

Electric Railway Journal

Consolidation of STREET RAILWAY JOURNAL and ELECTRIC RAILWAY REVIEW

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Precedent and Warning in Seattle's Victory

REFUSING to be swayed or intimidated by the rampant element in labor unions, Mayor Hanson of Seattle succeeded in breaking the "sympathetic strike" that for a short time last week paralyzed the city. His act constitutes an excellent precedent for other mayors and at the same time a warning to labor agitators. The case is of national importance as a serious outbreak in America of the evil that has been undermining the organized labor of Europe. Mayor Hanson's proclamation on the second day of the strike urged the people of the city to go about their daily work as usual and guaranteed them "absolute and complete protection." He said, "We have 1500 police officers and 1500 regulars from Camp Lewis and can get the services of every soldier in the Pacific Northwest if necessary to protect life and property. We will see to it that you have food, transportation, water, light, gas and all necessities. The anarchists in this community shall not rule its affairs. All persons violating the laws will be dealt with summarily." Unless the decent, honest members of labor organizations refuse to be lead by I. W. W., radicals and anarchists, labor unions will sink to a low level in public esteem and will lose the right to respect and consideration. What has been done in Seattle could and should be done vigorously and promptly wherever labor organizations are so mismanaged that violent methods are resorted to, industry is paralyzed and propaganda is carried on urging labor to "take over the operation" of industries.

The Accountants Should Certainly Keep Moving

SHOULD the accountants continue their association work? This question, it is said, is in the minds of some members of the Central Electric Railway Accountants' Association, which after a period of inactivity enforced by war conditions reconvened for the first time in Fort Wayne last week. By all means continue, we say. We quite agree with the conclusion expressed by A. C. Van Driesen in his presidential address to the effect that the opportune time for the association to show its mettle is now and that it should get into the reconstruction period with vim and do all in its power to solve the various problems as they appear.

The work of standardizing accounts, it is true, has reached the point where only occasional revisions are necessary, but this is not the only topic in which an association of accountants should be interested. The accountant should no longer be interested solely in the mechanism of his work. He should be today the first assistant of the executive, capable of properly compil-

ing, analyzing and comparing financial and statistical reports of the business. He should not simply furnish figures; he should use his mind to ascertain what the figures mean, not merely to help discover what might have been remedied but also to cause actual prevention if this is possible.

In short, one of the greatest values of accounting lies in the application of compiled data to future operation. Hence the accountant must acquaint himself with the general problems of the executive and then evolve the best methods of general accounting, fare accounting, cost accounting, statistics and the like to help the executive. For these reasons, the work of accountants' associations is not done.

It all depends on the point of view. If the accountant starts from his accounts and figures, his work may look complete. If he starts from the problems of the executive, however, he will undoubtedly find spots where more can be gotten from the accounts to help the executive. If the second course is followed, there will be no dearth of topics or work for any accountants' association.

Is There an Opportunity for Long-Haul Passenger Traffic by Auto Buses?

IN SOUTHERN CALIFORNIA auto buses still compete with the electric railways to a formidable extent on long hauls of both freight and passengers. Local regulations are imposed on the buses by the municipalities which are traversed, so that the problem of regulation is one in which state-wide action is required. Out of the legislation now under consideration it is hoped that relief to the electric railways will come, but as yet no plan has been proposed upon which the several interests involved can agree.

It has been suggested that the first step in the analysis of this problem is to answer the question as to whether the electric railway is essential to the progress and development of the communities involved. If this question is answered affirmatively, then the electric railway has the right to at least the same encouragement and protection as is accorded any other carrier. This means that the auto buses must be put upon a parity with the electric railways as to rates and dependability of service. For example, assurance of continuity of service should be required, responsibility for accident liability should be imposed, and the automobiles should be required to pay a fair rate for the use of the State highways. Moreover, and most important of all, a principle should be applied here that has long been established with respect to the paralleling of satisfactory service furnished by steam railroads. This is that permission to install competing service in such a case cannot properly be granted, and there is no reason

for other than the same conclusion when one of the carriers uses the public highway and the other uses a private way.

With the excellent highway system and favorable weather conditions that exist in California it is natural that the problem should have become a serious one in that State. Weather conditions permitting, auto buses run between San Francisco and Los Angeles, a distance of about 500 miles, throughout the entire year. In the southern part of the State both freight and passenger buses directly parallel the electric railway for runs up to 60 miles in length. Under these conditions legislative action in California on the subject of regulation of auto bus transportation will be followed with interest the country over.

Proposed Power Plant

Inter-connection in the East

SECRETARY FRANKLIN K. LANE of the Department of the Interior is proposing to spend \$200,000 in an investigation of the possibilities of making savings by means of an inter-connection of electric power plants on the Atlantic seaboard. If this investigation is made it will yield data of great value as to the supply of electric power for the railroads and undoubtedly will show the advisability of extending electric operation which is effective now only in spots. It is proposed that trunk-line connections be made throughout what is called the North Atlantic industrial district, comprising the territory surrounding the industrial centers between Boston and Washington inclusive and extending inland to include Albany and Harrisburg. The proposal has an important bearing upon the electrification of steam railroads in this territory, as nearly all of the electrifications in the East are comprised within the district, and these all need to be extended to enable them to yield the full benefits for which they were installed. Of course such extension was impossible during the war period. The territory also includes a number of interurban roads which are of steam railroad construction and a very great mileage of urban and other interurban lines. There is a great reason, therefore, why the electric railway field should be interested in Secretary Lane's proposition.

What Secretary Lane hopes to accomplish by the proposed study was outlined in the news columns of this paper last week. As far as the economics of this matter of inter-connection of power systems is concerned, there is much to be said in favor of such inter-connection. Under such a plan power could be produced where water power or fuel abounds and it could be cheaply transported by electrical means. By connecting the many existing plants to a trunk line such as that suggested they could insure a more continuous output and they could draw upon the trunk line to supplement their own capacity at times of peak load or power shortage. There would, of course, be many administrative difficulties in connection with such a plan, which can be visualized as one tries to picture the actual procedure of furnishing power to the trunk line and drawing power from it. Moreover the operators of power plants are likely to feel that an expensive investigation cannot disclose much that is not known now. The theory of the situation is well understood, but how to apply it in a practical manner is another question.

What May Be

Learned from Glasgow?

WE BELIEVE that American electric railway managers will find a great deal to interest and help them in the articles which we expect to publish during the next few months on British tramway practice. These articles are the result of a special study which is being made by Walter Jackson of our editorial staff who is now in Europe to investigate the question of the collection of zone fares and other features of British tramway practice. The article in this issue is the first of three which are to appear on the Glasgow system.

It is interesting, in comparing British and American tramway practice, to remember that many of the earliest British tramways were built by an American, George Francis Train, and that when the lines began to be electrically equipped, much of the apparatus came from America. In consequence, the development of the tramways in the two countries to a considerable extent has been alike along engineering lines, but the same cannot be said in regard to transportation methods. From the beginning the British companies have used the zone system, the controlling reason undoubtedly being the necessity of a fare based on the penny as a unit.

At the present time our American electric railway properties are facing a situation very similar to that confronting the British tramways when they began operations. Owing to changed financial conditions the nickel has become inadequate as a uniform fare in our city transportation while our next coin, the dime, seems too large. American railways must therefore decide whether it would be better to collect two coins for a uniform fare or adopt the zone system.

The difference in transportation conditions between British and American tramways has already been mentioned. Some of the points besides the method of charging for transportation are: The general use in Great Britain of double-deck cars, the absence of the prepayment system, the comparatively small extent of the railways compared with the population served, the lower wages paid and the density of tramway traffic. The extent of the latter difference is shown by the fact that the Glasgow Tramways for the year ended May 31, 1918, showed 16.7 revenue passengers per car mile and its average for the last twenty-four years has been 12.6 revenue passengers per car-mile. These figures compare, for various years ending between December, 1915, and December, 1917, with American roads as follows: Brooklyn surface lines, 5.5 passengers; Manhattan surface lines, 8 passengers; New York City surface lines as a whole, 5.7 passengers; Baltimore, 6 revenue passengers and 8 total passengers per car-mile; St. Louis, 5.8 revenue and 9 total passengers per car-mile.

These figures show that in Glasgow at least either fewer cars are run in proportion to the passenger-miles or that the tramway companies there have discovered the method of inducing riders to use cars for short distances. As the Glasgow articles will develop later, the latter explanation accounts at least in part for the denser traffic, and in these days of existing or potential jitney competition, this is a matter which can well engage the attention of the railway managers in this country.

The War Labor Board Activities and the Electric Railways

IN TWO cases recently a question has been raised as to the power of the War Labor Board. We refer to the late finding of the board in the Kansas City case and the recent hearing in the San Diego case—both reported in the *ELECTRIC RAILWAY JOURNAL*. In the former case the federal board apparently reversed its original position by ordering the company to pay a scale of wages which had previously been held beyond its financial ability to meet, the employees having agreed to wait for more prosperous days which an increased fare would have brought about. When the company's revenues showed no signs of improvement the men went on strike and later appealed again to the board for help. Being directed to carry out the original wage award the company management refused because its financial condition would not permit of making the extra payments.

In the San Diego case the circumstances are different. The company has not acknowledged the jurisdiction of the board or agreed to accept its decision, since the generally unjustified complaint of some of the men was filed after Dec. 5, when the board declared that joint submission would be necessary for it to take action in the case.

We are of the opinion that the Kansas City and the San Diego companies were entirely within their rights in taking this firm stand, and we also believe the time has come to question whether this federal agency—created for a war emergency—has ever been in a position to decide electric railway questions with entire justice to both sides. The conditions under which it carried on its work were such that it was in a position to act fairly with one of the parties before it, the men, but unfortunately it did not have the power to obtain justice for the other party in the case, the company. This was a fatal omission in the legislation under which the board was established. It could and did strongly urge upon the local authorities in many if not all cases where an increase in wages was ordered that a corresponding increase in rates be allowed, but these words too often fell on deaf ears. A series of receiverships and financial troubles was the inevitable consequence of so inequitable an arrangement.

We do not pass judgment on the fairness of the higher wage standards set up by the board. It is probably true that as a whole they were not more than were warranted by the increased cost of living. However, we fail to see the fairness of a situation where a corporation is asked to carry out an award which, without definite revenues, can mean only disaster. There should have been some way by which the board could have put these decrees into effect without crippling the employing company, as was done with the steam railroads where the rates were increased when higher wages were ordered. The lack of equity in the electric railway arrangement is so evident that we are sure the members of the board themselves must have felt its incongruity.

At present the War Labor Board is hearing no cases except such as are submitted by both parties to a dispute, so that its functions now are practically only those of a board of arbitration. Perhaps this is the best possible arrangement under the circumstances

because neither side will feel compelled to join in a proceeding and will only submit to jurisdiction as a last resort and with the hope of getting a decision with which compliance is possible. Meanwhile it is to be hoped that the financial situation will improve for the utilities and they will not then hold back on meeting such wage standards as may develop in a competitive labor market. It is very likely that the labor situation will take care of itself after the War Labor Board goes out of existence.

Good Welders Are Needed to Produce Good Welding

THE idea of increased economy which may result from a broader use of welding in car construction has been emphasized greatly by war conditions. The costs of steel cars must be reduced, and a fruitful field for producing economy appears to be in decreasing the amount of riveting necessary. Welding has already been used to a limited extent in this work and has been found successful. The best method for increasing its usefulness appears to be in extending the process to more important members of the car body. Railway officials should not expect to obtain a rivetless car immediately, since it is necessary to proceed continuously and to gain experience by adapting welding to minor parts first.

Manufacturers have found that considerable skill is necessary to obtain satisfactory results in welding, and there is much to be learned in the handling of the apparatus and the welding materials. Experience indicates that in general the defects encountered are mechanical and are not inherent in the process. Skilled men working under competent foremen will do much to establish confidence in the reliability of welds. Such men will know that clean surfaces are necessary for good work and will be quick to recognize the parts that can be welded rapidly and cheaply. Men who know the underlying principles of welding and possess a knowledge of the materials to be worked will get the quickest results, effect the greatest saving and produce the best work.

Several very interesting papers dealing with welding problems and results were presented at a joint meeting of the American Institute of Electrical Engineers and American Institute of Mining Engineers in New York this week. While most of the information furnished was the result of investigations made with a view to applying electric welding to ship construction, still all branches of industry will be benefited by the advances made toward a better and more intimate understanding of some of the principles involved. Much study has been made of the structure found in electric welds and to devising non-destructive methods for testing them when completed. Such studies and testing methods are very valuable but, as was pointed out by one of the speakers, when welders of proved skill only are employed, under experienced supervision, then such tests will no more be necessary than are shear tests on every rivet that is driven. So long as such welders are not available, car builders will look askance at a process that may be good generally but may leave weak spots in the work, which spots may be very difficult or quite impossible to detect by inspection.

Mr. Dalrymple on the Value of the Zone Fare

WE HAVE never questioned the fact that the universal 5-cent fare has many advantages from the operating point of view. It is very simple in collection and easier for the conductor. But we have always contended that the universal fare is against the interests of the passenger.

In Glasgow we have never had single fare operation. From the inauguration of the tramways in 1870, we have always charged according to the distance traveled. The statutory rate is still a penny a mile. This was the rate when we started as a municipal system in 1894. Gradually we not only increased the distance given for a penny, but also inaugurated the $\frac{1}{2}$ d. for $\frac{1}{2}$ -mile fare. In 1911 we extended the $\frac{1}{2}$ d. distance to a mile or more, giving more for $\frac{1}{2}$ d. than the law demands for 1d.

Every change that we have made in reducing fares has meant to Glasgow both an increase in passengers and an increase in revenue. When we doubled the $\frac{1}{2}$ d. stage, our passengers per car-mile were already so high that we could not see how we were going to carry any more. The unexpected effect of the reduced rate was the filling up of the cars during the slack hours of the day. The amount of peak riding showed little change, as most of the peakload passengers rode in any case. Thus the traffic increased during the hours when the conductor had most time to handle it. With twenty passengers per car-mile, the cars are not crowded any more than when we were carrying fifteen passengers or less per car-mile.

In our older cities we were far more congested prior to the coming of tramways than

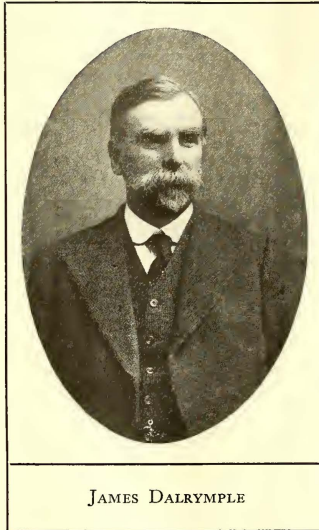
we are to-day, so that the question of fares could have had nothing to do with the matter. When our tramways (in Glasgow) were organized in 1870, the penny fare carried the passenger out into the open. Even in the greater Glasgow of to-day, a $1\frac{1}{2}$ d. fare will take the passenger to green fields;

and only 6.6 per cent of our passengers during the last year had to pay this fare. Of the remaining passengers, 1 per cent paid a $2\frac{1}{2}$ d. fare, 25.6 per cent a 1d. fare while 63.3 per cent paid only the $\frac{1}{2}$ d. minimum.

We do not believe that the graded fare as applied in Glasgow is more complicated than the American system of cash fares and transfers and surely not as complicated as 6-cent or 7-cent fares and 1-cent or 2-cent transfers. Fare collection with us is a simple cash transaction. The passenger pays his fare, secures his receipt and we have done with him. We no longer sell

tickets on the car at a discount, as we found that this resulted in abuses. The only tokens we have are fiber disks sold from the main office at full value. In general, our base fare is so low that we can dispense with the complexities of workmen's tickets, free transfers and the like. Even the minimum fare for children is $\frac{1}{2}$ d., and most of these sales are for the minimum ride granted to adults at the same rate.

Everybody in Glasgow knows the Tramways and takes an interest in them. There is no mystery about operation, fares or other features that interest the public; and when the masses do understand and appreciate the local street railway, it makes an enormous difference in results.



JAMES DALRYMPLE

The Zone Fare in Practice—Glasgow

By WALTER JACKSON



A BUSY EVENING ON THE JAMAICA STREET BRIDGE, GLASGOW

PART ONE

Congestion Not Due to Graded Fares

OF ALL the arguments raised against the principle of charging for street railway rides by distance, that of "congestion" holds first place. Parallels are drawn between American and European cities as to relative areas for like populations, and the draftsman invariably concludes that the congestion of the Old World city—which is taken for granted—and the diffusion of the New World city—which is also taken for granted—are due almost entirely to the differential fares of the one and the universal fare of the other. The most casual investigation on the ground will show that the connection between the distribution of population and the system of fare charging is a minor rather than a major factor in municipal development. It is not in Great Britain but in the United States that we find skyscrapers in the business district and elevator flats in the residential sections! Congestion there frequently is, of course, in both countries yet it would be erroneous to ascribe it to any one cause. However, so long as American electric railway operators will have to face the argument of congestion, which is bound to be raised by every land and house owner who fears the effect of a zone fare differential on his property, it is deemed well to set forth as many

data as necessary to show whether or not such fears are justified. To this end, the following facts on housing have been gathered from direct observation, from official documents and from interviews with local municipal authorities.

OBSTRUCTIONS IN AN OLD CITY ARE HARD TO REMOVE

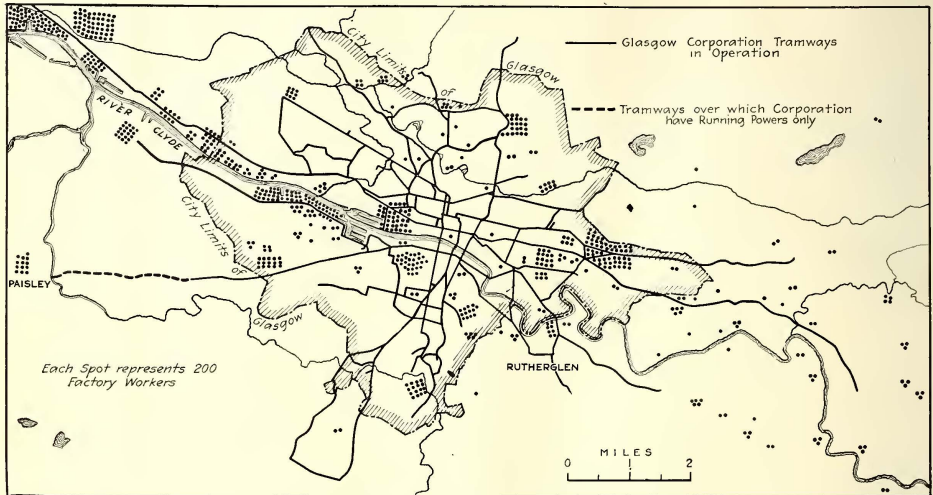
In American cities the work of one generation is largely effaced by the next. In European cities, old structures with or without historical associations are clung to with far greater tenacity. This is one of the prime reasons why the older, central portions of many foreign cities are so congested. Glasgow, whose roots go deep into Caledonian history, still shows many traces of the past although few British communities have been so enterprising. More than once, the official who dared to suggest the straightening of an old lane or the removal of a crumbling tower has been denounced as a desecrator! Naturally, the street railway service cannot be any better than the standard set by the principal downtown thoroughfares, and it is really a marvel that the tracks of Glasgow carry the enormous traffic that they do.

In the official history of "Municipal Glasgow—Its Evolution

NOTE:—In view of the change from the convenient 5-cent fare to the inconvenient 6, 7 and 8-cent unit fares in the United States within the past year, and the indecisive results therefrom, the ELECTRIC RAILWAY JOURNAL decided that the time was opportune for a first-hand study of the zone or graded fare system used most commonly abroad. Mr. Jackson was therefore delegated to visit as many cities of the United Kingdom as appeared necessary to bring out the good and bad points of methods of fare charging and collection practices that are already being considered for the United States. This, the first article in the series, deals with Glasgow and its tramways, each of which is recognized as representative of the best British practice in municipal and tramway management respectively.—EDITORS.

and Enterprises," the interesting fact is recorded that the discovery of America gave Glasgow its first impetus on a successful career. First it became a great port of embarkation and then an important center for sugar and tobacco. When trade relations were resumed in 1782, following the War of Independence, cotton was added to the important imports. From that period it may be said that the growth of Glasgow was no less phenomenal than that of American cities.

Although the area of the enlarged city is but 19,183 acres, it must not be supposed that it is a city of rookeries. On the contrary, a business structure more than six stories high is a rarity, while the prevailing type of flathouse does not exceed four stories in all. The accompanying engravings give a good idea of the prevailing types of buildings. The density of population is due more to the absence of large vacant spaces and of small houses in the older sections than to the



MAP OF GLASGOW, SHOWING RELATION OF TRAMWAY LINES AND CITY GROWTH TO PLACES OF EMPLOYMENT

The change from a cathedral and university town to a commercial center is indicated by these statistics of population:

1740	17,000	1901	761,709
1780	43,000	1911	784,496
1801	83,769	1912 (extended city) ..	1,008,487
1861	395,503	1917 (estimated)	1,104,240
1881	511,415		

Modern Glasgow, of course, is much more than a port. The River Clyde is the home of the greatest shipyards in the Old World, while the vast locomotive shops, general engineering plants and chemical works are responsible for the smoke-laden atmosphere which has led to the expression: "The engineering skies of Glasgow." Add to this industrial activity a climate with more than a fair share of rain, fog and cold, and we have the "makings" of a heavy riding town. Later figures will prove that the riding is there!

In order to show the relation between the industries and the housing facilities of Glasgow, the accompanying map is presented. On this map have been noted the location of every place of employment, except the smallest, together with the number of people at each place. It is evident from this that the great mass of workers will be found in the engineering plants on or near the Clyde. At the same time, it is observable that the city tends to grow radially, so that not all of the workers feel that it is necessary to live in the immediate vicinity of their place of employment.

presence of such tall structures as are found in many an American city of smaller population. Some of the larger manufacturers have also encouraged the construction of cottage towns near their plants, but this type of housing has not yet been developed to the same extent as in English cities.

CONGESTION PRECEDED STREET RAILWAY DAYS— MUNICIPAL HOUSING

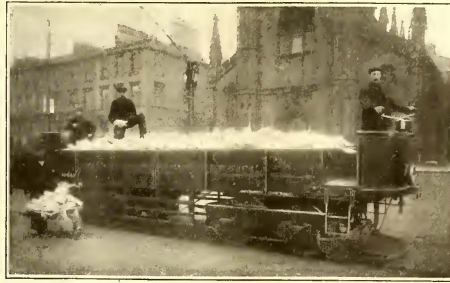
As early as 1866, long before tramway transportation, the department known as the "City Improvement Trust" was constituted under the Glasgow improvements act. The preamble of this act stated:

Whereas various portions of the City of Glasgow are so built, and the buildings thereon are so densely inhabited as to be highly injurious to the moral and physical welfare of the inhabitants, and many of the thoroughfares are narrow, circuitous and inconvenient, and it would be of public and local advantage if various houses and buildings were taken down and those portions of the said city reconstituted, and new streets were constructed in and through various parts of said city, and several of the existing streets altered, widened and diverted, and that, in connection with the reconstitution of those portions of the city, provision were made for dwellings for the laboring classes who may be displaced in consequence thereof.

The municipality began to acquire 90 acres of land in the congested areas, by compulsion or agreement, shortly after the passage of the act, but it was not until 1889 that it exercised the power of erecting new buildings upon the land thus acquired. However, between 1871 and 1884, the municipality had erected

seven model boarding houses, six for males and one for females, with a total capacity of 2235 beds. In 1896, the municipality opened a different kind of boarding house, called a Family Home, for widowers who could not afford individual caretakers for their children. This institution has 160 bedrooms aside from the community rooms. The erection of model houses in place of those demolished was inaugurated during 1889 with two blocks of houses which consisted of stores on the ground floor and three stories for residential purposes. The stores, of course, permitted a greater total rental than would otherwise have been the case. In localities not so close to the business centers the entire structure is used for dwelling purposes.

By 1896, the reconstruction of all the vacant land or cleared areas was approaching completion. Thereupon new powers were applied for to deal similarly with slum conditions on the fringe of the original scheduled areas and elsewhere. This application resulted in the Glasgow Corporation act of 1897, by section 12 of which the municipality was authorized to purchase, by agreement, any lands not exceeding *in cumulo* 25 acres, either within the city or within one-



TYPICAL GLASGOW BACKGROUND, IN A RESIDENTIAL SECTION, SHOWING THREE-STORY HOUSES WITH STORES AT THE STREET LEVEL.

half mile from the city boundary, for the purpose of erecting thereon dwellings for the poorest classes. The new buildings were up by the summer of 1906. At the time of the opening of the war in 1914, the municipality had erected 2199 houses comprising 592 one-apartment houses, 1334 two-apartment houses, 257 three-apartment houses and sixteen larger houses. All of these structures are still owned and administered by the city. For the

American reader, it should be explained that the word "apartment" is used in the following sense: An apartment may be simply a single room much larger than the largest room of an American flat and capable of use as a kitchen, living room and bedroom; or it may consist of a room with a separate kitchen, two rooms and kitchen, three rooms and kitchen, etc. Bathroom accommodation may be found from the two-room apartments onward. The washrooms or laundries are usually in the courtyard and are used in common by a specified number of tenants.

In an interview given to the writer on Dec. 17, 1918, William C. Menzies, manager City Improvement Department, said that the war had temporarily halted the construction of more buildings by the city except



STREET TRAFFIC, UNION AND ARGYLE STREETS, GLASGOW. NOTE THE PREVAILING LOW BUILDINGS IN THE BUSINESS DISTRICT

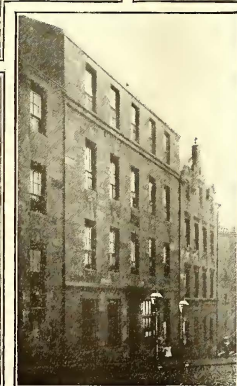
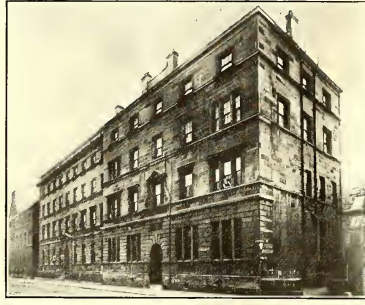
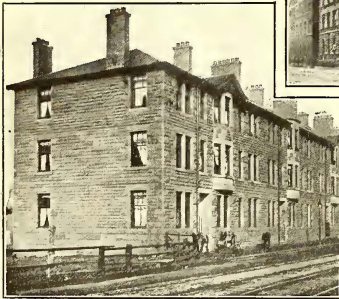
for some small tenements and forty-eight single-room apartments. These apartments are rented furnished at 7 shillings (\$1.75) a week to people who have lost their furnishings through fire or other causes. The city entered this field of housing to correct the abuses to which these unfortunates were subjected by rapacious landlords.

Asked as to the willingness of the workers to live in suburban territory, Mr. Menzies pointed out that the city's houses at Cumbernauld Road, Kennyhill, were 3 miles from the center of Glasgow. These were let only to the poorest class of people. Before the war, the tenant had to prove that he was not earning more than 28 shillings (\$7) a week, and even in these days of increased wages the rooms are not open to anyone who earns more than £2 (\$10) a week! Yet despite their low wages, many of the

substantial than frame houses common in America. The views on this page give a good idea of the types of buildings erected.

The Glasgow municipality now has in prospect a housing scheme which involves the provision of 7000 dwellings at Govan, Bellahouston, Mosspark near Corkerhill, Gilsochill, Coplawhill, Catcart Road, Maryhill, Kennyhill and other suburbs. It is intended to erect cottages and tenements of three to six apartments, each house with baths and sculleries, and attached to cottage garden plots. Nor is this all, for

the municipal ideal is 47,000 houses at the rate of 5000 per annum. Each district of Glasgow has already had its existing housing accommodations tabulated, and an estimate was made of the number of houses of different kinds required in accordance with the economical potentialities of the in-



APARTMENT HOUSES AND TENEMENTS WITH MODERATE RENT ERECTED BY THE CORPORATION OF GLASGOW

tenants worked on the other side of Glasgow 8 to 10 miles distant. To use the expression of a Kennyhill lodger who was interviewed later, they don't mind spending extra "coppers" for the privilege of living in a section which is still in the open country. A visit to Kennyhill disclosed neat stone houses with tiled halls, toilets on each floor for every three tenants and wash houses in the yards. The rooms were fewer in number but larger in size than would be found in a poorer-type American flat, and the structure as a whole were more

habitants. Glasgow knows it has slums and is anxious to get rid of them. In fact, to judge from the December election posters, the main differences between the candidates was as to how far they were willing to go in voting for housing measures and low rents, and the present tendency is toward renting future buildings at pre-war figures with the deficit to be divided between the state and the municipality. The objection raised to the latter scheme is that it will be exploited by employers to pay lower wages.

It may be noted that in the newer plans provision is made for garden plots wherever possible. This tendency has been encouraged by the city's experience in renting plots for "war gardens" to working people. These were rented at the rate of 4 shillings 3 pence (\$1.06) per annum for allotments of 200 sq.yd. According to A. R. Crawford, of the City Assessor's department, in an interview granted on Dec. 18, 1918, the way the workers took to these allotments indicated that they would be glad to live in localities where house and garden would adjoin. An extra penny for fare, he said, did not and would not deter the worker from moving to more modern houses in better surroundings.

BUILDING RULES HAVE MADE TALL HOUSES IMPOSSIBLE SINCE 1900

Hitherto, reference has been made only to the municipality's direct purchase of property for rebuilding. However, since the Glasgow buildings regulations act of 1900 and its amendments of 1908, private owners are subject to far more restrictions than is common in American cities. According to paragraph 60, Part VI, no building except a church shall, exclusive of turrets or other ornaments, may exceed in height one and one-half times the distance between the building lines of the street on which it is located; and in no case may the height exceed 100 ft. without the consent of the municipality. If used as a dwelling the restriction on height is still greater, according to paragraph 61, which reads:

No tenement and no building to be used as a dwelling house shall hereafter be erected the front walls of which measured from the level of the ground at the center of the face of any such wall shall exceed in height the distance between the building lines of the street. . . .

The height of a tenement is measured as from the level of the street to the ridge of the roof. It may be of interest to point out here that the roofs are usually sloped, but that in a local pamphlet by Margaret H. Irwin, entitled "Industrial Housing from the Housewife's Point of View," the suggestion is made that Glasgow dwellings be provided with fenced flat roofs in order to secure ample and safe playing ground for children.

New streets in Glasgow must be at least 50 ft. wide.

The foregoing restrictions as to height of buildings are typical of the regulations that are contributing to the wellbeing of Glasgow's citizens of all classes. The housing abuses of the past are still numerous, but the point to be emphasized here is that the modernization and expansion of Glasgow is in nowise hindered by the condition that transportation in that city is paid for by the mile.

The second article will discuss the origin and growth of the Glasgow tramways, their standards of speed and service, their rates of fare and their extraordinary development of traffic.

The third and concluding article of the series will consider the standard double-deck car used on the Glasgow system, the make-up of schedules, the hours and rates of pay of transportation employees and the checking and auditing of the graded fares collected. A special effort will be made to point out the points in which the practice differs from that on an electric railway in the United States.

Co-operation Makes Safety Work Successful

The "North Shore" High-Speed Interurban Line Reduces Accidents Forty Per Cent Through Co-operation of Employees

BY CHARLES B. SCOTT

Safety Engineer Chicago, North Shore & Milwaukee Railroad

THE operation of such a system as the Chicago, North Shore & Milwaukee Railroad involves serious safety problems, which can be met only by a thoroughly organized effort in the line of accident prevention. Some of these problems become apparent when it is stated that this road furnishes high-speed interurban service between Chicago, Ill., and Milwaukee, Wis., a distance of 73 miles, 3 miles of which is through the very congested district of Milwaukee. The intervening territory is thickly populated and includes the towns of Evanston, Wilmette, Winnetka, Lake Forest, Glenco, Highland Park, Highwood, Fort Sheridan, Great Lakes Naval Training Station, North Chicago, Waukegan and Zion City, in Illinois, and Kenosha and Racine in Wisconsin. This company also operates the city lines in Waukegan and one of the city lines in Milwaukee. In addition to the cars required for the local lines the equipment consists of seventy interurban cars, ten express cars, four large electric locomotives, one hundred and fifty freight cars, and the appropriate number of line and work cars, steam shovels, plows, sweepers, etc. Practically all highway crossings are at grade, many of which are protected by gates, flagmen or wigwag signals, as described in the issue of the ELECTRIC RAILWAY JOURNAL for Feb. 17, 1917, page 303. There are 625 employees, not including the office force.

The present management fully appreciated the necessity for organized safety work, and established a safety department in August, 1916. This is conducted along the same business lines as are employed in the company's operating department.

The plan of safety organization employed by the company comprises the following: (1) A central safety committee, composed of heads of departments, with the superintendent of transportation as chairman. This committee has full charge of all matters pertaining to accident prevention and holds its stated meetings bi-monthly. (2) Eleven employees' safety leagues so distributed with respect to departments and hours of service that they include in their membership all employees and thus definitely identify each with the safety organization and its work. Each league has its own set of officers including chairman, vice-chairman and secretary, and such committees as may be necessary. The officers are elected by ballot and hold office for one year. Meetings are held bi-monthly.

From the beginning of the movement the employees have been urged to submit safety recommendations, and since its organization the central committee has received and acted upon 935 such suggestions, most of which originated at employees' safety meetings. Fully 85 per cent of these have been approved and most of them were followed, while others are being taken care of as rapidly as possible. The fact that so many of the recommendations of the employees were approved speaks well for the intelligence of those who made them, and

the further fact that the company carried out the recommendations, in many instances at heavy expense, accounts in a large measure for the continued and helpful co-operation of the employees in the safety work.

One of the unusual and important factors in the effective plans adopted has been the effort of the company to enlist the interest and help of the school children in the territory served. Mrs. Elizabeth Tobey and Mrs. Minnie Riddle, representing the company, have delivered safety lectures in all of the grades and to all of the school children in the territory served by the company. In every instance the courteous and earnest co-operation of the school authorities and teachers has been received, and the interest of the children has been created and maintained. To aid the teachers in continuing the work, a booklet, "methods for Instruction in Accident Prevention for use in Schools," was furnished to each, and in many cases, school safety bulletins were supplied for posting in school rooms. This school work has been reflected not only in a clear record of safety to school children but has also been of value in creating a better feeling toward the company.

There has been a steady reduction in the number and seriousness of accidents from the beginning of the safety work, but the best results were obtained in the year 1918. The records show the following reductions for that year as compared with 1917 in spite of an increase of about 60 per cent in gross earnings, with the resultant increase in the number of passengers carried and increase in car miles operated:

Items	Per cent Reduction	
	1918	Over 1917
Employee accidents	38.4	17.4
Employee disability accidents	38.4	38.4
Lost time on account of employee accidents	34.3	34.3
Public accidents	45.4	45.4
Property damage (public)	44.8	44.8
Total damage all kinds	34.1	34.1

In the beginning of the movement the recommendations of the employees concerned largely the physical conditions of the equipment, but during the last year more attention has been paid to careless operation, failure to observe certain safety rules and orders, etc.

The central committee has always considered the safety department as important as the mechanical, operating or any of the other departments, and has given whatever time was necessary thoroughly to investigate every suggestion which came to it from any source. It was thus able to act intelligently upon each, realizing that it was only by intelligent and persistent work that satisfactory results can be obtained. The employees also have shown commendable willingness to co-operate with the central committee and are justly entitled to a large share of the credit for the result.

In addressing the members of the Windsor (Conn.) Business Men's Association recently on the state of the electric railway industry in general and of the Connecticut Company in particular, J. K. Punderford, general manager of the company, made the following significant statement: "To my mind the great danger at present is the fact that the public does not seem to believe that some solution of the electric railway's problem must be immediately arrived at or the discontinuance of street railway operation threatens."

Women Replace Motormen Successfully at Vancouver, Wash.

WHEN the difficulty of getting platform men merged into impossibility, R. M. Boykin, manager of the traction system in Vancouver, Wash., notified the Public Service Commission that he was going to put women operators on the cars. Ways and means of finding the right kind of women and properly training them were found and the plan has the unqualified endorsement of the management.

Mr. Boykin recently said to a representative of this journal: "Perhaps the plan would not have been so easy to work out under conditions before the war but we have been able to employ women who are able to operate cars on our system just as well as the men and they are, as a rule, more careful. The matter of suiting the training to women is comparatively simple, the biggest problem is in the selection of the right women from among those who apply."

Newspaper advertisements were used to secure applicants. After the first few trials the ads. were worded to explain clearly just what the work was and the replies then came along about as fast as they could be handled with the regular organization. Of those who successfully pass the first interview, only about one in six eventually qualify as motormen. The Vancouver system includes only about 20 miles of track, and because of the comparatively light traffic single operators only are put on the cars on some of the runs. Thus all carmen, women included, have to be trained as both motormen and conductors and at times serve in both capacities. The women are receiving 25 cents per hour during the instruction period. Thereafter they get the same wages as the men, ranging from 40 to 45 cents per hour. Thus far the women's hours have not been extended beyond 8.30 p.m.

The only serious accident thus far involving a car with woman operator, was a head-on collision on a curve, caused by a freight crew cutting into the passenger car's time. The woman operating the passenger car, as later examination showed, had turned the controller to off position and applied all the brakes before stepping back into the car just before the crash.

Glasgow Inaugurates Parcel Carriage

On Jan. 6, 1919, the Glasgow Corporation Tramways began the carriage of parcels between Glasgow and the suburb of Uddingston, distant about 8 miles. For about one month in advance announcement of the proposed service was made by car posters. The plan to give this service grew out of the work of the Road Transport (Board of Trade) Committee which was appointed some time ago to seek means of saving gasoline and horse provender. For this service, which does not include wagon or door delivery, these charges apply:

For Each Separate Parcel or Thing	
Not exceeding 7 lb. weight	3 d. or 6 cents
Between 7 lb. and 14 lb.	5 d. or 10 cents
Between 14 lb. and 28 lb.	7 d. or 14 cents
Over 28 lb. and less than 56 lb.	9 d. or 18 cents

The parcels car is a former passenger car from which the seats have been removed and the original sliding doors in the bulkheads replaced by two-leaf swing doors which can be locked.

What Is Wrong with the Railways?

A Canvass by This Journal Among Public Service Commissioners, Mayors, Chambers of Commerce and Civicists Brings Out Striking Reasons for Difficulty Experienced by Electric Lines in Increasing Fares

WHAT is wrong with the present electric railway situation, and how can it be improved? With the desire to secure answers that would aid electric railways in the study of reconstruction problems, the ELECTRIC RAILWAY JOURNAL recently sent out a questionnaire to more than 400 public service commissioners, mayors, representatives of chambers of commerce and other leaders interested in civic affairs.

The replies have not been so numerous as to indicate that representative public men in general are willing to commit themselves in regard to their beliefs concerning the relations which now exist and those which should be brought into existence between electric railways and the communities served. Nevertheless, about 15 per cent of the total mailing list responded, the percentage of replies ranging from 16 per cent for chambers of commerce to 11 per cent for civicists. From these it has been possible to prepare a fragmentary but interesting analysis of public thought.

The questionnaire began with the following valid and generally accepted premise:

All statistics tend to prove that commodity prices have now reached a much higher level than during pre-war days. The operating expenses of electric railways have necessarily increased on account of the rise in the cost of all materials and labor that enter into the production of service.

The questions thereafter dealt with three main points—the reasons why electric railways have experienced difficulty in securing fare increases, the course which they should follow in seeking fare adjustments, and the policies which should govern in regard to guarantee of return, municipal ownership and other fundamental matters. Only the replies on the first point will be covered in the present article.

Why has it been difficult for electric railways to procure increases in fares to cover increases in expenses?

The above-stated leading question brought a somewhat varied lot of replies. The greatest variety of assigned reasons was in the case of the public service commissioners. The replies from this class represented sixteen states, divided roughly along geographical lines as follows: New England and Middle States, three; Central States, six; Southern States, three, and Western States, four. Of the total sixteen, seven are states in which the amount of electric railway mileage is relatively small and the companies few in number. The commission group included one chief engineer and one accounting supervisor.

To take the replies received, however, solely upon the basis of the ideas presented, the following points may well be noted. Probably the most striking opinions by commissioners were one to the effect that the regulatory system itself lacks sufficient power over rates and two to the effect that some rate-making bodies have shown a lack of courage in their work. Three commissioners mentioned overcapitalization as one of

the causes of public antagonism, while four felt that the public had not been convinced of the insufficiency of the existing rates, and three declared that the public believes the companies to have made more than a reasonable return in the past.

In addition, individual commissioners mentioned the bad effect of the established custom of charging 5 cents for any ride, the imperfect methods of making change for higher fares, mutual misunderstandings on the part of the railways and the public, and a lack of appreciation by the public of the common interests of transportation agencies and the communities served. One commissioner also pointed out that electric railways have sometimes suffered undeservingly from being made a football in local politics. On the other hand, another regulator thought the railways had aroused antagonism by repudiating fare contracts which they had claimed to be inviolable when the cities had desired lower fares.

The civicists—among whom were four bureaus of municipal research—likewise attributed the fare-raising difficulties of electric railways to several causes. Besides mentioning two or three noted above, they directed attention to the points of opposition on the part of electric lines to the idea of closer public control, the subconscious feeling of the commissions that they are protectors of the public rather than judicial bodies, past sins of the railways and poor service.

The most emphatic insistence upon poor service and improper past actions as controlling factors in the present situation, however, was made by the mayors and the representatives of the chambers of commerce. These two classes seemed largely of the opinion that the public now distrusts electric railway officials because of past performances. Five out of the thirty replies for these two groups mentioned overcapitalization. Two of the business men stated that the reversal of the companies in regard to the sanctity of franchises had aroused public opposition, and two others thought that the need for higher fares had not been proved.

Below are reproduced in detail some of the most striking replies by the various classes:

COMMISSIONERS

To speak generally, the difficulties encountered by electric railways in increasing fares have been due to the timidity and in some cases the cowardice of rate regulatory bodies in combination with other causes.

No other industry seems to have the same amount of difficulty in raising the price of its commodity or service in keeping with the general advance in prices as the electric railway. This, in my opinion, is partially if not principally due to the long-established custom of using the single 5-cent coin as the unit of fare, which unit of fare carries the passengers varying distances.

In many instances, traction companies have been made the footballs of politics and public prejudice has been worked up against them. Then again, in some instances, there is watered stock and overcapitalization, requiring dividends on more than the actual investment. Moreover, in some instances, public service commissioners, although knowing the facts, have lacked the courage of their con-

victions and have failed to deal justly as between man and man without fear or favor.

The railways have been injured by the making of contracts on the basis of 5-cent fares and their hard insistence through years that such contracts were sacred. Now these upholders of the sacredness and inviolability of contracts repudiate their previous stand. The public believes that it has had to stand and deliver in days of prosperity and that the companies should stand to their contracts now—at least to the 5-cent limitation.

In the opinion of the general public and municipal authorities, existing rates were compensatory.

Almost the whole reason is that over-capitalization and manipulation have led the public to lose confidence in these corporations.

Securities have been watered, and surpluses above a reasonable return have been accumulated in the past.

There is a long-established principle that rates should be averaged over a period of years.

The public has a fixed idea that electric railways have earned large amounts of money to which they were not entitled.

Mutual misunderstandings have arisen.

The chief reason is that the laws and their interpretation, as well as the entire machinery of regulation, do not square with the facts of the situation. The commissions should have full power to deal with rates, and they have facilities by which they can keep constant track of the needs of the companies, so as to increase or decrease as conditions justify.

The railways could not convince the people of their exact condition. They did not attempt to create public sentiment in their favor and educate the people to it.

The public has been educated to low fares and, having no accurate knowledge of the subject, assumes that increases are not necessary.

Inconvenience in making change for higher fares has been the cause.

Partly if not largely the reason is that the public feels it has not had all the facts presented. The better informed ones know that the big item of investment has not been materially altered by war conditions, while the uninformed think that the usual margin between operating revenues and operating expenses is so great as to stand a considerable increase.

There is a lack of appreciation of municipal necessity and mutual interests which must exist between railways and the public.

MAYORS

Wretched service and inconsiderate treatment of the public have been the chief obstacle in this city.

Poor service and the "public be hanged" attitude in previous years when the railways were making money have aroused opposition.

The public has no confidence in traction officials. The belief is general that enormous profits have been made in the past and concealed in some "mysterious" way.

Existing franchises are not being lived up to in any respect, and the railways are overcapitalized.

The reason is that the standardized fare of 5 cents has been maintained in the past, regardless of length of ride or quality of service rendered.

There is an instinctive feeling on the part of the public that the remedy will not cure the disease—bring sufficient revenue. It is like increasing tolls on a toll road—the policy tends to bring disuse.

The reason is largely that the railways do not fairly show the necessity for higher fares.

Poorer service is given and a higher fare asked.

Antagonism has largely been aroused in the past by the disregard of popular appeals.

The public believes that the old rate is sufficient to give a fair return upon the actual investment.

In the past utilities have capitalized on their earning capacity, and now when the high price of both labor and material reduces this earning capacity, their bonds and their stocks do not represent tangible value.

REPRESENTATIVES OF CHAMBERS OF COMMERCE

The public believes that utilities, because usually monopolies, are always evil monopolies, and that a large part of securities represents only wind and water.

Railway service is very close to the citizen, and it is subject to many interruptions and in our city to severe snow storms. The average passenger cares only for good service, and when it fails he complains but forgets to give credit for good service. Therefore almost all customers are enemies.

The electric railway manager of the next few years will need to know more about public psychology than he does about rails and fittings. Most managers in the past have not concerned themselves with public opinion except at those rare times when some concession was wanted. As a result, the managers of today have inherited from their predecessors no easy task.

Electric railways have encouraged the "big ride for a nickel" idea to help get themselves established. Now, when 5 cents is not a sufficient price, the roads have not carefully explained why it is not.

There is antagonism between railways and public. Some of the old sentiment implied in the famous phrase "the public be damned" still remains.

A prejudice in the public mind has been caused by the early extravagance of the railroads.

Public ill-will has been created in congested centers by years of continual refusal of electric railway officials to cooperate with the public.

Our local company is under a 5-cent contract until 1923. It refused a few years ago to obey a city ordinance requiring six tickets to be sold for a quarter, although it was generally conceded at the time that the company could well have afforded to do so. The people feel that the company should now live up to this contract. The situation is also complicated by the fact that a neighboring company has a 5-cent contract until about 1933, and the people there decline to stand for any increase in fare.

There is general public distrust and ill-feeling toward the management.

In keeping with its distrust of all corporations and "big business," the public is not convinced that the condition of the electric railways is as serious as it has been represented by them.

The public could not or would not see that the integrity of its service depended on compensating rates.

The reasons for public antagonism to higher fares are past sins in inflation of stock, bad management, and the too prominent "the public be damned" policy.

Franchise conditions are the cause.

There is a widespread public belief that electric railways are necessarily wealthy and could easily reduce dividends without looking to the public.

There is a vague idea on the part of the public that utility companies are badly overcapitalized and have been "gold mines."

CIVICISTS

The reasons for opposition to higher fares are the general objection of the public to any increase, coupled with a lack of understanding of the situation, and in some cases the sub-conscious feeling of commissions that they are the protectors of the general public rather than judicial bodies.

Past sins of omission and commission are largely the cause.

The local public is not very keen on increasing the rates when it believes that it is not getting adequate service under the present system and did not even under pre-war conditions.

The public does not accept as true the statements of the railways, for past performances have destroyed confidence. When the public wanted lower rates in the past, the companies often pleaded that the law protected them. Now they want justice.

The public feels no partnership in or responsibility for the operation of electric railways. Such control as the public has acquired has been over the protest of the companies, leading to added hostility. The companies have failed to catch the spirit of the times by neglecting to invite into their management representatives of their employees and disinterested public citizens who could help to overcome the unfavorable reputation of the early practices of these companies.

The cause is the imperfect understanding (a) of electric railway economies (b) of the business, social and aesthetic value to the community of electric railway service and (c) of the future capital requirements of the industry to enable it to satisfy the rapidly increasing transportation needs of the public.

Has the difficulty of procuring increased fares been due to a fixed idea on the part of the public that electric railways have in the recent past profited, that is, earned large amounts of money to which they were not entitled?

Besides asking the general question of why electric railways encountered obstacles in obtaining higher

fares, the questionnaire in this connection directed attention to certain subsidiary questions, in order to secure specific answers on points which it was desired none should overlook. The first of these questions, relative to profiteering in the past, is stated above.

That the public fixedly believes electric railways to have earned large amounts of money to which they were not entitled was the opinion of forty in the various classes. Several thought that the opposition of the public to higher fares was only partly caused by such a belief, but only four deemed the opposition not to arise from this cause. The leading detailed replies follow:

COMMISSIONERS

The idea has prevailed that electric railways have unduly profited in the past, an inheritance from the era of liberal and possible overconstruction.

The public has been led to believe that electric railways have earned money to which they were not entitled. This idea has been "pounded into the public" by designing politicians who knew no more about the actual facts than the public but capitalized this idea for the purpose of securing votes.

In our city this is true largely because it is believed that the electric railway system is overcapitalized.

Very largely this is the case. There has been a great deal of so-called "high-financing" in the promotion of electric railways, a fact the public has not forgotten.

In many cases this is true. The companies themselves have promoted the idea in their desire for additional franchises.

I should not consider this a fundamental reason. But there undoubtedly is some resentment of regulatory bodies over past obstructionist methods by the companies when the issues involved a reduction in rates.

A great many people assume this to be true, having no definite information to the contrary.

The public believes electric railways have been run for the benefit of promoters and speculators, whose prospectuses and security selling advertisements claimed big profits. Now the speculators can suffer. There is a great deal of sentiment that public utilities could afford to live on "accumulated fat" of previous years.

MAYORS

Undoubtedly the public feels that the companies have been making large profits. When the 5-cent fare produced a large margin, the electric railway operators educated the public that this was a standard amount they should pay for a ride. As a consequence, they are now reaping the whirlwind.

At first this was the case; it is only partly so now.

Undoubtedly such a sentiment has prevailed to a considerable degree.

REPRESENTATIVES OF CHAMBERS OF COMMERCE

I do not think the average rider knows much about the profits of electric roads.

It has been shown that the common stock of the consolidated company in this city was largely issued as bonus and promoter stock. Knowledge of this fact and that 6 per cent dividends has been paid on this stock for a number of years past undoubtedly has influenced public opinion.

Public feels that the roads have overcapitalized in times of prosperity and are now asking the public to pay the bill.

In part, yes; and in part because of the belief that the electric railways are selfishly trying to capitalize the present situation for the purpose of improving their financial condition.

Yes, owing to the consolidation of small companies with increase of capital stock.

There is a strong sentiment of this sort in the public mind which has found expression in newspaper columns and in the action of municipal authorities and legislators.

CIVICISTS

The companies have not necessarily profiteered, but the public believes that poor service has been accorded it especially when a fair return was being earned.

In part only. It is more a lack of confidence and a feeling that the railways should bear losses as others must.

Yes, in part. The management of the electric railways has not generally been of a character to acquire public

confidence. Franchises, capitalism, stock watering and high-finance mergers, as well as political corruption in the past, have not been sufficiently offset by a public-spirited policy in the present. What the public remembers regarding the companies is largely unfavorable to them.

Has the difficulty of procuring increased fares been due to a selfish interest on the part of the public evidenced by an unwillingness to pay more for service so long as they can procure this service without paying a higher price?

The general tenor of the replies to this question was negative. Five replies noted the inherent characteristic of the human race to want to procure a service or commodity for a price no higher than necessary, but only eight deemed this a controlling factor in the electric railway fare situation. Six of these were public service commissioners. Twenty-two answered "No," and most of the remainder of the fifty-eight replies were to the effect that only part of the public has been actuated by such a motive. Some of the replies follow:

COMMISSIONERS

This is not altogether the case, although if the question is changed to a statement it would express a fact inherent in the human race applicable to all services and commodities.

The great public always endeavors to secure the most service possible for the smallest amount of money.

This is so on the part of many people, although they would admit that the cost of production and operation in every other line of business has increased tremendously.

Yes. But the public does recognize the change in operating costs and is willing to waive franchise provisions of 4-cent ticket fares, special rates for school children, etc. Its resentment—and economies—are not registered until there is proposed a raise higher than the 5-cent fare of the franchise.

Such a sentiment would be held by only a small minority.

This is not necessarily the case, although it is a factor. Our experience has been, however, that the public has been favorably disposed to increases during the war period.

I do not think so. My opinion is that the public is willing to pay properly for what it gets providing the facts are clear and the methods of dealing with the facts are just.

A large part of the public is influenced by this motive. I doubt if this idea holds with the majority. Most people are apparently willing to pay a fair living price when the price is clearly shown to be fair.

People are willing to pay when they are convinced that it is necessary in order to maintain the physical and financial integrity of the service.

MAYORS

No. The public is willing to pay what the service costs.

Although human nature is such that no one desires to pay an increased price for any service or commodities, I believe there is a greater reluctance on the part of the public to pay the increase for the service of the public utilities than for other things.

Undoubtedly this is true, but the selfish attitude is generally created and fostered by the newspapers.

The public appears to believe that the service is not worth more than 5 cents. This is evidenced by the fact that a large part refuses to ride at a higher rate.

This is only human, and, of course, has to be reasoned with.

REPRESENTATIVES OF CHAMBERS OF COMMERCE

The public is as willing to pay for electric railway service as for any other. When the jitney gives better service, there is no sentiment for the franchise holder.

No. There is rather a feeling that increased fares would mean increased extravagance.

The public is naturally disposed to be fair to electric railways and is willing to concede much so long as it is fairly treated; but it resents any attempt to enforce economies of operation like the skip-stop, pay-enter system, elimination of jitneys, crowded cars, etc., when at the same time car riders are asked to pay higher fares. Naturally the people do not wish to pay more for anything than they have agreed or are compelled to pay.

There is no doubt but that a part of the public would hold the railways to the old rates, regardless of whether these were fair or unfair, but this is not true of the rank and file or of the majority. The majority of the people of every community are willing to pay for the cost of the service when once convinced as to the actual cost.

In part this is true, but the feeling is due more to a lack of understanding than to selfishness on the part of the public.

CIVICISTS

In part, yes. Owing to the hostile attitude of the public and its belief that the companies were not genuinely concerned for public service, and owing to the lack of direct voice in the management of properties, the public has felt no responsibilities for the present financial embarrassment. There has been too much banker control of the companies as opposed to stockholder control, and stockholders have been too limited to provide an adequate popular basis for good will.

This is not an actuating motive with any considerable portion of the public. People desire to be shown, and rightly, the justification for higher fares, but once convinced they are glad to pay their just dues.

Has the difficulty of procuring increased fares been due to a belief on the part of the public that electric railways have accorded the public unfair treatment in the past through overcrowding of cars, poor service, etc.?

Eleven commissioners, ten mayors, twelve business men and three civicists all expressed the view that the opposition to higher fares arises from a public belief in the past existence of inadequate service in some form. Twelve more in the various classes judged that part of the opposition comes from this cause, one voting "Very slightly." Only four out of the total of fifty-eight answered with an outright "No," three of these being commissioners. The more important answers are as follows:

COMMISSIONERS

Inadequate and unsatisfactory service constantly imposed is the big factor. The "public-be-damned" attitude on the part of officers and employees is a big contributing factor.

Yes, decidedly yes. In the cities where the companies have had a social side and have tried to meet the demands of the public for service, our commission has not found opposition of a strenuous character to proposals to relieve the companies of their franchise obligations as to fares. But where the policy has been "the public be damned," the public now reciprocates with that spirit most enthusiastically.

That depends on local conditions. While such arguments are invariably used by those opposing rate increases, I believe they are frequently employed because of the lack of something better.

This is certainly a strong idea. It is often expressed to me: "Let the utilities give us good service, and we will be willing to pay more if necessary to give a living profit." But people fear additional fares will go into the company's pocket with no improvement in service.

MAYORS

This is the chief but not the only factor.

Yes. The past policy of "the straphanger pays the dividends" and of giving improved service only when absolutely compelled to do so has lost to this utility the good will which should exist among customers of any enterprise.

The "public-be-damned" spirit of the railways in the past is now bearing fruit, in spite of the efforts of the railway companies in the past ten years to change public opinion by a "public-be-pleased" attitude.

This may be true to some extent, but it is not the principal reason.

This has prevailed in some cities and is often believed when it is not true.

REPRESENTATIVES OF CHAMBERS OF COMMERCE

Yes—but it is nearly all due to "belief."

It is not only a belief but also a constant fact, and it is the extra crowd that makes the money.

This is the main reason, not only "in the past" but also in the present. Under a 60 per cent increase in fare we are getting crowded cars and poor service.

Yes. An early recognition of the rights of the public would have averted much of the ill feeling and prejudice which now exists against electric railways.

Undoubtedly this has much to do with the situation, as the public has come in close contact with employees of the road who are oftentimes discourteous and assume an attitude of ownership rather than of public service.

In some communities this belief is quite general, due mostly to the attitude of the management in years gone by. Furthermore, there is no doubt that every community has some people who feel that they have been unfairly treated.

Yes. Because the public does not understand the difficulties in the practical operation of electric railways, it is using the present opportunity to vent long-standing "complaints."

CIVICISTS

To some extent this is true, but more opposition is due to dissatisfaction with present rush-hour service, for the public has no conception of the difficulties connected with the rush-hour operation.

In large cities the public has generally experienced inconvenience from reliance upon electric railways as the sole means of transportation. The monopolistic character of these services has created an actual sense of resentment because of the public's dependence upon them exclusively. This attitude could be overcome, I believe, through the public having a greater voice in the management.

Very largely this is so. The economics of electric railway operation are not understood. Physical limitations of track capacity and the burden of extreme loads need to be impressed on the public at large.

Has the difficulty of procuring increased fares been due to a desire on the part of the public or their official representatives to secure a readjustment of the franchise or contract relations between the communities and the electric railways?

The answers to this query were not so one-sided, although the negative ones predominated. The commissioners who expressed a positive opinion on this point voted "Yes" in five instances, "No" in five instances and "Partly" in six instances. Most of the thirteen mayors and seventeen business men answered "No," but four in each group expressed the interest of public officials or reform organizations in franchise reconstruction at a time deemed more or less propitious. Three civicists answered "No" and one "Yes." Some of the replies are given below:

COMMISSIONERS

I do not believe that the public greatly concerns itself in this respect. Newspapers and public officials often tie into such matters for reasons obvious to the better informed public.

No, except that there may be the desire for readjustments in policy which would result in the companies living up to their franchise and contract obligations.

This depends on local conditions, although I think there may be a more or less general sentiment for franchise readjustments.

I have no doubt that in certain communities nothing substantial will be done in the raising of rates until a comprehensive franchise settlement is made with the city. I do not see how it can be otherwise.

Unquestionably, franchise problems have complicated the situation, and blame lies on both sides in recent as well as past history. As long as electric railway service is subject to "bargaining trades," this impediment to flexible and fair adjustments will remain.

MAYORS

Public officials would like to secure a readjustment of the franchise relations, but that is a matter in which the public would take little interest if the service were good and the public satisfied that the fare covered only a reasonable return on the real value of the traction properties.

In some cases the public has sought to take advantage of

the emergency of the utilities in order to be relieved of the antiquated or unfair franchise provisions adopted many years ago.

No. These readjustments of franchise obligations are inevitable, however. Unfair or incomplete franchises must be remodelled.

Yes, on the part of a minority composed mostly of small business men and reform organizations studying the problems of transportation.

Public officials naturally desire to correct some of the mistakes made in franchise ordinances and believe that the company should make concessions when they are asking some from the city.

REPRESENTATIVES OF CHAMBERS OF COMMERCE

It is generally felt that an unfair franchise could now be adjusted upon a basis of fairness to the public.

No, except in some few isolated cases where the issue of municipal ownership was active.

There is very little of this feeling in our community. Only a few of the more thoughtful men are looking toward modification of perpetual unlimited franchises.

CIVICISTS

In general, the existing franchise provisions are not consonant with present public conceptions of an equitable arrangement between the corporations and their communities.

This is an incident—a reaction from the distrust that prevails. Seldom is there a fundamental difference of opinion on franchise which is dissociated from the adequate service—reasonable fare issue.

The second article will cover replies regarding what fundamental facts should be presented to convince the public that higher fares are necessary.

Portable Hydraulic Jack Made from Old Car Axle

Chicago Elevated Railways Makes an Efficient 75-Ton Hydraulic Jack from Scrap Material for Shop Use

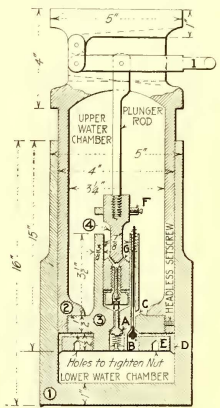
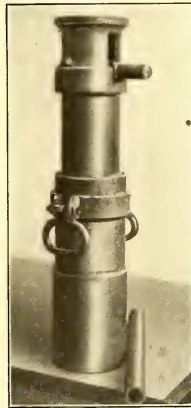
IN THE Wilson Avenue shops of the Northwestern Division of the Chicago Elevated Railways a portable hydraulic jack which is giving most satisfactory service was designed and built almost entirely from scrap materials, the greater part having been taken from an old car axle.

Some years ago a rather cumbersome hydraulic jack was in use around the shop and although there were several features about it which were not satisfactory, the principle was realized to be superior for many purposes to other types of jack. The machine shop foreman, therefore, during spare moments, set about making up a jack which would be capable of exerting the necessary force and would at the same time be easily moved about by one man and fulfill other requirements.

The completed jack and design of the various parts are shown in the accompanying illustration and assembly drawing. The lower water chamber (part 1 in the drawing) is turned down on a lathe, from a 16-in. length of axle to the exterior shape shown. This is then bored out 4 in. in diameter leaving a minimum wall thickness of $\frac{1}{2}$ in. and a bottom thickness of 1 in.

The upper water chamber and its parts are considerably more complicated in design. This chamber also is made from a piece of car axle. The portion, which is 4 in. in external diameter (part 2) to fit into the bottom chamber, is 14 $\frac{1}{2}$ in. long and is bored out, with the exception of a shoulder left $\frac{1}{2}$ in. from the end, to an interior diameter of 3 $\frac{1}{4}$ in. leaving a wall thickness of $\frac{3}{8}$ in. The $\frac{1}{2}$ -in. length from the end to the

shoulder is threaded inside. The valve chamber (part 3) which screws into this is also made from a piece of axle 4 $\frac{1}{2}$ in. long turned down in the initial stage to 3 $\frac{1}{4}$ in. in diameter. For $\frac{1}{2}$ in. on one end this is turned down to 1 $\frac{1}{2}$ in. in diameter and threaded. The next $\frac{1}{2}$ in. remains at 3 $\frac{1}{4}$ in. in diameter and also is threaded. The remaining portion is formed into a cylinder 1 $\frac{1}{2}$ in. in exterior diameter, $\frac{3}{8}$ in. in interior diameter and 3 $\frac{1}{2}$ in. deep. A valve, *A*, is placed in the end as indicated in the drawing. Vertically through the wall of this chamber a hole is bored the entire length and fitted with a valve rod, *B*, and spring as indicated, a port being made at *C*. This is the release valve. A leather cup gasket, *D*, is placed on the end of the valve chamber and held by the nut *E*. The plunger (part 4) fits the



HYDRAULIC JACK MADE IN CHICAGO ELEVATED RAILWAYS SHOPS. ASSEMBLY DRAWING OF HYDRAULIC JACK

interior of the valve chamber and is formed and attached to the plunger rod as indicated. Two points in connection with this should be noted, first that the collar *F* is set to open the release valve; second, that there are four port holes, *G*, to admit water to the plunger valve *H*.

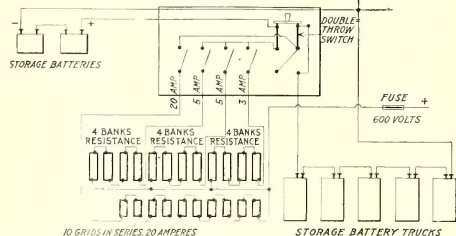
The working of the jack is simple. As the handle *I* is raised water is admitted to the valve chamber, and passes through the ports *G* and valve *H*. Lowering the handle forces the water through the valve *A* into the lower water chamber and raises the load. It will be noted that the handle which fits onto *I* has a lip which keeps the collar *F* on the plunger from coming in contact with the extension rod of the release valve *B*. To lower the jack the handle is removed and the plunger rod dropped. This opens the release valve and permits water to pass up through the valve *B*, out through the port *C* and back into the upper water chamber.

This jack has an effective lift of about 8 in. and weighs about 75 lb. which permits it to be easily lifted around by one man by means of the handle arrangement. The jack is used mainly in removing and putting on truck bolsters which requires a lift of from 60 to 75 tons. The jack was recently used in pressing a spider on an armature and it was estimated that a force of 165 tons was exerted.

Battery Charging at the Cleveland Railway Shops

Trucks, Tractor and Portable Batteries Charged in Armature-Winding Room, Heat from Resistors Being Utilized in Baking Oven

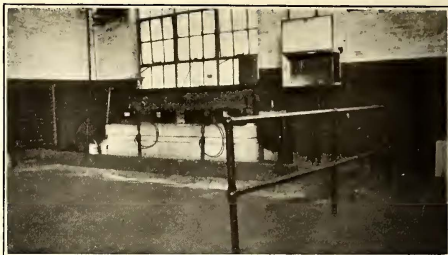
IN ORDER to provide convenient facilities for charging portable storage batteries, storage-battery trucks and tractors, this company has recently set off part of the armature-winding room for the purpose and has installed there a concrete charging bench, switchboard, cable terminals, etc., as shown in the accompanying photographs. At present four Buda trucks are in use for transporting materials for the mechanical and building departments, distributing these to various sections of the shops. The tractor is used for moving trailers and dead motor cars from one department to another. Provision has been made for charging both portable batteries and trucks at the same time, and the capacity of the equipment is ample simultaneously to charge all that are likely to require charging. This charging work



WIRING DIAGRAM FOR BATTERY AND TRUCK-CHARGING EQUIPMENT

is done at night. The wiring diagram reproduced herewith shows the relation of the several pieces of apparatus.

The concrete bench, which was constructed against the wall at a height convenient for manipulation, contains two charging stations in series for the portable batteries. The surfaces of the bench and of the floor of the charging station are sloped so as to drain into the sewer, providing a convenient means for flushing them. At the boundary of the floor is a curb against which the vehicles rest when charging, and from this curb the cable terminals project.



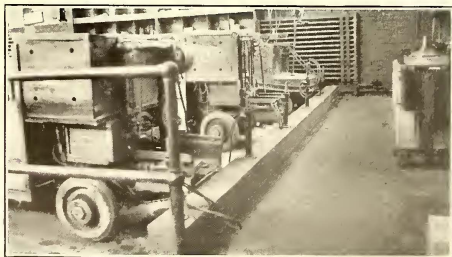
GENERAL VIEW OF BATTERY-CHARGING TABLE, SWITCHBOARD AND CABLE TERMINALS (PORTABLE BATTERIES IN PROCESS OF CHARGING)

A switch cabinet is mounted on the wall, and provides control of both truck and battery terminals. It contains switches for use in regulating the resistance in circuit and also a double-throw switch which when in the "up" position provides for charging both trucks and storage batteries and in the "down" position cuts out the battery circuit. The truck-charging rack contains five charging stations connected in series as indicated in the diagram.

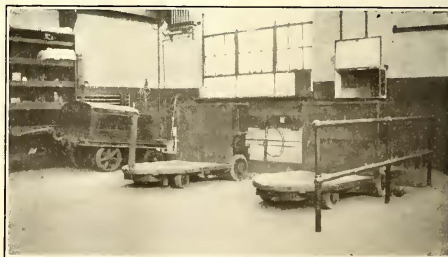
The charging is regulated by resistors composed of three sets having a capacity of 5 amp. each and one set of car grids with a capacity of 20 amp. The connections in the switch cabinet provide for from 5 to 15 amp. on the batteries and 5 to 35 amp. on the trucks.

The resistance units are fastened to the under side of the floor beneath the bake ovens, the charging equipment being, as stated above, in the winding room. The heat thus derived is used to assist in heating the ovens, the hot air flowing through a large duct in the floor. This prevents waste of energy and offsets any objection that might be made to the use of resistance control as compared with drawing the power supply from a motor-generator set. It only remains to state that the trucks and tractor are in the care of the mechanical and building departments although they may be used by other departments.

The Harvard Avenue shops of the Cleveland Railway, in which the above-mentioned equipment was installed, were fully described in the issues of this paper for Jan. 23, 1915, page 168, and Nov. 20, 1915, page 1022. Since those articles were published a number of short ones like this have appeared, giving details of special features.



TRUCKS AND TRACTOR IN CHARGING POSITION, CONCRETE CURB AND CABLE TERMINALS IN FOREGROUND



ANOTHER VIEW OF TRUCKS AND TRACTOR AT THE CHARGING STATION

Boston Trustees to Spend \$21,500,000

Public Administrators Plan Capital Expenditures for Next Five Years—Cost of Service Increased \$4,600,000 in First Six Months of Public Control—Trustees Believe Zone System Should Be Tried

HEAVY increases in the cost of service in the last half of 1918, ineffective efforts to secure adequate revenues through a 7-cent and later an 8-cent fare, improvements in service and equipment, and plans for the building up of the system—such constitute the main topics discussed in the report of the public trustees of the Boston (Mass.) Elevated Railway for their first six months of control. This report is abstracted in the following paragraphs.

The two leading issues which confronted the trustees when they took possession of the property on July 1, 1918, was the existence of an operating deficit and the demand of employees for a wage increase totaling more than \$5,000,000 a year. The latter was referred to the War Labor Board.

To increase the operating revenue a 7-cent fare was put in force on Aug. 1. In four months this fare resulted in an increase in revenue of only \$1,005,918, or a little less than a 16 per cent gain over the same period in 1917 when a 5-cent fare was in force. On Dec. 1 an 8-cent fare was put in force with a resultant gain of \$595,499 for the month or a 36 per cent increase over December, 1917. Owing to a decrease, however, in the revenue in July under a 5-cent fare, the total increase for the last six months of 1918 was about \$1,500,000. During the same time the cost of service increased more than \$4,600,000, so that the aggregate deficit for the last six months of 1918 was approximately \$3,070,000, as shown in Table I.

COSTS INCREASED \$4,600,000 IN SIX MONTHS

The distribution of the increased cost of \$4,600,000 for the last half of 1918 can be seen from the following figures:

Increase in Operating Expenses:			
Maintaining track, line equipment and buildings	\$485,000		
Maintaining cars, shop equipment, etc.	359,000		
Power	603,000		
Wages of conductors and other transportation employees	1,223,900		
General expenses	127,000		
Depreciation	832,000		\$3,629,000
Increase in Fixed Charges:			
Taxes	\$12,000		
Rent of leased roads	27,000		
Rents for subways and tunnels	244,000		
Int. rest.	63,000		
Rental in form of dividends on preferred and common stock under act of 1918	658,000	1,004,000	
Total increase			\$4,633,000

Of the \$3,629,000 increase in operating expenses, more than one-half or \$1,859,000 represents the increase in wages caused largely by the awards of the War Labor

Board and the tendency of certain crafts to withdraw from the carmen's union and require that the company enter into separate agreements for the payment of craft wages. While this has meant an increased wage in every case, the trustees state that it has not been entirely without benefit, as the company has been permitted to get away from the seniority rule prevailing in the carmen's union and can hire men more skilled in the respective crafts.

The increased cost of material has had an important bearing in all departments of the company's work; while it has not been figured in dollars, it may be said that in many instances the cost of material has advanced 100 per cent. The increase in the cost of power resulted from the increase in wages and the increase in the consumption and the cost of coal. Owing to inferior grade of coal received, 9500 tons more coal, at an average cost of \$7.47½ per ton, were used.

The increase in general expenses was caused by the increase in the cost of printing in connection with the introduction of 7 and 8-cent tickets and to the raise in wages of clerks under the War Labor Board award. Depreciation increased because a very inadequate amount had been charged to depreciation in the past. The trustees have determined upon \$167,000 a month, or \$2,000,000 a year, as the proper amount to be charged for depreciation.

The increase in rentals of subways and tunnels was largely owing to the opening of the Dorchester tunnel in the last six months of 1918. The increase under the head of dividends represents the rental paid by the State for the property owned by the company, being the amount required under the acts of 1918.

The cost of service as defined in the law for the six months of public operation amounted to 14,526,432. Based on the figures of the month of December now available, when the cost of service per passenger was 8.778 cents, the distribution of cost for each 8-cent fare collected is as shown in the diagram on the next page. The amounts making up the cost of service for this month are shown in Table II.

ZONE SYSTEM TO BE TRIED

The 8-cent fare, it is said, is to be continued in force long enough to provide an experience of at least four months. Paper tickets, however, have proved unsatisfactory, and metal tokens were ordered on Dec. 9, 1918. These tokens will be placed in use on Feb. 22.

What Boston Needs in the Next Five Years

To afford service reasonably free from interruptions caused by the breaking of cars, old or out of repair, and to effect economies which can be reflected in lower fares, the following capital expenditures for the years 1919-1923, inclusive, are proposed by the public trustees of the Boston Elevated Railway:

Cars	\$10,500,000
Power	5,000,000
Track work	2,000,000
Shops	2,500,000
Miscellaneous	1,500,000
Total	\$21,500,000

1919. With their introduction all fares will be collected at prepayment areas and on prepayment cars through the deposit for each fare of a token in a self-registering fare box in the manner that nickels were formerly collected. In this way fraud in collection is reduced to a minimum.

In regard to a zone system the trustees say that such a system would seem to be more equitable than a flat fare as passengers pay according to the service rendered. The trustees are not convinced that the arguments against a zone system—to wit, that it tends to congestion in the inner zone, that people have settled in suburbs in reliance on a flat fare for the entire territory served by the Boston Elevated system, that a zone system costs more and that collection of fares under it may inconvenience passengers—outweigh the

eliminated. The turn-over of platform men has been very rapid, as is shown by the fact that since the trustees took office 2295 blue uniform men have been employed and 1826 have left the company's service. The increase in payroll due to the award of the War Labor Board on Oct. 2, 1918, and to supplementary awards is estimated to cost the company more than \$4,000,000 annually.

IMPROVING SERVICE AND EQUIPMENT

Although, the trustees state, the service cannot be made satisfactory until new equipment is secured, improvements have been made from time to time in large number. The operating department of the company has been subdivided into six departments, at the head of each of which is a superintendent directly responsible to the general manager. This reorganization has been already productive of good. Daily trips on surface lines have been increased by the number of 817. The car-miles run daily have been increased by 8300 miles. Four miles of track have been rebuilt and 18.64 miles repaired on the surface lines at a cost of \$620,974.

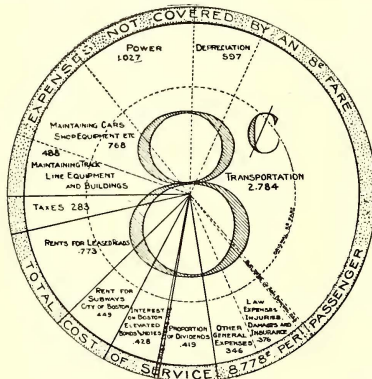
The number of cars owned by the company at the time of its latest annual report was 3332, of which 1356 were open cars and 1140 were small box cars. Only a limited number of the box cars are in use, and it is said that all should be replaced as rapidly as capital becomes available. The trustees at their first meeting in July purchased 200 center-entrance-motor cars and fifty trail cars at a total cost of \$3,028,550.

On Jan. 11, 1919, a one-man car was put into operation on the Grove Street line, West Roxbury, to try an experiment and to familiarize motormen with the car. The trustees believe in the policy of introducing cars of this type in considerable number on lines that seem suited for their use. Six new steel elevated cars, purchased before the trustees took possession, have been put in operation. Work has been resumed on the thirty-five Cambridge Subway cars, delivery of which ought to commence this coming spring. The trustees found completed vestibules for articulating the 25-ft. box cars and have ordered the articulating of forty-eight cars to tide over until more new cars can be purchased.

Eighty motors for No. 1 semi-convertible cars have been purchased at a cost of \$89,000, and 264 motors have been purchased for No. 3 semi-convertible cars at a cost of \$225,000. Seventy air-brake compressors for No. 4 semi-convertible cars were purchased at a cost of \$31,000. Six double-truck Russell snowplows have been added to the equipment. One hundred and eighteen cars have gone through the shop for general repairs and painting; 527 cars have been put through the shop for light repairs, and forty-three snowplows and sweepers have gone through the shop for general repairs.

In the opinion of the trustees, however, the Boston Elevated Railway still needs cars, power, track renewals, car shops and carhouse alterations, irrespective of any remodeling or change of present subways to provide for rapid transit trains and irrespective of extensions of the system.

The trustees propose that in the five years beginning with 1919 they purchase 600 surface cars. These, with the cars already ordered, would permit the retirement in 1919 of 625 of the oldest box cars and in



COST OF SERVICE PER PASSENGER FOR MONTH OF DECEMBER, 1918

arguments in favor of introducing a zone system. They believe that at least there should be a trial of a zone system in Boston. Through such a trial the wisdom of those advocating it can be proved or disproved.

Therefore, the trustees propose some time in April to install a zone system, dividing the territory served into an inner and outer zone, in each of which the fare will be 5 cents. The zone boundaries will divide the population served about equally, so that it is reasonable to expect the result will be equivalent to that of a 7½-cent fare upon the basis of the number of passengers who ride to-day. The 8-cent fare is said to be causing many to walk who would ride at 5 cents, and it is therefore hoped that increased riding under two 5-cent zones will yield the company more revenue than the present 8-cent fare.

LABOR SUPPLY IS INCREASING

The labor situation has been much disturbed during most of the time since the trustees took office, and the shortage of men has prevented or delayed many contemplated improvements. The absence of men and a more than usual amount of sickness accounted for it. More than 1600 men left the company's employment to enter the army or navy.

A shortage of 353 blue uniform men on July 1 and of 569 such men on Nov. 1, however, has been entirely

1920 the retirement of the balance of cars of that type now in use, besides providing for the addition of 100 more cars than are now operating upon the system. These additional cars, it is believed, should take care of the natural growth in population for 1918 and 1919. In 1921, 1922 and 1923, 100 cars should be added each year to take care of this growth and to make necessary replacements. The cost of this program is estimated at \$6,800,000, in addition to the \$3,700,000 for equipment already ordered.

The growth of business based on experience requires provision to be made for an annual increase of power production equivalent to 5 per cent of the maximum capacity of the system. In 1919 the trustees propose to install a new turbine (already ordered), a rotary and stokers at the Lincoln Power Station; to complete the Somerville substation; to install two rotaries in the Charlestown station, and to provide necessary conduit and cable construction. The estimated cost is about \$1,000,000. A similar expenditure is proposed for each year for five years, or a total of \$5,000,000 in five years.

John A. Beeler suggested that 23 miles of track should be rebuilt each year in addition to ordinary repair and maintenance in order to keep the roadbed in satisfactory condition at all times. To the extent that track is renewed with heavier rails, the cost is a charge to capital. That item, it is said, will require in five years approximately \$2,000,000. There is also a most urgent need of a modern car shop. The company has land conveniently situated to accommodate both surface and rapid transit cars, and the trustees propose

TABLE II—COST OF SERVICE OF BOSTON ELEVATED RAILWAY FOR DECEMBER, 1918

		Cost per Passenger, Cents
Operating Expenses:		
Maintaining track, line equipment and buildings	\$135,085	0.483
Maintaining cars, shop equipment, etc.	214,889	.768
Power (including 38,480 tons of coal at \$6.757, or \$192,459)	287,011	1.027
Depreciation	167,000	.597
Transportation expenses (including wages of car employees, carhouse expenses, etc.)	778,294	2.784
Salaries of administrative officers	9,132	0.033
Law expenses, injuries and damages, and insurance	105,143	0.376
Other general expenses	96,635	0.346
Total operating expenses*	\$1,793,189	6.414
Fixed Charges:		
Taxes, proportion for month	79,256	0.283
Rent for leased roads (exclusive of subways)	216,098	0.773
Proportion for month of rent of subways and tunnels to be paid to the City of Boston, which does not include Cambridge Subway owned by the Boston Elevated Railway	125,664	0.449
Interest on bonds and notes of Boston Elevated Railway	119,562	0.428
Miscellaneous items	3,249	0.012
Proportion of dividends under acts of 1918	116,997	0.419
Total cost of service	\$2,454,015	8.778

* Of this total \$1,095,251 represents wages, the total wage cost per passenger being 3.918 cents.

the erection and equipment upon it of a modern shop. All old shops will be abandoned except necessary emergency repair shops at carhouses, and these must be improved. A total of \$2,500,000 is needed for car shops.

Moreover, the trustees remark, incidental changes will be incurred in carrying out the foregoing program. Additions to the signal system will be required; bridges must be strengthened, and thirty snow sweepers of the modern type and a number of auto trucks are needed. The cost of all miscellaneous items is estimated to be slightly in excess of \$1,500,000 in five years. The total estimated capital expenditures in the year 1919-1923, inclusive, are \$21,500,000.

MORE LEGISLATION IS NEEDED

One of the features of the electric railway situation in Boston is the extraordinary burden of subway rentals to be met from operating receipts. The trustees believe that to prevent deficits and eventually to secure a lower fare it is essential that at least while the public is operating its own railway this charge to operating expense should be removed. One of the bills now pending in the Legislature asks for relief from this burden.

The great need of additional capital has led the trustees also to recommend the sale of the Cambridge Subway. Such a sale would place the ownership of that subway in the hands of the public, where it should be and where the title to other subways has been kept. A bill has been presented in the Legislature to permit the sale and the transfer of the proceeds to capital uses for the benefit of the service.

It is reported that the Ministry of Reconstruction of Great Britain favors the development of an extensive system of light railways, largely for the purpose of transporting agricultural products. Track of 2-ft. gage, semi-portable in character and laid on the roadway, or on waste land alongside the roadway, has been proposed. The traction would be mainly by steam or electricity which would be supplemented by gasoline tractors or horses. Possibly by the use of "containers" it would be feasible to run loads from the "agrails" on the ordinary railways.

TABLE I—RECEIPTS AND COST OF SERVICE OF BOSTON ELEVATED RAILWAY FOR SIX MONTHS ENDED DEC. 31, 1918

<i>Receipts</i>		
5-cent fares—July, 2.89 per cent (decrease)	\$1,525,538.09	
5-cent fares—August, 24.01 per cent (increase)	1,915,260.97	
7-cent fares—September, 12.33 per cent (increase)	1,722,738.34	
7-cent fares—October, 3.00 per cent (increase)	1,688,494.52	
7-cent fares—November, 21.03 per cent (increase)	1,919,914.47	
December adjustment of 7-cent fares	62,896.03	
8-cent fares—December, 36.33 per cent (increase)	2,234,532.17	
From operation of special cars, mail pouch service and service cars	64,918.36	\$11,069,374.59
From advertising in cars, on transfers, privileges at stations, etc.	146,465.86	
From other railway companies for their use of tracks and facilities	25,163.53	
From rent of buildings and other property	33,490.90	
From sale of power and other revenue	65,615.91	
Total receipts from operation	\$11,405,029.15	
Interest on deposits, income from securities, etc.	48,738.87	
Total receipts	\$11,453,768.02	
<i>Cost of Service</i>		
Operating expenses:		
Maintaining track, line equipment and buildings	\$1,577,591.13	
Maintaining cars, shop equipment, etc.	1,162,415.01	
Power (including 131,157 tons of coal at \$7.475 or \$980,454.85)	1,431,494.19	
Transportation expenses (including wages of car employees, carhouse expenses, etc.)	4,475,085.78	
Salaries of administrative officers	50,456.72	
Law expenses, injuries and damages, and insurance	554,334.11	
Other general expenses	458,572.18	
Depreciation	1,002,005.00	
Total operating expenses*	\$10,711,749.12	
Taxes, proportion for six months	462,610.39	
Rent for leased roads (exclusive of subways)	1,291,691.40	
Proportion for six months of rent of subways and tunnels to be paid to the City of Boston, which does not include Cambridge Subway owned by the Boston Elevated Railway	738,918.16	
Interest on Boston Elevated Railway bonds and notes	664,512.16	
Miscellaneous items	17,715.55	
Dividends paid under acts of 1918	658,235.00	
Three and one-half months on preferred at 7 per cent		
Six months on common at 5 per cent		
Total cost of service	\$14,526,432.78	
Net loss for six months	\$3,072,664.76	
Revenue passengers carried	162,964,817	
Total receipts per revenue passenger (cents)	7.028	
Cost of service per revenue passenger (cents)	8.914	

* Of this total \$6,379,986.77 represents wages.
 † Does not include \$117,102.98 back pay covering period June 15 to 30, but paid during the months of November and December, 1918.

Electrical and Mining Engineers Get Together on Welding

A Joint Session of the A. I. E. E. and the A. I. M. E. Was Held in New York This Week in Connection with National Conventions of These Societies

THE American Institute of Electrical Engineers and the American Institute of Mining Engineers took advantage of the fact that the midwinter meeting of the former and the annual convention of the latter were scheduled to be held simultaneously in New York this month, to arrange a joint session on the subject of welding. The A. I. E. E. furnished two papers and the A. I. M. E. three, the principal points of which having relation to electric railway work being abstracted in the following paragraphs.

A paper dealing with the investigations undertaken by the welding committee of the Emergency Fleet Corporation was read by H. M. Hobart of the General Electric Company. In speaking of the various kinds of welding wire used Mr. Hobart said that these range all the way from the cheapest fence wire, costing but a few cents per pound, up to carefully treated and covered electrodes, which cost several times as much. As to bare electrodes, it is generally considered that uniformity is very essential, and it has been thought necessary to reject wire which has bad spots. It is now claimed that such material may be salvaged by dipping in milk of lime (whitewash) before welding. This dipping may be done in quantity and the coating allowed to dry, or the welder may keep a pot of the solution on hand into which the electrodes may be dipped immediately before welding.

ALTERNATING-CURRENT WELDING IS INCREASING IN FAVOR

In comparing direct current equipment with alternating current for arc welding, Mr. Hobart said that up to recently it had been contended that arc welding required a direct current supply, but now there are many advocates of alternating current. It is generally considered that it is a little more difficult to hold the arc where alternating current is used, but this simply resolves itself into a matter of practice. In regard to the frequency for alternating current arc welding, it is generally maintained that such welding is only thoroughly practicable with as high values as 50 or 60 cycles per second. There are, however, some who hold the opinion that the use of 25 cycles or less is equally satisfactory. With reference to the use of bare versus covered electrodes for alternating current arc welding, some maintain that flux-covered electrodes are best. A novice can learn to weld more quickly by employing flux-covered electrodes, but can ultimately learn to weld just as rapidly and successfully with bare electrodes. The difficulties lie in the initial stages of his education. As to the relative speeds of welding by the two processes, Mr. Hobart stated that the average speeds are about the same.

With reference to the comparative fields of gas and

electric arc welding, it is generally considered that gas welding is more satisfactory for thin material, say $\frac{1}{8}$ in. thick and under, and for general repair work, particularly where various kinds of steel and cast iron are involved. When it comes to depositing a large amount of metal and welding up structural steel or plates of $\frac{1}{2}$ -in. thickness and upward, the results obtained by the ordinary direct current arc with the metal electrode are at least equal in quality to the gas welding work and they are certainly obtained more cheaply. The quality of the welds cannot be compared until certain elaborate tests of gas welds have been completed. The results will permit comparison with the considerable research data already obtained with regard to electric arc welds.

Mr. Hobart said that within reasonable limits the speed of welding increases considerably when larger currents are employed. It appears reasonable to estimate that this increase will probably be about 25 per cent to 35 per cent for large currents. This increase is not directly proportionate to the current employed, because with large current a greater amount of time is taken to insert new electrodes than with small current, and the operator is working under a more strenuous condition. Incidentally, the operator who employs the larger current will not only weld more quickly, but the weld will also have greater strength. In regard to the effect on arc welding of the voltage employed, tests demonstrate that it makes no material difference in the tensile strength, bending qualities, or appearance of the welded material.

With the advent of metal-arc welding there has been a tendency to neglect the carbon-arc method. It now appears that there is a definite field for the carbon-arc method. In general, this is not applicable to vertical and overhead welding. The majority opinion of competent observers indicates that carbon-arc welding is not as reliable as metal-arc welding because: (1) carbon is carried into the deposited material, thus reducing its ductility; (2) it is more difficult to obtain good fusion on account of overlapping of deposited metal on the original metal; (3) it is more difficult to manipulate and this requires greater skill; (4) the arc is much hotter, which means greater discomfort to the operator and, therefore, lower efficiency; (5) greater cooling spaces are developed because larger areas of adjacent metal are heated.

On the other hand, it is contended by some that carbon-arc welding can be developed to the point where these objections no longer exist, and the advantages of this method are assured, namely: (1) no preparation of the abutting edges is necessary; (2) greater rate of deposition of metal and, therefore, greater speed of welding is obtained, particularly in heavy work; (3) it has greater adaptability to automatic welding.

Much progress has been made in America in the use of spot-welding for the joining of plates. In making a fusion-weld, the cleaner the surface the better the weld. In spot-welding it is desirable to have clean surfaces under the electrodes, but scale between the two plates is a positive advantage. The extent of the field of the application for fusion and spot-welding is but little appreciated by engineers other than those who have been directly connected with welding development. It is evident that the field is an enormous one, as it includes all structures and apparatus where steel is employed.

SOME POINTS FROM THE OTHER PAPERS

In a paper dealing with welding as a process in ship construction, S. V. Goodall said that during the war welding had been resorted to in order to save time and economize in labor, but that cost was relatively unimportant. Now that hostilities have ceased, economy in first cost and maintenance becomes again of primary importance, economy of time and labor being of value only in so far as they result in cheaper production.

S. W. Miller, proprietor Rochester Welding Works, read a paper on "The Path of Rupture in Steel Fusion Welds." He said that the first evidence of strain in any weld is at the point where visible defects exist such as films of oxide around the grains or around small particles of metal. It appears that welding materials which are low in carbon give a much less columnar structure in gas welds than others, also in electric welds the structure is usually more columnar than in gas welds, although variations can be noted here also. It would appear that the rapid cooling of the electric welds is responsible for this, and that the slower cooling of gas welds probably makes the grain more nearly equiaxed. The quenching of electric welds appears to produce an entirely different structure. Here the grains lose their columnar nature and the lines entirely disappear. It seems quite clear that the only way to account for the brittleness in welds is to assume that it is caused by films of material at the grain boundaries. George F. Comstock, metallographist for the Titanium Alloy Manufacturing Company, discussed the points brought out in Mr. Miller's paper and added some further information regarding the identity of the needless or small crystals which are present in welds.

In a paper dealing with fusion in arc welding, O. H. Eshholz, of the Westinghouse Electric & Manufacturing Company, took up the effects of penetration, overlap and arc length on the quality of welds produced. He also gave some information regarding electrode material and diameters necessary for use with different values of current. In conclusion Mr. Eshholz said the fusion obtained in arc-welded joints between the plates and deposited metal is determined by the penetration of this metal into the plate metal and the overlap of the edge of the deposit layer on the plate. The penetration is comparable to the depth of arc crater as observed by the welder when moving the arc terminal over the plate with uniform velocity, and the overlap is indicated by the contour of the surface of the congealed deposit in the region adjacent to the material welded. He illustrated the relation between the depth of arc crater and the depth of the resulting penetration with several lantern slides. These showed sections through the crater

obtained by breaking an arc during the process of depositing a layer of metal on a steel plate. The depth penetration was almost exactly the same as the depth of the crater and this followed a line of the same general form as the crater depression. For most welds, a depression of $\frac{1}{16}$ in. will give the desired penetration, while a contour which does not show a re-entrant angle between plates and deposit indicates an overlap per layer of approximately $\frac{1}{32}$ in. or less.

Thus by examining the surface and edges of the deposited metal a simple visual indication is given for gaging the penetration. The best welds show an intimate contact at the edges of the deposited metal and an entire absence of even the smallest re-entrant angle.

WHAT THE DISCUSSION BROUGHT OUT

In introducing the subject of welding President C. A. Adams, of the A. I. E. E., gave a brief summary of the work done by the welding committee of the Emergency Fleet Corporation of which he is chairman. He said that the advance made in electric welding during the past year had been as great as that of the preceding ten years. He also announced that a new welding organization is being started to continue the work begun by the welding committee and to carry on investigations necessary for the advancement of all classes of welding.

In the discussion of the various papers presented H. A. Hornor, consulting engineer, Philadelphia, Pa., spoke of the necessity of having skilled welders and told how those of the Emergency Fleet Corporation were instructed. He said that the various shipbuilders had selected the men whom they wished to have trained in welding and as a result all sorts and conditions presented themselves. Under the stress of war conditions the training, of necessity, had to be intensive, and very few exceptionally skilled welders were produced. From his experience Mr. Hornor said that the best arc welders are those with a very sensitive nature. To produce a satisfactory weld the welder must concentrate his whole attention on the work in hand and satisfactory work cannot be expected from men who have to dodge hot rivets and work in the constant din of a boiler factory.

A. M. Candy, Westinghouse Electric & Manufacturing Company, spoke briefly of the relative speeds of alternating and direct-current welding, and said that one of the greatest problems for practical welders is the selection of the most suitable arc current to be used. He referred to the depth of crater and the re-entrant angle discussed by Mr. Escholz as forming a basis for determining by visual means when a weld is good or bad. He said that this affords a means for the welder to determine for himself when he is doing good work.

C. J. Holslag, chief engineer Electric Arc Cutting & Welding Company, spoke of the relative speeds of alternating and direct-current welding. He said that in a melting test which he had conducted, with no attempt at welding, four units of metal had been melted by alternating current to three by direct current. He said that oxidization causes the weak points in most welds, and that the shorter the arc the less the chance for air to enter and produce oxidization, and the shorter the time that the molten metal is in contact with the air.

C. E. R. A. Accountants Reconvene

Delegates at Fort Wayne Meeting Lay Basis For Energetic Work After Suspension Caused by War

THE thirty-third meeting of the Central Electric Railway Accountants' Association was held at the Hotel Anthony in Fort Wayne, Ind., on Feb. 15, with sixteen members present. Most of the time was taken up with the presentation of addresses and lively planning for the future work of the association.

In his presidential address A. C. Van Driesen, secretary Toledo Railways & Light Company, Toledo, Ohio, directed attention to the fact that the last real meeting of this association was held in Cincinnati in December, 1916. Since that time there have been many changes in the personnel of the association, many members resigning to accept positions with industrial concerns. On account of no conventions having been held, it appears that a state of "dormancy" has enveloped the association, to the extent that in some quarters the members have expressed the sentiment that the object for which the association was organized has been accomplished and it should be disbanded. Others are luke-warm and do not seem to care one way or the other.

In regard to this point Mr. Van Driesen said in part:

Do we really think that the entire object for which this association was formed has been accomplished? If so, then by all means disband. It seems to me, however, that with the multitudinous problems which are now confronting every industry in this country, the electric railway is at last about to come into its own. If this conclusion is correct, the Accountants' Association should be ready at all times to step into the breach and assist to the fullest extent of its powers the operators and managers of the various properties. Moreover, as we are enabled to acquire knowledge from our personal relationship with other men in the same line, the association should continue for the interchange of ideas and for more intimate personal relations.

While the association has done good work in the past, the opportune time to show its mettle is now; it should get into this reconstruction period with a vim and do all in its power to solve the various problems as they appear. There will be plenty for us to do, and closer personal relation will be one of the ways in which we will be enabled to solve some of our problems.

Although the constitution provides for only two meetings each year, it might be amended to provide for four meetings, February, May, August and November—the August meeting to be held at Detroit, Cleveland or Toledo or some other lake point and the remainder of the meetings to be held at the most central point to be decided upon at the previous meeting.

It seems to me that now is the time to make up for lost motion during the last two years by holding more meetings, putting more "pep" into them and having an association that is alive and up to the minute, rather than one that is dying of dry rot.

The address at the morning session, on the subject of "Where the Money Comes From," was made by C. B. Kleinhans, auditor Toledo & Indiana Railroad, Toledo, Ohio. Mr. Kleinhans explained that the form of borrowing which an electric railway puts into effect may be through short-term notes issued by local banks or through bonds.

The local banks, he said, will often loan reasonable sums of money based upon the company's credit, but these loans are usually made for short terms of from thirty to ninety days. As such a note falls due banking laws very generally require that the note shall be redeemed by a substantial payment before renewal. In

many cases if money is scarce and the interest rates high, the bank prefers to conserve its resources by keeping its outstanding loans at a low point. Therefore, the most advantageous form of loan is to issue bonds, which are long-term certificates.

It can be conservatively stated, according to Mr. Kleinhans, that 50 per cent of all financing is in the form of bonds. Continuing he said:

In order to float a security issue of any kind at the present time, it is first necessary to secure the consent of the Public Utilities Commission. But another difficulty exists, for in order to float a bond issue it is necessary to establish a credit rating with the banking industry and to demonstrate that the company has the ability to earn not only the interest on the securities about to be issued but also an additional amount over and above the interest which will permit the utility to retire a substantial amount of the bonds each year and also to pay the principal of the outstanding balance at maturity.

If the utility can demonstrate that it has the earning capacity to warrant the issuance of a block of bonds sufficient to provide funds for the construction work in question and the restrictions of the bankers for the protection of the security holders can be complied with, the utility may proceed with its additions and extensions, provided it can raise first the money to finance the work until bonds can be issued to reimburse the treasury for the money so expended. For it must be borne in mind that construction work must be paid for before it can be mortgaged, and the only means the utility has of paying is from the limited surplus earnings and through short-term loans from local banks.

Here are some of the "restrictions" that may be imposed upon the utility in borrowing money. It may be required that:

The net earnings be from one and one-half to two times the interest charged.

The utility contract that it will not borrow from any source unless the securities outstanding are amply protected.

Bonds may be issued to an amount not to exceed 75 per cent of the original cost of construction, and as such bonds are usually sold below par, the balance must be put back out of "surplus earnings."

The sinking fund, to be paid out of "surplus earnings," must redeem a specified block of bonds each year.

These are but a few of the many things the utility may be required to do before it can pay dividends to the stockholders. It is entirely possible that some of the passenger cars may be crowded and available freight equipment worked to full capacity, but the cost of operation be so high as to make the net return almost a minus quantity. If the net return is small, it will be hard to borrow money, and consequently extensions and improvements must be curtailed if not stopped altogether.

It is a very erroneous impression that the securities of large corporations are owned by multi-millionaires. A man with a great deal of money can engage in business that will bring him in larger returns than he can get by purchasing bonds. While we do not wish to give the impression that men of large means do not purchase bonds, yet the greater part of the bond issues of the large companies, we believe, are held by the public at large or for their benefit, in the case of savings banks, insurance companies, trust funds, etc.

It is considered quite the thing at the present day to attack the railways through Councils and newspapers when other subjects grow tame. The very men who are loudest in their denunciation of "those who fail to do their duty for the uplift of the public at large" are the ones who attack the public utilities upon the slightest provocation. Hundreds of these men are savings bank depositors, and the safety of the money they have so deposited may be guaranteed by the securities of the corporation which they are endeavoring to put out of business. It does not seem reasonable that men would seek to jeopardize their own interests and it is very unlikely that they would do so if they understood the facts.

The following officers were elected, and the following committees then appointed for the new year:

Officers: President, A. C. VanDriesen, secretary Toledo Railways & Light Company; first vice-president, C. B.

Kleinhans, auditor Toledo & Indiana Railroad; second vice-president, J. B. Hooper, Detroit United Railway, and secretary-treasurer, A. L. Neereamer, Central Electric Railway Association.

Executive Committee: Officers and H. F. McColgin, Indianapolis & Louisville Traction Railway; L. W. VanBibber, Ohio Electric Railway; E. O. Reed, Western Ohio Railway, and Walter Shroyer, Union Traction Company of Indiana.

Compiling Committee: L. T. Hixson, chairman, Terre Haute, Indianapolis & Eastern Traction Company; I. E. Guthrie, Interstate Public Service Company; H. F. McColgin, Indianapolis & Louisville Traction Railway; A. R. Baxter, Indianapolis & Cincinnati Traction Company, and A. L. Neereamer, Central Electric Railway Association.

Constitution and By-Laws: A. R. Baxter, chairman, Indianapolis & Cincinnati Traction Company; O. A. Small, Chicago, South Bend & Northern Indiana Railway, and J. P. Longon, Cincinnati & Dayton Traction Company.

Freight and Express Accounts: Walter Shroyer, chairman, Union Traction Company of Indiana; L. W. VanBibber, Ohio Electric Railway, and G. B. Dobbin, Michigan Railway.

Light and Power: H. T. Ledbetter, chairman, Toledo Railways & Light Company; James Sweeney, Northern Ohio Traction & Light Company; Karl A. George, Indiana Railways & Light Company; H. E. Vordermark, Fort Wayne & Northern Indiana Traction Company, and J. S. Minary, Benton Harbor-St. Joe Railway & Light Company.

Membership: O. A. Small, chairman, Chicago, South Bend & Northern Indiana Railway; C. B. Baker, Toledo, Bowling Green & Southern Traction Company, and J. F. Stratton, Louisville & Northern Railway & Lighting Company.

Program and Arrangement: E. O. Reed, chairman, Western Ohio Railway; J. B. Hooper, Detroit United Railway, and G. H. Wilson, Evansville Railways.

Readjustment: W. H. Forse, Jr., chairman, Union Traction Company of Indiana; James Sweeney, Northern Ohio Traction & Light Company, and Irwin Fullerton, Detroit United Railway.

It was decided that the association would hold the next meeting at Springfield, Ohio, on May 24, and a meeting in Toledo, Ohio, on Aug. 22 and 23. It was also decided that the majority of the time at the next meeting would be devoted to the question box. Questions are to be submitted to the secretary, and these are to be printed on the program without the name of the company being mentioned and are to be answered in open meeting.

Progress in Solving Traction Problems

In commenting on the electric railway situation for the coming year, M. R. Bump, chief engineer of the Doherty organization, recently made a statement in part as follows:

"The great traction problem remains unsolved, but material progress, we believe, is being made toward its solution. Recent court decisions seem to point to relief in many localities, but we believe the ultimate solution of this problem lies in a more equitable system of charging for street car service. The straight fare as at present almost universally in use has many objectionable features; the zone systems adopted in many localities have been only a slight improvement on the former system.

"We believe that the ultimate solution of this problem lies in a method of charging in proportion to the length of haul, thereby not discriminating against the short-haul rider, permitting costs to be equitably distributed, and collecting from each customer a proper fare in proportion to the amount of cost that is occasioned by him."

AMERICAN ASSOCIATION NEWS

N. W. Bolen Elected President at Newark

AT THE ANNUAL meeting of the Public Service Railway company section held on Feb. 14 at Newark, N. J., N. W. Bolen, general superintendent, was elected president of the section. Other elections were as follows: Vice-president, H. M. Ehlers (formerly secretary), clerk in the general superintendent's office; secretary, A. H. Nelson, engineering department; directors, Charles F. Bachman, division master mechanic Essex division, and J. E. Rutledge, engineer distribution department. In his annual report Retiring Secretary Ehlers said that the present membership is 362, made up as follows: Transportation, 182; mechanical, 37; distribution, 21; engineering and maintenance of way, 28; claims, 20; auditing, 23, and general, 51. The attendance at meetings during the year has averaged 218 although this average must be considered in the light of the fact that one very large general meeting was held. In taking the chair at the close of the meeting Mr. Bolen expressed himself as confident that the section will resume its pre-war vigor, that the programs for 1919 will be attractive enough to bring in the men from the outlying divisions, that the talks will contain solid information as well as entertainment and that the social features of the meetings will be very attractive. He used the expression "fill the house" as one suggestive of a successful coming year's work.

Research Bureau Established at Milwaukee

A NEW department known as the Operating Research Bureau has been established by the Milwaukee Electric Railway & Light Company for the purpose of carrying on certain of the functions of the management dealing with the research work required by the company and its subsidiaries. The work of the bureau will be confined largely to investigating and standardizing existing profit-sharing plans with a view of profiting by past experience.

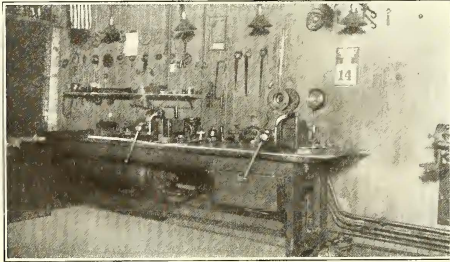
Extensive and comprehensive study will be required to place all plans on a basis which will, in so far as possible, recognize individual effort to a greater extent. The bureau will co-operate with the various departments in devising, where practicable, new plans for profit sharing in divisions not now participating. It will prepare monthly the summary of the results achieved under the profit-sharing plans in each department and comment thereon in a monthly report, the data for which will be obtained from the representatives appointed in each department to co-operate with the bureau in its activities. The bureau will also assume charge of all valuation work, in connection with which unit costs will be developed. Such cost information is to be checked in a manner suited to the use of the various departments for estimating purposes. Time studies will also be made and the facilities therefor developed.

The Operating Research Bureau is under the direction of William Baum, research engineer, and Ralph Moody, assistant research engineer.

Convenient Testing Room for Air-Brake Valves

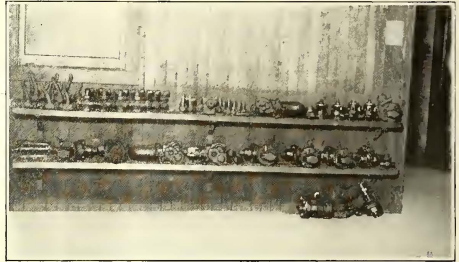
The Necessary Equipment for Testing Different Types of Brake, Triple and Feed Valves Is Arranged as On a Car

THE air brake testing equipment used by any railway depends to a large extent upon the size of the property or upon the number of cars equipped with automatic valves but it also depends somewhat upon the man in charge of this particular department. A very efficient and complete layout is in service at the shops of the Northwestern division of the Chicago Ele-



REPAIR SHOP END OF THE CHICAGO RAILWAYS' TESTING ROOM

feed valves and at the extreme right is a type J governor being tested. This is left on test for a day or two. It will be noted that two feed valves can be tested at once if desired. A feed valve is put on and the cut-out cock at the left is opened. The pet cock at the right is then opened and the feed valve is vibrated for ten minutes to loosen it up. The cut-out cock at the right of the pet cock is then opened and the feed valve adjusted to show 70 lb. on the gage at the left of the reservoir. The pet cock from the reservoir is then opened and if the feed valve responds at a 2-lb. reduction it is "O. K. for service." If the piston is loose the feed valve will not respond at a 2-lb. reduction and



VARIOUS TYPES OF VALVES, TESTED, REPAIRED AND READY FOR SERVICE

vated Railways. There are 613 cars equipped with automatic air brakes which come under the supervision of this shop.

The layout shown in an accompanying illustration is arranged just as on an electric car and is for the testing of brake valves, triple valves, feed valves and type J governors. It will be noted that there is provision for three types of brake valves. Those shown are, reading from left to right in the illustration, the M-1, the M-15-C and the M-23, all of which are in service on this property. At the left of the brake valve testing stands is the U-4 Universal valve testing equipment and at the left of this the equipment for testing the R-1 triple valves. This arrangement of the quick-action closing and opening gage on the U-4 triple valve, the air-brake cylinder and the auxiliary reservoir with gage needs no explanation.

On the right wall is the equipment for testing the

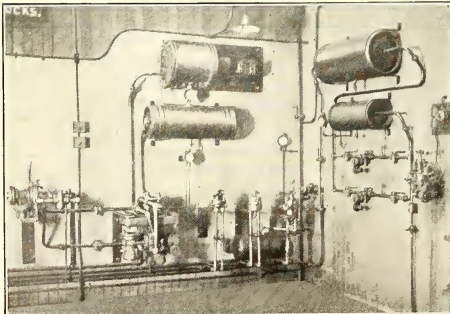
needs further attention. The compressors for all this equipment are located on the floor below.

The work bench, where all the valves are repaired and put in order, is located just at the left and is shown in another illustration. Everything is orderly and neat and was not arranged for the picture. When the various kinds of valves are repaired and ready to go back into service they are placed on racks just at the right of the testing equipment.

This testing and repair room measures about 28 ft. x 34 ft. and one corner is partitioned off as a private office about 12 ft. x 15 ft. The shop force includes one foreman and two men. Pumps and pump armatures are also handled in this department and this requires the services of two pipe fitters additional.

Bonus Reward for Careful Firing

In the issue of the ELECTRIC RAILWAY JOURNAL for Feb. 8 the practice of the Denver Tramway in rewarding men in the power plant for careful operation was described. The principle of the bonus for this purpose in one form or another is coming into considerable use. For example, in a large chemical works in Brooklyn, N. Y., watch engineers are paid a bonus of 10 per cent of their pay if they maintain an average evaporation rate of 8.4 lb. of water from and at 212 deg. Fahr., per pound of coal. The fireman's bonus in turn depends on the maintaining of an average CO₂ percentage of 11.6 as shown by analysis of gas drawn continuously during each watch. Coal passers receive a bonus if they keep the firing floor in good order and lose no time. This boiler plant consists of two 380-hp. boilers with Westinghouse underfeed stokers and forced-draft blower, and eight 150-hp. hand-fired boilers which serve largely as a standby. Bituminous run-of-mine coal is burned.



TESTING EQUIPMENT FOR AIR-BRAKE VALVES, CHICAGO ELEVATED RAILWAYS

Preventing Theft of Rail Bonds

The Losses from Theft and Loosening of Bonds Are Greater with the Exposed Type, But Track Construction and Maintenance Difficulties Cause This Type to Be Favored

By G. H. MCKELWAY

Engineer of Distribution, Brooklyn Rapid Transit System

TO THE average man, not connected with an electric railway, there is practically nothing so unfamiliar as a rail bond. And even to many track men, especially the old-timers of the "practical" sort, the value of bonds is but little clearer. To their minds the bonds are only of theoretical value and from the practical standpoint they are a nuisance. All can remember occasions when the cars operated over unbonded track and everything worked smoothly, so why go to the trouble and expense of installing bonds when they are only in the way when the joints have to be repaired? That is, if they have not been stolen before the time comes when the joints need attention.

Even those who appreciate the value of good bonding are apt not to think enough of the bonds to impel them to keep the bonds in good condition, as this requires continued watchfulness, testing and repairing or renewing. On many roads no attention is paid to the bonds once they are put on, and the result is too often found in electrolysis trouble or the complaints of "weak power," which latter condition is often improved by the running of additional and unnecessary copper on the positive side of the system instead of making repairs to the negative returns.

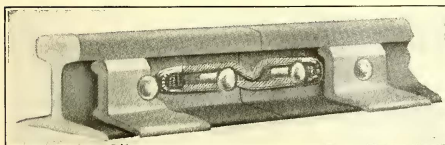
There have been so many different types of rail bonds tried out that it is difficult to divide them into sharply defined classes, as one bond may have one or more characteristics of several of the classes. As a beginning, however, we may divide them into those which are installed under the plates and those which are installed outside of the joints.

The primary reason for placing the bonds under the plates is to protect them against theft or accident, generally the former. In addition the protected bond is generally shorter than the other type and is therefore cheaper and of lower resistance than the long bond. This is always true if the bonds are attached to the web of the rail but is not necessarily the case if the bonds outside make contact with either the head or the base of the rail.

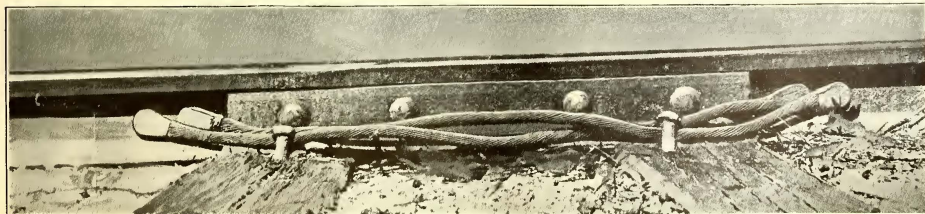
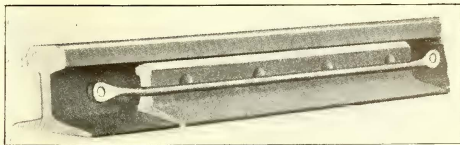
To be absolutely protected against theft not only the bond itself but also its terminals should be placed under the plate, as otherwise the thief will cut off the terminals and pull the bond out from under the plate. Sometimes this procedure is varied by cutting the conductor in only one place and then punching out the terminals, in which case the thief adds the weight of the terminals to that of the other stolen copper. This is an unusual refinement, however, as he seldom wishes to be burdened with both a chisel and a punch. When they are used there is generally proof of an "inside job," that is, that the bond has been stolen by an employee of the road who has access to the tools.

While attempts have been made to protect bonds installed outside of the plates by bolting covers over them and by stapling long bonds down to the ties, such attempts have been only partly successful, although of some value. Most of the covers do not extend over the terminals, so are open to the same objection as plates which do not protect the terminals. Again, the covers are generally fastened on by means of the track bolts and therefore interfere with the tightening of the lat-

A RAIL BOND OF THE PROTECTED TYPE



THE EXPOSED-TYPE RAIL BOND



LONG BOND SPIKED TO TIES TO PREVENT THEFT

ter, or they add a part which must be removed and re-installed when the splice bars are taken off. There is the further objection that either the bond must be installed at the same time as the plates, or the latter must be loosened up by the removal of the nuts to permit of the covers being put on.

So far as the use of nails or staples is concerned, it is seldom that the former are of any value as they are too easily bent out of the way, often merely by pulling on the ends of the bond after the terminals have been cut off or punched out of the rail. Staples are much to be preferred to nails, but unless long and strongly made they can be pulled out of the tie, and unless driven tightly against the bond the latter can be pulled out from under them after the terminals have been cut off. If the staples are driven in firmly there is danger of their cutting or breaking some of the strands of the bond. Even if that is not done the bond is tightly fastened to the tie so that only short free ends remain, and so far as withstanding vibration and creepage is concerned, the long bond is no better than a short one and its life is much less. If the long bond is stapled to the tie at only one place, the bond, of course, has much greater freedom of movement than is the case when more staples are used, but it is much less safe against theft, as it is only necessary to cut it close to the staple as well as at the rail and then secure two fairly long lengths of bond. It is also much easier to pull up a single staple than two or more. At times spikes are used for fastening down the bonds, instead of nails or staples, and, while there is no danger of their being bent or pulled up they are more expensive and have the same faults as the staples.

From the foregoing arguments it might be thought that the protected type of bond is to be preferred to the exposed type. So far as protection from theft is concerned that is the case and probably, if the bond could be considered only in its relation to the return circuit, the protected type would be used almost exclusively. But the bond is so intimately connected with the remainder of the track that thought must be given to its influence on the construction and maintenance of that too. In the track department opinion will be found to favor the bond which is placed outside the plates. The long bonds can be put on at any time after the rails are in place and do not require that the bonders work with the trackmen and install the bonds after the rails are spiked to the ties and before the joint plates are bolted up. When the work of two different gangs of men depend on each other there is sure to be delay from one of them waiting until the other does its part. If the bonds are long enough the plates can be taken off without disturbing them and can be replaced without any care in placing the strands safely around the bolts so that the bonds will not be "pinched."

If the terminals are attached to the rails by means of holes drilled in the webs, protected bonds require the drilling of these holes close to the bolt holes and so further weaken the rail under the joint, just where it receives the severest pounding from the car wheels. The writer knows of one large system where the breakage of rails at their ends was traced, in many cases, to the

use of short bonds and the consequent weakening of the web by the holes for their terminals. As a result, such bonds are no longer permitted in the rails and all bonds must be installed outside the plates.

Sand Car Requiring Little New Material

AT THE Wolf Street shops in Syracuse the mechanical department has just rigged up two very effective sand cars out of two antiquated single-truck cars.

In each body two sand boxes of the form shown in Fig. 1 were placed in such a way as to permit ingress and egress through a left-hand door at each end. Each box was made of 1½-in. hard pine, 15 ft. 3 in. long, 2 ft. 3 in. wide and 3 ft. 6 in. high, outside dimensions. Inside it was provided with sloping sides and bottom converging toward a perforated sheet-iron cylinder in the center. A ½-in. staybolt, about midway on each end of the box, reinforces it against bulging.

The 6-in. sheet-iron cylinder, perforated with ¾-in. holes on about 2-in. centers, reaches from the bottom to the top of the box. Its purpose is to limit the rate of flow of sand to the valve and prevent packing. The

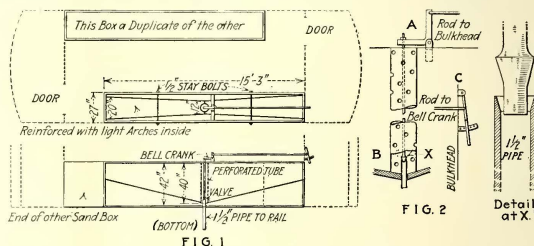


FIG. 1—DIAGRAMMATIC SKETCH, ROUGHLY TO SCALE, OF SAND BOXES INSTALLED IN SINGLE-TRUCK CARS AT SYRACUSE, N. Y.
FIG. 2—DETAILS OF THE VALVE AND AUXILIARY MECHANISM

valve is simply a conical plug, with a suitable guide, fitting into the flared upper end of a 1½-in. pipe which leads to the rail almost directly below. This pipe is braced to the truck frame.

The valve is operated through a vertical rod attached to one limb of a bell crank, to the other limb of which is attached a second rod leading to an adjusting lever on the outside of the bulkhead. This lever swings over a sector provided with plug holes by means of which the valve can be set and held at any desired position.

Besides the addition of the sand boxes the windows of the cars were boarded up and the bodies and trucks were freshly painted.

New Type Malleable Pin for Crossarms

A specially constructed malleable pin for use on angle crossarms has been placed on the market by the Drew Electric & Manufacturing Company of Indianapolis, Ind. This pin is designed to permit locking over the angle by a flange which holds the pin firmly against strain in any direction. The insulator is cemented to the pin which can be quickly and rigidly bolted to the arm. Two sizes are offered—1-in. and 1½-in. diameter head.

News of the Electric Railways

FINANCIAL AND CORPORATE • TRAFFIC AND TRANSPORTATION
PERSONAL MENTION

San Diego Wages Not Low

Company at Hearings Before the War Labor Board Shows that the Employees Are Generally Satisfied

At hearings before an examiner of the National War Labor Board during the last week in January officials of the San Diego (Cal.) Electric Railway refuted serious charges made by the employees. This was done without the company acknowledging the jurisdiction of the board, in any way, the submission of the men's complaint on Dec. 24 not having been joined in by the company.

COLLECTIVE BARGAINING DEMANDED

The demands of the members of the union were for collective bargaining; an increase of wages to 40 cents an hour for extra men and 50 cents an hour for regular platform men; an eight-hour day with thirty minutes leeway; the reinstatement of six men who are alleged to have been discharged for affiliating with the union, and improved working conditions.

The company said that it had refused to receive a committee elected or selected by Division No. 826 of the Amalgamated Association of Street & Electric Railway Employees of America. On the other hand it had never refused to receive a committee of employees up to the time of this complaint.

William Clayton, vice-president of the company, denied that wages were inadequate to maintain the standard of living in San Diego. The wage scale of 40 cents for the first year and 45 cents thereafter, with 3 cents additional for motor-conductors, is higher than the 38 cents to 42 cents granted by the board in the New Orleans case and many other cities, where climatic conditions alone are not nearly so favorable to street car operation as in San Diego. Moreover, it was averred, the majority of the platform men in San Diego are fully satisfied with the wage scale now in effect. The company has been refusing for some time past to receive any more applications for employment on the cars. The company showed that the present railway wages are on a scale above the average for seventeen other lines of work in the community.

MEN DISCHARGED FOR CAUSE

M. J. Perrin, superintendent, showed that the six men had been discharged for actual and long-continued violations of the rules, and that no intimidation had ever been employed. That letters upon dismissal had been refused because the applicants were union men

was asserted to be absolutely unfounded.

To show the financial condition of the company, it was explained that the loss for the year ended Dec. 31, 1918, exclusive of dividends to the stockholders, amounted to \$243,000. The estimated deficit for 1919 is \$394,000. If the same number of cash fare passengers as estimated on the present 5-cent fare would travel in 1919, a 50 per cent increase in the cash fare would be sufficient. The experience of other properties however, was said to indicate that instead of a theoretical increase of 50 per cent there will be a much smaller percentage on account of a decrease in the number of passengers traveling. Consequently, it will require an increase of 90 per cent to 100 per cent in the cash fare in order to pay operating expenses, replacement reserve, taxes and interest on bonds.

Says Industry Is Decaying

Spokane Commissioner of Public Utilities Raises Question About Autos Supplanting Electric Cars

In a report made on Feb. 6 to the City Commissioners of Spokane, Wash., C. M. Fasset, commissioner of public utilities, stated that in his opinion public purchase of the electric railway lines in that city would not now be a good business proposition. Mr. Fasset said in part:

It seems certain from what I can learn that the street railway business is a decaying business, and that this condition is fast getting to be recognized by the students of municipal life and also by the owners of the car lines everywhere. It is very doubtful if capital invested in this business should be salvaged either by a guarantee by the public of the investment, or by public purchase.

Some students of urban transportation believe that in the near future it will be carried on rubber-tired vehicles, not on rails. If this be true, any municipality which buys a street car line at anywhere near its cost, or which guarantees its earnings, is getting the proverbial gold brick.

Mr. Fasset stated that the studies now being made in the department of public utilities point to the probability that the transportation problem in Spokane can be handled by 150 auto buses on routes totalling about 100 miles, as against the existing 129 miles of electric railway lines. The department believes that these buses can be bought for \$6,000 each, and that the complete outfit, including shop and storage facilities, can be covered by an investment of \$1,500,000, as against the investment of \$6,750,000 for the electric lines. This special aspect of the problem, it was said, will be the subject of a further report to the City Council when the investigation is completed.

Taxation to Aid Rider

Massachusetts Commission Reports to Legislature on General Situation and Case of Bay State System

At the request of the Massachusetts Legislature, expressed in a resolution adopted on Jan. 24, the Massachusetts Public Service Commission has surveyed the condition of the Bay State Street Railway and of other electric lines in the State, and now recommends the use of taxation to reduce the burden of the car riders.

AMEND PUBLIC CONTROL ACT

In regard to the Bay State system, the commission recommends that the public control act for this company be amended to provide that the first 5 cents of the cost of service per passenger be paid by the car rider and that any additional cost be paid 50 per cent by the car rider and 50 per cent by general taxation. The commission believes that this will prevent the fares from going above the present level and both fares and taxes will be gradually reduced as the trustees who are responsible for operating the railway system are able to decrease operating costs.

In regard to the general situation, the commission says that the first necessary step is the removal of the burden of special taxes and public charges upon the railways, and a draft of a bill to this end is submitted. But relief of this character, it is believed, will go only a short way toward meeting the absolutely essential revenue requirements. The commission is therefore convinced that direct community contributions through the tax levy is the only practicable way out of the present difficulty.

FARE SHOULD MEET COST OF SERVICE

It is said that fares should be fixed so as to meet the cost of service in so far as this may be done without unduly hampering or discouraging the free movement of traffic and the economic development of the communities served and otherwise injuriously affecting the general public interest. If the fares thus established do not yield sufficient revenue, the balance should be met by an addition to the tax levy up to a reasonable maximum, which is suggested as \$2 for each \$1,000 of assessed valuation. Any such appropriation should be coupled with public control.

A draft of a bill embodying this general plan and effective until December, 1922, was submitted by the Public Service Commission.

Buffalo Stage All Set

International Railway and City Prepared to Act Toward Ending Differences

Peter Witt, Cleveland, Ohio, has been selected by the City Council of Buffalo, N. Y., to represent the city on the board of arbitration which will formulate a plan whereby the International Railway, Buffalo, will be placed under municipal control. James E. Allison, Jr., St. Louis, will represent the railway. These two arbiters will select a third member of the board. If no agreement can be reached, some Supreme Court justice will designate the umpire. Mr. Witt will be paid by the city at the rate of \$150 a day.

WILL SELECT THIRD ARBITRATOR

The selection of the third member of the board of arbitration will mark the completion of the first advance step taken to solve Buffalo's traction problems. Under the provisions of the agreement between the municipal authorities and the International Railway, neither side is bound by the decision of the board, but it is generally accepted that the findings of the board will be used as the basis for a permanent agreement between the city and the company whereby the service-at-cost plan will be adopted in Buffalo and the railway operated under the control of the city.

The first task for the board of arbitration is to fix the valuation of the company's property within the city of Buffalo. Figures have been presented by the city and company and have been practically agreed upon, except for certain intangible items, contractors' profits, depreciation and a few minor points. The sum thus suggested is \$22,624,873. This figure is being used in the preliminary negotiations.

The company has secured a loan of \$425,000 with which it has paid the interest due on Nov. 1, 1918, on its issue of \$16,735,000 of 5 per cent refunding and improvement bonds. It is believed that a permanent agreement will be reached before interest due on May 1, 1919, becomes payable.

LEGISLATIVE ACTION NECESSARY

Some legislative action is necessary to stop the special referendum election which is scheduled to be held on March 25 on the question of whether or not the voters shall repeal the action of the City Council in granting a 6-cent fare to the railway with a 1-cent rebate slip pending the determination of a just and reasonable fare within the city by the Public Service Commission of the Second District. Referendum petitions were circulated soon after this action was taken by the Council and the fact that more than a sufficient number of signatures were secured forestalled the putting of this resolution into effect. The time limit has passed within which the Council can rescind its action so that legislative action is necessary in order to stop the referendum. The

referendum would cost about \$50,000. The action of the Council would be repealed by an overwhelming vote, probably larger than it was at the first referendum, and it is because of this fact that the city would seek legislative action to stop the referendum. That would automatically rescind the Council's action.

The International Railway has scored in its effort to have the Public Service Commission investigate the rates charged by the company in Buffalo with a view of securing a higher fare. The proceeding was started several years ago by the city to force the company to give service for a 3 or 4-cent fare. The company at that time secured an injunction restraining the commission from hearing the city's complaint because the company had a franchise with the city allowing it to charge a 5-cent fare. When conditions became such that the city saw that it would fail in the investigation and that probably a 6-cent or 7-cent fare would result the proceedings were dropped.

COMPANY WILL APPEAL CASE

Application was made three weeks ago before Justice William P. Rudd in the Supreme Court at Albany by Henry W. Killeen, of counsel for the International, seeking a writ of mandamus directing the commission to receive the company's answer. To this application the city entered a vigorous protest. Justice Rudd has held that the commission must receive the company's answer. This places the case squarely before the Public Service Commission for investigation. The city announces it will appeal to the Appellate Division of the Supreme Court. On behalf of the railway, Mr. Killeen, of counsel, says that the company will make no determined effort to bring the rate case before the commission until after the determination of the arbitration proceedings instituted by the city and the company to bring about a permanent agreement based upon the service-at-cost plan.

A Plea for a Square Deal

A. W. Harris, president of the Harris Trust & Savings Bank, Chicago, Ill., charges business men of that city with failing to back the efforts of public utilities to secure living rates. He says business men of Chicago and the country generally are woefully neglecting to support some lines of business and in a way "knocking" others. He is quoted in part as follows:

It strikes me as peculiar that business men generally don't see the equity of supporting the so-called public utility companies in the efforts to secure more revenue. All other lines of business, it is granted, must raise prices if they are to live nowadays, yet gas, street railways, steam railroads and all similar forms of semi-public utilities are denied the right of living. These public utilities companies,

electric railways in particular, are like a dying man. If they cannot get relief they must expire, yet the business interests are willing to allow this death simply because there was a contract that prevented the dying man being given more than a certain amount of food a day. Our business associations can easily get at the facts of the income and outgo of the public utilities, and once convinced of the justice of their contentions they should stand behind them. I think such a move by the Chicago Association of Commerce would have a tremendous effect in enlightening the public and enable it to see the justice of the contention of public utilities for higher rates.

Detroit Offers to Buy

City Suggests \$29,653,936 as Price for Railway Property It Desires to Acquire

The first meeting of the new city officials of Detroit, Mich., the street railway commission of that city and the representatives of the Detroit United Railway took place on Feb. 11. Present at the conference were Mayor Couzens, the entire membership of the street railway commission, M. M. O'Shaughnessy and H. M. Brinckerhoff, appraisal experts for the city, Frank W. Brooks, president of the Detroit United Railway, A. F. Edwards, vice-president and treasurer of the company, and Elliott G. Stevenson, attorney for the company.

The conference had to do with the announced determination of the city through its new city administration to arrange, if possible, for the purchase of the lines of the company within the present 5-cent limits. The representatives of the city stated that the purchase would be considered only upon the basis of the physical valuation and not upon any basis of reproduction as a going concern. Mr. Brooks replied to the effect that the railway and its directors would do all in their power to come to an amicable and just agreement.

Actual figures of valuation and the purchase price were not discussed at this meeting. Later, however, an offer of \$29,653,936 was made on behalf of the city for the property of the railway within the 5-cent zone.

Mr. Brooks made it plain that the company's representatives would not recommend acceptance of the city's offer and that they would present to the directors and shareholders all the facts which the street railway commission had laid before them.

Mayor Couzens said that the appraisals by the city showed the value of the system which the city desired to acquire to be about \$27,500,000. This figure was based on average prices over low periods of cost of materials and labor. To this sum the city later decided to add \$2,000,000, on account of new conditions that had arisen since the appraisals were made.

On Feb. 18 Mr. Brooks wrote the city that it was the opinion of the stockholders and the directors that the value fixed by the city was inadequate. The company suggested as an alternative a price of \$33,500,000 or a lease to the city for a period of fifty years on a rental tentatively fixed at \$2,010,000 per annum—6 per cent on a valuation of \$33,500,000.

All Seattle Rides Again

Electric railway service in Seattle, Wash., has been restored to normal on the lines of the Puget Sound Traction, Light & Power Company, Seattle & Rainier Valley, and municipal system, following the cessation of the general strike called on Feb. 6. The return to work on Feb. 9 of the trainmen of the Puget Sound Traction Company was the beginning of the end of the general strike. Other unions rapidly fell in line and their members returned to their respective employments. In a statement to the general strike committee the members of the trainmen's union said that they had done what they set out to do, namely, assisted in showing the solidarity of labor. During the strike period, the only attempt at vandalism was made on the municipal railway. Some one familiar with the mechanism of the municipal cars tampered with the electrical machinery on the eight cars of the Lake Burien line, with the result that service was crippled for one day.

News Notes

Another Service-at-Cost Suggestion.

—A committee of the Board of Trade of Louisville, Ky., is inquiring into service-at-cost operation with a view to the possible application of this plan to the Louisville Railway.

M. O. Bills Appear in New Jersey.

—In brief sessions of the House and Senate of New Jersey on Feb. 17, nearly 100 measures were introduced. Among those offered were two by Assemblyman Gill authorizing public ownership of electric railways and also enabling cities to operate jitney lines.

Company Will Pave Streets.

—The policy of the old management of the Columbus Railway, Power & Light Company, Columbus, Ohio, has been reversed by the new officers and it will pay its part of the street paving expense, according to plans submitted recently by C. C. Slater, general manager.

Business Papers Urge Labor Conference.

—At a meeting of the New York Business Publishers' Association, held on Feb. 17, a resolution was adopted urging President Wilson to call "a national conference of representatives of labor, capital and government, to the end that industrial peace, so vital to our national welfare, may be speedily restored."

Fire Destroys Interurban Carhouse.

—Fire destroyed the main carhouse of the Chicago, South Bend & Northern Indiana Traction Company, South Bend, Ind., recently. Nine city cars were burned at a loss estimated at \$50,000. A car stalled on the track and pre-

vented the employees from running the others to safety. Local service in South Bend was temporarily crippled by the fire, but there was no interruption of the interurban schedule.

St. Louis Sets a Good Example.—The United Railways, St. Louis, Mo., has already reinstated about 130 men returned from service and is giving them seniority pay just as if they had not been away. The company carries a cardboard placard in the front of every car urging that jobs be found for soldiers and telling of the action it is taking. It is believed that this will result beneficially with the general public for men returning from service.

Would Negative Power of Commission.—A bill has been introduced into the Legislature of Illinois by Representative Lyon, to prohibit the Public Utilities Commission from revising or altering in any manner a contract between a municipality and a public utility corporation. The measure has been referred to the committee on public utilities. The effect of the bill, if passed, would be to restore home rule to Illinois cities in connection with the regulation of their utilities.

Mayor Favors City Bus Lines.—In a report recently filed by Mayor Fassett of Spokane, Wash., touching on the railway problem in Spokane, the Mayor suggests that the city enter the transportation business by buying 150 motor buses at a cost of \$900,000. Other necessary equipment would bring the total investment to \$1,500,000. This action is along lines indicated in the report of the commissioner of public utilities referred to on page 377 of this issue.

Wage Arbitration in Des Moines.

—Employees of the Des Moines (Ia.) City Railway, who are asking the company for a material wage increase, have announced that after referring the question to the international organization they will seek arbitration. At a conference with the men Emil G. Schmidt, president of the company, advised representatives of the union that any further increase at this time was out of the question. The present agreement between the company and the men expires in March.

Jury Assails Public Service Law.

—A declaration that the public service commission law of New York is inadequate was made by the November Grand Jury of Kings County. The declaration was made in a presentment handed up to County Judge Dike in Brooklyn a few days ago after an investigation of the railway situation in Brooklyn, undertaken as a result of the Malbone Street tunnel wreck last fall. The Grand Jury says a law is needed at once in order to obtain a public body which can, when it desires, compel service by public service corporations summarily and expeditiously, and enforce prompt compliance with its orders.

Seattle M. O. Contracts Signed.—Further steps toward the completion of the city of Seattle's purchase of the Puget Sound Traction, Light & Power

Company's railway system for \$15,000,000, were taken recently when the contract of delivery was signed by Mayor Ole Hanson and A. W. Leonard, president of the Traction Company. As soon as the State Supreme Court hands down a favorable decision on the legality of the purchase of utility bonds, the company is prepared to deliver to the city all properties and equipment designated in the purchase ordinance. The case has recently been argued.

Objections to Refunding Commission Expense.—The Citizens' Union of New York has started a taxpayers' suit in Brooklyn to enjoin the Board of Estimate from issuing long-term securities for \$4,500,000, to cover current expenses of the Public Service Commission. The charge is made that the issuance of the securities, as proposed, would be illegal and a waste of the city's property. Justice Lazansky granted a temporary stay. The suit is based on the recent action of the Board of Estimate in authorizing the issue of corporate stock. The proceeds are to be used to "refund" the expenses of the Public Service Commission, over several years, for supervising the building of new subways. These expenses have actually been met out of tax levies. It has been freely charged that the sole purpose of the proposed "refunding" is to keep the tax rate lower than it rightfully should be.

Putting on the Finishing Touches.

—New and probably final schedules showing when practically the entire dual system of rapid transit in New York City will be completed and in operation, have just been prepared by the Public Service Commission for the First District. The setting of approximately precise dates for the completion of the work was impossible until after the Board of Estimate had made the necessary appropriations. The commission believes that in the future no further attempt will be made to hold back money urgently needed for getting the other lines and branches in running condition. On the whole the returns indicate a very early date for the completion of most of the lines. Separately the dates mean little except to the New Yorker called upon to use the transportation facilities. The information about the dates is of general interest, however, as indicating the early completion of a \$300,000,000 undertaking.

Program of Meeting

National Lumber Convention

The National Lumber Manufacturers' Association headquarters officials are drawing up plans for the annual lumber congress to be held in Chicago, Ill., on April 14, 15 and 16. An elaborate program of speakers covering all angles of the industry has been announced. W. S. Culbertson of the tariff commission, a recognized authority on foreign tariffs, is expected to bring out facts highly interesting to those in attendance at the convention.

Financial and Corporate

Winnipeg Net Drops

Costs High in 1918—Non-Resident Directors Retire from Management of the Company

The gross income of the Winnipeg (Man.) Electric Railway for the calendar year 1918 showed an increase of \$249,713 over that of the previous year, but increased wages and operating expenses swelled the operating charges so that the net income decreased \$63,845. The income statement for 1918, as presented at the recent annual meeting on Feb. 12, is shown herewith.

INCOME STATEMENT OF WINNIPEG ELECTRIC RAILWAY FOR CALENDAR YEAR 1918	
Gross earnings from operations	\$3,588,723
Operating expenses—before charging depreciation	2,412,226
Net operating revenue	\$1,176,497
Miscellaneous income	44,931
Income available for fixed charges	\$1,221,428
Deductions:	
Interest	\$668,342
Debt discount	16,255
City percentage and car license	114,509
Taxes	114,928
Miscellaneous expenses	2,491
Other deductions	15,419
	931,644
Net income, excluding depreciation	\$369,784

Sir William Mackenzie, who had been president of the company since its inception, announced at the annual meeting that he intended to retire from the board, and that the other non-resident directors, Sir Donald Mann, D. B. Hanna and R. J. Mackenzie, were also retiring. The following directors were elected: Sir Augustus Nanton, A. V. McLimont, F. Morton Morse, George V. Hastings, J. D. McArthur, Hugh Sutherland, George W. Allan, W. R. Bawlf and W. J. Bulman. This places the direction of the company entirely in the hands of local men. At a subsequent meeting of the new board of directors Sir Augustus Nanton was elected president and A. W. McLimont, vice-president.

During 1918 the Winnipeg Electric Railway encountered great difficulties. The prevalence of the influenza epidemic was responsible for a large loss in revenue, and in May the company's motormen and conductors went out on a sympathetic strike with the city fire brigade, tying the service up for several days. Increased wages later awarded and increased cost of materials made a large addition to operating costs.

On the other hand, the jitney competition has been eliminated. Moreover, the Public Utilities Commission upon the application of the company made an order providing for a temporary increase of fares effective on Nov. 1, 1918. Application for a permanent increase of fares is now before the commission.

Unless further unforeseen adverse conditions have to be contended with, the outlook for 1919 is said to be much brighter and more hopeful than for a number of years past. With the return of peace business is gradually resuming its normal activity, and provision is being made by the management to take advantage of the increased business which is looked forward to.

Jersey Net Still Going Down

There was a reduction of 3,091,349, or an average of 99,721 a day, in the first-fare passengers (those paying 7 cents) carried on the Public Service Railway, Newark, N. J., last December as compared with December, 1917. A report filed with the State Board of Public Utility Commissioners also shows that the company's loss for the month was \$106,911, as compared with a loss of \$16,939 in a like period in the year 1917.

The reduction in first-fare passengers was less in December, 1918, than in either of the two preceding months of increased fare operation. In October, 1918, compared with the same month in 1917, the falling off totaled 5,173,902, or a daily average of 166,900. In November, 1918, compared with November, 1917, there was a total decrease of 4,563,796, making a daily average of 152,126. At 5 cents in December, 1917, the company carried 29,918,220 passengers, while last December, under the raised fare, the initial, or 7-cent, riders totaled 26,826,871.

CARRIED 33,121,601 IN DECEMBER

The company carried 33,121,601 passengers in December, 1918. Of this number, 26,953,375 are designated in the report as revenue passengers and 6,168,226 as transfer passengers. The total passenger revenue of \$1,937,920 was made up of \$1,877,881 from 7-cent fares and \$60,039 from revenue transfers.

The gross income for last December was \$333,122, while for December, 1917, it was \$395,258. The total revenue from transportation for December, 1918, was \$1,942,622, while for the preceding December it was \$1,500,407. The total operating income for December, 1918, was \$265,869, against a total operating income in the month of December, 1917, of \$355,381.

The cost of operation of cars for December, 1918, was \$724,615, while in December, 1917, it was \$580,715, the difference being mainly due to wages of trainmen, which increased from \$311,700 to \$446,690. The total operating expenses increased from \$945,322 in December, 1917, to \$1,606,148 in December, 1918. Total operating revenue deductions increased from \$1,192,276 to \$1,735,885.

Drastic Reorganization

Preferred and Common Stocks of Interurban Line Wiped Out—Old Bondholders Called Upon for Cash

A plan of reorganization has been announced for the Buffalo, Lockport & Rochester Railway, Rochester, N. Y., which defaulted in the payment of interest on its first mortgage bonds on Aug. 1, 1918. Reviewing earnings for six years, the committee which represents the bondholders says that, in view of needed improvements and difficulty of floating securities at present, the new company would not be justified in issuing any bonds. Both preferred and common stocks of the old company are excluded from participation in the plan. The securities to be provided for are: \$2,799,000 of first mortgage 5 per cent bonds; \$200,000 of second mortgage 6 per cent bonds, floated to pay interest for a period on the first mortgage bonds.

The new company will have the following capital liabilities:

	Author-ized	To be Issued
Six per cent cumulative preferred stock	\$1,500,000	\$1,499,500
Common stock	2,200,000	2,199,250

The preferred stock will be distributed in the ratio of 50 per cent of holdings of either first or second mortgage bonds. Holders of first mortgage bonds will receive 75 per cent of common, and holders of second mortgage bonds 50 per cent of common. The right of second mortgage bondholders to participate in the plan is made contingent on execution of an agreement whereby they individually undertake, in ratio to their holdings, to provide any cash needed to pay dissenting holders of first mortgage bonds whatever pro rata sums would be payable under the foreclosure sale.

It is provided that the committee may take any sum of cash in the company's treasury to meet its expenses and compensation.

Depositing bondholders under a formal deposit agreement had until Feb. 10 to withdraw their securities. Non-depositing bondholders who wished to participate in the plan had until Feb. 20 to deposit.

The Buffalo, Lockport & Rochester Railway was incorporated under New York laws in June, 1905. It is a consolidation of the Albion Electric Railway, the Albion & Lockport Railway and the Albion & Rochester Railway. The road from Rochester to Lockport, 54 miles, was completed in 1908. Entrance into Buffalo is secured over the lines of the International Railway. There were outstanding \$2,790,000 of first mortgage 5 per cent bonds and \$200,000 of second mortgage 6 per cent bonds. In addition there were outstanding \$1,500,000 of 6 per cent non-cumulative preferred stock and \$2,500,000 of common stock. Neither of these issues of stocks appears ever to have paid a dividend. The total of stocks and bonds outstanding per mile of line averaged \$120,520.

Dallas Falls Short

Falls by \$234,480 to Secure 7 Per Cent Return Allowed by New Franchise—Actual Return Only 3.97 Per Cent

The Dallas (Tex.) Railway, the consolidated street car lines under the Strickland-Hobson service-at-cost franchise, fell \$234,480 short of its permissible earnings during the first twelve months of operation. The loss can be attributed altogether to the operation of the jitneys in Dallas in competition with the street cars, as the months during which the jitneys were not in operation showed an average gain for the traction company, but when the jitneys were operating in full a heavy loss was suffered.

The net earnings for the first twelve months, which ended Sept. 30, 1918, amounted to \$307,637, a decrease of \$7,485 as compared with the earnings of the previous year. The 1918 result made a net return of 3.97 per cent or the agreed valuation of the property, although the company, under its franchise, was to be permitted to earn 7 per cent. The difference between the allowable earnings under the franchise and the actual earnings amounted to \$234,480.

The comparative income statement of the lines for the years ended Sept. 30, 1917 and 1918, is shown herewith.

COMPARATIVE INCOME STATEMENT OF DALLAS RAILWAY FOR YEARS ENDED SEPT. 30, 1917 AND 1918

	1918	1917	Change
Railway gross earnings.....	\$1,627,419	\$1,334,828	+ \$292,591
Operating expenses, plus appropriations to repair, maintenance and depreciation, reserve and accident reserve.....	1,367,568	1,072,319	+ 295,249
Railway net earnings.....	\$259,851	\$262,509	— \$2,658
Interurban terminal net earnings.....	46,147	42,727	+ 3,419
Non-operating income.....	1,639	9,886	— 8,247
Net earnings.....	\$307,637	\$315,122	— \$7,485

The appropriations to the repair, maintenance and depreciation reserve totaled \$176,840 or 10.86 per cent of the railway gross earnings. The franchise contemplates that the earnings should be sufficient to permit the transfer of 18 per cent of the railway gross earnings to the reserve account. The actual maintenance expenditures were \$186,269, or \$9,428 in excess of the amount accrued in the repair, maintenance and depreciation reserve, and it was necessary to provide for this excess through the operating expense account.

As one of the conditions precedent to the lowering of fares, the franchise provides that the balance accumulated in the repair, maintenance and depreciation reserve shall equal 6 per cent of the contemporaneous property value (which on the property value at present would amount to approximately \$480,000). Under present conditions, however, no balance is accumulated in this reserve account, as the accruals are not sufficient to meet the ordinary maintenance charges.

The appropriations to the accident reserve for the year (6 per cent of the

railway gross earnings, as provided in the franchise) amounted to \$97,645, and the expenditures therefrom were \$67,360, leaving a balance in this reserve of \$30,284 as to Sept. 30, 1918.

For the twelve months ended Sept. 30, 1918, railway gross earnings showed an increase of \$292,591 or 21.92 per cent over the preceding twelve months. Against this increase in gross earnings, there was an increase of 10.78 per cent in car mileage, so that the increase in earnings per car-mile was only 10.07 per cent, from 21.86 cents to 24.06 cents per car-mile. Operating expenses, plus appropriations to repair, maintenance and depreciation reserve and accident reserve increased \$295,249 or 27.53 per cent. This increase was due in part to the increase of approximately 11 per cent in car mileage, but more largely to several increases in wages granted to conductors, motormen and other employees during the year as well as the increased cost of power.

The net earnings from railway operations proper decreased \$2,658 (less than 1 per cent); interurban terminal net earnings increased \$3,419 (8.01 per cent), and non-operating income decreased \$8,247 (83.42 per cent). The total net earnings decreased \$7,485 (2.37 per cent).

The net earnings of \$307,637 for the last twelve months were insufficient by \$21,544 to meet the amount required for

Turn Thrift to Account

Plans Advocated for Wide Distribution of Public Utility and Other Investment Securities

Those in control of the management and operation of public utility companies will be interested in an article which appears in *The Analyst*, New York, for Jan. 20, entitled "Public Utility Control Through Thrift Dollars." The writer points out some new field that might be open to investment savers when Liberty Loan issues shall have ceased through the offering of stocks and bonds in denominations to meet the purse of the small buyer. He reviews the theory and practice of corporation stock and bond issues, tells how the Harris Trust & Savings Bank, Chicago, established a savings system which, for want of a better name, is called the "pass-book system," whereby a bond could be paid for in installments, and refers to some of the successful flotations of public utility issues by such companies direct to their patrons.

O. B. Wilcox, of Bonbright & Company, New York, who has given a great deal of study to public utility securities, is quoted as strongly advocating the production of fractional units in corporation securities both to supply the demand created by war loans and to aid utility companies in obtaining a just measure of political recognition through the wide dissemination of the companies' capital. While admitting the mechanical difficulties of distribution and the relatively small profit existing on the individual transaction and the impossibility of using high-priced salesmen in connection with this type of business, Mr. Wilcox is of the opinion that a continued campaign of education will bring these buyers voluntarily to the doors of the dealer.

Discussing means for enlarging the field of investment opportunity, in order to encourage the growth of the spirit of saving born of the exigencies of the war, Travis H. Whitney, chairman of the Public Service Commission for the First District of New York, and Commissioner F. J. H. Kracke, in *The Analyst* of Jan. 27, considered with favor the suggestion that municipal and public utilities securities be issued in such denominations, or in such manner, as to suit the purses of the army of small investors that is learning the new lesson of thrift.

In the issue of the same paper for Feb. 3, Theodore P. Shonts, president of the Interborough Rapid Transit Company, New York, entered the discussion. He is fully in accord with the views of Messrs. Whitney and Kracke as to the importance of a channel for thrift investment. He declares, however, that the most important channel in New York—public utilities—is practically closed by the attitude of the local authorities, and until, as he contends, the safety of the investment is assured, no lesser problem is of importance.

the payment of the fixed charges of the company (interest on notes and bonds and rental paid Northern Texas Traction Company for the use of the Oak Cliff leased lines).

The following statement shows the earnings and expenses by quarters. The competition from jitneys was eliminated on July 1, 1918, and the figures for the last quarter show the results for a period practically free from such competition.

EARNINGS OF DALLAS RAILWAY BY QUARTERS

Quarter Ended—	Railway Gross Earnings	Operating Expenses and Appropriations	Railway Net Earnings
Dec. 31, 1917.....	\$375,956	\$303,493	\$72,462
Mar. 31, 1918.....	370,718	325,579	45,138
June 30, 1918.....	389,399	338,404	50,995
Sept. 30, 1918.....	491,545	400,090	91,254

For the first three months following the elimination of the jitneys, the total net earnings available for the payment of the authorized return were at the rate of 5.22 per cent per annum on the property value, being still somewhat short of the 7 per cent allowable return.

Philadelphia Rapid Transit Must Pay

The Philadelphia (Pa.) Rapid Transit Company must pay the income and excess war-profit taxes levied by the government on ten of its underlying companies. A decision to this effect was rendered on Feb. 17 by Chief Justice Brown in the State Supreme Court. The ruling affirms the decision of the Common Pleas Court. The amount involved is upward of \$360,000.

When the controversy arose thirteen suits were started against the Philadelphia Rapid Transit Company by the subsidiary companies to recover the tax. The legal fight centered around the clauses in the leases under which the transit company took over the roads. It was contended these covenants expressly stated the transit company must pay all taxes being levied, or hereafter to be levied.

Ellis Ames Ballard, chief counsel for the transit company, and ex-Judge Beidler, argued that when the leases were made it was never contemplated extraordinary obligations, as war taxes, would crop up. The court, however, construed leases in ten cases as binding upon the transit company to pay the taxes. In three other companies the leases were different and the court found in favor of the transit company. About \$11,000 was involved in these cases. Justice Brown in his opinion says in part:

In the case at bar, the income tax is laid upon net income and the so-called war excess-profit tax is laid upon income received during the calendar year, preceding the time when the tax is assessed. So far as the covenant under consideration is concerned, we think it amply sufficient to cover both the income tax and the excess-profit tax in view of the fact that any taxes assessed upon the earnings or profits of the plaintiff were to be paid by the defendant. The plaintiffs having turned over all of their property to the defendant, the only earnings or profit they can receive are from the leases, and whether the tax be imposed upon income, net or gross, it is in fact imposed upon the rental. Earnings and profits under the circumstances must be regarded as was the yearly rent in the North Penn case.

Receiver Reports on Montgomery Property

Ray Rushton, as receiver for the Montgomery Light & Traction Company, Montgomery, Ala., has filed in the United States District Court in Montgomery a statement of the indebtedness of the company showing obligations amounting to \$1,794,158. Of this amount \$1,430,000 is represented by bonds and \$171,000 by notes secured by mortgages, and \$193,158 is owed on open accounts.

In his report Mr. Rushton states that the property of the company, particularly the railway, is in need of repairs and betterments, which are absolutely necessary to enable the property to be operated with anything like reasonable efficiency, and that a supply of materials necessary to put the cars in operating condition will be needed, costing altogether approximately \$10,000.

In addition to these items money is needed to pay licenses and taxes so as

to protect the property. In order to meet these demands he petitions the court for authority to borrow money from time to time as it may be needed, issuing notes or certificates as a lien on the net income of the properties of the company and upon the properties themselves.

Unsecured accounts owed by the company are given as follows: State and county taxes \$12,584; taxes and license for 1916, 1917 and 1918 paid by the Commercial Trust & Savings Bank, New Orleans, \$44,800; Montgomery city taxes and license for 1918 \$6,000; unsecured notes \$83,000; open accounts \$32,300; personal injury and property damage suit judgments, \$14,474.

A Plea for One Committee

A committee of which Thomas E. Gates is chairman and J. C. Wallace secretary, has addressed all holders of bonds issued by corporations included in the Pittsburgh (Pa.) Railways System, urging that the holders of all bonds in the system have a common interest to protect and stating that this can be most effectively done by one protective committee representing all bondholders. The committee says in part:

The undersigned committee was formed in January, 1918, for the protection of holders of bonds of the various corporations included in the Pittsburgh Railways System, almost immediately after defaults had been permitted to occur in the payment of interest due on Jan. 1, 1918, on fifteen of these issues.

At that time deposits were invited only of bonds of such issues as had been defaulted on Jan. 1, 1918, and several million dollars of these bonds were deposited with the committee.

On Feb. 14, 1918, a test suit in equity was instituted by one of the committee's depositing United Traction Company bondholders, to compel the Philadelphia Company to recognize liability for the principal and interest of all bonds issued by subsidiaries in the street railways system. On Feb. 14, 1918, a test suit in equity was instituted by one of the committee's depositing United Traction Company bondholders, to compel the Philadelphia Company to recognize liability for the principal and interest of all bonds issued by subsidiaries in the street railways system. On Feb. 14, 1918, a test suit in equity was instituted by one of the committee's depositing United Traction Company bondholders, to compel the Philadelphia Company to recognize liability for the principal and interest of all bonds issued by subsidiaries in the street railways system.

Under these circumstances, the undersigned committee believes that the holders of all bonds in the system have common interests to protect, and that this can be most effectively done by one protective committee representing all bondholders.

They believe that if the Pittsburgh Railways System is permitted to be reorganized under a proper constitution of agreement given to the liability of the Philadelphia Company for the payment of its debts, or if divergent action by the owners of the underlying securities should result in a disintegration of the system, there is grave danger that the holders of bonds on the various systems will not on the whole get out of their interest from time to time, for shorter or longer periods, but that a large portion of the volume of the principal invested in these bonds may be jeopardized.

They accordingly call on all bondholders, whether defaults in their bonds have actually occurred or not, to deposit all bonds with one or the other of their depositories. An agreement of the depositing committee has been drawn providing that deposited bonds upon which interest shall have been paid when due may be withdrawn only to the occurrence of default without expense to the depositor.

The deposit agreement already contains provision for protecting the interests of any class of bondholders whose interest may at any time become adverse to the interest of any other class.

Financial News Notes

Note Issue Authorized.—The Chicago (Ill.) City Railway has been authorized by the Illinois Public Utility Commission to issue \$1,700,000 of promissory notes.

Stock Issue Authorized.—The Jacksonville Railway & Light Company, Jacksonville, Ill., has been authorized to issue \$123,000 of additional preferred capital stock.

Small Block of Bonds to Be Sold.—The Ohio Public Utilities Commission has authorized the Cleveland, Southwestern & Columbus Railway, Cleveland, Ohio, to sell an issue of \$32,000 of bonds at 85 per cent of par or to pledge them for a loan at 65 per cent. The proceeds are to be used in making improvements.

St. Louis Directors Re-elected.—At the annual meeting of the stockholders of the United Railways, St. Louis, Mo., on Feb. 11 the former directors were re-elected. The directors later organized by re-electing all the former officers and creating a new office, that of second vice-president, to which post Murray Carleton, formerly vice-president, was elected.

Went Service Restored.—Citizens of Conway and Ashfield were heard recently by the Massachusetts Public Service Commission on their petition for restoration of service on the Conway Electric Street Railway, controlled by the Boston & Maine Railroad. The commission reserved decision. The company has offered to sell the property to the towns concerned for its value as junk.

Receiver Wants to Discontinue Lines.—James H. Hustis, who is receiver of the Boston & Maine Railroad, has filed with the Public Service Commission a petition for authority to discontinue permanently the so-called North Hampton branch and to discontinue temporarily the so-called North Beach branch of the Portsmouth Electric Railway. The commission set Feb. 17 as the date for a hearing.

Yonkers Abandonment Hearings Continue.—Chairman Hill and Commissioner Fennell of the Public Service Commission for the Second District, at Yonkers on Feb. 14 gave hearings upon the proceedings to abandon part of the line of the Yonkers Railroad, the New York, Westchester & Connecticut Traction Company, and the Westchester Electric Railroad, and upon the complaint over service by the railroad between Tuckahoe and New Rochelle. The case has not yet been closed.

Successor to St. Joseph Valley Organizing.—The Indiana Public Service Commission has authorized the La

Grange, Toledo & Eastern Railway to issue \$55,000 of common stock at par and \$35,000 of bonds at par to finance the rehabilitation of that part of the defunct St. Joseph Valley Railway between La Grange and Mongo. This part of the old road connects at La Grange with a division of the Pennsylvania lines and will afford an outlet to the business which otherwise would have been shut off from railroad communication if the old St. Joseph Valley Railway had been junked.

Offer Montreal Tramway Bonds.—The Montreal Tramways & Power Company, Ltd., Montreal, Que., has sold an issue of \$7,300,000 five-year 6½ per cent gold bonds, due 1924, which are being offered by the Crédit Canadien in Montreal at par and interest. Subscriptions to the issue are being asked in New York by A. Hicks Lawrence, at the same price, and the firm is inviting a limited exchange of the Montreal Tramways & Power Company 6 per cent notes, due April 1, to net holders a premium of approximately 1½ per cent.

\$1,428,062 Award to B. R. T.—Judge Mayer has made an order authorizing Lindley M. Garrison, receiver of the Brooklyn (N. Y.) Rapid Transit Company, to accept the award of the board of appraisers of the War Department, on Jan. 20 last, of \$1,428,062, for certain dock property in the vicinity of Sixty-third, Sixty-fourth and Sixty-fifth Streets, South Brooklyn, owned by the New York Consolidated Railroad. Out of this money, \$659,000 is to be applied to the payment of principal and interest of bonds of the Sea Beach Railway, dated Sept. 1, 1896, all of which are owned by the Brooklyn Rapid Transit Company.

Receiver Dispelling the Gloom.—The Chicago, Aurora & DeKalb Railroad, Aurora, Ill., reports an exceptionally satisfactory business for the month of January. Out of one station, Kaneville, the company transported 100 cars of livestock and grain. The net earnings of the road during the year 1918 under the management of Receiver Gunsul showed a net increase of 38 per cent. Passenger traffic has also been increasing. The company is hauling daily each way carload and less than carload freight, and during the month of January two express cars were operated. Special passenger cars are also operated occasionally.

Protest Against Abandonment.—About fifty residents of Melville, Long Island, have filed with the Public Service Commission for the Second District, a protest against threatened discontinuance of electric railway service by the Huntington Railroad. The trolley lines make connection with the main lines of the Long Island Railroad, and the complainants protest against the proposed discontinuance on the ground that it would entail direct and substantial loss to property and compel residents to move elsewhere and would make it impossible for them to travel to their places of business.

Refuses Transfer of Receivership Case.—In the receivership case brought against the Columbus Railway, Power & Light Company, Columbus, Ohio, Attorney F. S. Monnett has filed with the Franklin County Clerk of Courts depositions tending to show that the Tennessee Power Company, controlled by the E. W. Clark interests, which also formerly operated the Columbus property, made a large profit on the transfer of a turbo-generator to the Columbus company. An attempt was made to have the receivership case transferred from the Common Pleas Court to the United States District Court, but Judge Kinkead instructed the Clerk of Courts to refuse to deliver the records to any one, no matter what the pretext.

Receiver Asks Directions.—The petition of Receiver Frank H. Swan of the Rhode Island Company, Providence, R. I., for authority to pay back-wages amounting to \$72,000 to the employees of the company, has not yet been heard by the Superior Court, but it is probable that it will come up within a few days. After the court passes on the petition Mr. Swan will probably find it necessary to petition the court again shortly, as a payment of \$180,000, representing rental of leased lines due the United Traction & Electric Company, becomes due on Feb. 24. At present there is a balance of \$47,500 due the latter company on account of rentals due on Dec. 24, last, a compromise having been effected whereby the Rhode Island Company made its payments in installments.

Cities Must Buy or Road Will Suspend.—That the towns through which the Norton & Taunton Street Railway, Norton, Mass., operating 21 miles of line between Norton, Attleboro, Mansfield and Taunton, passes must purchase the road or it will be junked, was the statement made recently in Attleboro. The fare was increased to 6 cents in 1917 and to 7 cents in 1918, but the revenue does not show the gain needed to make a return on the investment. Attleboro, which already owns and operates a 3-mile railway to Briggs' Corner, will be asked to buy the Norton, Taunton and Attleboro line to Chartley. Norton has a line from Chartley to the Taunton line and from Norton Center to Mansfield, which it will be asked to buy. Five miles of the railway are within the limits of Taunton and the rest is in Mansfield territory.

Spokane Merger Again Considered.—According to D. L. Huntington, president of the Washington Water Power Company, Spokane, Wash., there is a distinct probability of an early combination of the systems of the Washington Water Power Company and the Spokane Traction Company. The plan which has received most favorable consideration, according to Mr. Huntington, is for both companies to deed their property to a third company, taking in exchange stock in the new corporation. F. S. Conners, receiver of the Spokane

& Inland Empire System, which includes the traction company, says the plan of consolidation will likely go through if the Legislature, now in session, passes a law allowing electric railways to charge more than 5 cents for fare. The merger has been under consideration for three years. Last May it was reported to be nearer a successful conclusion than at any previous time.

Indianapolis & Cincinnati Adversely Affected.—The financial statement of the Indianapolis & Cincinnati Traction Company, Indianapolis, Ind., for the year ended Dec. 31, 1918, shows a gross income of \$532,143, operating expenses of \$389,517, net operating earnings of \$142,625 and net income of \$136,673. Interest of \$60,000 on outstanding bonds due Jan. 1, 1919, was not paid, certificates of indebtedness due two years thereafter and bearing 6 per cent interest being issued in lieu of same. Dividends of \$15,000 due Oct. 1, 1918, were not paid, certificates of indebtedness due two years after the close of the war being issued. Claude Cambern, secretary, says that the company was adversely affected by war conditions and that the expected decrease in costs of labor and materials since the signing of the armistice has not materialized. The prospect for the extension to Cincinnati, upon which the final success of the property depends, is said to be uncertain and indefinite until the cost of construction reaches a more nearly normal level.

Abandonment Authorized.—The Los Angeles & San Diego Beach Railway has been authorized by the California Railroad Commission to discontinue its railway service, public hearings held in the matter having shown that for more than five years past the receipts from operation have been insufficient to pay operating expenses or interest. The hearings developed that the smallest deficit sustained in any of the five years covered by the hearings was \$9,605, and that an approximate deficit for the entire five-year period was \$69,112. Abandonment of the service was opposed by the Chamber of Commerce of La Jolla, the Chamber of Commerce of San Diego, the city of San Diego, the Citizens' Club of Pacific Beach and the San Diego Beach Company, none of which, however, was able to advance an alternative proposition. In rendering its decision, the commission held that that part of the petition referring to dismantling the road and the restoration of streets upon which the company's rails have been laid, is not within the jurisdiction of the commission. Of the 20,000 shares of stock, the company was authorized to issue 5460 at \$100 a share, which have been fully paid up, and 10 per cent has been paid on 1650 shares of common stock, there being no preferred stock issued. There is outstanding a bond issue of \$375,000, maturing on Jan. 2, 1950. The company owes E. S. Babcock \$109,209 and has outstanding notes totaling \$83,261.

Traffic and Transportation

Voluntary Tax Succeeding

Convinced of Justice of Fare Appeal
1500 Patrons Agree to Pay
Seven Cents

The movement for the payment of a 7-cent fare by the patrons of the New York & North Shore Traction Company, Roslyn, Long Island, is progressing satisfactorily. According to estimates made a few days ago more than 1500 persons have voluntarily agreed to pay the extra 2 cents.

MOVEMENT A VOLUNTARY ONE

The League of Voluntary Seven-Cent Fare Payers, which is behind the movement, is continuing its campaign actively in behalf of the company through posters in the cars, direct personal appeals and through public meetings. That the residents of the district through which the company operates are whole heartedly behind the movement is shown by the diversity of the interests included among the officers and directors of the league. The chairman, Elmer G. Story, is president of the Bay Side National Bank; the vice-chairman, Mrs. J. K. Robinson, is head of the Women's Welfare League of the L. W. F. aeroplane factory in College Point; the secretary, Mrs. Elizabeth Gross, is society editor of the *Flushing Journal*. Among the other directors are the assistant district attorney of Queens County, a prominent real estate man, the chairman of the transit committee of the United Flushing Association, a retired bank president, a New York attorney who is attorney for the Douglastron Civic Association, and a Flushing business man who represents the Flushing Business Men's Association.

Since the active campaign was started in its behalf the railway has submitted to the Board of Estimate & Apportionment of New York another petition in which it suggests a new fare plan to the city.

CASE ESTABLISHED BEFORE COMMISSION

The first appeal by the railway to the city was dated June 22, 1918. Its request then was for a 7-cent fare on its lines within the limits of New York City. The proposition now made is for the sale of the lines to the city or for their lease to the city under an agreement which in short would guarantee a return of 6 per cent on the fair value of the investment. The Board of Estimate has referred this petition to its franchise committee.

In presenting this offer the company points out that the facts justifying the charge of a 7-cent fare have been fully established before the Public Service

Commission after a critical and exhaustive examination.

So far so good. At this point enters discord. He makes his appearance in the shape of Corporation Counsel William P. Burr. Mr. Burr is not satisfied that everything is as it should be. At least the papers make him appear in this light. "After a cursory investigation," Mr. Burr is "firmly convinced the company is illegally collecting 2 cents from those who pay 7 cents." He evidently intends to protect the people against themselves, for, says he, "if I find that the company has used coercion I shall take the necessary steps to meet the situation."

Hearing on Overcrowding Shows Need for More Equipment

The purchase of a large amount of new equipment for the Boston Elevated Railway was forecasted by Samuel L. Powers, one of the five trustees, at a hearing before the electric railway committee of the Legislature on Jan. 30. The discussion centered in a bill which aims to prevent overcrowding of cars by limiting straphangers to "five passengers above the actual seating capacity of each car."

Advocates of the increase contended that overcrowded cars were responsible for the spread of contagious diseases, and that such congestion could be obviated by running more cars.

Dr. W. C. Woodward, head of the Boston Department of Health, stated that the 300 employees of the department have been reporting to the office on the sanitary condition of cars, numbers of passengers standing and numbers of vacant seats. Reports of several months ago showed unsatisfactory conditions, but current reports indicate marked improvement.

H. W. Barnum, general counsel for the trustees, said the net result of the bill would be to penalize the corporation. If the public requires improved facilities, such as new cars, the State must authorize the expenditure of more capital.

Mr. Powers stated that the road expected to receive, early in April, the first installment of 250 new cars ordered last July, and all by midsummer. He hoped for the assumption by the State of the burden of carrying the cost of the Cambridge Subway, by which about \$9,000,000 would be released for use in rehabilitating equipment. In referring to the subject of care of cars and ventilation, Mr. Powers said that while cars are washed thoroughly every two weeks, it is proposed to make a daily cleansing as soon as possible, and that it is likely that all cars will eventually be equipped with blowers of the type installed on the Chicago traction system.

A Helpful Suggestion

Illinois Commission Points Out Wherein
the Utilities Can Work to Better
Their Public Relations

As a result of the experience of the Public Service Commission of Illinois extending over a period of five years in meeting various problems involving the relations of public utilities with the public, the commission has become very strongly impressed with the large influence which the quality of service rendered and the methods of handling complaints exert upon the character of this relationship with the public. In consequence the commission wrote a letter on Feb. 1 to all the utilities of the State except the steam railroads which reads in part as follows:

During the recent times of stress, with the attendant scarcity of labor, there has been a tendency on the part of utilities to decrease the standard of service rendered, possibly with a view to more economical operation and possibly because of inability adequately to supervise the work of strange employees necessarily employed. In so far as such a policy may have been intended, we believe that it is most unwise and that instead of operating to reduce the utility of its burdens, it will greatly increase them. We have seen this proved repeatedly during the past year.

A POINT OF CONTACT OFTEN NEGLECTED

Through the handling of complaints most utilities find their only opportunity of meeting the consumer. It is, therefore, unfortunate, because the utility gains its impression of its consumers through these complaints, that instead of presenting, at times when the consumer is aggravated, and, on the other hand, the consumer gains his impression of the utility through the methods by which the complaint is handled.

With the utility, the handling of complaints is a routine transaction which concurs with regularity, and the employees engaged upon this phase of the work come to regard the complaint merely as a part of the company's routine which is capable of being handled by routine methods, in much the same manner that material is passed through the stock room. With the consumer, however, a complaint is not a routine matter, but represents to him a real grievance. In other words, utilities are apt to regard a complaint as lacking individuality, while from the consumer's standpoint each complaint has a very distinct individuality and stands out in his mind as a particular situation which merits individual attention.

We have been frequently impressed with the fact that if a utility is willing to accord to each complaint an individuality and give it a just investigation, both from the consumer's and the utility's viewpoint, the complaint is well satisfied and, as a result of his contact with the company, has an appreciation of its human characteristics and a regard for its sincerity of purpose. A routine reply to some classes of complaints may be satisfactory, but its routine nature will usually impress the complainant unfavorably.

A BROADMINDED POLICY ESSENTIAL

The problem as to the future of public utilities is one which occupies considerable attention in the public mind to-day and is one which has a certain bearing upon the utility and to the public. We believe that much of the criticism directed against utilities and, which, in a certain measure, reacts against the utility regulatory bodies charged with their supervision, might be relieved by a broadminded policy of handling complaints in which each case is treated as an opportunity for acquaintanceship with the consumer and each complaint is impartially investigated.

I hope that you, as the responsible executive of a utility, will give the subject matter of this letter careful consideration. It is presented as a helpful suggestion regarding a vital matter and with the further idea that in many cases the operating heads of utilities may be of the opinion that it is to get out of touch with working details, some of which have a very important bearing upon the development of this complicated situation.

Rehearing Denied

Commission Will Not Reopen Case Which Resulted in Increased Fares in Indianapolis

The Public Service Commission of Indiana, on Feb. 12 issued an order denying a petition filed by Woodburn Masson for the West Side Improvement Organization and for Edward P. Barry, in which the petitioners asked that the commission grant them a rehearing in the case of the Indianapolis Traction & Terminal Company which resulted in higher fares in Indianapolis.

With the denial of the petition appeared the possibility that a complaint may be filed in one of the local county courts, which will ask that the original order of the commission be set aside, and that the railway be enjoined from collecting any other than the franchise fares.

Mr. Masson said that it "might be some time yet" before the suit is filed. He said, however, that the petition for rehearing was filed as a formality to get the case into the courts and to test the authority of the commission to change the terms of a contract entered into between the city and the railway when the city had a specific grant of power from the Legislature to make the contract according to fixed specifications.

It was explained also that the case will be carried to the Supreme Court of the United States in an effort to knock out the 5-cent fare. The petitioners assert that the 5-cent fare is unreasonable under the circumstances and is charged because of alleged mismanagement of both capital and operating affairs of the railway. The attorneys for the railway state that there could be no possibility of taking the matter into the federal courts as the situation is purely a local one, and there is no federal question involved.

Bridgeport Acts While Hartford Buzzes

Bridgeport, Conn., is a buzz-saw city. Its peripheral speed is tremendous. It cuts clean and true. It is an old city with new ideas, new hopes and new aspirations. That it is in a large measure a war-boom city is nothing against it. In fact, the influx to it has taught it how to absorb, digest and get the most out of the new elements that have been injected into its life. If Bridgeport had been afraid of an idea it never could have scored the industrial triumph which has made it a source of wonder to those who are given to dealing with figures that spell finished product. That Bridgeport does not shy at a new idea is illustrated by its quick and hearty reception of the one-man car and by its bid for more of these vehicles. Thus the Bridgeport *Standard-Herald* of Feb. 15 said:

Hartford is grouching a bit at the prospect of getting some "Toonerville trolleys"—as they call the Birney safety car—and is wondering whether they really ought to be permitted.

Bridgeport should put in a quick bid to

the Connecticut Company. All the Birney cars that Hartford does not want, Bridgeport will take.

These trolleys are the logical development of the traction business. They represent a sane and sensible departure from the conventional and cumbersome "Jumbos."

They take about one-third the power of the big trolley under way faster, are easier of control, safer of operation, cover their runs in quicker time and furnish better accommodation to the public. What more is wanted of a trolley car?

The Birney cars in operation in Bridgeport are giving every satisfaction. They furnish a safe and sure trip fast enough to maintain a five-minute headway, doing away with the necessity of long waits on street corners.

If they can help the Connecticut Company out of its financial difficulties and afford the happy means of giving good service while affording a sufficient revenue for operation at a fair profit, the public will rise up and call them blessed.

Mr. Fox's cartoons are not far out of the way. A return to the Toonerville trolley with its lone "skipper" is apparently the solution of our traction troubles.

Dallas Jitneys Ruled Out

The anti-jitney ordinance enacted by the city of Dallas, Tex., designed to stop jitney operation, has been upheld by the Court of Civil Appeals for the Fifth Supreme Judicial District of Texas, sitting at Dallas. The decision came in the refusal of the court to grant an injunction on petition of the Dallas Jitney Drivers' Association to restrain the city of Dallas from taking action to enforce the city ordinance on the ground that the ordinance was violative of the State Constitution.

The ordinance in question sought to eliminate the jitney from the business district of Dallas by prohibiting jitneys from operating within a prescribed zone. Since the passengers were gathered and discharged mainly in the business district, the measure effectively put them out of business.

In denying the injunction the court held that under its police power the city has authority to enact any ordinance designed to protect the lives of its citizens, or their property or rights, and that the ordinance prohibiting the operation of jitneys on the business streets of the city was a measure designed to protect the city by eliminating congestion.

As to the claim of the jitneys that the ordinance was discriminatory in that it favored the railway, the court denied such discrimination. It held that the railway was compelled to take measures to insure the safety of passengers and pedestrians; that the railway could be held liable for any damage done, but that jitneys could not be so held.

In Woman's Interest

A bill to protect women conductors in New York is now before the Legislature at Albany. It is backed by the Women's Joint Legislative Conference. The bill limits the hours of women workers to nine consecutive hours a day, and thus eliminates the "swing" between runs; provides that they be paid from the time they report for duty; for one day's rest in seven; eliminates work after 10 o'clock p.m.; makes suitable toilet facilities compulsory, and prohibits the employment of either male or female minors.

Battling for Its Life

Trolley and Auto Stage a Fight to a Finish in Small Connecticut Community

The Danbury & Bethel Street Railway, Danbury, Conn., now in the hands of J. Moss Ives as receiver, is battling for its life. Its antagonist is the automobile. There is no effort on the part of the railway to hide its fears. In fact, through public notices and by appeal direct to such patrons as still remain to it the company says frankly that the community will have to choose between the two forms of transportation. Already the company has been compelled to abandon the Bridgeport to Long Hill line on account of unfair jitney competition. Other branches will have to go if conditions do not improve. The appeals which are posted in the cars call attention to the fact that the company pays taxes, keeps up part of the pavements, keeps the track clear of snow and ice in the winter, runs cars on schedule time whether or not they have passengers, and pays the seventy odd employees more than \$1,300 a week in wages. Each of the three appeals which have been posted asks the public to choose between the jitney and the trolley, and reminds the reader that the public cannot have both.

The same hostility to the electric railway that has manifested itself in so many other instances seems to be present here in exaggerated form. A combination of conditions that lead up to a receivership do not make for amiable public relations, and in this case the tendency persists to carry over and inflict punishment on the receiver for sins fancied and real of the managements of the past. In other quarters there is an air of total indifference. As the matter now stands things seem to be half jitney, half trolley. If the jitneys are forced to go there appears to be doubt about the trolley, despite its appeal for confidence. On the other hand if the trolley is forced to go there appears to be hope that a permanent, reliable motor bus system will then result.

B. R. T. Looking Up

Improvement in the service on the Brooklyn (N. Y.) Rapid Transit Company lines, also in the number and character of employees, is indicated in a statement issued by Lindley M. Garrison, receiver for the company. The statement is based on a comparison of reports of the various departments from November, 1918, to the end of January, 1919. The report says:

The number of employees on rapid transit lines has increased from 3550 in November to 3853 at the end of last month. In the same time cars available for service on these lines have increased from 1221 to 1318. In January there were 47,410 trips made on subway and elevated lines, an increase of 48,769 trips over the November showing. The mileage record for January was 4,165,216, an increase of 395,255 miles over the record for November. On the surface lines the number of round trips increased by 50,000 last month over those operated in November.

Women shop employees are being replaced by men, discharged soldiers be-

ing given the preference. Thirty of the 157 women in the shops in November have resigned. The report states that the additions to the different operating forces have improved greatly the morale of all the workers. In spite of the fact that 825 men left the service of the surface transportation department either by resignation or discharge there has been a net gain of 457 employees. In the elevated and subway transportation departments there was a net gain of 114 men, although 425 men left the service.

Transportation News Notes

Six Cents for Valdosta.—The Valdosta (Ga.) Street Railway was recently authorized by the Railroad Commission of Georgia to increase fares from 5 cents to 6 cents, effective immediately.

Skip Stop Abolished.—The skip-stop system of operation on the lines of the Indianapolis Traction & Terminal Company in the city of Indianapolis was abolished on Feb. 9, following an order of the Board of Public Works.

One-Man Cars for Greenville.—E. F. Taylor, vice-president of the Southern Public Utilities Company, Charlotte, N. C., has announced that two one-man cars will be placed in operation on the lines of the company in Greenville, S. C., as an experiment.

Zone Fares Made Seven Cents.—The Public Service Commission of New Hampshire recently ordered public notice of an increase in fares from 6 cents to 7 cents per fare zone, with no changes in the fare limits filed by the Portsmouth Electric Railway, to become effective on Feb. 23.

Six-Cent Fare at Lima.—The City Council of Lima, Ohio, recently voted to grant the Ohio Electric Railway a 6-cent fare for its local service in that city, effective from Feb. 10. The city agreed several months ago to make the increase on the condition that the company would increase the wages of the men. Nine tickets will be sold for 50 cents.

Six-Cent Fare Bill in New York.—Assemblyman Louis M. Martin, chairman of the Assembly judiciary committee, has introduced a bill which makes possible a 6-cent fare on the surface, elevated and subway lines in the city of New York. The bill empowers the Public Service Commission to authorize fare increases regardless of franchise rate limitations.

New Worcester Tariff Suspended.—The Public Service Commission of Massachusetts has ordered the Worcester Consolidated Street Railway to suspend until March 9 at least, the putting into operation of the 7-cent fare in Wor-

cester and county towns served by the company. Hearings are now in progress in regard to the need for the company to charge 7 cents.

A Six-Mile Road Wants More.—The Albany (Ga.) Transit Company, which operates 6 miles of line, has asked the Railroad Commission of Georgia for permission to increase its fares from 5 cents to 10 cents. The deficit of the company last year was \$4,000. The president and the secretary of the company draw \$25 each per month and the total office expense is only \$137 a month. The road is owned locally.

Would Speed Up Dayton Cars.—An ordinance is before the City Commission of Dayton, Ohio, which provides for increasing the speed of electric railway cars in the business district from 10 m.p.h. to 20 m.p.h. and in the outskirts to 25 m.p.h. It also enumerates the stops to be made on the routes. Instead of a straight skip-stop plan, the ordinance seeks to stagger the stops by placing them where they will be needed most.

One-Man Cars for Brooklyn.—The Brooklyn (N. Y.) Rapid Transit Company has four one-man cars at its shops at Fifty-second Street which it is planning to put into operation as an experiment on the Nassau Avenue line in the Greenpoint section of the city. This is a short feeder line, which extends from Manhattan Avenue to Newton Creek. These four cars are the first of a shipment of twelve one-man cars which the company expects to try out on its lines.

New Mail Service for I. T. S.—Negotiations are said to be under way between the officials of the Illinois Traction System, Peoria, Ill., and the United States postal authorities with a view of making mail trains out of the two night runs between Peoria and St. Louis through Springfield. If the agreement is reached it means that the Illinois Traction System will have three-car trains, consisting of mail car, coach and sleeper, running in each direction between Peoria and St. Louis.

Reduced Fare Denied to School Children.—A petition for a fare of 2½ cents for school children in the city of Boston has been refused by the trustees of the Boston (Mass.) Elevated Railway. The trustees state the action was taken because the cost of transporting the school children of Boston would not alone be assessed upon the taxpayers of that city, but also upon the taxpayers of other cities and towns served by the elevated system, which is now operated under guarantees from the State.

Fares Increased in Temple.—The Temple (Tex.) Traction Company, the Temple-Belton Interurban Company and the Belton (Tex.) Traction Company, all owned jointly, increased fares on Feb. 1. The local fares in Belton and Temple were increased from 5 cents to 7 cents with four rides for a quarter, and the interurban fare between Temple and Belton was increased from 25 cents to 35 cents. So far there

has been no complaint and no effort on the part of patrons to enjoin such increases.

Question of Fare at Massillon.—Members of the Council at Massillon, Ohio, are not all agreed as to what should be done with the request of the Northern Ohio Traction & Light Company for 7-cent fare on the city lines. Some of them are inclined to agree with the company, if it will make certain improvements suggested, while others contend that 6 cents will be sufficient to cover the increased expense of operation.

Old Fares Restored for Columbus Suburbs.—It has been announced by President Charles L. Kurtz that the 5 cents added to the fares of passengers for Linden, Camp Chase and Beckley by the old management of the Columbus Railway, Power & Light Company, Columbus, Ohio, have been eliminated, after a careful investigation of passengers from those points, made by C. C. Slater, general manager. These points will be effected by any general legislation in regard to increased rates of fare that may be enacted.

Would Compel Company to Re-establish Tickets.—Samuel L. Seeman, an insurance man of Des Moines, Ia., has applied to the Federal Court there for permission to continue his suit in the District Court to compel the Des Moines City Railway to re-establish the sale of tickets at six for a quarter. He further asks that Emil G. Schmidt and Homar A. Miller, receivers of the railway, be made parties to the suit. Mr. Seeman's attorney announces that his client will soon request as "a friend of the court" to have the receivership dissolved.

Would Discontinue Tickets.—The Black River Traction Company, Watertown, N. Y., has filed with the Public Service Commission for the Second District, a new tariff schedule proposed as effective on March 7 and affecting local passenger traffic on its lines. The proposed change is that the sale of books containing twenty-five tickets for \$1, each ticket good for one local 5-cent fare, is to be discontinued. The company will redeem pro rata all outstanding tickets when presented at the company's general office in Watertown.

Survey Before Service Is Cut.—The Des Moines (Ia.) City Railway will make a survey of at least a week's duration before announcing the service cut which it will make as a result of the decision of Federal Judge Martin J. Wade denying the company's request for an increased fare. Emil G. Schmidt, president of the company, has announced that a cut of 20 per cent in service would mean a saving for the company of \$175,000 a year. Attorneys for the city have announced that they will fight any attempt on the part of the city to reduce service.

Reduction in Its Commutation Fares.—Under a supplemental tariff, filed with the Public Service Commission for the Second District, the Auburn & Syracuse Electric Railroad, Auburn, N. Y., effective on March 9, will sell

fifty-trip commutation ticket fares for distances, 19 to 22 miles inclusive, for \$13.75. The tariff cancels higher commutation rates, \$14.25 for 19 miles, \$15 for 20 miles, \$15.75 for 21 miles and \$16.50 for 22 miles. Patrons who buy commutation fares for distances 19 miles and over, will secure reductions over existing commutation fares.

Wants Seven Cents in Port Jervis.—The Port Jervis (N. Y.) Traction Company, operating in Port Jervis and the town of Deer Park, Orange County, has filed with the Public Service Commission for the Second District, a petition asking permission to increase its rate of fare from 5 to 7 cents. The commission will conduct a public hearing. The petition shows that the Port Jervis Common Council on Dec. 19 passed a resolution permitting the company to increase its rate of fare to 7 cents until Dec. 31, 1919. Like action was taken by the Deer Park Town Board on Dec. 28.

Protest Fare Increase.—Eight city officials and residents of Maywood, Ill., protested to Federal Judge K. M. Landis against increased fares on the Aurora, Elgin & Chicago Railroad under the decision of Judge Landis himself. The railroad was ordered to restore the 5-cent fare within the limits of Maywood. The rates had been raised to 10 cents. The residents also protested against the new 10-cent rate from Maywood to Forest Park and against increases in the price of fifty-four-ride tickets from Chicago from \$5.60 to \$6.40 and the sixty-ride tickets from \$5.95 to \$6.70.

New Boston & Worcester Fares Approved.—The Public Service Commission of Massachusetts has approved a new fare schedule for the Boston & Worcester Street Railway, which will become operative on March 9. The fare rate is increased from 2½ cents to 3 cents a mile, and the minimum fare is increased from 6 cents to 7 cents. At the request of the commission, however, the reduced rate ticket privilege now given to residents of Overbrook will be extended by the company to residents of Sunnyside riding through the Overbrook territory, thus giving them a lower fare on through trips to and from Boston.

Another Company Wants Seven Cents.—The Freeport Railway & Light Company, Freeport, Ill., a subsidiary of the Illinois Northern Utilities Company, has applied to the Public Utilities Commission of Illinois for an increase of fares in Freeport from 5 cents to 7 cents, for trips within the city limits or 600 ft. beyond, with eight tickets to be sold for 50 cents. Rates would increase, under the petition, from 5 cents to 10 cents for trips to or from any point more than 600 ft. from the city limits to a point on the city lines, with a round-trip for 15 cents. School children are to have forty rides for \$1.40, according to the petition.

Direct Appeal by Dallas Company.—The service department of the Dallas (Tex.) Railway, under direction of

Homier Fisher, is publishing a weekly magazine, which is intended to be a medium through which railway problems can be discussed freely. No name has been chosen for the new publication, but a contest has been held in which a first prize of \$15, and other prizes of \$5, \$3 and \$1 were offered for the best suggestions for a name for this publication. The new publication will be issued weekly. The establishment of the service department at Dallas was reviewed in the *ELECTRIC RAILWAY JOURNAL* for Feb. 8, page 296.

Increases Its Own Rate of Fare.—The Portsmouth (Ohio) Street Railway is at odds with two villages over the rate of fare for the section between them. The company has a franchise for carrying passengers between New Boston and Sciotoville at the rate of seven tickets for a quarter. Recently it was refused an increase in New Boston. Following this the company announced that passengers would be carried from New Boston to the corporation line of Sciotoville at the old rate, with an additional straight fare of 5 cents for those who rode into the village proper, several squares distant. The commission will send a representative to look into the matter.

Regards Appeal as Futile.—Former City Counsel Spaulding Frazer, has written to Mayor Calkins of Plainfield, president of the League of New Jersey Municipalities, to the effect that contracts between the Public Service Railway and municipalities in which the railway operates, are matters of "purely internal policy" and subject to legislative action. It is the opinion of Mr. Spaulding that appeal of the fare cases to the Supreme Court would be futile. The letter was turned over to the legal committee, which has recommended to the league that no move toward an appeal to the Federal Court be made until the Court of Errors shall have decided the Public Service Railway case.

Joint Fares Increased.—The New York State Railways, Utica Lines, proposes under a supplemental tariff filed with the Public Service Commission for the Second District, to put into effect on March 9, new joint one-way and round-trip fares from Utica to various points on the lines of the Southern New York Power & Railway Company. All joint one-way fares in both directions between Utica and the Southern New York Power & Railway Company's stations will be increased, the minimum 3 cents between Utica and McCredys, near Mohawk, and the maximum increase, 53 cents, between Utica and Oneonta. The new round-trip rate increases vary from 22 cents to as much as \$1.06.

Skip Stops Will Continue.—The St. Paul Association, which concerns itself with public and business affairs in St. Paul, Minn., published in its bulletin dated Feb. 14 an interpretative analysis made by the association of the audit of the St. Paul Street Railway. This audit was made for the purpose of ascertaining whether the company

actually needed the relief which it would receive by the continuance of the skip-stop system now in operation. The City Council had before it an ordinance abolishing the skip-stop system, but as a result of this audit and the attitude of the people of St. Paul as expressed through the association of 4000 business and professional men, the skip-stop system in St. Paul will be continued at least until peace is definitely concluded.

Special Cars Suggested for Workers.—"Workers' specials," operated by railways in cities to enable workmen to reach their places of employment on time, are suggested by the information and education service of the Department of Labor, as a means of reducing tardiness and absences in industrial plants. It is pointed out that in many instances workmen who realize that they will be late for work decide to remain away for the entire day. Placing a certain number of cars on a definite schedule and operating them as special cars for workmen only, with stops every six blocks or so, would do much to improve the condition in certain cities, it is suggested. Government committees in certain factories are interested in a revision of city railway schedules along this line.

One-Man Car Rights Established.—City Counsel Charles E. Bird, Trenton, N. J., has filed an opinion in which he says that the Trenton & Mercer County Traction Corporation has a legal right to operate one-man safety cars over its lines in Trenton and vicinity. The opinion was given at the request of George B. La Barre, director of public safety of Trenton, in view of the fact that the city had passed an ordinance in 1889, whereby it was made unlawful to run a car having a driver and no other agent for the control and care of passengers. Counselor Bird is of the opinion that this ordinance does not prohibit the present one-man cars, which are electrically operated. He says that the 1889 ordinance became inoperative when the Trenton Street Railway changed its motive power in 1894.

One-Man Cars to Stay.—The Mayor of Waco, Tex., has vetoed the ordinance to which reference was made recently in the *ELECTRIC RAILWAY JOURNAL*, requiring the Texas Electric Railway to discontinue the operation of the safety, or one-man, cars. The Commissioners of Waco finally passed the ordinance on Feb. 6, only two members of the commission voting. The fourth man, Mr. Fitzhugh, had resigned several days before on account of ill health. Had he been present Mr. Fitzhugh and the other commissioner, together with the Mayor, would undoubtedly have prevented the final passage of the measure. On the next day the Mayor disapproved the ordinance. The safety cars are popular in Waco, and the patrons living along the line on which they are operated were active in having the Mayor veto the measure. It is understood that the company plans to equip two more lines with safety cars this year.

Personal Mention

Winthrop Coffin, Brookline, Mass., has accepted the nomination to a trusteeship on the Boston (Mass.) Elevated Railway.

Woodward Hudson has been elected president of the Conway (Mass.) Electric Street Railway to succeed James H. Hustis.

Frank R. Bissell has been appointed second vice-president of the Dallas (Tex.) Railway to succeed H. M. Hughes, deceased.

Charles De Sombers has been appointed master mechanic of the Lincoln (Neb.) Traction Company to succeed John B. Blaiklock.

Norman James has been elected president of the Charlottesville & Albemarle Railway, Charlottesville, Va., to succeed F. C. Todd.

E. J. Shaylor has been appointed auditor of the Ironwood & Bessemer Railway & Light Company, Ashland, Wis., to succeed L. C. Clark.

F. J. Fish has been appointed auditor of the Rockland, Thomaston & Camden Street Railway, Rockland, Me., to succeed E. J. Thompson.

Edward J. Ives has been appointed assistant general superintendent of the Detroit (Mich.) United Railway, to succeed Paul W. Dohrman.

William Elliott has been elected vice-president of the Columbia Railway, Gas & Electric Company, Columbia, S. C., to succeed Henry Parsons.

A. J. Harter has been appointed purchasing agent of the Bamberger Electric Railroad, Salt Lake City, Utah, to succeed H. F. Barraclough.

Chapin M. Seley, Waco, Tex., son of the late W. W. Seley, has been elected an assistant treasurer of the Texas Electric Railway, Dallas, Tex.

E. M. Pottorff has been appointed chief clerk of the freight department of the Illinois Traction System, with headquarters at Springfield, Ill.

C. M. Lake has been appointed claim agent of the Washington, Baltimore & Annapolis Electric Railroad, Baltimore, Md., to succeed William L. Schulz.

William J. Poling has been appointed superintendent of transportation of the Jersey Central Traction Company, Keyport, N. J., to succeed W. A. Haley.

W. C. Edmiston has been appointed general superintendent of the Omaha & Lincoln Railway & Light Company, Ralston, Neb., to succeed E. A. Roehry.

I. W. Morris has been appointed treasurer of the Charleston Consolidated Railway & Lighting Company, Charleston, S. C., to succeed James Ball.

W. E. Campbell has been appointed chief engineer of power station of the Nashville Railway & Light Company,

Nashville, Tenn., to succeed H. S. Badger.

J. E. Harvell has been appointed general superintendent of light and power of the Virginia Railway & Power Company, Norfolk, Va., to succeed H. Root Falmer.

Gerry Cathcart has been appointed claim agent of the Columbus Railway, Power & Light Company, Columbus, Ohio, to succeed E. K. Stewart, who resigned recently.

J. P. Moran has been appointed chief engineer of power station of the South Carolina Light, Power & Railways Company, Spartanburg, S. C., to succeed H. A. Parshall.

H. G. Boyter has been appointed engineer of maintenance of way of the South Carolina Light, Power & Railways Company, Spartanburg, S. C., to succeed J. P. Sellers.

L. LeMay has been appointed secretary and treasurer of the Memphis & Lake View Railway and the Memphis (Tenn.) Street Railway, to succeed W. H. Burroughs, deceased.

John Sparrow, a well-known advertising man of Birmingham, Ala., has been appointed publicity agent of the Birmingham Railway, Light & Power Company by Lee Bradley, the receiver of the company.

Albert H. Bruner, formerly with the Tri-City Railway, Davenport, Ia., and later with Stone & Webster on the arsenal at Rock Island, Ill., has accepted a position with the city of Chicago as a civil engineer engaged in the Chicago Plan Commission.

Murray Carleton has been elected second vice-president of the United Railways, St. Louis, Mo., a newly-created office. Mr. Carleton was formerly vice-president of the company. He retired from that post in October, 1918, upon the election of R. L. Warner to the company.

Sir Augustus Nanton has been elected president of the Winnipeg (Man.) Electric Railway, to succeed Sir William Mackenzie, who has been president of the company since its inception. Sir William has also retired as a director of the company. Sir Augustus was formerly vice-president of the Winnipeg Electric Railway.

C. Wright has been appointed assistant secretary and assistant treasurer of the Chattanooga Railway & Light Company, the Lookout Incline Railway of the Lookout Mountain Railway, Chattanooga, Tenn., to succeed George W. Buchanan, who resigned some time ago to accept a position with the Wright-Martin Air Craft Corporation at New Brunswick, N. J.

M. E. Graston, who has been general agent of the Union Traction Company

of Indiana at Indianapolis, has been appointed freight claim agent, succeeding W. V. Morris. Mr. Graston will handle all matters pertaining to freight claims, reporting to C. S. Keever, superintendent of transportation, instead of to the auditor, to whom the freight claim agent has formerly reported. Mr. Graston will remain in Indianapolis.

C. R. Collins, assistant engineer of the Puget Sound Traction, Light & Power Company, Seattle, Wash., who left the company in 1917 to become general superintendent of the Grays Harbor Railway & Light Company, Aberdeen, Wash., has resigned his position with that company and is now in the East. Mr. Collins has announced that he expects to return to the Puget Sound Traction, Light & Power Company again, as soon as his business in the East is finished.

W. H. Sawyer, vice-president of the E. W. Clark & Company Management Corporation, has been elected president of the East St. Louis & Suburban Railway, East St. Louis Light & Power Company, East St. Louis Railway, Alton Granite & St. Louis Traction Company, and vice-president of St. Louis & Belleville Electric Railway, Alton Gas & Electric Company and the St. Louis & East St. Louis Electric Railway. H. W. Clapp as vice-president of the East St. Louis & Suburban Railway is associated with Mr. Sawyer in connection with operating matters.

C. C. Slater has been appointed general manager and general superintendent of the Columbus Railway, Power & Light Company, Columbus, Ohio, as the successor of Harold W. Clapp, general manager, and W. C. Campbell, general superintendent, whose connection with the road ceased through the establishment of reorganization plans by the new regime. Mr. Slater has been a resident of Columbus for thirty years. He was in charge of the construction work of the old Public Service Company and acted as its general superintendent for eight years. In recent years he has been interested in the coal business.

Charles B. Cooke, Jr., has been appointed assistant manager of the passenger transportation and housing division, United States Shipping Board Emergency Fleet Corporation, in charge of the passenger transportation department. Mr. Cooke is a member of the firm of Kelly, Cooke & Company, Philadelphia, well-known consulting engineers. He succeeds Garrett T. Seely, who resigned recently in order to resume his duties as assistant general manager of the Chicago Elevated Railroads. Mr. Cooke entered the government service with the Emergency Fleet Corporation on April 8, 1918, when he undertook the solution of the complex passenger transportation problems in the Delaware River District which involved the construction of additional electric railway facilities costing \$2,600,000. The construction of these facilities has been completed under his direct supervision.

Mr. Gadsden Goes with U. G. I.

President of Charleston Consolidated Will Take Charge of National Public Relations as Vice-President of the United Gas Improvement Company

Philip H. Gadsden of Charleston, S. C., who was chairman of the American Electric Railway War Board and is now chairman of its successor, the committee on national relations of the association and also chairman of its committee on readjustment, has been elected vice-president of the United Gas Improvement Company of Philadelphia, and will take charge of a new department of national public relations of that organization.

For some time Mr. Gadsden has been president of the Charleston Consolidated Railway & Lighting Company, which is controlled by the U. G. I., but in which he is personally a heavy owner. During the war, however, he has made his headquarters at Washington, where he has attained national prominence in connection with his work in behalf of public utilities.

The new activities which Mr. Gadsden is about to undertake are not expected to interfere with his continued interest in the association work. In fact, the establishment by such an important company as the U. G. I., of a public relations organization under a vice-president, and his appointment to that office, should be of great assistance to Mr. Gadsden in the work to which he has put his hand in helping improve the status of the utilities. The example of this important company may encourage others to pay greater attention to the subject of public relations.

The United Gas Improvement Company is owner and operator of public utilities all over the country, including railway, gas and power companies. It is one of the strongest of all of the holding companies, and it operates thirty-five or forty plants, among them the Philadelphia Gas Works, which belong to the city of Philadelphia and are leased to the U. G. I. It is also the largest individual stockholder in the Public Service Corporation of New Jersey.

GETTING CO-OPERATION WITH THE DIFFERENT BRANCHES

In a way, Mr. Gadsden is expected in his new work to carry out many of the policies which have made him a national figure in the public utility field during the war. Speaking broadly, Mr. Gadsden has been occupied with "putting the public utilities of the country on the national map." Their true condition has been presented clearly and convincingly to congressional committees and government officers, and the sentiment in Washington is now much more favorable to these properties than before. In this work Mr. Gadsden has been equally successful in bringing about a co-operation on the part of the three branches of the public utilities industry, and leading them to think in

terms of the industry rather than in terms of their own special interests. He has assisted in arousing a consciousness among public utility men that they are part of a great national industry instead of being merely offices of local plants and local industries.

HIS ATTITUDE TOWARD THE NEWSPAPERS AND CIVIC SERVICE

Those who know Mr. Gadsden well describe him as a man of charm and winning personality. In this connection a story is told: When he first came to Washington and it seemed de-



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sirable for him to become acquainted with important newspaper correspondents on duty at the national capital who might assist in telling the true story of the difficulties of the public utilities to the people of the country through the newspapers, it was suggested by a friend that one important correspondent could be brought to call on Mr. Gadsden.

"Not at all," Mr. Gadsden said; "if this gentleman is to do me a favor, it is I who will call on him."

By doing so he made a friendship, which will in all probability be a lasting one, with a newspaper correspondent who during the Peace Conference in Paris, has been representing a great group of American readers at the elbow of President Wilson in Europe. Other instances of formation of similar friendships with those who address the public constantly through the newspapers are available although perhaps unnecessary.

Another story of Mr. Gadsden's public relations ideas is told: When and after the U. G. I. leased the Charleston

property in 1910, and Mr. Gadsden discussed public relations with his associates at Charleston, he impressed the necessity of taking part in all local movements upon the Charleston staff with the result that upon one occasion so many officials and employees of the Charleston company were taking part in civic movements and local affairs that the company began to feel the loss of their time from its own affairs. Mr. Gadsden tells this story to illustrate the point that community leaders welcome the assistance of public utility men in home affairs.

This knowledge of human relations, of courtesy and of etiquette is expected to stand Mr. Gadsden in good stead in his new work, and he has other special qualifications for a position which will require a closer contact between the public and the public utilities with which he is identified.

SOME BIOGRAPHICAL FACTS

A man of broad reading and experience, Mr. Gadsden was born in Charleston fifty-one years ago. He was educated in the schools of that city, and afterward in the South Carolina University, at Columbia. The same university has conferred upon him the degree of LL.D. He is a lawyer, and has practiced at the bar for fifteen years. He was a member of the South Carolina Legislature for six years, elected by the people for three successive terms, and one of the most interesting sidelights upon his character is the fact that he is the man who was largely responsible for putting the word "Enforce" in the League to Enforce Peace, without which, it was noted in the public prints at the time, the league would have had merely the name of a pacifist organization. The incident is related by his friends to show the virility of his mind. He is one of the charter members of the League to Enforce Peace.

As a consequence of his work for the public utilities during the war, Mr. Gadsden is being constantly sought to make speeches, and because of the national prominence he has assisted in giving to the difficulties of the public utilities he is now being urged to write articles from time to time concerning these difficulties for such popular magazines as *Everybody's* and others.

Appointments Made to New Jersey Commission

Governor Edge of New Jersey, has appointed Harry L. Knight, Burlington County, and Andrew Gaul, Jr., Bergen County, members of the Board of Public Utility Commissioners of that State. Each term runs for six years at an annual salary of \$7,500. Mr. Knight succeeds Ralph W. E. Donges, Camden, who resigned to enter the military service. Mr. Gaul was appointed under the act of 1918 increasing the number of commissioners from three to five. A bill is now before the Legislature to make the commissioners of the future elective.

Manufactures and the Markets

DISCUSSIONS OF MARKET AND TRADE CONDITIONS FOR THE MANUFACTURER,

SALESMAN AND PURCHASING AGENT

ROLLING STOCK PURCHASES

BUSINESS ANNOUNCEMENTS

Fare Register Production Goes Ahead

The Demand Is Greater Than Ever Before with Bright Outlook for the Future

The change from a peace to a war basis caused many manufacturing companies to curtail the output of their regular products in order to take up new lines of work to satisfy government contracts. One company manufacturing fare-recording instruments used largely by interurban railways where the zoning system is employed has reported that "even with our new buildings and all additional equipment, we had to encroach upon the register production to a certain extent, but the 1918 volume of register business, as compared with 1917, shows an increase, both as compared to the registers in use and the number shipped."

"The war," it was stated, "brought many problems to the electric railway people. Quick changes in fare rates had to be made and the advantages of flexibility and adaptability became at once apparent. Changes were made in register mountings, or the particular type of register in use was often replaced by another type with the proper capacity to meet the new conditions.

"Now that the war is over, even though we are still working pretty strenuously on our Navy contracts, yet we are preparing for bigger things than ever before in the manufacture of our regular products. Our reserve stock must not only be brought up, but the companies, which have been delayed for a time in receiving their new registers must not be kept waiting. The demand for registers is now greater than it has ever been, and the situation assures us as to the future success of the register business.

"We shall no doubt see many improvements perfected. During the coming year we anticipate a big increase in the number of machines for city use which will have to be built, especially for use in connection with our pay-as-you-enter operating equipments."

Inquiries for Rail Welders

Much Activity Anticipated by April—Giving of Guarantees Against Defective Joints Being Considered

The mild and open winter has brought to notice rather earlier this year than ordinarily the maintenance of track equipment. Although few orders have actually been placed much information has been required from manufacturers of rail welding equipment for welders, grinders and supplies.

The manufacturers are looking for real activity in the market in April.

Rails of rather low carbon content have presented no difficulties for electric welding, and at the present time high carbon rails are being welded very successfully. One manufacturer is considering the advisability of placing a guarantee of a certain number of years against defective rail joints electrically welded under the supervision of one of their foremen.

Cord Prices Appear Stabilized

Cost of Cotton Not Sufficiently Low to Warrant Reduction on Bell, Register and Trolley Rope

Reduction in the price of spot cotton at New York cannot, according to manufacturing opinion, be taken as the measure of trolley rope, bell and register cord selling price changes at this time. It is pointed out that the price of raw material at the factory does not closely follow the speculative movements in the cotton market and that there is a substantial difference between exchange prices and delivery costs at the factory door. The changes in the latter have not yet been sufficient to warrant any decided price reductions, especially as the manufacturers of such material are doing their best to maintain liberal wages. Little sign of early wage reductions can be seen and the future labor cost in production is complicated by the unsettled conditions, especially in the New England textile field. In some cases labor costs have been increased in the past half-year. A drop of 5 or 6 cents per pound in the cost of cotton would probably be shared with the consumer.

Some street railways within a few weeks have paid as high as 75 cents per pound for trolley rope, and if cotton prices continue to reflect downward tendencies, it is fair to assume that prices will be shaded somewhat. The manufacturers are generally in shape to make good deliveries. All manufacturing costs are still high, and while manufacturers are unwilling to make public their data or pass upon the accuracy of estimates of the ratio of labor to material costs, it is certain that both classes of costs are so important that there will have to be very substantial reductions in either or both together before prices can really approach pre-war levels. The demand is rather moderate for these materials and it can be increased a great deal before an adverse effect would be noted on deliveries.

Cancellation Privilege Abused

Suggestion Is Made That Manufacturers Require Payment of a Charge for Cancellation

Immediately upon the signing of the armistice in November last manufacturers began to receive cancellation orders not only from the government, but also from other customers. Even where orders were supposed to be firm, cancellations came in.

Electrical manufacturers, of course, were hard hit by this situation because long deliveries had occasioned the placing of orders far in advance. On some of the large equipment, for instance, it was impossible in November to get promises of deliveries for any period prior to 1920.

MANUFACTURERS RESPONSIBLE FOR PRESENT CONDITION

Of course, the manufacturers are really to blame for allowing the practice of cancellation to go as far as it has. To be sure, the manufacturer in the past has felt that if the customers could be accommodated without too much trouble or expense it was the proper thing to do. As a result the cancellation privilege has been abused and the manufacturers in order to protect themselves and their employees are rapidly being forced to take some vigorous action.

It has been suggested by a prominent electrical manufacturer that the remedy for this abuse is a cancellation charge. The manufacturer has been put to a certain expense in taking and holding the order. With an accumulation of orders he may have gone ahead and made arrangements for raw materials, new machinery, additional labor, additional factory space, etc. Besides, it costs a certain amount of money just to book an order and the same work to take that order off the books.

Some one has to pay these charges. If the one cancelling the order doesn't, the charges go against general expense and must therefore be absorbed by the customer who sticks by his contract.

The manufacturers have to pay such a charge to get out of their raw-material contracts. Only a couple of weeks ago an instance came up where a cable manufacturer paid \$45,000 to be released from his cotton-yarn contract. If such is the condition, it does not seem unreasonable to require a cancellation charge of the manufacturer's customer where cancellation is allowed.

Brill Sales Doubled

Without Aeroplane Sales the Combined Output During the Year 1918 Totaled \$16,761,000

The sales value of the combined output of the three plants wholly operated by the J. G. Brill Company, Philadelphia, Pa., showed an enormous increase to \$16,761,145 for the calendar year 1918 as compared to \$7,706,099 in 1917 and \$6,180,895 in 1916. This 1918 figure does not include the \$2,280,000 sales value of aeroplanes from the Springfield Aircraft Corporation, in which the company has an interest. The sales record of the other plants since 1907 follows:

1907.....	\$9,211,825	1913.....	\$9,154,433
1908.....	3,845,173	1914.....	4,903,510
1909.....	4,261,204	1915.....	4,402,116
1910.....	5,860,778	1916.....	6,180,895
1911.....	5,870,907	1917.....	7,706,099
1912.....	7,842,090	1918.....	16,761,154

The combined result of operation was a profit of \$1,341,509, after deducting all amounts expended for maintenance and repair during the year and after making allowances for depreciation and for amortization of equipment obtained for special government production. From this profit must be paid federal income and war profits taxes, estimated at \$425,000. Upon this basis the net profit for the year would be \$916,509.

CANCELLATIONS OF CONTRACT FOLLOWS ARMISTICE DECLARATION

During practically the entire year the company, especially at its Philadelphia plant, was engaged almost exclusively in the execution of orders for cars, trucks and field equipment received from the war departments of the government. After the signing of the armistice, the company, like most others manufacturing material for the government, was asked gradually to decrease its production and to accept cancellations on some of the orders which had been placed with it.

The orders that the company had from the government were all in proper contract form and contained the proper clauses for cancellation and for adjustment, if cancelled. Final adjustments are now in process of being made. Notwithstanding the cancellations of contracts for government work, the company had on hand, as of Feb. 1, 1919, work amounting to \$8,204,448, including the government work which will not be cancelled. The Wason Company is now making preparation to operate its plant in the production of cars instead of aeroplanes.

NEED FOR WORKING CAPITAL MAKES DIVIDEND INADVISABLE

Notwithstanding the profit earned during 1918 and the previous year, the great demand for working capital, owing to the largely increased business, made it inadvisable, in the opinion of the board of directors, to declare dividends on the preferred stock in excess of the yearly rate of 4 per cent which has been maintained for the last few

years, and dividends of 4 per cent for the year paid in reduction of the accumulated preferred stock dividends. A quarterly dividend of 1 per cent and a dividend of 3 per cent in reduction of the accumulated unpaid dividends on the preferred stock were declared and paid on Feb. 1, 1919. The remaining accumulated dividends on the preferred stock now amount to 6½ per cent.

Rolling Stock

Levis County Railway, Levis, Que., is building one single-truck steel one car.

Salina (Kan.) Street Railway reports that it may purchase two second-hand one-man cars or bodies.

Austin (Tex.) Street Railway, expects to purchase four safety cars employing features of their own design.

Washington & Old Dominion Railway, Washington, D. C., expects to build one 50-ton locomotive this year.

Tiffin, Fostoria & Eastern Electric Railway, Tiffin, Ohio, may possibly purchase a few freight trail cars this year.

Springfield (Mo.) Traction Company has received eight of the thirty-two cars which are being remodeled into pay-as-you-enter type.

Columbus, Delaware & Marion Electric Company, Columbus, Ohio, may possibly build several additional freight cars in its own shops.

Pennsylvania & Ohio Railway, Ash-tabula, Ohio, expects some time this year to purchase one quadruple equipment for one interurban car.

Chicago, South Bend & Northern Indiana Traction Company, South Bend, Ind., lost its main carhouse in a fire recently. Nine city cars were burned at a loss estimated at \$50,000. A car stalled on the track and prevented the employees from saving the others.

Washington Railway & Electric Company, Washington, D. C., and Capital Traction Company, it is reported, are to be ordered by the Public Utilities Commission to equip all their hand-brake passenger cars with air brakes. The same report states that there are more than 125 cars of the former company and but few of the latter company which will come under this ruling, all told at an estimated cost of \$75,000.

Brooklyn (N. Y.) Rapid Transit Company, through its receiver Lindley M. Garrison, has been authorized by Judge Mayer in the Federal Court to cancel the contract of May 11, 1918, with the Jewett Car Company of Newark, Ohio, for construction and delivery of fifty car bodies for use on the surface lines at a cost of \$266,000. The order recites that the contractor has gone into the hands of a receiver without completing the order, and authorizes the receiver to take steps to obtain needed equipment elsewhere. The order for 100 cars mentioned last week as being let to the Brill Company did not include these fifty cars.

Trade Notes

Delos F. Wilcox is engaged in practice as a consulting franchise and public utility expert with offices at 73 Gleane Street, Elmhurst, N. Y.

Edward H. Mays, president of E. G. Long Company, New York, will leave on March 1 for the Far East to give personal attention to his company's interests in Japan and China.

Epping-Carpenter Pump Company, Pittsburgh, Pa., announces that Theodore R. Hermanson, formerly of the Harrison Works of the Worthington Machinery Corporation, has become its works manager.

Western Electric Company has announced that D. J. Butts, manager of the Los Angeles branch since March, 1917, has been appointed sales manager at San Francisco. H. L. Harper has been transferred from Kansas City to take charge of the Los Angeles house.

Valentine J. Burger, D. S. C., first lieutenant, aviator observer with the French and American air forces, has recently returned to the Standard Underground Cable Company, where he resumes charge as the New York manager of exports. He was the guest of honor at a presentation luncheon tendered by the New York officers of the company on Feb. 13 at the Railway Club. C. J. Marsh, vice-president of the Standard Underground, acted as chairman, and with him were T. L. Wiley, Eastern manager, R. S. Hopkins, assistant Eastern manager, and other members of the New York construction, sales and office force. Lieut. Burger received the distinguished service cross, the French *croix de guerre* with palm and star, and is cited for oak leaf to the D. S. C., another palm to the French cross and for the Congressional medal of honor. He rendered repeatedly distinguished service under great personal danger and has been officially credited with three Boche planes.

New Advertising Literature

Wayne Oil Tank & Pump Company, Fort Wayne, Ind.: Booklet dealing with storage and distribution systems for oils, varnishes, gasoline, etc.

Wilson Welder & Metals Company, Inc., New York City: Bulletin on the "Repair of the German Ships," showing the use of plastic arc welding in placing these ships back in service.

Wilson Welder & Metals Company, Inc., New York City: Bulletin on the "Repair of the German Ships," showing the use of plastic-arc welding in placing these ships back in service.

Crescent Belt Fastener Company, New York City: Bulletin covering "The Crescent Principle of Belt Joining" containing a ready reference service chart for determining the correct type of belt fastener to use for any condition of work.

Track and Roadway

Calgary (Alta.) Municipal Railway.—The Calgary Municipal Railway is considering the construction of a single-track extension of the Center Street line to Sixteenth Street.

San Francisco-Oakland Terminal Railways, San Francisco, Cal.—The installation of loop service on all connecting lines, the replacement of light rails with heavy ones on all paved streets and the construction of new cars and reconstruction of old rolling stock are among the proposed improvements now being inaugurated by the San Francisco-Oakland Terminal Railways.

Peninsular Railway, San Jose, Cal.—About \$100,000 is being spent by the Peninsular Railway on improvements to its line.

Honolulu Rapid Transit & Land Company, Honolulu, Hawaii.—Work will soon be begun by the Honolulu Rapid Transit & Land Company on the double-tracking of King Street from Alapai to Punahou Street. The construction of several extensions is under consideration by the company.

Waterloo, Cedar Falls & Northern Railway, Waterloo, Iowa.—The Waterloo, Cedar Falls & Northern Railway will install safety devices at its crossings.

New Orleans Railway & Light Company, New Orleans, La.—Efforts to establish an extension of the line of the New Orleans Railway & Light Company to the shipbuilding plant of the Foundation Company on the industrial canal were furthered at a recent conference held at the Mayor's office. It was practically decided to bring the matter before Judge Foster in the United States Court. Part of the extension has already been constructed, but work has been halted on account of the appointment of a receiver for the company. The extension would cost about \$50,000.

Kansas City, Mo.—The Board of Public Works of Kansas City, F. E. McCabe, secretary, will receive bids until March 11 for the construction of the Twenty-third Street viaduct. The main viaduct will be approximately 1726 ft. long with sidewalk, roadway and separate space for car tracks; the Wyoming Street approach approximately 940 ft. long with sidewalk, roadway and car tracks in the center and the Frisco yard approach, roadway only.

Kansas City, Clay County & St. Joseph Railway, Kansas City, Mo.—It is reported that the Kansas City, Clay County & St. Joseph Railway will construct an extension from St. Joseph to Omaha and from Excelsior Springs eastward, with Richmond as its first objective.

La Grange, Toledo & Eastern Railway, La Grange, Mo.—The Indiana Public Service Commission has authorized the La Grange, Toledo & Eastern Railway to issue \$55,000 of common stock at par and \$35,000 of bonds at

par to finance the rehabilitation of that part of the defunct St. Joseph Valley Railway between La Grange and Mongo. This part of the old road connects at La Grange with a division of the Pennsylvania lines.

Toronto (Ont.) Railway.—It is reported that efforts will be made to complete the Pape Avenue line of the Toronto Railway this year.

Philadelphia, Pa.—At a conference held on Feb. 17 by Mayor Smith and William S. Twining, director of the Department of City Transit, it was decided that work on the Frankford elevated line will be resumed at once and will be pushed to completion as rapidly as possible. Permission has been granted by the Public Service Commission of Pennsylvania to complete that portion of the line on Front Street between Callowhill and Arch Streets where connection is to be made with the Market Street subway. Plans for this extension are well advanced and advertising for proposals for a portion of the work will be begun within a few weeks.

Prince Edward Island Railway, Charlottetown, P. E. I.—Third-rails are being installed on 60 miles of this company's line from Borden north to Emerald, thence east and west to Charlottetown and Summerside. Since the spring of 1918 progress has been steadily made in widening roadbeds, reinforcing or rebuilding bridges and culverts and laying the third-rail. The work at the beginning of December was 75 per cent finished and suspended for the winter. It is intended to resume work in the spring.

Saskatoon (Sask.) Municipal Railway.—The City Council of Saskatoon has under consideration the construction of an extension of the Saskatoon Municipal Railway at an estimated cost of \$46,000.

Knoxville Railway & Light Company, Knoxville, Tenn.—Plans have been prepared and work will be begun early in April on the construction of a new reinforced concrete viaduct on Gay Street, crossing the Southern Railway tracks. It is estimated that the cost of the viaduct will be about \$500,000. It is expected that the Knoxville Railway & Light Company and the Southern Railway will share their proportionate cost of the project.

Texas Electric Railway, Dallas, Tex.—It is reported that the Texas Electric Railway will take steps soon to carry out its deferred project of extending its line from Waco south to San Antonio, via Austin, a distance of about 185 miles. The plans involve the construction of power station in the city of Austin.

Mineral Wells, Tex.—W. J. Walder of Mineral Wells and associates are promoting the construction of an interurban electric railway between Fort Worth and Mineral Wells, about 65 miles. It is possible that the proposed line may be extended as far west as Cisco.

Power Houses, Shops and Buildings

Pacific Electric Railway, Los Angeles, Cal.—Plans have been approved by the Board of Harbor Commissioners for the new passenger and freight station to be erected at San Pedro by the Pacific Electric Railway. The new structure is expected to be completed within seven months and is estimated to cost about \$50,000.

Cairo Railway & Light System, Cairo, Ill.—A new 2000-kw. turbine generator has been ordered by the Cairo Railway & Light System from the General Electric Company, Schenectady, N. Y.

Chicago, South Bend & Northern Indiana Railway, South Bend, Ind.—Fire recently destroyed the main carhouse of the Chicago, South Bend & Northern Indiana Railway. Nine city cars were burned at a loss which is estimated at \$50,000.

Boston, Mass.—Sealed bids will be received by the Transit Department of the City of Boston until Feb. 25 for furnishing and installing roof lights in the Massachusetts Avenue surface station of the Boylston Street subway. Specifications and forms of contract can be obtained at 15 Beacon Street.

London & Port Stanley Railway, London, Ont.—A new station will be built by the London Railway Commission at St. Thomas. The commission will also alter the present station of the London & Port Stanley Railway at Port Stanley and build a new freight house.

London, (Ont.) Street Railway.—The London Street Railway contemplates making some alterations and slight extensions to its shops.

Philadelphia & Western Railway, Upper Darby, Pa.—Work has recently been begun by the Philadelphia & Western Railway on the construction of two new electric substations at Villa Nova and Beechwood, Pa. The structures are estimated to cost approximately \$20,000 each. H. P. Friend, Norristown, has the contract for the erection of the buildings.

Charleston Consolidated Railway & Lighting Company, Charleston, S. C.—The Charleston Consolidated Railway & Lighting Company is considering the increase of its common stock by \$1,500,000 to pay for extensive improvements recently made and now being installed. The company is enlarging its power house and completing a duplicate high tension line from the power house to the Port Terminal at North Charleston at an estimated cost of about \$700,000. It has just completed the installation of a third generating set at its gas plant, increasing its capacity about 50 per cent.

Virginia Railway & Power Company, Norfolk, Va.—A new generator is being installed at the Reeves Avenue power plant of the Virginia Railway & Power Company.