to operate at as high a schedule speed as on others. Very frequently, however, many of these physical handicaps are the result of custom and can be overcome or greatly minimized by various means.

The manager of a property will find that the limitations to speed fall into a few general classes. First of all he should see that the mechanical condition of the various elements is such that higher schedule speeds are possible. The track must, of course, be in such condition that it is not necessary to reduce speed on account of its poor condition. This does not necessarily mean that large additional amounts must be spent on track maintenance for the purpose, but that the track should be kept in the proper condition to insure safe operation and give normal maintenance costs.

It is in the equipment that the most can be done to make higher schedules practicable. Usually a system of any size will have a number of different types of equipment, with different motors and with varying speed characteristics. On some properties these different types are used indiscriminately. The simplest move that can be made is to segregate these different cars by routes so that the slow cars can be placed on lines incapable of high speed and keeping them separate so far as possible to prevent them holding back the faster cars. If new cars are to be purchased, the fetich of "local conditions" should for the moment be forgotten, and a standard type of car designed along modern lines, and capable of faster schedules, should be selected. Frequently changes can be made in the steps and doors that will make for faster loading. Automatic devices for opening and closing the doors, and for signaling the motorman, will aid in reducing the dead time. A study of the gear ratio should be made to see if all that is in the motors is being obtained. Doubtless when the manufacturer furnished





the motors they were properly selected for their work, but perhaps a few years have changed conditions. The cars may even be on different routes or on different service from that which they were originally chosen. Frequently attention to this item of gear ratio will make it possible not only to speed up the schedules but to save power at the same time.

Having done everything possible with the mechanical features of the property, the next is to utilize them to the fullest advantage in the construction of the actual time-tables. At this point is the greatest chance to save or lose money. The bane of most companies today is excessive layovers. Often two or three cars will be found at the end of each line, ostensibly to "protect the headway," but more frequently they are an ill-advised concession to labor. This practice saps the prosperity of the company and ultimately will affect the employees adversely. Superintendents and others in authority should see to it that this important phase of the subject is understood and appreciated by the employees. Then, too, it is frequently possible to reduce the actual running time. Faster acceleration and braking, less running on resistance and wasted time all along the line, will permit of tightening up the schedules a minute here and a minute there, always with the same beneficial result.

#### MUCH BENEFIT FROM PROPER TEAM WORK

In this work the Instruction Department will necessarily play a leading part. In the past far too little attention has been paid to the instruction of the trainmen for best results. The conductor is shown how to take in the money and get it safely to the treasurer, and the motorman how to apply power and brakes to get the car over the road without accident. But the fine points of the game are seldom brought to the attention of the men. The value of the second should be brought out forcibly, and methods discussed and explained for reducing the waste of time. The two men on the car must work together. The motorman must be alert and on the job. He must take advantage of every opportunity to keep his car moving. The conductor has a much larger influence on the schedule than is generally recognized. He can assist by always being ready when the car stops, opening the doors promptly, announcing the route, making change quickly, getting the passengers past him into and out of the car. Then he should not waste any time in giving bells to the motorman, and should always give a sharp, clear signal that will not have to be repeated. While the car is moving he should call the streets, prepare transfers, make up his trip record, and so at the end of the line be ready to turn the car around for the return trip.

The passengers, too, can do their share by moving quickly, having change ready, asking for transfers promptly, and getting near the exit door when ready to leave instead of waiting until the car stops. Moving away from the doors to prevent congestion will also be found a great aid in reducing running time. When the employees and public are brought to realize that these things have an effect on car fares and on wages a long step will have been taken toward better schedules.

The greatest assistance of all in the establishment of faster schedules can come from the authorities. Their co-operation may assist in many ways. During the war the railways were given the assistance of the Fuel Administration to reduce excessive stops through the medium of the skip-stop. In some cases the introduction of skip-stops was unfortunately arranged, so that the antagonism of the public was aroused. Where the skip-stop has been properly installed there has been little or no complaint; but in some cases a careful study was not made, with the natural result that on the cessation of hostilities the public demanded the abolition of the system. Even where it has been abandoned attention to the present crisis may call for a reconsideration and introduction of the skip-stop, perhaps in a modified form. Even where the skip-stop cannot be re-installed *in toto*, attention should be called to the matter of unnecessary stops. In almost every city will be found locations, especially in the congested business section, where stops are poorly placed and where a little attention to the matter may result in the elimination of from one-fourth to one-half of the stops. In such a locality the elimination of a few stops may be worth much more than the elimination of many stops in the suburbs, for in the first case all the cars on a main artery will be affected, while in the other a comparatively few cars will be concerned. Then, too, in the business district nearly every car will make all stops, while in the suburbs the cars frequently pass by a number of stop locations.


Stops in the downtown district are often poorly located. Cars may stop in locations where they will block other cars, vehicles, or pedestrians. This is especially true at junctions. By making the stops outside the junction the delay will be materially reduced.

#### PLATFORMS AID TO SPEED UP LOADING

Loading platforms and safety zones can be used to great advantage in speeding up the movement. Platforms should be very generally used at heavy loading points where the street is wide enough to permit. In fact, the possibilities of loading platforms have not as yet been fully appreciated. They have a marked effect in speeding up the time of loading and unloading. They reduce street congestion and prevent accidents.

Where platforms are not possible, safety zones may possibly be employed at certain periods of the day to assist in loading. It may be said, however, that if there is room in the street to permit of safety zones during the hours of maximum traffic, when vehicle congestion is usually most acute, there seems little reason why they should not be made permanent and become raised loading platforms.

The greatest assistance from the authorities can be obtained in the regulation of street traffic in general. As the street car is the vehicle of the many, while the automobile is the conveyance of the few, the street car should be given precedence generally at street intersections. This principle should be brought out forcibly before the police departments in all principal cities, as it has a tremendous influence in speeding up the cars. When the congestion at the street corner is acute a great deal can be done to speed up the cars and traffic



generally by the elimination of left-hand turns for vehicles. The left-hand turn in some cases is almost a menace to the safe handling of the traffic, and getting rid of it makes the life of the traffic officer much more endurable.

On downtown streets the cars are frequently slowed down by the unlimited parking of automobiles and other vehicles, particularly where the street is narrow. It is not possible to eliminate all parking in the business districts, as the occupant of a building is entitled to free ingress and egress, but there are limitations to the use of the streets for garage and storage purposes that should not be forgotten. During the rush hours

especially the streets should be reserved for the free movement of traffic. On the busiest thoroughfares the parking should be limited strictly to that necessary for the conduct of business.

One-way streets may be resorted to in order to reduce congestion, but their use is limited. With single-track lines they may become necessary, but otherwise it is usually well to confine their use to the narrower streets at right angles to the car tracks.

All-in-all, the entire subject may be summed up in one word: co-operation. Only in this way can the result so sorely needed by the street railways be obtained, and it matters not the exact form in which it is desired.

## Business Follows Service

Service means giving the people what they want when they want it—The safety car meets the requirements when it provides fast, frequent and safe transportation

By **E. M. WALKER**

*General Manager Terre Haute, Indianapolis & Eastern Traction Company,  
Terre Haute, Ind.*

**T**HE past few years have given to us all an experience of conditions we never knew before. The war suddenly compelled us to revise our ideas as to some industries which we had come to think were indispensable, teaching us that they were non-essential. We have passed through a period when the pruning-hook has been beaten into a sword. Industries have been bent to the uses of warfare. As a consequence of the waste and devastation of war, a great change has intruded itself into the relation between buyer and seller. Catering to the buyer has seemed at times to become a forgotten art in a state of the existence of more buyers than sellers. It has become a question of not what is the price, but have you got the goods and can you deliver them? It is no wonder that under such conditions, service has often given place to dis-service.

But the order will again change to its normal routine, just as readily as it was upturned. People will have to be served, and they will depend upon each other for service just as much as in the past. The buyer will again learn to "beware" that he is getting not only goods but service. As it used to be in the good old steady comfortable days, the seller who sells service along with his merchandise will be rewarded with business.

Perhaps no single industry has felt so keenly the

effect of the hard conditions of war as that of city street railway transportation. The fixed rate of fare, declared by many experts to be a psychological necessity, the lengthened ride, the higher cost of power and of equipment, and lastly, the rise of platform wages to figures never heretofore deemed compatible with the fixed rate of fare—all have combined to increase the difficulty of making both ends meet. In many cases, even with increased rates of fare, it has become impossible to maintain operation, and the struggle has been given up.

Now, can we determine whether this is due to economic causes that are operating to push the street cars off our streets and let their places be taken by something else, or it is that the business, subject to always-changing conditions, has changed more rapidly of recent years? If so, what are we to do to get enough business to make the industry not only self-sustaining but profitable? Because the people are fair and will patronize the man who gives the best service and will pay a fair price for the service. One man stops at a certain hotel in a city which has a number of first-class hotels, because every employee in the hotel invariably says "Good

morning!" to him when he is starting the day. What a simple, and yet what a carefully thought-out way to get his business regularly.

Many now in the street railway business have seen



E. M. WALKER

the development of the means of city transportation from the small capacity horse car to the larger car, electrification, still larger cars, then double-truck cars. Strangely enough, when the large cars were put on, in many cases schedules were lengthened, on the theory that the movement of traffic could be controlled. Indeed in many instances the development of the larger capacity street car had been due to a need of reducing the cost of carrying a passenger. For the platform wage, at first merely nominal, had steadily risen higher and higher, until its relation to the carrying capacity of the car was out of all reasonable proportion. Therefore, we saw cars of twice the carrying capacity operated less frequently in an effort to correct this relation. This necessarily brought on another burden, for the increasing size brought with it increased weight and increased power requirements to move the cars. Also, the rush-hour periods, taxing the capacity of even the large cars, required service and schedules which, for the periods of light travel during the remaining hours of the day, were unwieldy.

The mind of man has ever been at work studying how he could make his living by catering to the needs or habits of his fellows. For we must all live off each other, and these needs and habits are so many and so varied that they continually engage the mental activities of the thoughtful.

Thus came the automobile and by easy stages of development, the cheap automobile, to try its hand at the problem of moving the streams of city passenger traffic. There are few communities that have not had, or are not having, their jitney experiences. And in all cases these transportation agents have made serious inroads into the revenues of city street car companies, endangering the welfare of properties in which large permanent investments have been made.

#### WHY THE JITNEY?

Now why the jitney? Why should this generally reckless vehicle have been accepted by the erstwhile car rider as a means of carrying him down town and back, when he had previously and for years depended solely on the street car? There is no denying that the jitneys were doing the business. Were they giving the service? They were able to, and did, carry the worker, the clerk, the business man and the shopper, up town or down town and in a hurry, much more quickly than a street car, and as it happened in many cases, much oftener, and for that reason they seized and held a part of what we will call the legitimate business of the street railway.

Why do people ride in jitney buses? Simply because they have come to think that they are in a hurry at all times, and because they are impatient of waiting long on a street car. Many a street railway manager has had the experience of feeling that he has a certain close personal friend who is so much, and so strongly, his friend that he would never ride in a jitney, only to be completely disillusioned by seeing that selfsame friend seated in the next jitney bus that passed.

Either the jitneys have given the kind of service the people wanted, or else many of our street railways have

not done so, otherwise the jitneys would have packed up and moved away long ago. They could have gone as easily as they came, with no impairment of capital investment beyond ordinary wear and tear. And surely the employment conditions of the past few years have been such that any jitney driver could have easily transferred his activities at good wages if he were not doing well enough to suit him in his newly developed profession of "uncommon carrier." It has been of no avail to write theses on the prohibitive cost of operating jitney buses or their relative rights on the streets; they are still here, and they quickly drop in on the stream of human travel whenever it may be found to be flowing in paying quantities.

On the other hand, what have we done to meet this competition which has tortured us so grievously during the past five years? And there is no gainsaying that the gross earnings of all the jitney busses in the United States during the past few years, added to the earnings of city street car lines, would have put a different sort of curve on the charts of the statisticians. Perhaps we have kept right on building too many large and heavy cars which entailed heavy maintenance charges, heavy power cost and heavy track repair cost, and yet which could not move with the attractive speed and flexibility of the jitney bus? If we have not built new ones in great quantities, we may have at least kept right on operating those that we had. Perhaps we have been unable to do otherwise. Perhaps we have thought that there was nothing else to be done except keep right on dying, slowly but surely. We may be sure that this habit of the people wanting and needing quick transportation will never cease while there are people. And the people will be served, and therefore he who furnishes adequate service in the transportation field, will reap the reward in business.

Statistics recently published in connection with the hearings at Washington before the President's special commission on street railways showed that in some of our larger cities more people are riding daily in automobiles than in street cars. This proves two things: one, that the individual rider finds that he can get to the place where he wants to go more quickly by automobile than by street car, and two, that the individual rider is not particularly interested in the seating capacity or the size of the vehicle in which he is transported, his principal thought being that there must be provided a seat for him, or else speed to compensate for the lack of a seat.

The crowd on a street corner waiting for a transportation medium will yield more readily to the quick-moving, frequent, jitney bus, each one taking away four, five or six passengers, than it will to the heavy and comparatively slow-moving street car which comes along past the corner every ten or fifteen minutes. This is a proposition that has been so frequently demonstrated as to have become axiomatic. The jitney buses themselves have shown to us in these few short years that Business follows Service.

Let us cross the water, and see what our compatriots are doing on the other side. The very interesting series of articles by Walter Jackson, which have recently



appeared in this JOURNAL, have shown us some conditions of city street railway transportation from which we can make deductions which will at least serve for a basis of comparison, if they are not indeed most helpful.

Generally speaking, over there, in representative cities where conditions have been described by word and picture, as well as by statistical compilations, we find cars which to us look small. It is true that many of them are double decked, but the weight per seated passenger is comparatively light. This makes possible the provision of a larger number of car units, which can readily provide for increased service at rush hours. Published pictures, notably those of Glasgow, show this. The general practice of the zone system of fare collection with a low initial rate is another significant feature. The earnings per car mile, even with smaller cars, and the carrying of more passengers per mile on these smaller cars than are carried in many of our American cities, is also an impressive fact. Lastly, at least for our present purpose, the jitney as we know it here, is unknown, or at least its presence is unremarked in the articles mentioned.

The conclusion we may draw from our brief foreign trip is that the "tram" cars are giving the service needed or wanted, as they are doing the business. Furthermore, the tramways of Great Britain are quite generally supplementing their rail service with bus service which is of a complementary nature extending into urban or suburban districts not deemed as quite justifying a permanent investment.

The psychology of the whole matter is quite plain. The public will have what it wants, and when it wants it, and where it wants it. And service means catering to this condition. We can not make the people take or keep something they don't want or like. This was never better illustrated than years ago by the building of a large and expensive railroad station at Council Bluffs, Iowa. The railroad builders had decided that was the logical place to make the investment, and yet the people built their big city across the river.

#### WHAT SHALL WE DO TO KEEP THE BUSINESS?

What then is to be done to get or regain, and keep, the business that will and must follow the furnishing of adequate means of city railway transportation? We have tried to keep in mind that the people will have the kind of transportation service they want.

It rarely happens in life or in nature that conditions get so hard that there is not a way out. "It can be done" is a pretty safe motto, and is applicable as readily to the street railway business as to any other. What to do about the jitney bus quickly engaged the imagination and thought of forward looking men in the industry, with the result that the safety car made its advent, and in the short space of three years over one thousand of these cars have been placed in operation. This is not the place to describe the new type of standard car. The literature of the industry has been replete with descriptive matter pertaining to installations of safety cars here and there all over the country. The meeting of street railway men within the past three

years at which the safety car has not come up for discussion has been the exception.

The car is extremely light in weight, speedy, comfortable, of ample seating capacity, and so fitted with so-called safety devices as to make its operation by one man not only possible but preferable. For the centralized control of the vehicle in the mind of one man promotes safety. Here then is a means of carrying the people that can be operated a mile as cheaply as a jitney bus. It has the speed of a jitney bus, over six times its seating capacity, many times its safety and comfort, and it affords protection against inclement weather which the jitney bus does not pretend to do. Its very lightness in weight and ease of operation make possible much more frequent schedules; in short, the service can be readily adapted to the business that is to be done.

All these things being true, the safety car must be a worthy competitor of any other means of city transportation, and so it has proven. The results have been the same here and there following the installation of this type of car. Business has followed Service. Service of a high class has been possible, the people have been satisfied, have grown more and more so, and have bestowed their patronage where the service was best.

#### PROOF THAT BUSINESS FOLLOWS SERVICE

An almost endless array of figures could be given to show that this type of car has abundantly proved that "business follows service." If we were to take the results of its operation in every place where it has been introduced, we should find a difference in figures that would be only as to the degree, not in the kind of results obtained. For the sake of a few supporting illustrations, however, to the truth of the statement with which we started out, I will quote an example:

One street railway company, operating a number of safety cars, having commenced less than a year ago, is now carrying on its cars more passengers than in any year of its history, though its "passengers carried" had shown a steady decline for four years previous to the change. It has increased its car miles 28 per cent on a reduced power consumption, and its earnings have shown an even greater increase than its car miles. As an evidence that business follows service, consider the case of one of its city lines, on which, without increasing the number of cars, the schedule was speeded up 10 per cent and an increase in earnings of 14 per cent followed and continued to be maintained. Most noticeable of all has been the satisfaction of the people whose appreciation and support was won by this effort to give the wanted kind of service, and the corollary which has been shown in the greatly decreased number of jitney busses operating.

These are not days for pessimism about any business, least of all the street railway business. The people will be served, they can be, and they must be served. The optimist will find the way to do it under the changed conditions which we now see on every hand. To these changes he will readily adapt himself, and he will find a ready proof here, as elsewhere, of the statement that business follows service.





## Advertising for Traffic

Advertisements should drive home facts—Newspapers, car dash signs, and employees are effective mediums—Both interurban and city line advertising discussed

By **F. G. BUFFE**

*General Manager the Kansas City Railways Company, Kansas City, Mo.*

**W**E HAVE transportation to sell. Most of us have more stock on hand than the trade today is using. Some have marked up the goods and many patrons are showing a disposition to go without rather than pay the increase. In many places our transient friends, the jitney drivers in Mr. Ford's contraptions, are running off with much of our old-established trade.

The question arises: Is it good business policy to hire an advertising manager, buy newspaper space and offer our wares to the public through the medium of printer's ink? There have been many and divers opinions on this subject more or less freely expressed in the past seven or eight years. It may be that the rapid change in conditions brought about recently will to some extent affect the whole subject.

The question naturally falls under the two main sub-divisions, interurbans, and city lines. Also it generally presents more or less of a local problem in every instance. For the interurban road, an experience with one of the largest interurbans in the United States has been convincing that advertising does sell transportation. A large majority of interurbans are competitors of the steam roads and perhaps all of them today charge practically the same rates. It follows, then, that where a customer has his choice between two methods of transportation it is up to the one who wants his business to go after it. The average interurban certainly has enough talking points to justify their being expressed: Rapid, frequent service, comfortable, clean cars, the absence of smoke, dust and cinders are all good things to impress upon the public. In addition the interurban is more of a home product than the steam road. Advantage can be taken of this feeling and proper advertising can make not only customers of its traffic prospects but friends of its customers.

### WHEN YOU DO SOMETHING TELL THE PUBLIC ABOUT IT

Traffic naturally falls into two classes: First, the regular day-to-day travel; second, travel stimulated by special events, excursions, etc. Both should be advertised.

Any road having its terminal in a large city should by all means make itself, its route, its service known to the people of that city. To cite a concrete illustration, I have in mind when the Illinois Traction System completed its bridge and terminals into St. Louis, Mo. Although for three years it had been engaged in building the heaviest bridge across the Mississippi River, the largest interurban bridge in the world, with all the publicity which such an enterprise would naturally secure, yet a thorough advertising campaign was necessary to acquaint the people of St. Louis with the exceptional service that had been made possible for them. This company since its St. Louis entrance in 1910 has been consistently advertising and even yet there are many people in that city who know the McKinley line service only in a vague sort of a way. Tourists visit large cities with excellent interurban facilities offering exceptional side trips of real merit, and in many cases these are never called to their attention.



F. G. BUFFE

whose agents will solicit and build up business. In such cases their efforts should be supported and assisted by proper advertising. As a general proposition, there is no advertising medium which equals the newspaper; however, this does not mean that posters, car cards and other methods are not useful and do not have their place in any well-planned campaign. Posters, if used extensively enough to cover the field, offer an excellent medium. Street-car cards are good. Up-to-date maps should always be used in all advertising matter. Every piece of copy should bring home in some manner the system's route. The effort should be to educate the public to an extent that a mention of the system would instantly bring up a mental picture of the system's map. Frequent service is a lesson to drive home. The steam road may take one to his destination, but the parallel interurban will not only do that same thing but will do it many times a day to the steam road's once. An interurban's adver-

### A WELL ORGANIZED TRAFFIC DEPARTMENT IS NECESSARY

In addition to a thorough advertising campaign, those roads large enough to support it should have a well-organized traffic department



tising should be consistent. Its monogram or design should appear in every piece of copy and on everything used by the road.

The foregoing covers briefly some reasons for the necessity of day-to-day interurban advertising. Special service and special events from their very nature depend for success on advertising. A live traffic department will take advantage of everything of this nature which will bring travel to the road. It is the general consensus of opinion of the operating officials of 90 per cent of the interurban roads that advertising is essential; that a lengthy discussion of this division of the subject is superfluous.

**WHY SHOULD THE CITY LINE ADVERTISE?**

We now come to the question of advertising by city lines. On this subject there is more diversity of opinion without so many concrete examples on which to base decisions. During the last few years everyone has been so busy trying to make a 1913 fare cover 1919 expenses,

have discovered that much of this business once secured was the most unprofitable of all. While advertising may not directly sell our transportation, there are several phases of the situation. Like equipment, advertising methods should change, and the old stuff of 1912 will not do in 1920. The accompanying illustrations show specimens of recent advertisements of the Kansas City Railways Company. They were prepared by E. B. Atchley, director of publicity.

**New Twenty-fifth Street Line to Be Opened, Thursday, May 24th**  
(Direct from Union Station to Stock Yards)

Under the recent ordinance adopted by the city council the new Twenty-fifth Street cross-town line will be coupled with the present Stock Yards line, the western terminus being at Sixteenth and Wyoming and the eastern terminus at Twenty-fifth Street and Troost Avenue. The routing will be as follows:

From Sixteenth and Wyoming east will run south on Wyoming Street to Nineteenth Street, thence south and south-westerly over the Allen Avenue Viaduct and Brook Street to Twenty-fourth Street, thence east on Twenty-fourth Street to Twenty-sixth Street, thence northwesterly over Southwest Boulevard, thence south on Main Boulevard to Nineteenth Street, thence east on Twenty-fourth Street to Twenty-sixth Street, thence south on Grand Avenue to Twenty-fifth Street, and thence east on Twenty-fifth Street to Troost Avenue.

This provides a direct line from the Live Stock Exchange to the Union Station and return. Passengers employed in the Stock Yards district, living south of Twenty-fifth Street and west of Troost Avenue, will find the line particularly convenient in reaching their homes and in going to work.

The present type of cars will be discontinued and a larger type placed on the line.

A 6-minute service will prevail during the morning and evening rush hour periods, with an 11-minute service at midday.

Complaints and suggestions always given prompt, courteous attention.

**The Kansas City Railways Company,**  
Philip J. Kealy, President.

ABOVE, TELLING THE PUBLIC ABOUT ROUTING CHANGES IN KANSAS CITY

BELOW, KANSAS CITY RAILWAYS' ADVERTISEMENT INTRODUCING SPECIAL LINES TO ITS PATRONS

**The Safety Car Did It**

With this modern, quick-service car, headways heretofore impossible are made possible; schedule speed is increased, congestion being thereby greatly relieved.

Lower steps make entrance and exit easy, as well as providing safety and convenience for all patrons.

Passengers will facilitate this service by having the exact fare ready when boarding cars.

To the end that we may better our service in every way possible, we ask your co-operation.

**The Kansas City Railways Co.**

*Safety Car Series No. 4*

**To Tractor Show and Hotel Patrons:**

**SAVE TIME**

By using Special Union Station Line on Main Street in going from Tractor exhibit to Convention Hall and downtown hotels. A 6-MINUTE SERVICE ON THIS LINE!

OR

**NORTHEAST LINE** on Main Street to Nineteenth and thence north on Grand Avenue where an 8-minute service has been established.

**Other Lines Crowded---**

By using the lines suggested you will obtain better service. The other lines passing Union Station and Tractor Show carry passengers to and from residence districts. THEY ARE HEAVILY BURDENED, while the special lines placed in operation for your especial benefit will permit a saving in time and afford you better facilities.


THE KANSAS CITY RAILWAYS COMPANY.

ABOVE, EFFECTIVE METHOD FOR ADVERTISING SERVICE IN KANSAS CITY

or in an endeavor to secure from the unwilling public the right to sell our service at somewhat near its cost, that we may have had time for little else. Street railway riding is done as a matter of necessity and not for pleasure. People use street cars in the same frame of mind that they do sidewalks. Our city transportation systems are the arteries through which the business and civic life of the cities flows. There are certain local conditions that obtain in some communities where parks or other special-event advertising may increase the volume of traffic. However, in the past many railways

Those who have secured fare increases are suffering from a mental state on the part of the public when it comes to paying a higher fare than 5 cents for street-car transportation. The same people who willingly pay double the old price for the movies, three times and the war tax what they used to pay for an ice cream soda, twice what they used to pay for a cigar, act as if their pockets are being picked when they are asked to pay 6, 7 or 8 cents for a street-car ride. The short-haul rider, in order to express his mental objection to a fare increase, wears out his \$13.50 shoes for which





he used to pay \$5. Many more of our ex-patrons in order to express their indignation against the street railway company getting enough for a ride to pay the wages of the train crew willingly pay 10 cents for the privilege of hanging on to an already crowded jitney.

In addition, many of our old friends who were regular morning and evening customers have become affluent and now use their automobiles for the daily trip to the city and back. Inasmuch as man is a gregarious animal and likes company, most of them are in the habit of picking up their friends and neighbors. Not only could we secure this revenue which we so badly need but we would be doing a real service to these people if we could persuade them to leave their automobiles at home. Congestion is a serious problem in every city, and anti-parking laws are making it more and more necessary to put the car in a garage or parking station during the day. Based on the actual cost of operating an automobile and including the parking charge, people are spending all the way from 50 cents to \$1 per day to go from their homes to their business and back.

The jitney is a fair weather pest which in many places is eating large holes in the revenue. Operating a jitney is merely a method of junking an automobile. There is not one jitney driver in 500 who looks far enough ahead to do other than provide for actual running expenses. Some of them may provide for tire trouble, but practically none look to the fateful day when the installment plan "Tin Henry" is no longer servicable. Everything above operating expenses is lived up. As a general rule jitney drivers are a happy-go-lucky irresponsible set of humans who prefer driving a jitney to swinging a pick. Gasoline and rubber at present-day prices are never going to supplant steel rails and electricity for transportation purposes. That being the case, is not any city that tolerates jitneys merely cutting off the municipal nose to spite its face? In other words, those who patronize these pirates are supporting a competition for the benefit of a limited number and penalizing the great majority who now and in the future must depend upon street railways for their transportation.

#### HAMMER HOME THE COST OF AUTO OPERATION

Do not these conditions afford an opportunity for some life-size advertising campaigns which, while not directly selling transportation, should accomplish the result indirectly? An advertisement asking the people to ride street cars will not get them to do so any more than an advertisement begging them to walk on the sidewalks. There is a chance, however, that if the cost of private automobile transportation is hammered home to the man paying gasoline and tire bills, sooner or later he will awaken to the fact that his regular morning and evening trips are costing him money which could be better spent for joy riding. The average automobile owner pays his automobile bills without reducing the cost to a mileage or a daily basis and is thunderstruck when these costs are shown. If the average citizen with any respect at all for the shrunken American dollar of to-day can be made to

realize this expense and at the same time introduced to a street railway service which is 50 per cent better than it was in the days when he used it a lot of private machines might be kept in the home garage, where they belong, during the day.


The average automobile owner is generally a loyal citizen of his town; he is the fellow you will find giving his time boosting civic enterprises and supporting a multitude of outside interests for the good of his city. If a man of this caliber comes to understand that street railway transportation must be supported if his town is to grow, there is a chance of awakening him to the importance of riding the cars and letting his four or five friends who are depending on him for daily transportation pay fare again. The right kind of a publicity campaign may have the effect of waking up a city to the dangers of unrestricted jitney competition. Some of our real estate friends who have turned cow pastures into residential districts at the expense of the street railway in the good old days may come to life and help stop an unfair competition that threatens the transportation upon which their success depends.

#### THE INDUSTRY NEEDS SOME PSYCHOLOGY

As stated before, the street railway industry is up against a mental strain, which is all any advertiser faces when he starts to peddle his wares. The advertising man's job is to change this mental state, and there are many reasons why it can be done. What can be done to bring the revenue passenger's figure back to the point where it was when the ride was 5 cents? Most large city rates now admit of tickets, then why not go after ticket sales on a merchandising basis? Put a sales manager in charge whose job is to see that everyone buys street car tickets. Our poker playing friends state that a man will raise a pot a whole lot quicker when using chips than with hard money. The short-haul rider with tickets in his pocket will take many a ride when he otherwise may hesitate to pay cash. Show the public that increases are not only justified but are absolutely necessary if street cars run at all. Create the mental atmosphere that an 8-cent fare is an honest fare and that any man who talks otherwise is seeking to get something for nothing by asking that somebody else pay his expenses.

It is pretty hard to get anyone who has seen some mighty big issues staked on the turn of the publicity dice time after time and who has seen these forlorn hopes turned into successes say anything but good of the advertising proposition. A large city railway need not go into the circus business or run the system as an adjunct to an amusement park. This business is all right if it comes naturally and if the other fellow is spending the money to furnish the amusement.

The very best advertising medium in any city are street car dash cards. They can push a limited number of words in black ink in the face of more readers per day than any other medium. Donate this space liberally to attractions that are supplying traffic to the line. However, advertising for all this traffic is secondary to getting the 365-day a year back-and-forth business that by right belongs to the street cars and



that has been earned by years of bitter experience and financial loss.

We are public servants in every sense of the word and are conducting the biggest single public enterprise in any community. On us falls the obligation to keep the civic, social and business life of our communities going, and we have not even had the reward that the Bible says should be given to the ox that used to trample out the corn. There is no reason why today's trouble should cast a cloud over to-morrow's sun. The street railway is an absolutely essential institution. Anything in our present civilization that is absolutely essential is going to survive. We have done more than our share of civic building and it is time to get off the defensive.

Of course all this is based on the assumption that the service is worthy of support. Increased service means increased gross. The use of the safety car has demonstrated in every section of the United States that decreased headways and better service mean more

If safety cars are operated and headways thereby reduced 20 per cent, tell it. Use dash cars stating that such cars run on a 3½-minute schedule or whatever it may be. When impressing the public with the necessity for riding the cars, tell it how they run, where and when.

Every street railway has a wonderful potential advertising force in its employees, if it is only possible to secure their co-operation. On some unionized properties this is almost an impossibility at times, but hard, consistent, patient work will do wonders. Make the public understand that further increases in wages and shortening of hours must come from public purses. The Amalgamated Association has to some extent lost its sense of proportion and the point has been reached where an awakened public sentiment will not tolerate further unreasonable demands. If trainmen can be made to realize that their success depends in direct ratio on the success of the road; if their co-operation can be secured each one of them can be made a walking pub-



**SHOP by TRACTION**  
= costs LESS than by auto =

Your shopping center can be quickly, comfortably reached by Traction. Whether you live on the lines of the I. T. S. or within driving distance to any one of its hundreds of regular stops, your latest, most comfortable, certain, most economical way to your shopping center is by the Traction System.

**ILLINOIS TRACTION SYSTEM**  
gives you service any HOUR, any DAY. Its rapid trains, smooth roadbed, clean accommodations take the strain of travel out of shopping. Write for Time Table or ask agent for copy, showing passenger and freight steam road connections.

**ILLINOIS TRACTION SYSTEM**  
TRAFFIC DEPT.  
PEORIA, ILL.  
*ask the agent for Free Post Cards*



**"YOU-ALL sho do SLEEP"**

Courteous attendants supply your every need. Absence of dust, dirt, smoke, cinders insure cleanliness. Windows in uppers and electric fans provide ample pure, fresh air. Extra long berths. Safety deposit boxes.

**Illinois Traction Sleepers**  
nightly, both ways, between St. Louis, Springfield and Peoria. Reach your destination just in time for breakfast, business and shopping.

**Illinois Traction System**  
PEORIA, (Traffic Dept.) ILL.

*ask the agent for FREE POST CARDS*

**ILLINOIS TRACTION SYSTEM**  
the ROAD of GOOD SERVICE



**STUDY the MAP**



Note how thoroughly the I. T. S. and Illini Trail cover Illinois. See how easy it is to reach the principal Illinois cities where our electric lines make direct passenger and freight connections with steam roads.

**RIDE via TRACTION** Enjoy the clean, cool, comfortable electric way with frequent, pleasant service from YOUR home to your shopping center.

**SHIP via TRACTION** Use the daily freight service of our electric lines on package, i. e. l. and car load shipments. Ask any agent for passenger and freight rates or write to Traffic Department, Illinois Traction System, Peoria, Illinois.

**ILLINOIS TRACTION SYSTEM**  
PEORIA—SPRINGFIELD—ST. LOUIS—DANVILLE  
C. O. & P. Ry., (ILLINI TRAIL)  
Joliet—Ottawa—Starved Rock—Princeton

**ILLINOIS Traction System BLOCK signals**

*watch over you with a protecting eye—day and night—They Insure Your Safety.*

**Illinois Traction System and Illini Trail**  
were the first electric railway to install automatic electric block signals—just as they are the pioneers in every convenience for safety, comfort and pleasure of their patrons.

**Use I. T. S. and Illini Trail**  
for pleasure and business. Ride by traction on your picnics and to your shopping center. Ship by Traction your package and car load freight. Ask the Agent or write to I. T. S. TRAFFIC DEPARTMENT, Peoria, Ill., for all data on frequency of passenger and freight service and rates.

**Illinois Traction System**  
Traffic Dept.  
Peoria - Ill.

C. O. P. Ry.  
(ILLINI TRAIL)

*ask the agent for FREE POST CARDS*



RECENT EFFECTIVE ADVERTISING FOR TRAFFIC BY THE ILLINOIS TRACTION SYSTEM (Courtesy of E. E. Soules, manager department of publicity I. T. S.)

riding. Now is the time to impress upon the minds of our traffic prospects the fact that the street railway systems of the United States helped build their cities and now have the right to demand support. This is an idea of the basis upon which to key our publicity campaigns. We have service to sell, therefore it follows that we should tell of the service. The best standing advertisement a company can have is the appearance of its cars on the street. The public does not care about the condition of the shops, the power plant or the interior of the car barns; it sees cars, it meets the trainmen and its impression is formed entirely by appearances. An advertising campaign might be started by freshening up as much as possible. Have the cars cleaned inside and out, teach trainmen to be courteous, uniformed and neat appearing, see that the little things are right, such as signs, fenders, curtains, signal bells, etc. Keep headways regular. These things go with good service, and appearances count for everything. Let the public know just what is being done.

licity bureau. The men must be trained and given ammunition to shoot. Stories that are printed for the public should be printed for the men in neat pamphlet form; frequent meetings should be held and the men impressed with the necessity of acting as a unit with the management along these lines.

Advertise service, make it worth selling and sell it. Increased service means increased receipts. Put every ounce of argument you have in your talk with the public. Get off the defensive, do not let an unmerited attack or an unwarranted statement go unchallenged. If a hearing cannot be gotten in any other way print a paper and distribute it on the cars. Instead of merely following our old publicity methods of telling the public our financial condition and "laying the cards on the table," to use a hackneyed and time-worn expression, it is possible to make advertising the medium for carrying the new message of service and the necessity for its use. The street railway is necessary to the life of our cities and what is necessary will be supported.

## The Safety Car in the Movies

How a romance has been woven about the operation of the safety car—Film well adapted to demonstrate advantages of this car from popular viewpoint

**T**HROUGH the courtesy of the The J. G. Brill Company, the General Electric Company, the Westinghouse Electric & Manufacturing Company and the Safety Car Devices Company, the Industrial Department of the Universal Film Company, New York, is distributing an entertaining and instructive film of the Birney safety car entitled: "Fares, Please."

The original plan of the four companies was simply to get a picture that could be used for instruction purposes and as an accompaniment to the report of the American Electric Railway Association's one-man car committee at the 1919 convention. However, after becoming acquainted with the character of the car, the Universal Company suggested that the subject be expanded to make the picture attractive to the general public. Accordingly, the picture combines a description of the safety car in action with a story that drives home several strong points in the cause of better public relations and better car service. The following outline of the scenario and the accompanying "stills" will give some idea of the moving picture man's way of conveying an idea direct to the ultimate consumer—in this case, the man who rides on the street car. The picture as shown by the committee is an abbreviated one-reel version of the following scenario.

### THE PLOT IS OUTLINED

The opening picture is a marching scene upon which appears the statement that of all the men who volunteered to go to France for Uncle Sam, none gave a larger proportion of physically and mentally alert individuals than the car platform men, because electric railways select for platform service only those who are capable of passing a severe examination. Continuing, this statement points out that the reckless jitney driver is self-selective.

Of all the platform men who entered the service there was no finer specimen than Fighting Jack O'Malley, a handsome Irishman noted for good humor that did not fail him, even in the rush hours. Jack is shown as he steps off of a car to revisit the carhouse that he has not seen since the day he enlisted. Upon arrival at the carhouse he receives an uproarious (it looks uproarious!) welcome from his old comrades. They begin questioning him on how he won the *croix de guerre* and other decorations that bespangle his bosom, but he waves them aside with a laugh and says that the first thing he wants to know is whether the old job is waiting for him. As a proof that it is, his friends show him a poster on the carhouse reading: "Soldiers, Sailors, Marines! Your job awaits you."

In the meantime, the noisy greetings below have disturbed the division superintendent just as he is dictating a letter about the wonderful increases in traffic due to the inauguration of safety-car service.

Upon looking out of the window, he espies Jack and immediately invites him up. After the first jovial greetings have been passed, the superintendent, still full of the safety-car letter, asks him if he wouldn't like to try his hand on the new safety cars. Jack is rather nonplussed as he had never heard of that kind of car before. Looking at his wound stripe, he confesses that he does not even know whether he would have the strength to operate the new car. The superintendent laughingly assures him that brain, not brawn, is what is needed to operate the safety car, and there was no doubt that his record showed he had plenty of the former article.

Thereupon the superintendent describes to Jack the characteristics of the first line upon which the cars were installed, portions of the line being cut in to illustrate his conversation in the approved movie manner. At one end of this line is the finest residential section in the city. Here many of the residents have ceased to use their automobiles for the short trips downtown because they are getting more service with a faster car. Next is shown the business district with its variety of big cars, open-bench cars and safety cars, private automobiles, jitney automobiles and jitney buses.

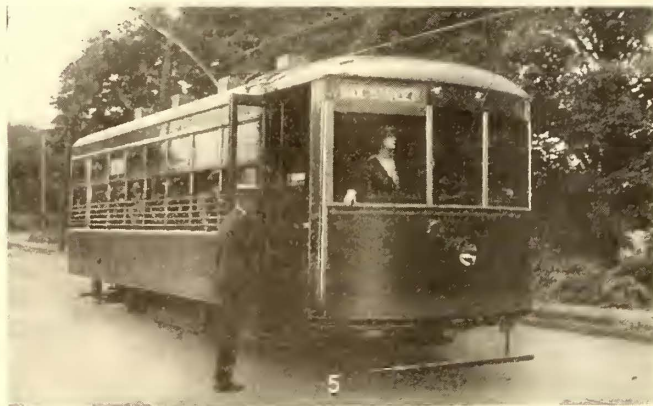
From the business district, Jack is conducted in imagination to the opposite end of the line. Here the neighborhood is much poorer, but the riding has increased—not because the people are putting their machines in garages but because they have less temptation to walk.

Continuing his enthusiastic story, the superintendent explains to Jack that the low wheels of the safety car permitted the abolition of one step, thus making the car popular with old people, children and women. This feature, the methods of boarding, alighting and paying fare are all illustrated by cut-ins made under actual traffic conditions without the knowledge of the passengers filmed. The superintendent lays great stress upon the emergency applications which give the car its name.

Having worked Jack up to almost his own degree of enthusiasm, the superintendent tells him that this car really saved both their jobs. He then calls up the division foreman and asks him to send Jack out with an instructor. In the following scenes, Jack is shown all the manipulations of the control apparatus and its inter-operation with the doors, steps and sander, until he is considered fit to take the instructor's stool. All the emergency applications are repeated in a number of close-up scenes.

### THE SAFETY STOP IS BROUGHT INTO ACTION

Shortly after Jack has begun to run the car, a pretty girl steps aboard. Jack is looking at the fare-box out of one corner of his eye but does not see the features of his fair passenger. No sooner, however, are the doors closed and the car under way than the young lady



Scenes in the  
 Moving Picture  
 Scenario  
 Featuring the  
 Safety Cars



No. 1—Jack returning to take up his old job.  
 No. 2—Jack telling how he won the Croix de Guerre  
 No. 3—The division superintendent sees Jack return.  
 No. 4—The division superintendent suggests that Jack operate a safety car.  
 No. 5—Jack while operating his car recognizes his sweetheart.  
 No. 6—The small boy tells Jack to run the car or he will do it himself.

looks up at the operator in khaki and utters one delighted shriek: "Jack!" Jack is so startled upon recognizing his sweetheart (for who else could it be?) that he lets go of the control instantaneously. On other cars, the audience is told; this pardonable neglect might have led to an accident; but not so on the safety car, for no sooner had Jack forgotten himself than the emergency equipment goes into action with its customary vim and certainty. Again the breaker brakes, the sander sands and the scenery comes to rest.

So immersed is our hero in finding his sweetheart thus unexpectedly that he has failed to observe either the stopping of the car or the junctures of his good-natured instructor. However, one passenger has taken particular notice of the goings-on. Finding that his yells are unproductive of results, this ragged young gamin steps forward and tells the infatuated Jack that if he doesn't get busy said gamin will prove he can run the car himself! Thereupon the young lady retires to the background and Jack returns to the job of running the car.

In the final scene, Jack is shown on his return to the carhouse. After he has told the boys the story of the wonderful little car and of his adventure on it, he consents to tell them of his days in France when the Hindenburg line was subjected to such severe corrugations.

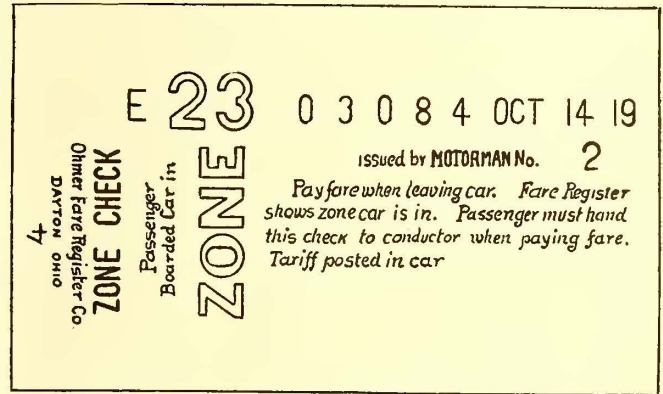
## Developments in Fare-Registering and Ticket-Issuing Devices

**Changes in Fare Systems and Rates Charged Have Produced New Conditions Which Require New Methods and Apparatus in Collecting and Accounting**

**M**ACHINES have been developed for use with zone-fare collections together with modifications of standard machines which will facilitate use on roads applying the zone system of fare collection.

The general consideration being given by electric railways to the zone fare system as a means of meeting increased costs has led to the design of several new fare collecting and registering devices for use with this class of service. For example, the Ohmer Fare Register Company has brought out two new machines to meet the requirements of zone collection methods. The first of these is a zone-ticket printing and issuing machine. This prints from a roll of plain white paper a ticket bearing the zone number, the date, the conductor's number, the direction of operation, the machine number, the number of the motorman or conductor operating the machine and special instructions and advertisements as required. When the passenger enters the car he receives a ticket from this machine. An indicator in the machine shows the number of the zone in which the car is operating, which number corresponds to the zone number printed on the ticket. The machine is operated by means of setting levers or knobs at the back and by a pedal. The machine does all the printing so that tickets are issued quickly and conveniently and the operation of the machine is positive.

The second machine which this company has developed is a universal zone-fare register. This is intended to

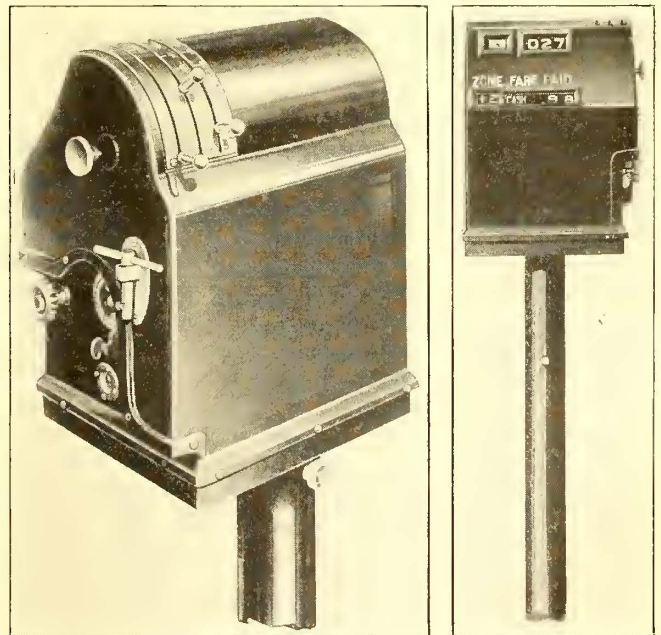


SAMPLE ZONE-FARE TICKET

stand on a pedestal on the rear platform and is operated by the conductor. As the passenger pays his fare the amount is registered by using a pedal. The amount registered is clearly indicated to the passenger, the number of the zone to which the passenger pays his fare is indicated, and a printed record of the transaction is made. The register will record any cash amount up to 99 cents, together with the necessary non-cash denominations such as tickets, pass, transfer, etc. The construction is so arranged that the register can be quickly removed from the supporting column if desired and placed at the other end of the car where a similar support is located. Where the Ohmer zone ticket-issuing machine is used the zone register and ticket machine may be used interchangeably on the supports and operated by the foot pedals.

### FOUR NEW PORTABLE MODELS DEVELOPED

The Rooke Automatic Register Company has brought out four new models to satisfy the present demands. These are similar in appearance, size and method of use to the familiar Rooke models, but have different coin



Operating Side

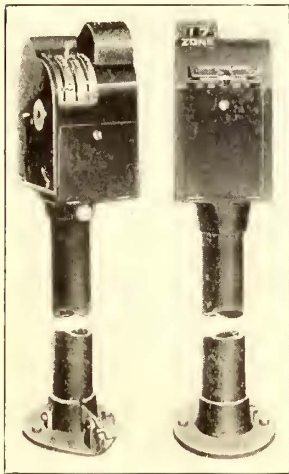
Passenger Side

UNIVERSAL ZONE-FARE REGISTER

capacities. Substantial improvements have also been made to provide more rugged construction.

Heretofore the Rooke register has been regarded as a one-coin proposition, although several companies have used adaptations of the register to receive and classify separately nickels and dimes, also nickels and one size of metal ticket. The manufacturers have always considered, however, that the dime could not be received into the old type registers on the basis of the accuracy which had always attached to the receipt of nickels. If nickels only, however, were accepted in city operation the passenger who tendered a dime, wishing to pay two fares, had to be given two nickels in exchange from the conductor. This involved some delay and objection to the register. This handicap of limitation to one coin has now been eliminated and the new register will receive nickels, dimes and quarters.

In regard to pennies the manufacturers state that they can arrange to register pennies apart from other cash if it is desired, but there is some difficulty in providing for the registration of pennies and dimes together, as the difference in diameter of these two coins is so small. In cases where six-cent or seven-cent fares are to be collected, the manufacturer of the Rooke register recommends the use of a metal ticket to cover the fare. A passenger who does not secure one of these metal tickets would simply insert the nickel in the register and hand the penny to the conductor, who would be charged at the rate of six cents a point. He would naturally, therefore, secure the penny.



Operating Side Passenger Side  
OHMER TICKET PRINTING AND ISSUING MACHINE

The four new types of register include first the two-coin type for nickels and dimes. The insertion of a nickel in this register moves up one point on the totalizing counter. The dime charges two counts more. The conductor's turn-in is figured at the rate of five cents per point for each numerical point. The three-coin register provides for nickels, dimes and quarters. The insertion of nickels and dimes charges the conductors exactly as with the two-coin type. The quarter operates another counter, and charges the conductor with one point for every 25 cents received. This is a two-counter machine.

The third type is the three-coin register for nickels, dimes and metal tickets. This is also a two-counter register. Nickels and dimes are registered on one counter, and metal tickets on an entirely separate counter. The metal ticket can represent any arbitrary fare. The fourth type developed is arranged to receive nickels, dimes, quarters and a 2½-cent metal ticket. This four-coin register will charge the conductor at the rate of 2½ cents for each point accumulated on the totalizing counter. The insertion of the 2½-cent metal ticket

registers one point on the totalizing counters, the insertion of a nickel two points and the dime four points, etc. The quarter registers one point on the separate counter. In the several types all coins are paid into the one coin slot, and the registration is carried out in the usual manner.

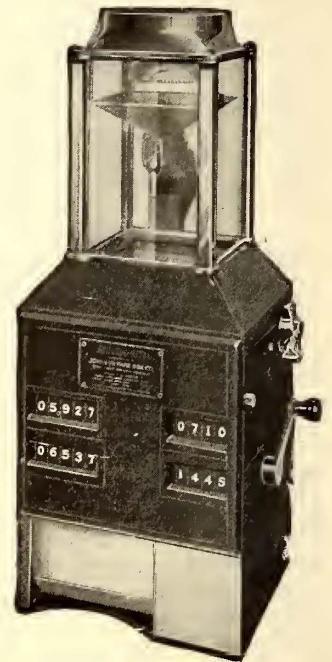
#### SEVERAL NEW TYPES OF FARE BOXES AND AUXILIARY DEVICES

The Johnson Fare Box Company, Chicago, Ill., has developed several devices in an endeavor to solve the new problems of fare collection. Its instantaneous registering fare box will be shown for the first time at the Atlantic City convention. This fare box is arranged to receive coins of four denominations, consisting of nickels, dimes, pennies, and Canadian nickels, and three sizes of tickets. Immediately after the fare is deposited it will be registered and shown on the overhead indicator in full view of the paying passenger. The coins then come into view on an examination plate so that any defective coins may be discovered. This system appears to offer the advantages of a double check with the added safeguard of immediate visible registration which is entirely automatic.

A new type of transfer-issuing machine has also been developed, also electrically operated. By pressing a lever a transfer is printed and issued immediately. The transfer shows the route number in letters or numerals, the date, time limit, direction of operation, serial number and conductor's voucher number. This prevents fraudulent or careless extension of the time limit or date or any other mistake in the transfer, and the railway operators will thus be saved disputes with passengers. There should also be a considerable saving in paper because no transfer need be printed or issued until required by the passenger. This transfer machine can also be used for the purposes of printing and issuing a zone-fare ticket.

Still another device brought out by the Johnson Company is an adjustable change maker which can easily be adjusted to eject any number of coins. This should be of convenience to systems which are using a rate of fare different from the former five-cent standard.

The Johnson Fare Box Company also announces that it has in the course of preparation for the market, a new type of zone-fare machine. This has been developed as a result of the study of zone-fare problems and in conjunction with several railway executives who are considering or have tried the zone-fare system. Details of this machine are not yet available.



FOUR-DIAL FARE BOX



# American Association News

TENTATIVE PROGRAMS FOR AMERICAN, ACCOUNTANTS', ENGINEERING, CLAIMS AND TRANSPORTATION AND TRAFFIC ASSOCIATIONS ARE GIVEN—  
PLANS OF PUBLICITY MEN ALSO ARE ANNOUNCED

## Convention Programs for All Associations

**Secretary Burritt Has Announced the Following Tentative Programs Giving Much More Detail Than the Preliminary Announcement Appearing in Last Week's Issue of This Paper**

### PROGRAM OF AMERICAN ASSOCIATION

MONDAY, OCT. 6

9:30 a.m. to 5 p.m.

Registration and distribution of badges at booth, right of entrance, Young's Million Dollar Pier.

TUESDAY, OCT. 7

9:30 a.m. to 12:30 p.m.

Meeting held in Greek Temple  
Annual address of the president.  
Annual report of the executive committee.

Annual report of the secretary-treasurer.

Appointment of convention committees:

- (a) On resolutions.
- (b) On nominations.
- (c) On recommendations in president's address.

Reports of committees:

- (a) On electrolysis.
- (b) On company sections and individual membership.
- (c) On valuation.

Discussion.

(d) Committee of One Hundred.

WEDNESDAY, OCT. 8

9:30 a.m. to 12:30 p.m.

Meeting held in Greek Temple

Reports of committees:

(a) On federal legislation (sub-committee of committee on national relations).

(b) On compensation for carrying United States mails.

(c) On affiliated association of manufacturers.

(d) On changes in constitution and by-laws.

(e) On standards of the Engineering Association.

Some Features of the Service-at-Cost Plans:

Cincinnati—Walter A. Draper, vice-president, Cincinnati Traction Company.

Cleveland—Col. J. H. Alexander, vice-president, Cleveland Railway.

Youngstown—R. P. Stevens, president, Mahoning & Shenango Railway & Light Company.

Montreal—K. E. Hutcheson, general manager, Montreal Tramways.

THURSDAY, OCT. 9

9:30 a.m. to 12:30 p.m.

Meeting held in Greek Temple  
Report of committee:

On zone systems.

Paper on "Public Service Railway Company's Zone System," by Thomas N. McCarter, president, Public Service Railway, Newark, N. J.

Discussion.

Address on "Labor and the Electric Railway Industry," by Job E. Hedges, receiver, New York Railways.

Address on "The Relationship of Items of Cost under Pre-War Conditions and To-day," by F. W. Doolittle, Milwaukee Electric Railway & Light Company, Milwaukee, Wis.

Address on "The Collecting of These Costs from the Traveling Public," J. D. Mortimer, president, North American Company, New York, N. Y.

Address entitled "Are These High Costs of Service Likely to Develop Competition?" by L. H. Palmer, assistant to the president, United Railways & Electric Company, Baltimore, Md.

Reports of convention committees:

(a) On recommendations in president's address.

(b) On resolutions.

(c) On nominations.

Unfinished business.

Election of officers.

Installation of officers.

Adjournment.

### PROGRAM OF ACCOUNTANTS' ASSOCIATION

MONDAY, OCT. 6

9:30 a.m. to 5 p.m.

Registration and distribution of badges at booth.

TUESDAY, OCT. 7

2 to 5 p.m.

Meeting held in Accountants' Hall  
Annual address of the president.

Annual report of the executive committee.

Annual report of the secretary-treasurer.

Appointment of convention committees:

(a) On resolutions.

(b) On nominations.

Report of committee:

On standard classification of accounts.

Address on "Accounting Measures to Meet Business Depression," by Earle A. Saliers, professor in Yale University.

Address on "The Preparation of Accounting and Statistical Data in Connection with Rate Cases," by Clarence R. Bitting, certified public accountant, Philadelphia, Pa.

WEDNESDAY, OCT. 8

2 to 5 p.m.

Joint Session with Transportation & Traffic Association.

Meeting held in Greek Temple

Report of committee:

(a) On collection and registration of fares.

(b) Discussion of above report.

THURSDAY, OCT. 9

2 to 5 p.m.

Meeting held in Accountants' Hall  
Paper on "Methods of Fare Collection When Frequent Changes in Rates Are Anticipated Under the Cost of Service Plan," by W. A. Doty, auditor, The Denver (Colo.) Tramway.

Paper (title to be announced) by Carl Nau, certified public accountant, Cleveland, Ohio.

Reports of convention committees:

(a) On resolutions.

(b) On nominations.

Election of officers.

Installation of officers.

Adjournment.

### PROGRAM OF ENGINEERING ASSOCIATION

MONDAY, OCT. 6

9:30 a.m. to 12:30 p.m.

Registration and distribution of badges at booth.

2 to 5 p.m.

Meeting held in Engineers' Hall  
Annual address of the president.

Annual report of the executive committee.

Annual report of the secretary-treasurer.

Appointment of committee on resolutions.

Report of committee on power distribution.

TUESDAY, OCT. 7

2 to 5 p.m.

Meeting held in Engineers' Hall

Reports of committees:

(a) On power generation.

(b) On equipment.

(c) On standards (on recommendations contained in above report).

Address on "Construction Work in France," by Col. Henry Hodges, consulting engineer, New York City.

WEDNESDAY, OCT. 8

2 to 5 p.m.

Meeting held in Engineers' Hall

Reports of committees:

(a) On buildings and structures.

(b) On way matters.

(c) On standards (on recommendations contained in above report.)

Address on "Field Artillery," by Major-Gen. Wm. J. Snow, chief of field artillery, United States Army.

THURSDAY, OCT. 9

2 to 5 p.m.

Meeting held in Engineers' Hall

Report of committee on standards.

Report of committee on resolutions.

Report of committee on nominations.

Address on "Electric Motor vs. Gasoline Motor in Street Railway Service," by N. W. Storer, general engineer, Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa.

General business.

Election of officers.

Installation of officers.

Adjournment.

#### PROGRAM OF CLAIMS ASSOCIATION

MONDAY, OCT. 6

9:30 a.m. to 12:30 p.m.

Registration and distribution of badges at registration booth.

2:30 to 4:30 p.m.

Meeting held in Claims Hall

Annual address of the president.

Annual report of the secretary-treasurer.

Report of the executive committee.

Reports of committees:

(a) On employment.

(b) On ways and means.

Appointment of convention committees:

(a) On nominations.

(b) On resolutions.

Paper on "Claim Agents' Experience with One-Man Cars," by M. Alves Dixon, claim agent, El Paso (Texas) Railway.

Written discussion by H. G. Winsor, claim agent, Tacoma Railway & Power Company, Tacoma, Wash.

General discussion.

TUESDAY, OCT. 7

2:30 to 5 p.m.

Meeting held in Claims Hall

Paper on "Advisability of Fixed Schedules for Injuries to Persons Other than Employees," by Leonard J. Tynan, attorney, Public Service Railway, Newark, N. J.

Written discussion by E. P. Walsh, attorney, United Railways of St. Louis (Mo.)

General discussion.

"Comrades of Success"—Safety Educational Motion Picture, by courtesy of Public Service Corporation, Newark, N. J.

WEDNESDAY, OCT. 8

2:30 to 5 p.m.

Meeting held in Claims Hall

Paper on "Organization for Public Accident Prevention Campaign," by R. E. McDougall, claim agent, New York State Railways, Rochester, N. Y.

Written discussion by C. B. Proctor, claim agent, The Memphis (Tenn.) Street Railway.

General discussion.

THURSDAY, OCT. 9

2:30 to 5 p.m.

Meeting held in Claims Hall

Paper on "Speed and Its Relation to Accidents," by Ellis G. Carpenter, chief claim agent, Northern Ohio Traction & Light Company, Akron, Ohio.

Written discussion by H. K. Bennett, general claim agent, Eastern Massachusetts Street Railway, Boston, Mass.

General business.

Report of committee on resolutions.

Report of committee on nominations.

Election of officers.

Installation of officers.

Adjournment.

#### PROGRAM OF TRANSPORTATION AND TRAFFIC ASSOCIATION

MONDAY, OCT. 6

9:30 a.m. to 12:30 p.m.

Registration and distribution of badges at registration booth.

2 to 4:30 p.m.

Annual address of president.

Annual report of the executive committee.

Annual report of the secretary-treasurer.

Appointment of convention committees:

(a) On resolutions.

(b) On nominations.

Report of committee on code of traffic principles.

TUESDAY, OCT. 7

2 to 3:30 p.m.

Meeting held in Greek Temple

Report of committee on one-man car operation.

Discussion.

WEDNESDAY, OCT. 8

2 to 5 p.m.

Meeting held in Greek Temple

Report of committee on collection and registration of fares.

Discussion.

THURSDAY, OCT. 9

2 to 5 p.m.

Meeting held in Greek Temple

Report of committee on joint use of tracks and terminal facilities.

General business.

Report of committee on resolutions.

Report of committee on nominations.

Election of officers.

Installation of officers.

Adjournment.

#### Train Service from New York City

Bertram Berry, Chairman of Committee on Transportation, New York City, announces that delegates who are planning to go to the Convention on Sunday, Oct. 4, 1919, should communicate at once with C. E. McCullough, the District Representative of the Pennsylvania Railroad, at 253 Fifth Ave., New York City. The railroad company will put sufficient extra parlor cars on the 9.50 a.m. train to care for the needs of all. In case the demand for seats warrants a special parlor car train will be operated.

#### Publicity and Public Relations

On Sept. 20 a tentative program for informal sessions of publicity men was outlined by a committee consisting of Leake Carraway, Virginia Railway & Power Company, Norfolk, chairman; Luke Grant, Elevated Railways of Chicago, and John W. Colton, The Connecticut Company, New Haven, assisted by Harlow C. Clark, and E. B. Burritt of the Association office, Perry Arnold of the committee of one hundred and G. J. MacMurray, ELECTRIC RAILWAY JOURNAL.

At the convention the first meeting will be held on Tuesday, Oct. 7 at 2 p.m. At this it is expected F. W. Hild, general manager Denver Tramway, will address the publicity men; Z. V. Taylor, president Southern Public Utilities Company, Charlotte, N. C., will take up the value and nature of publicity, and the problem as seen by a publicity man will be presented by W. Dwight Burroughs, United Railways & Electric Company, Baltimore, Md. After the session just noted there will be a round table on ways and means for coordinating the publicity work of individual companies, and for persuading such companies as do not now have publicity departments that they should establish such departments.

After the round-table conference a committee will prepare a practical plan for carrying out the purposes of the meeting and will report to a second session of the publicity men on Wednesday afternoon. At this meeting the report will constitute the special order of business. On Thursday the findings of the conference will be presented to the American Association with the view of securing the approval and support of the entire industry.

# News of the Electric Railways

FINANCIAL AND CORPORATE • TRAFFIC AND TRANSPORTATION

PERSONAL MENTION

## Detroit's Streets Saturated

Traffic So Dense That Downtown Subways Have Become Imperative

At a meeting of the City Council of Detroit, Mich., with the Street Railway Commission members and city traffic experts on Sept. 16 plans were outlined for relieving congestion in Detroit's downtown section by means of subway construction. Both the construction of subways in the downtown districts and the extension of surface lines into sections not served by street cars or where service is now inadequate, were discussed, and it is hoped by Mayor James Couzens and members of the Council that the project will have advanced to a stage where it can be voted on by the people about Dec. 1.

### BOND ISSUE PROPOSED

A bond issue to finance these improvements will be asked. It was pointed out by Mayor Couzens that these bonds would be in the form of a public improvement issue, in as much as the subway proposition is of the same nature as other betterments which tend to increase the city's traffic facilities. By relieving the congested conditions in the heart of the city service will be relieved in the outlying districts.

Mayor Couzens emphasized the fact that Detroit had reached the condition where the streets are inadequate for the volume of traffic, both electric railway and vehicular, and while improvements are contemplated for vehicular traffic by widening several streets, thus to lessen congestion, more room must also be provided for the electric railway cars.

Details of the plan of co-operation between the city and the Detroit United Railway in regard to the proposed subways and extensions in outlying territory remain to be worked out. It is realized that co-operation with the Detroit United in the matter of extensions is necessary if the best results are to be obtained.

### VOTE ON DEC. 1

It is planned to ask the voters on Dec. 1 to authorize a bond issue of about \$8,000,000, providing for the construction of the Woodward Avenue subway from Adelaide Street, to the River and the Fort Street dip from Cass Avenue, to Cadillac Square, as well as the necessary stations and the reconstruction of the streets after the

tracks are submerged. It is expected by the engineers to have a report on the number of miles of needed extensions, ready about Oct. 1. After the necessary surveys are made, the amount of bonds required for the extensions will be determined.

### PLAN TO ABOLISH AUTO PARKING

In the two years' time which it is estimated the construction of the subways would require, conditions of electric railway traffic could be materially improved by rerouting the existing surface lines, and by placing rigid restrictions on the parking of automobiles along streets, where the lines of the Detroit United Railway now exist, the Councilmen were told by the street railway experts. It was recommended that all parking of autos in Woodward Avenue in the vicinity of the City Hall be abolished at once.

A renewal of the Kronk ordinance restraining the Detroit United Railway from increasing fares to more than 5 cents provides for the continuation of the 5-cent fare rate on the city lines.

## Will Municipalize English Coast Tramway

There is a prospect that the whole of the tramways and light railways out Lancashire coast from Fleetwood through Blackpool and St. Anne's to Lytham, a distance of about 20 miles, will soon be municipally owned and operated. The places named are highly popular seaside resorts and during the summer and the autumn an enormous traffic is done. The Blackpool Tramways have for many years been owned and worked by the Town Council, but before their time of city ownership the sea front line was worked by a company on the electric conduit system—one of the first if not the very first example of the kind of thing in the world. Overhead wires were substituted long ago. Recently the Blackpool Town Council purchased from the company owning it the Blackpool and the Fleetwood Tramroad, which is a railway in its own right-of-way for most of the distance. Now St. Anne's Urban Council proposes to buy the undertaking of the Blackpool, St. Anne's & Lytham Tramway, for £140,000. The line is 7½ miles long. Many years ago the cars were worked by gas engines mounted under the bodies, but the trolley was substituted. Possibly through cars will be run all the way from Fleetwood to St. Anne's.

## Temporary Subsidies Favored

Prof. Bullock So Believes, While Mr. Babson Is for Private Control or State Ownership

Hearings by the special legislative commission in Massachusetts which is investigating electric railway affairs will be resumed on Sept. 30. At the last hearing, which was held on Sept. 18, Prof. Charles J. Bullock of the economics department of Harvard University; Roger W. Babson, the economist, and Charles M. Rogerson, a Boston banker, addressed the commission.

### SUBSIDIZATION SHOULD BE TEMPORARY

Prof. Bullock maintained that if subsidies are granted to operating companies, these should be only temporary. He conceded that it is not feasible at present to fix a rate of fare which will yield sufficient revenue to meet all the present charges upon the operating companies. The witness urged the repeal of the present excise tax, but held that other existing taxes should remain. He agreed that all users of the public highway should be taxed in a sum fairly commensurate with the damage they cause to the highway. Comparison of taxes levied upon motor trucks and on the street car indicates that the motor truck tax is too low.

### BOSTON TRUSTEES RIGHT

In discussing the Boston Elevated Railway, Prof. Bullock said that the trustees are proceeding along the right lines as to fares. Practically everyone realizes, but grudgingly admits, that the purchasing power of the dime to-day equals that of the nickel of a few years ago. The psychological effect of the foregoing fact being impressed upon the public twice daily is a troublesome factor. If it were possible for car riders to pay for their transportation once a month, much of the present opposition to the 10-cent fare might be dissipated. Prof. Bullock said that in his observation most of the complaint as to increased fares had come from the laboring classes, whose wages in almost all instances have been at least doubled in the past few years. Mr. Babson declared that either unrestricted private management or positive municipal or state ownership should be established, and not a mixture of the two.

Mr. Rogerson said that some limit should be set upon the share of gross revenue which is to be paid for labor.

The commission's report must be completed on or before Nov. 15.



## Muscatine Has Labor and Fare Problem

### Railway Officials Arrested in City Where There Has Been No Service Since Aug. 1

Two electric railway officials at Davenport, Ia., have been arrested and fined "for the crime of not running street cars." The men are President B. J. Denman and Vice-president and General Manager J. G. Huntoon of the Clinton Davenport & Muscatine Railway, which operates in Muscatine. Messrs. Denman and Huntoon were placed under \$300 bonds each to insure court appearance and fined \$100 and costs each. They have appealed the case.

#### SERVICE SUSPENDED SINCE AUG. 1

Cars have not been running in Muscatine since Aug. 1, when the men went out on strike and got a 60-cent scale. The city refused to give the company a 7-cent fare and the company refused to resume operation after the strike was settled. The present fare runs from 3 cents to 5 cents.

An equity case on the same count "of not operating street cars" in accordance with the franchise has been filed against the company in the Muscatine District Court. The company filed an answer stating that operation on the new wage scale and the old fare would be confiscatory.

The city of Muscatine filed a motion to strike certain paragraphs from this answer. There were twenty-one counts in the city's motion. Judge William Theophilus in the Muscatine District Court sustained nine of these counts and ruled out twelve others.

In the meantime Judge M. F. Donegan of Davenport had taken a hand in the situation. He issued a mandamus ordering the company to begin operation forthwith. No notice was served on the company, and Judge Donegan issued an order instructing Sheriff R. B. Wiley of Mascatine County to take charge of the Muscatine lines and operate them.

#### SHERIFF A POOR OPERATOR

The sheriff ordered the trainmen to report for duty. He took one car out of the carhouse and got the tracks cleaned up ready for the schedule. He announced to the city that the regular service would begin at 2 o'clock on the afternoon of Sept. 5. It was then found that the cars were lacking in equipment and that there were no spare parts at the carhouse. In consequence, service could not be resumed and the sheriff gave up his position of railway manager as a bad job.

The company maintained that Judge Donegan had no right to issue a mandamus ordering service in terms of the franchise, which is two-man car operation, when the Supreme Court of Iowa

had issued a mandamus restraining all interference with the one-man car system.

Here the situation remained on Sept. 16, with no cars running and city officials at loggerheads with company heads. The situation had become so tense that at a mass meeting on Sept. 12, attended by 1200 persons, organization of the People's Protective Association & Motor Bus System was advocated.

This latest cure-all for electric railway ills is to be capitalized at \$75,000, and stock sold for \$10 a share. The audience was urged to "use the thinker God Almighty gave them and not let any corporation do their thinking for them."

After indicting the company on this last count an attempt was made to secure stock subscriptions at \$10 a share but the move met with very little success.

### Cincinnati "Loop" Contracts Awarded

The Cincinnati Rapid Transit Commission has awarded to D. P. Foley a contract for the construction of part of the rapid transit loop. The contract includes the construction of all walls and supports from Walnut to Charles Streets and the erection of the central station on Vine Street. Mr. Foley's bid was \$524,000, the lowest of four bids submitted.

The contract for the construction of the dam at Ludlow Avenue for the purpose of draining the canal was awarded to the John Reuble Construction Company whose bid was \$2,700.

The commission announced that the water would not be drained from the canal until Oct. 15, in answer to a protest filed by the Union Gas & Electric Company against draining the canal on Sept. 15, as originally planned, because of damage that might result to the generating plant at Front and Rose Streets.

### Mr. McLimont's Work Appreciated

The employees of the Winnipeg (Man.) Electric Railway have formed an athletic association which, in point of numbers, is one of the strongest in Western Canada. The association is encouraged in every way by the company, and A. W. McLimont, the vice president and general manager, takes a personal interest in the association's activities.

The annual meet of the association held on Sept. 6 scored the biggest suc-

cess of any athletic meet ever held in the city. Over thirty events were scheduled—including nine championship contests—and more than 4000 people attended.

A very pleasing incident took place during the afternoon when Joseph Fahey, one of Winnipeg's most prominent citizens, seized a megaphone and told the crowd that they were indebted for that day's splendid outing to Mr. McLimont whom he described as "the most popular and most wide-awake sporting and business man Winnipeg ever had." He then called for three cheers for Mr. McLimont. As spontaneous as was Mr. Fahey's action, the huge crowd rose to its feet and the whole arena rang with the cheering. The men in the crowd took off their caps and waved them, and a "tiger" reached the climax of enthusiasm. It was a remarkable demonstration to the popularity of Mr. McLimont, who has been in Winnipeg only two years.

### New York Executives Meet at Syracuse

Executive heads of most of the important electric railway systems in New York State met at Syracuse on Sept. 18 to hear reports as to the present condition of the industry in the State and to formulate plans for further activities. The meeting was called by President E. A. Maher, Jr., of the New York Electric Railway Association, at the request of the "committee of ten," of which Joseph K. Choate is chairman.

The first speaker was Mr. Choate. He read a carefully prepared paper outlining the present situation which is particularly bad in New York State on account of the conflicting jurisdictions of State and municipal authorities. An extended abstract of Mr. Choate's paper will be given in a later issue of the *ELECTRIC RAILWAY JOURNAL*. A significant quotation is given on page 652 of this week's issue.

The discussion was opened by James L. Quackenbush, general attorney, Interborough Rapid Transit Company. He criticized very severely the city administration in New York and expressed the fear that the people are overlooking the fact that there is a representative government in the State. He emphasized the point that to secure relief in the present emergency it will be necessary to work through the Legislature and the Governor.

Mr. Maher then called on a number of representatives of electric railways for statements regarding the status of their respective properties. Before doing so, however, he pointed out how on the Third Avenue Railway System in New York City, of which he is vice-president, it had been found necessary to shut down several lines. Many

other railway officers testified to the extremely critical condition of most of the electric railways.

A ray of light was shed on the gloomy picture presented by most of the speakers by James F. Barnes, who stated that in Schenectady public sentiment was turning toward the railway and that the result of the fare increases there has been very gratifying.

The conference appointed a committee on resolutions, which will report at a later meeting, with the following personnel: James L. Quackenbush, chairman; J. W. Killeen, Buffalo, N. Y.; H. B. Weatherwax, and Harlow C. Clark, New York City.

## News Notes

**Columbus Linemen Return to Work.**—Linemen of the Columbus Railway, Power & Light Company, Columbus, Ohio, returned to work on Sept. 10, after having been idle since Aug. 8.

**Interurban Employees Accept Wage Increase.**—Employees of the Boston & Worcester Street Railway have voted to accept the offer of the company for a maximum wage of 52 cents an hour, an increase of 5 cents over the previous rate.

**Platform Men Choose Arbitrator.**—The local branch of the Amalgamated Association at Columbus, Ohio, has selected J. C. Dougherty, a barber, to represent the men on the board of arbitration which is to consider the demands made upon the Columbus Railway, Power & Light Company recently.

**Court Approves Brooklyn Wage Agreement.**—Judge Mayer of the Federal District Court has directed Receiver Lindley M. Garrison of the Brooklyn (N. Y.) Rapid Transit Company and its subsidiaries to pay the 25 per cent advance in wages promised the employees in the strike settlement agreement.

**Strike in Chickasha.**—Service on the lines of the Chickasha (Okla.) Street Railway was suspended on Sept. 8 when the conductors and motormen went out on strike. They had demanded an increase in wages from 35 cents to 40 cents an hour. When the demands were refused, the men put all cars in the carhouse and refused to work longer.

**Civic League Wants Municipal Ownership.**—Municipal ownership of the United Railways, St. Louis, Mo., has been advocated in a report issued on Sept. 18 by the executive board of the Civic League after long study of the

situation. The league is starting a campaign to have the lines taken over by the city. The report pointed out the steps to be taken—"recapture" of the franchise, elimination of State Commission control of St. Louis utilities, and amendment of the State Constitution to increase the city's bonded debt.

**I. T. S. Wage Conferences On.**—At a conference held at Springfield, Ill., on Sept. 15, trainmen on the Illinois Traction System discussed whether they would accept the proposal made by General-Manager Handshey in the wage controversy. Mr. Handshey is said to have offered the men 55 cents an hour for conductors and motormen to Dec. 1, 1919, and 68 cents an hour for the year following. The men are said to have receded from their demand of 75 cents an hour and offered to take the 68 cents an hour immediately. The company refused this.

**Ontario Hydro-Radial News.**—At a largely attended meeting in the Pickering Township Council Hall, Sir Adam Beck, chairman of the Hydro Commission, outlined in detail the proposed Toronto & Eastern Electric Railway system. The line will run from Toronto to Bowmanville, passing through Pickering, Whitby, Oshawa and on to Bowmanville, having a total length of 43½ miles. The cost of the road is estimated at \$8,360,794, of which Toronto's share is \$4,328,665. The estimated revenue per year totals \$1,118,003, and operating expenses \$1,076,175, leaving net revenue of \$41,828. Sir Adam announced that the radial would operate 6 miles into Toronto without a grade crossing and intimated that there would be a downtown loop.

**Quincy May Run Local Railway.**—In response to the position set forth by the trustees of the Eastern Massachusetts Street Railway recently to the effect that many of the company's routes in Quincy, Mass., cannot be operated if unrestricted jitney competition is allowed to continue, Mayor Whiton has arranged a conference with representatives of the company on behalf of the city. The trustees claim that some of the local lines have been losing money all summer, especially in relation to Hodgh's Neck service. It is probable that the operation of the local lines by the city will be discussed at the conference, but nothing immediate in this respect seems apparent.

**Mayor Attacks New Minneapolis Grant.**—Mayor J. E. Meyers has begun district court proceedings in Hennepin County to prevent preparations for a vote by the people on Dec. 9 upon the proposed cost-of-service franchise for the Minneapolis Street Railway. The petition will ask a temporary restraining order to prevent the special election or any expense attendant thereon. The

complaint is directed against the city clerk, city controller, city treasurer, aldermen and railway. The franchise was passed by the Council on Sept. 3. The Mayor had no power to veto the ordinance. It is alleged the ordinance is in violation of the enabling act and that the \$24,000,000 agreed upon as a valuation basis is too high. Request will be made at the proper time to make the injunction, if granted, perpetual.

**Strike in Clinton.**—Demanding an eight-hour day and an increase of wages from 50 cents to 90 cents an hour, fifty trainmen of the Clinton (Ia.) Railway struck on Sept. 15, tying up the entire system. The men were organized at the time of the strike on the Tri-City Railway's lines. They operate one-man cars and have been drawing the 50-cent scale since September, 1918. The fare in Clinton is 5 cents. The company, although not making any money on this fare, is not asking for an increase. Jitney bus lines have been organized, but are charging such extortionate rates, that they have received scant patronage. Factories have organized truck service for their employees. Up to Sept. 16 city authorities had not taken a hand in the situation.

**Railway Committee for Connecticut.**—Appointment of an electric railway commission by the Connecticut Chamber of Commerce was voted at a recent executive meeting of the state chamber in Hartford. The informal approval of the State Public Utilities Commission, to which the official investigation of the Connecticut electric railway problem was confided at the close of the last general assembly, has been obtained. The purpose of the commission as stated in the vote passed at the executive session is "to continue the study of the street railway problem and to report to the General Assembly of 1921 the conditions at the close of the year 1920, together with recommendations and necessary legislation which they believe to be required in order to place the street railways of the State on a safe, fair and efficient operating basis."

## Program of Meeting

### Investment Bankers Association of America

The eighth annual meeting of the Investment Bankers Association of America will be held at St. Louis, Mo., on Oct. 20, 21 and 22. On Oct. 21 the railroad securities committee, Allen B. Forbes, of Harris, Forbes & Company, New York, chairman, will report. On Oct. 22 the public service securities committee, O. B. Wilcox of Bonbright & Company, New York, chairman, will report.

## Financial and Corporate

### Rental in Default

#### Brooklyn Rapid Transit Receiver Reports Leased Surface Lines Are Not Paying Their Way

Lindley M. Garrison, receiver of the Brooklyn (N. Y.) Rapid Transit Company, will inform Federal Judge Julius M. Mayer on Sept. 29 that he will not be able to pay rental due the Brooklyn City Railroad on Oct. 1 and ask for instructions. A circular sent on Sept. 20 by Frank Lyman, president of the Brooklyn City Railroad, to stockholders of that company announced the appointment of a committee that "has been charged with power to take such steps as may be found to be necessary to protect the interests of the company and its security holders."

Non-payment of the October rental instalment will cause the Brooklyn City Railroad to pass payment of its October dividend. The company has \$12,000,000 of stock outstanding, no part of which is owned by the Brooklyn Rapid Transit Company. Its lease is to the Brooklyn Heights Railroad, a subsidiary of the Brooklyn Rapid Transit Company, for 999 years at \$1,200,000, payable in quarterly instalments, with taxes and interest on bonds additional. Taxes amount to more than \$150,000 a year.

The lease gives the lessee sixty days of grace in the event of a tentative default in a rental payment, so that an adjustment will be possible until Dec. 1.

The Brooklyn Rapid Transit Company made default on Sept. 15 in the payment of \$46,034 due as the income tax for 1918 of the lessor company. The lessor paid the tax instalment to avoid the penalties.

As an independent system the Brooklyn City Railroad, with its 231 miles of surface lines, has been losing \$50,000 a month on operating expenses, according to the estimates of the receiver's experts. The company had \$200,000 in cash reserve on July 15.

### More Bay State Abandonments

Since the trustees assumed control of the property, the Nashua, N. H., and Newport, R. I., lines of the Bay State Street Railway, Boston, Mass., have been separated from the system, and about 60 miles of non-paying lines have been discontinued from service. On Sept. 2 the line from Bridgewater through Middleboro to the outskirts of New Bedford, Mass., and the line of the Georgetown, Rowley & Ipswich

Street Railway, a subsidiary of the company, were discontinued. These remain out of service, but under the terms of Chap. 188, Acts of 1919, towns are permitted to levy up to \$1 per thousand of the last year's valuation and cities up to 50 cents per thousand, to meet deficits in the cost of local electric railway service. It has been shown that to restore service in the town of Ipswich, about \$6,000 a year would have to be contributed by the town. It has not yet been determined what action the residents of the above localities will take in regard to the restoration of service.

## Financial News Notes

**Ohio Road Purchased by Bondholders.**—The property of the Pennsylvania & Ohio Railway, Ashtabula, Ohio, with a line between Conneaut and Jefferson, Ohio, has been purchased by the bondholders for \$233,000. The company has been in the hands of a receiver since June 15, 1917.

**St. Louis Company Has Balance in July.**—The report of the United Railways, St. Louis, Mo., for July has been filed in the United States District Court by Rolla Wells, receiver. It shows total receipts, including cash on deposit, of \$2,724,037 and disbursements of \$2,146,312, leaving a balance of \$577,725. It was explained by the company that the payroll disbursement for July represented only two weeks' pay, including that of the office force.

**Receiver for St. Louis Subsidiaries.**—Rolla Wells, receiver of the United Railways, St. Louis, Mo., has been appointed receiver of three subsidiary companies, by Judge Dyer in the Federal Court. The appointment was made on the request of Thomas Francis, attorney for the United Railways. The three subsidiary companies are the Missouri Electric Railway, which runs cars to St. Charles; the Florissant Construction, Real Estate & Investment Company and the Merchants' Express Company.

**Puts High Value on McKinley Bridge.**—The Board of Tax Assessment Review of Madison County, Illinois,

has announced that it has fixed the assessed valuation of the Illinois portion of the McKinley bridge, the property of the Illinois Traction System, McKinley Lines, Peoria, Ill., at a higher figure than ever before. The valuation is fixed at \$1,090,221. In former years this valuation has annually been a subject of controversy. Up until 1915 the McKinley Bridge valuation was fixed at \$600,000. In 1915 it was dropped to \$420,000. In 1916 it was raised to \$1,080,000, but in 1917 and 1918 it was again placed at \$420,000. The present valuation is higher than the previous high figure by \$102,221.

**Arbitration Hearing Postponed.**—The hearing on the Cleveland (Ohio) Railway's request for an increase of the rate of dividend from 6 per cent to 7 per cent, which was to have been opened on Sept. 15, has been postponed for a few days at the request of the company's attorneys. It is the intention of the arbitrators to define more clearly the question to be decided before proceeding with the hearing. The company contends that as money for investment is commanding a premium investors in the company are entitled to a 7 per cent return on their stock although the service-at-cost grant under which the company operates provides for a return of only 6 per cent.

**Power Bills a First Lien.**—The Nasau Electric Railroad, a subsidiary of the Brooklyn Rapid Transit Company, informed Federal Judge Julius M. Mayer recently that it is unable to pay bills aggregating \$528,880 which it owes to the Brooklyn Rapid Transit Company for power supplied during the past seventy-five days. Both companies are in the hands of Lindley M. Garrison as receiver. Judge Mayer made an order that all power bills shall hereafter accrue as a first lien against the properties of the railroad. The court directed the receiver to present a plan for a permanent remedy.

**Receiver Has Hope for Inland Empire.**—F. E. Conners, receiver of the Spokane & Inland Empire Railroad, Spokane, Wash., is said to have declared on Sept. 10 that the railway, of which there was talk of junking all or part when it went into the hands of a receiver seven months ago, is now on a paying basis. For the last three months the road has been accumulating a considerable fund toward the interest on the bonded indebtedness, with the result that in the seven months of the receivership nearly half this interest has been earned. Mr. Conners is quoted as follows: "I maintain that the Inland can be made to pay permanently. All departments—the city car lines, the Coeur d'Alene division and the Inland division to the Palouse—are paying at the present time."

# Traffic and Transportation

## More Bargain Rides

Fall River Boosting for a Permanent Six-Cent Fare, Now on Trial as an Experiment

Fall River, Mass., is now getting fifty rides over the Bay State Street Railway for \$3—a 6-cent fare made possible by a thirty-day commutation ticket. This was explained very briefly in the *ELECTRIC RAILWAY JOURNAL* for Sept. 13, but at that time nothing was said about the local viewpoint. As for that, the entire community has become intensely interested in the promotion of electric railway traffic and a large percentage of the population is actively engaged in efforts to popularize the trolley.

### EVERYBODY BOOSTING

"Take the trolley" has become the slogan and talking up the trolley has the favorite indoor and outdoor sport in Fall River. The department stores, drug and jewelry stores and banks are selling car tickets. One may buy a ticket at the gas company's office or at the office of the electric company in Fall River. The Chamber of Commerce and the Merchants' and the Manufacturers' Associations are campaigning for increased railway patronage and the four daily newspapers are boosting the game.

S. V. D'Unger, assistant manager of the Chamber of Commerce of Fall River, says that the explanation of this wonderful community interest in a public utility is that the public trustees of the Eastern Massachusetts Street Railway (formerly the Bay State) and the people of Fall River have been rigidly, ruggedly honest with each other. The trust of the community in the railway officials has been gained through an open, manly exchange of confidence embracing all railway problems affecting patron and carrier. Mr. D'Unger's explanation follows:

In Fall River electric railway patrons have been paying a 10-cent fare and sidewalk and jitney competition has grown by leaps and bounds. Street car riding has been reduced to a "must" proposition—one "must" pay 10 cents only if one "must" ride. So the hosts became devotees of pedestrianism. The trials of the railway were set at naught by those who felt they should and would walk when they could. Only regular riders who were obliged to patronize the railway maintained its existence and the occasional rider whose need of street cars was either great or not at all was the prodigal who enjoyed the fatted calf.

No one in Fall River seems to know how it happened, but, of a sudden, there came an awakening. Street car riding was a

neglected community practice. People sought homes nearer to their work or work closer to their homes, the 10-cent fares doubling distance, in cost, at least, between home and work. Landlords demanding increased rents further complicated the problems involved and Fall River woke up.

The Chamber of Commerce, taking the initiative, launched an educational campaign and the public was quick to respond to it. That the railway unquestionably had a fundamental place in the community as a requisite of business activity and industrial life was acknowledged.

"A city without a street railway, like a sun without a spot, exists in theory only." So say the people of Fall River. They will tell you they are out to support the railway for the signal purpose of making it support them. They will tell you frankly that disaster threatens any community which fails to maintain an adequate railway. The realization that constant riders—the regular daily patrons of the cars were forced to pay an increased carfare only because the intermittent rider proved pusillanimous, using the trolley when a 10-cent ride proved a bargain, and at no other time, came like a bolt from a clear sky.

When the public trustees frankly confessed to a representative committee of Fall River citizens, led by the Chamber of Commerce, that sidewalk competition and jitney progress had reduced electric railway traffic and increased electric railway fares, they threw down the gauntlet.

"Do you mean you will give us a cheaper fare if we will ride more than we do?" demanded Fall River of the public trustees.

"That is exactly what we mean," smiled the same trustees.

Now Fall River, almost as a unit, is boosting the electric railway in the hope that the 6-cent fare, allowed by the trustees for a trial period only, may be retained. Producing electric railway traffic by enlisting car riders is an extraordinary community undertaking in these days of strife between the average community and public utility. For this precedent Fall River people demand credit.

## City and Company to Co-operate

A telegram to the *ELECTRIC RAILWAY JOURNAL* from Kansas City, Mo., dated Sept. 22 is to the effect that the Kansas City Railways, which was authorized by the Public Service Commission of Missouri to charge an 8-cent fare, has agreed with city officials to charge only a straight 7-cent fare. The city on the other hand has agreed to help work out a cost-of-service plan. As the first step toward performing its part of the agreement the city will put into effect an ordinance regulating jitneys. Under the order of the Public Service Commission railway fare checks in quantities were to be sold at seven checks for 50 cents and two for 15 cents. It is hoped that the jitney regulation and other helps by the city will offset the loss to the company by charging only a straight 7-cent fare. The company reserves the right to charge eight cents if the new plan does not result in adequate revenue.

## Sherbrooke Increases Fares

This and Other Concessions Secured After Case Is Put Forcefully Before the Public

Sherbrooke, Que., has gone on record in no uncertain manner concerning its electric railway service and has earned the distinction of being the first city in Canada, and one of the very few on the continent, where the people have voted, by a good sized majority, to grant a substantial increase in fares and allow other concessions.

Some months ago a committee of citizens was appointed to investigate the railway situation in Sherbrooke and to recommend some plan that would meet the conditions. This action was taken despite the fact that the Sherbrooke Railway & Power Company had a contract with the city that had several years to run. The committee finally submitted a report in which it was urged that the fares be increased from 5 cents to six tickets for 25 cents with an 8-cent cash fare. The company is also relieved of the cost of snow removal for a period of five years.

An important feature of the new by-law presented by the citizens' committee was in regard to paving costs. The city is undertaking a pretentious paving campaign and instead of having to pay the usual proportion of the cost of this work the company will be required to pay only so much as is made necessary by the presence of the company's tracks in the streets. Moreover, the company has five years to pay.

In return for the concessions allowed by the new by-law the company agrees to make several extensions and to double-track the line on the main street.

The recommendations of the citizens' committee were approved by the City Council and indorsed by the Board of Trade. The whole matter was then put up to the people and on Sept. 15 the vote was taken with the result that the measure was carried in every ward in the city. The returns showed that the people not only were strongly in sympathy with the new agreement and were willing to waive the old contract but also that they were opposed to municipal ownership, which had been offered as a substitute for the new by-law.

A feature of the campaign was the publicity work which was instituted as soon as the issue was fairly before the people. The case was thoroughly explained in a series of articles in the papers, and several public meetings were held at which speakers for and against the new measure were allowed to present their respective views. It is certain, therefore, that the people understood the case well.

## Southern Jersey Still Boycotts Zone Plan

### Candidates for Public Office Inject Fares Into Campaign—Commission Ordered to Show Reason for New System

Last week's issue gave in brief detail the inauguration of the zone-mile system on the lines of the Public Service Railway of New Jersey and mentioned the violence that took place in the Southern division comprising Camden and vicinity. A resumé of happenings since that time and of conditions as they stood at the time of going to press follows:

For three days, Wednesday to Saturday of last week on account of the ship workers refusing to pay fares, no cars were operated to the shipyards in Camden or Gloucester. In fact part of the time cars were entirely discontinued in the Camden division. On Saturday morning trippers for the first time were operated to take the men to work to the New York Shipbuilding yards. Twenty-four cars were used, the majority being those that belonged to the Emergency Fleet Corporation. In addition to having the name of the shipbuilding company painted on the car sides, large placards written only in English were hung inside and out giving notice that they were government cars and that to damage them would invite Federal prosecution. It is reported that not more than twenty-five shipyard employees rode on these cars. No violence occurred but those that rode came in for a bitter denunciation by their boycotting fellow employees, who lined up in front of the plant, where the cars passed.

In starting operation the company changed the original plan of fare collection to which the workers had objected so that on the trippers in the rush hours the riders to the yard would not be required to alight at the so-called "Bull pens" which are some 700 ft. from the gates and pay their fares at the turnstiles, but should be discharged at the main gate.

There are three zones on the route from Camden to the New York Shipbuilding yard, and passengers pay fare on boarding depending at the zone point where they board the car. This allows passengers to alight at the main gates with a minimum of delay.

At the Camden Ferry, where there is also a postpayment area, the system of fare collection will not be changed. No trouble has been experienced at this end of the line. Since Tuesday no real violence which was not traceable to vicious youths and irresponsible idlers, has developed and the authorities express the conviction that there will be none in the future. The workers at Pusey & Jones did however endeavor to destroy the postpayment area at that plant on Wednesday last, and someone did try to fire a bridge. There were also several other outbreaks of minor importance earlier in the week.

Fares in Camden as a rule are lower under the zone system yet all the people as a unit are said to be against the change for the fares to outlying points have been increased. The public has refused to patronize the cars as before the change and the steam railroads have in some instances put on extra service. Bus lines are also heavily patronized.

The Public Utilities Commission on Sept. 18, replied to the candidates for public office who have been making political capital of the zone system at their expense. In referring to the attacks on the zone system the statement says such attacks "lately have become so vicious and are reiterated with so much effrontery that patience has ceased to be a virtue and may lead to a belief that no answer is forthcoming because none can be made." The statement also outlined the status of fare changes on the Public Service Railway from the time the first charge for transfers was allowed in July, 1918, to meet increased wages for its employees and further states:

"On July 2 of this year the War Labor Board made another award which will result annually in the payment of \$1,175,000 in wages. Any increase in revenue from the zone plan, as has been charged, to enrich the corporation will be needed to pay

increased wages to the company's employees.

"The present zone plan is by no means regarded as fixed. It is merely a matter of experiment. If there is co-operation on the part of the public, it is believed that defects and inequalities can be corrected and a better and more logical system of charging devised than the old flat rate method.

"This board like similar boards in other states has authority to grant emergency increases without prior property valuation. It has been evident that these companies could not maintain their credit and supply adequate service unless allowed to increase revenues. To have bankruptcy at a time of abnormal financial and industrial conditions, in our judgment would have been against the public interest."

"The emergency increases allowed are not permanent. If permitting emergency increases in rates of public utilities to meet abnormal conditions, suddenly developed, is believed to be opposed to the public interest, the law can be amended."

#### COMMISSION'S REMOVAL ASKED

The Montclair Board of Commissioners through its Mayor, Louis D. Dodd has asked the governor to fix dates for a hearing for the removal of the Utility Commissioners. The demand for removal of the state officials is based on neglect of duty and misconduct in office, to violation of the act concerning public utilities permitting the zone fare system and the rates of fare without hearing and notice to the municipalities affected thereby, in the fixing and determining of rates under the zone system greater than requested or expected by the Public Service Railway, and in the increasing of fares under the zone fare system in certain portions of Montclair more than 300 per cent without a hearing and without evidence that such an increase was required to make an adequate return.

In other divisions the operation of the system is improving although there is still some delay at the terminals, the company has about 100 ticket sellers on the cars during rush hours and has been able to sell a considerable number of full fare tickets. The public however as a rule is somewhat upset due to the politicians and the wide publicity given by the papers to what they will do if elected.

To improve fare collection matters at the Federal Shipbuilding Company in Kearney the company moved the zone limit to the entrance of the plant and has placed fare collectors on the ground so that the shipbuilders can pay their fares after they leave the cars and thus avoid delays.

The company has also agreed to accept "pay tickets" in part payment of fares. Heretofore the company in order to keep an accurate record of passengers has required that either cash or tickets only be accepted and that split fares would not be allowed. Officials of the company believe that they have no legal right to refuse the tickets with money.

### Holyoke Fares Before Massachusetts Commission

L. D. Pellissier, president of the Holyoke (Mass.) Street Railway, appeared before the Public Service Commission of Massachusetts at Boston on Sept. 17 relative to the new schedule of rates which the company desires to put into effect. He declared that unless the schedule is approved the company is likely to lose \$156,000 next year. The petition calls for the institution of two 6-cent zones in Holyoke, dividing the existing center area in two parts, with the retention of present length of zones on the outer sections. It is estimated that the company loses \$50,000 a year as a result of the operation of jitneys,

besides substantial sums in the abuse of transfer privileges. Transfers will be discontinued under the new tariff.

The recent wage arbitration resulted in increased wages totaling about \$100,000 a year. The company estimates the gains from the proposed changes in fare at about \$110,000 a year. It asks the right to charge 6 cents in each zone instead of 5-cent fare charged in the outer zones, and to charge 6 cents in each of the center zones in place of the single 7-cent cross-zone fare as at present. It was pointed out that if special workmen's tickets were provided, the company's revenue would be further decreased. The standard zone length is to be about 2 miles.

## Truce in West Virginia

### Roads Work With Governor While Awaiting Result of Conference Called by President Wilson

Desire to comply with the suggestion of Governor Cornwell that no applications for rate increases, pending or to be made to the Public Service Commission of West Virginia, be pressed at this time when efforts are being made to reduce the high cost of living, was expressed by representatives of all such petitioners whose petitions had matured for hearing on Sept. 9, the regular September docket day of the commission, such petitions including those of several electric railways.

The lead in this position was taken by counsel for the Montgomery Gas Company, whose case was continued on the open docket. A similar statement was made by former Governor W. A. MacCorkle for the Charleston Interurban Railroad, which has asked for authority to increase its fares from 5 cents to 7 cents. The case was presented in part, however, and was completed, then leaving it to the commission to decide upon a proper time to determine it.

#### PROTEST OF CITY

Following the presentation of evidence in support of the petition of the Charleston Interurban Railroad to the commission for authority to increase its passenger rates and change its fare zones, formal protest on behalf of the city of Charleston was made to the commission by City Solicitor Donald O. Blagg.

In the written protest to the commission it is specifically denied, "upon information and belief, that any alleged increased cost of operation or maintenance at this time would warrant an increase of passenger rates, and if any proposed additions or improvements would warrant that, such increase should only be permitted after such investment is made."



Three further reasons for the protest are stated as follows:

1. Practically the entire investment of the applicant was made prior to the recent advance in cost of labor and material, of which it complains.

2. During the time of such advance in costs, there has been also a very large increase in the income-producing business of the applicant, which has been handled without any commensurate increase in investment; this due to the unusual growth of population along its lines.

3. No increase should be granted by reason of unusual war conditions until a reasonable time has elapsed in which it may be ascertained what is to be the normal base of prices of all kinds in the immediate future.

### Six Cents in Norfolk and Portsmouth

A 6-cent fare with a 2-cent charge for transfers will go into effect on the lines of the Virginia Railway & Power Company in Norfolk on Sept. 28 and on the company's lines in Portsmouth on Sept. 29. Effective the same date the State Corporation Commission has authorized the 6-cent fare in each of the zones on the lines of the company outside of the cities mentioned. The changes in fare in the cities really are the outcome of the appeal of the company to the State Commission for additional zones on its lines outside the city limits. Following this appeal by the company to the State, citizens' committees were organized in the cities and it was suggested to the company that an increase in fares be made general throughout the system, in lieu of additional zones as contemplated.

In this connection a plan was advanced which amounts to the remission of the payment made by the company to Norfolk for use of streets. In the case of Norfolk these charges will be \$3,000 a month, while in the case of Portsmouth they will be \$1,000 a month. In Portsmouth no payment for use of streets has heretofore been made. In the future the income from transfers will be paid to the city if such income is greater than the respective amounts of \$3,000 and \$1,000.

As the company had stated to its trainmen that their wages could be increased only if the company secured additional revenue through an advance in fares, it is now announced that on Oct. 1 the wages will be raised 5 cents an hour to 41 cents and 45 cents.

### New St. Louis Fares in Effect

The increased fare schedules granted by the Public Service Commission recently to the United Railways, St. Louis, Mo., went into effect at midnight on Sept. 19 with the exception of the 8-cent cash fare, which will not be charged until the company gets a new supply of metal tokens and puts them on the market. A 7-cent cash fare will be accepted by conductors until further notice. An extraordinary demand for metal adult tickets, which sell at two

for 15 cents, seven for 50 cents, and fifty for \$3.50, soon exhausted 1,000,000 tokens which were placed on sale by Receiver Wells at many business houses, banks and drug stores.

By an informal ruling of the Public Service Commission, Col. A. T. Perkins, manager of the United Railways, has been authorized to reduce the fare for children from 3½ cents to 3¼ cents, selling two tickets for 7 cents. The request was made of the commission by Colonel Perkins in fairness to the public and with the view of permitting children to take advantage of reduced rates without having to buy four tickets at a time. Under the original ruling it would have been necessary to purchase children's tickets in blocks of four for 15 cents or pay a cash fare of 4 cents.

## Transportation News Notes

**Seven-Cent Fare at Calais, Me.**—At a joint meeting of the Maine and the New Brunswick Public Utilities Commissions held at Calais, Me., on Sept. 18, the Calais Street Railway was granted the right to charge a 7-cent fare on its system, with the proviso that eight tickets be sold for 50 cents.

**Seven Cents Asked in Brunswick, Ga.**—The City & Suburban Railway, Brunswick, Ga., has applied to the State Railroad Commission for an increase in fare from 5 cents to 7 cents. The company previously petitioned the Council of Brunswick for an advance in fare, but, anticipating refusal of its request, turned to the commission for relief.

**Company Publishes Bulletin.**—As part of its campaign for educating the people of Minneapolis, Minn., who will vote upon the question of a service-at-cost franchise for the Twin City Rapid Transit Company in December, the company is publishing a weekly bulletin, *Rapid Transit News*. The first issue appeared on Sept. 8. It was extensively advertised in the company's cars.

**All Pay Seven Cents.**—Workmen's and children's 2½-cent street-car fares have been discontinued by the Dubuque (Ia.) Electric Company. This follows instructions of the United States Circuit Court of Appeals, reversing the ruling handed down in the United States District Court last December. The fare for all persons now on the lines of the Dubuque Electric Company will be 7 cents.

**Ten-Cent Rate Suspended.**—The Public Service Commission for the Second

District has suspended, until October 15 inclusive, the 10-cent fare schedule of the Westchester Electric Railroad, Mt. Vernon, N. Y., originally proposed as effective on July 31, as far as it affects fares between New Rochelle and Mount Vernon. The prepared rates are under investigation by the commission as well as by the Public Service Commission, First District.

**Further Transfer Restrictions.**—It has been announced by Federal Judge Mayer in the District Court at New York that he will consider the question of relieving the Eighth Avenue Railroad, which was returned to its owners some months ago, and the Ninth Avenue Railroad, which is released from the control of Receiver Hedges of the New York Railways and relieved of the obligation to exchange transfers with intersecting lines.

**Champaign Has a Record Day.**—The Urbana & Champaign Railway, Gas & Electric Company, Champaign, Ill., experienced one of the heaviest days in its history, if not the heaviest, on a recent day known as Victory Day when the returned soldiers of Champaign County were formally welcomed. One car alone is said to have handled 2937 passengers during the day and another 2640. Not an accident was experienced.

**Franchise Contest in Ohio Settled.**—Officials of the Northern Ohio Traction & Light Company, Akron, Ohio, and the Commissioners of Stark County have reached an agreement on franchise terms on the portion of the line between Canton and Massillon, Ohio. The company will sell fifty tickets for \$5, which is just half of the former fare, and will move its track to the center of the highway and pay its portion of the cost of repaving the road in 1920.

**Safety Zones in Dallas.**—Safety zones are to be established in Dallas, Tex., at the principal down-town street intersections, for patrons boarding or leaving street cars, and a city ordinance covering these features has been drafted and will be pushed through the Board of City Commissioners. The ordinance was drafted by Commissioner L. E. McGee and Lynn B. Milam, supervisor of public utilities, who recently made a study of the zone system as applied in other cities throughout the country.

**Six-Cent Fare Upheld in Birmingham.**—Chancellor Hugh A. Locke on Sept. 17 denied a petition for a preliminary injunction to restrain the City Commission of Birmingham, Ala., from allowing the Birmingham Railway, Light & Power Company to charge a 6-cent fare. At a hearing on Sept. 15, the Chancellor sustained demurrers to the petition so far as the Alabama Public Service Commission was concerned.

What action the complainants will take is not known. The 6-cent fare went into effect on Sept. 4 after it had been approved by the City Commission and the Public Service Commission.

**Higher Rates Restrained at Montreal.**—The 7-cent fare which was to have become effective on the lines of the Montreal (Que.) Tramways on Sept. 15 has been indefinitely suspended owing to the action of the city of Montreal in appealing from the order of the Montreal Tramways Commission, which sanctioned the increase. The city has served notice that it will take its case to the Public Utilities Commission of Quebec. The present 6-cent fares will continue until that body has rendered its decision. The fares which the Montreal Tramways Commission has fixed are: Four tickets for 25 cents during the working hours, or 7 cents cash fare at any time except after midnight, when the rate remains as at present, 15 cents.

**Commission's Power at Issue.**—The question of whether the Public Service Commission of New York has power to raise a rate of fare is again before the courts. Harriet Watson, through her attorney, William A. DeFord, has brought suit in the State Supreme Court to restrain the New York and North Shore Traction Company from charging more than 5 cents for a continuous ride. Justice Edward R. Finch issued an order requiring the traction company to show cause why it should not be enjoined. Permission to raise the fare was granted recently to the traction company by the Public Service Commission for the First District on the ground that certain legislative powers had been delegated to the commission by the Legislature. Mr. DeFord contends that the increase violates the terms of the franchise granted to the traction company by the city, which, he asserts, forbids such an increase.

**Trenton Case Continued.**—The petition of the Trenton & Mercer County Traction Corporation, Trenton, N. J., for permission to add an additional fare zone to each of its five suburban branches and to impose a charge of 1 cent for all transfers issued in Trenton was heard on Sept. 16 before the Board of Public Utility Commissioners of New Jersey. After Rankin Johnson, president of the railway, was examined the case was laid over until Sept. 30, at which time Mr. Johnson will be cross examined. Mr. Johnson said that his company would shortly erect fare zone signs on its suburban divisions instead of allowing the conductors to fix the zones by certain marks on trolley poles. Frank S. Katzenbach, Jr., counsel for the railway, said the suburban lines were being operated at a loss and that it was necessary to have additional revenue to make up the deficit.

## Personal Mention

### New Post for Oren Root

Becomes President of the Hudson & Manhattan Railroad—W. C. Fisk, Chairman of the Board

Oren Root has been elected president of the Hudson & Manhattan Railroad, New York, which operates the tube under the Hudson River, following the naming of Wilbur C. Fisk to be chairman of the board of directors. Mr. Root has been a director of the company for several years.

Mr. Root's connection with the public utility business began in 1894 shortly after his graduation from Hamilton College. In that year he became associated with the Metropolitan Street Railway, New York. His first position was with a construction gang laying tracks, after which he was appointed time-keeper. Later he acted as a trainman so as further to enlarge his knowledge of the practical problems of railroading. In the performance of all of these duties Mr. Root showed capacity for doing hard work and doing it well. After being connected with the system for about two years he was chosen assistant to the general manager. In this position he demonstrated a thorough knowledge of railway affairs and showed marked operating ability and was finally appointed assistant general manager of the company. Mr. Root became general manager of the company in 1903. At that time he was only twenty-nine years old.

In 1906 he was appointed vice-president of the company as the successor to Frank S. Gannon, resigned, but retained the office of general manager. When the road went into the hands of receivers he remained as general manager for the receivers. In 1912, when the Metropolitan Street Railway emerged from receivership, he became a director and a member of the executive committee of the company.

He resigned from active management of the New York Railways, the successor to the Metropolitan Street Railway, in 1912 to become associated with a group of bankers doing a general banking business, and who specialized in purchasing, financing and operating public utility properties. During the six years of this connection, Mr. Root was president of the Republic Railway & Light Company, which controlled a large group of railway, light and gas companies throughout Ohio and Pennsylvania, and was also chairman of the board of directors of the Central States Electric Company, which controlled electric light, gas and heating properties

in Cleveland and surrounding territory. Six years later Mr. Root resigned from these companies. Mr. Root is a nephew of Elihu Root.

## Obituary

### Theodore P. Shonts Dead

Head of Rapid Transit and Surface Lines in New York Dies After Long Illness

Theodore P. Shonts, president of the Interborough Rapid Transit Company, New York, N. Y., and the New York Railways, died early on Sunday morn-



Davis & Sanford, New York.

THEODORE P. SHONTS

ing, Sept. 21. He had been ill since June 21, when he was stricken while at work in his office.

The two companies of which Mr. Shonts was the head control all the rapid transit lines in the Boroughs of Manhattan and the Bronx with their extensions to Brooklyn and Queens, except for the comparatively short line of the Brooklyn Rapid Transit Company in Manhattan, and also control a goodly part of the surface railways of the two boroughs.

#### GENIUS FOR ORGANIZATION

Mr. Shonts first applied his genius for organization to these properties in 1907 at which time he was elected as the head of the subway and elevated lines. In 1912 he was also elected president of the New York Railways, which had then just passed through receiver-

ship and foreclosure and come into control of the financial interests which dominated the rapid transit lines. To these properties Mr. Shonts brought a vast fund of knowledge of railroad affairs and of business organization garnered in a career that had carried him after his graduation from college through the professions of teaching and of law and in steam railroad and industrial work from the planning and financing of small short lines through the work of Chairman of the Panama Canal. Although he continued at the head of the canal work for only two years and although controversy later developed over the matter of ultimate credit for the Panama achievement, even partisans are forced to acknowledge that it was Mr. Shonts who set in motion and largely built up the staff and personnel which later completed that undertaking.

#### WARD OFF RECEIVERSHIP

And so it has been with the Interborough Rapid Transit Company and the New York Railways. Mr. Shonts had a wonderful staff under him on both properties. While it is true that the surface lines are in the hands of a receiver it is generally admitted that under the present trying conditions the receivership was inevitable and that but for the organization built up by Mr. Shonts the receivership would probably have come long before it did. Certainly there were few if any men better fitted temperamentally or in the light of their previous experience than he for the vast task of co-ordinating the forces in charge of the great bulk of the transportation lines of the greater City of New York. As the *New York Times* said editorially, Mr. Shonts brought a giant's strength to the transit problem and he never spared the giant. Nowhere, perhaps, was this made more evident than in the long negotiating with the city over the contract under which the rapid transit lines in New York are now operated.

Mr. Shonts was born in Crawford County, Pennsylvania, in 1856. He was reared in Iowa and worked his way through Monmouth College from which he was graduated with the degree of B. A. in 1876. He started in business in a bank, but later studied law and then took up railroad construction work, eventually entering the railroad managerial field.

Mr. Shonts was buried on Sept. 23, from the Brick Presbyterian Church on Fifth Avenue. The Rev. Dr. Howard Duffield, a close friend of Mr. Shonts, officiated.

Charles M. Jacobs, the designer of the so-called McAadoo tunnels and those of the Pennsylvania Railroad under the Hudson River at New York, died in London on Sept. 7.

#### Hugh M. Wilson Dies

Hugh M. Wilson, from 1910 to 1916 first vice-president of the McGraw Publishing Company, publisher of the *ELECTRIC RAILWAY JOURNAL* and other papers, died suddenly at his home in Stockbridge, Mass., on Sept. 19. The cause was heart disease.

Before joining the McGraw staff Mr. Wilson had long been a prominent figure in the field of technical journalism, and from 1899 to 1908 was president and chief proprietor of the *Railway Age*. In 1905 the International Railway Congress met in Washington, D. C., and during the convention the *Railway Age* published a daily issue, with the papers and a report of each session printed in both French and English. It was a tremendous task, but was carried out successfully and brought great prestige to the paper and its publishers.

In 1908 Mr. Wilson sold his interest in the *Railway Age* to the publishers of the *Railroad Gazette*, and his interest in the *Electric Railway Review*, of which he was also publisher, to the McGraw Publishing Company. He then went abroad for a year. On his return



HUGH M. WILSON

he was elected vice-president of the Barney & Smith Car Company, Dayton, Ohio, but resigned from that company a year later to accept the position of first vice-president of the McGraw Publishing Company.

As a publisher Mr. Wilson's work was characterized by a devotion to high ideals and an enthusiasm which he was fortunately able to impart to his associates. His retirement from the McGraw Publishing Company in 1916 followed an extended illness, during which Mr. Wilson was also injured in an automobile accident. This retarded his recovery.

Life on his farm at Stockbridge during 1917-18 proved of physical benefit to him, so much so that Mr. Wilson took an active part in the sales campaigns for the last two government

loans. Early in the present year he decided to re-enter active business and became associated with White, Weld & Company, bankers, New York, with whom he was connected at the time of his death.

## New Publications

#### An American Labor Policy

By Julius Henry Cohen. The Macmillan Company, New York, N. Y.; 110 pages

Managers of men everywhere in the electric railway industry ought to read Mr. Cohen's volume. It is a little book about a most important subject handled in a "big way."

A word about the author. He designed, and, as counsel for the employers, aided in carrying forward the institutions established by the protocol in the garment industry. He was special counsel for the Public Service Commission during the street car strike in New York City in 1916. He has made a study of industrial problems and is a lawyer of broad, general experience.

Mr. Cohen's statements of costs of the New York railway strike are at once illuminating and distressing. As for the individual contract, Mr. Cohen says it protects neither the employer nor the employee and results in industrial war sooner or later.

Mr. Cohen says that organized American capital is opposed to organized American labor because both sides are still in the stage of "military" strategy. As he sees it, both sides must be won over to the stage of industrial law. To do this their assent must be obtained to a constructive program in which both are secured. Mr. Cohen outlines a platform upon which he thinks that branch of organized labor which does not believe in the overthrow of society, but believes in the steady and orderly improvement of the conditions of labor, can join hands with organized capital. In conclusion Mr. Cohen says:

Freedom to organize, freedom to deal collectively, security from arbitrary discharge, security against strikes, resulting from the free interchange of opinions, but when made the compact subject to the approval of the community, and after approval, enforceable by the community—these would seem to constitute the basic elements of a new democratic law and order.

Mr. Cohen frankly acknowledges, however, that in order to accomplish this we shall find it necessary to revise our legal conceptions of freedom of contract.

# Manufactures and the Markets

DISCUSSIONS OF MARKET AND TRADE CONDITIONS FOR THE MANUFACTURER,

SALESMAN AND PURCHASING AGENT

ROLLING STOCK PURCHASES

BUSINESS ANNOUNCEMENTS

## Fare Devices Show Good Sales

No Estimate of Fall or Winter Sales—  
Buying is Usually Spasmodic—  
Prices Up Slightly

The fare register and fare box market is firm with a slightly upward tendency. Sales of fare registers the first six months of this year are something over 30 per cent in excess of sales for the corresponding period of 1918.

One manufacturer reports that it is utterly impossible to make any estimate of sales for the coming fall and winter, as the buying season in fare registers is always spasmodic. On Sept. 1 an advance in prices was made, although it is believed that today's prices are not yet up to what they should be to cover the marked advance in costs of material and labor. Manufacturing conditions are such that this company up to the present time has

been able to make exceedingly prompt deliveries. Large orders are reported from the Brooklyn Rapid Transit Company and the Chicago City Railways.

Sales of fare boxes for the first six months of 1919 show a 75 per cent increase over the corresponding period for 1918. In this market, it is reported, buying seems to be more or less periodical. The railways start their heavy buying after Aug. 1 and continue up to March, when it apparently slacks off.

On orders involving large quantities of fare boxes the deliveries are from six to ten weeks. Large orders of this line have recently been received from Omaha and Seattle, from the Connecticut Company and from the United Railways & Electric Company, Baltimore.

In regard to payment of invoices, it is learned that the railway companies are rather slow in meeting their bills, although some of them seem to take pride in meeting their obligations within the time limit.

## Glass Demands Exceed Output

Factories Swamped With Orders—Deliveries Slow—Distributors' Stock Below Normal

Conditions in the glass market continue to grow worse. The double-thick glass is coming in very slowly, causing considerable delay on account of the short stocks held in distributors warehouses. This affects the popular sizes from 24 in. x 24 in. to 36 in. x 36 in. particularly. Only a part of the glass factories are in active operation, and these are amply supplied with orders for the present and the immediate future production. The greatest demand now is for ordinary window glass, and considerable difficulty is experienced on account of factory conditions. The price of this glass has not advanced and the demand for it exceeds the output of the factories.

The sizes from 26 oz. to 39 oz., the latter being called  $\frac{1}{8}$  in., are coming in even slower than the double-thick glass. Most of the stock of this type has been snapped up by buyers for the automobile industry. The 39 oz., or  $\frac{1}{8}$  in., is used as a substitute for plate, and there is a great demand for it.

PRICES UP 25 PER CENT

Prices of most lines are shifting considerably and in the sizes 34 to 39 oz. the prices advanced recently about 25 per cent. The most recent advance was one of 10 per cent about a week ago, while an additional advance of 10 to 15 per cent was made about July 1, the total on this line amounting to 20 to 25 per cent in the last three months.

The discount on car window glass, single strength, first three brackets, A quality, New York, and also B quality, is 77 per cent, while on double strength car window glass, all sizes, AA quality, the discount is 79 per cent.

Business is becoming more active as the season advances. There is a noticeable increase in both orders and inquiries, although it is not possible to say at this time what percentage of the orders will be filled. Deliveries are good only on a few lines of stock held by distributors, but where orders cannot be filled from stock on hand deliveries are poor. One manufacturer is quoting eight to twelve weeks, depending upon the size and grade ordered.

Factory conditions are not promising, as the glass blowers and workers in glass are demanding 25 per cent increase in wages, effective Dec. 1, 1919.

## Use of Power Saving Devices

Railways Purchasing This Equipment Over a Long Period of Months,  
Thus Getting the Benefit of Savings

The sales of power-saving devices have been fairly light, but are now improving, and it is estimated that the increase in sales for the coming fall and winter will be considerable. Railways are seeing the advisability of putting a check on the amount of money which the motorman spends for power. Purchases, no doubt, have been retarded by the financial condition of the railway companies, but the plan of paying for this equipment over a long period of months has met with much favor among railway men, and the majority of the business now being placed is on that basis. For example, one company bought a large number of power-saving devices on a thirty-month basis, and from present reports expects to be able to pay for the equipment long before the last payment is due out of the savings effected by their use. These terms are considerably longer than the usual ones, which are quoted at from twelve to eighteen months. As a rule the price quoted is the one made at the time of inquiry. Although sales have been light for the past six months they exceed those of the corresponding period last year.

Prices have advanced, but this was unavoidable, as large increases have been made in both the labor market

and in raw material market. The latter market is plentiful, but high priced.

Up to the present time manufacturing conditions have not yet held up deliveries, but no estimate can be given of what the future may bring forth. Deliveries at the present time can be filled promptly, and as the railway companies seem to start their heavy buying in the fall, it is believed that sales of this equipment which are now pending on a number of properties throughout the electric railway field will be largely increased.

### Rolling Stock

Morris County Traction Company, Morristown, N. J., is contemplating the purchase of ten to fifteen safety cars.

Aurora, Elgin & Chicago Railway, Aurora, Ill., has placed an order with the American Car Company for forty safety cars.

Texas Electric Company, Dallas, Tex., has ordered four Birney safety cars from the American Car Company for use on its city lines in Waco.

United Railways, St. Louis, Mo., is considering the purchase of a number of safety cars to replace the heavier cars now being used on outlying lines.

