

# Electric Railway Journal

Consolidation of STREET RAILWAY JOURNAL and ELECTRIC RAILWAY REVIEW

Volume 53

New York, Saturday, February 1, 1919

Number 5

## The State Is Supreme in Illinois

THE clean-cut decision of Judge Baldwin of the Circuit Court in Chicago, in the Elevated 6-cent fare case, mentioned in last week's issue, has cleared the atmosphere as far as home rule over public utilities is concerned in that city. It has also set the public to wondering whether they made a mistake in rejecting an ordinance which was voted on last November and was designed to give the people absolute control over the local elevated and surface lines. The decision in question was one denying an injunction to stay the order of the State Public Utilities Commission which granted a 6-cent fare to the elevated roads. In brief, the ruling is to the effect that the city has the power to determine over what streets the roads may operate and to make contracts with the roads, but has not the authority to fix the rate of fares to be charged from time to time. The same position has been taken in other States and is based on the theory that the State has never surrendered its superior police power and that having delegated that power to the Public Utilities Commission the latter body may fix such rates as are just, reasonable and sufficient, regardless of contracts previously entered into between municipalities and operating companies. One of the lawyers summed up the decision by saying that the city has power to make contracts with its utilities but has not the power to enforce them. This ruling if sustained in the higher courts will absolutely remove utility companies in Illinois from the influence of hysterical local clamor when an attempt is made to deny a proper return to capital invested in such corporations. It is added evidence also of a growing recognition of the joint responsibility of the community and the utility for good service by the utility, coupled with a fair return for the service rendered.

## Skip Stop Does Not Increase Accidents

THE fundamental principles which contribute to economical car operation have been long recognized by electric railway engineers. One of the most important of these is the saving and benefits to be derived from decreasing the number of stops by establishing skip-stop operation. Such operation during the war period has demonstrated its advantages both to the traveling public and to the railways. Where the number of stops is reduced a faster, more comfortable and more frequent service can be maintained without increasing the energy input. These are some of the profits gained by the public. The railway company receives benefits from the decrease in the work placed on the equipment which results in fewer troubles and a decreased maintenance expense. The public in general has failed to appreciate the value of this change in service which was introduced as a war measure and is being continued in many cities now for economical reasons. This lack of confidence no doubt has been caused by the ignorance of the public as to the advantages and to insufficient co-operation between the railway and its passengers. In another part of this issue we give a description of the publicity campaign which has been instituted by the Philadelphia Rapid Transit Company to correct the erroneous impression that the use of the skip stop in that city caused an increase in the number of fatal accidents that occurred on the company's lines. A committee composed of all classes of citizens was asked to hold public hearings and take testimony from all who might wish to present evidence that the skip stop had been responsible for any fatalities. The newspapers which had been instrumental in spreading this false impression were also invited to send representatives and give any information they might have in support of the

## Midyear Meeting on March 14

THE midyear meeting and banquet of the American Electric Railway Association will be held in New York on Friday, March 14.

The technical sessions will be held in the Engineering Societies' Building, 29 West Thirty-ninth Street, beginning at 10 a.m. The program follows:

[1]

Report of Committee on Readjustment, P. H. Gadsden, Chairman.

[2]

The State of the Industry

- (a) Modern regulatory plans and theories, by an electric railway executive.
- (b) Capital and electric railways, by a banker.
- (c) From the regulatory viewpoint, by three active or former public utility commissioners.

The annual banquet will be held in the evening at the Waldorf-Astoria Hotel. The general topic of the addresses will be "Rehabilitation."

theory. No newspaper representative appeared, and the committee made a report stating that no evidence had been presented to prove that additional casualties had resulted from skip-stop operation.

This spirit by which a company takes the public into its confidence is to be commended and it is to be hoped that the seed sown in this publicity campaign will take firm root and result in correcting the false impression and assist in creating confidence in the skip stop.

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### Help Make the Committee Reports as Valuable as Possible

**A**FTER an intermission of two years, the affiliated associations are again taking up active work and are laying plans for the preparation of committee reports to be presented at the convention next October. The two and one-half years which have elapsed since the last convention was held in 1916, have been the most momentous in the history of the industry. New problems have arisen in practically every branch of the business, and the result is that the number of topics to be considered is actually bewildering. The executive committees of the several associations are now going over carefully this extended list to determine which are the most important, all things considered, to be taken up. Committees will then be appointed.

All of this planning will largely go to waste, however, unless hard work in the way of investigation is put on these topics by the committee appointed to consider them. This is a matter where the responsibility is partly that of the man himself and partly that of the executive of his company. We realize that this is a time when detail problems are pressing at home, and many a chief executive feels that it will be difficult to spare the time of any of his men who may be asked to engage in committee work. But this is not the right way of looking at the matter. The work must be done, and it can be done only through sacrifice and provided each committee man puts into the work the best that is in him. The welfare of the industry as well as of each individual company is at stake.

There are also compensating advantages for the time spent in committee work, both to the man himself and to his employing company. These advantages come from the fact that the committeeman gets in touch with other men selected because of their special knowledge to solve the problem on which they are engaged. Each committeeman cannot but profit by the interchange of information and ideas at committee meetings beyond the data actually embodied in the printed report, and this opportunity is of direct benefit to the company which employs him.

There is therefore every reason to induce the operating companies to co-operate with the associations by permitting their men to engage in committee work. There is special reason this year for the need of co-operation in committee work, partly because of the extent of the problems and partly because of the shortness of time. Usually it has been possible to get committees at work shortly after the annual meeting, or in November or December. This year, on account of the uncertainty, the start has necessarily been delayed some two months. This means that the work must be

carried on with more than the usual activity. But with all working in accord, the 1919 convention should be the most valuable in the history of the associations.

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### Railway Ills Call for Prevention Rather than Cure

**T**HE technical journals of an industry reflect with considerable accuracy the current tone and trend of thought in that industry. By a study of the back files of such journals the development of an industry may be readily traced. In looking over our own files recently it occurred to us that a number of striking changes in viewpoint have taken place in the electric railway industry within the last fifteen years. At the beginning of this period the ELECTRIC RAILWAY JOURNAL, then the STREET RAILWAY JOURNAL, was replete with descriptions of construction work and new roads. Heavy electric traction was in its infancy and the "battle of the systems" was in its "earliest phases." To push construction work ahead and get the wheels rolling was the leading thought. With the passing of the construction period came the necessity of paying dividends, and plans for traffic promotion and for cutting down operating expenses began to receive attention. These are the problems that are still with us.

It is a significant fact, and one that gives some hope as to the future, that whereas plans for affecting savings were much discussed ten years ago they were more in the way of remedial than preventive measures. To illustrate: The trend of discussion in those days with reference to accident claims was more along the line of proper handling of claims and the reducing of the cost per claim than in studying out methods of getting at the root of the evil, namely, the prevention of accidents. The latter phase of the problem is the one which has received the most serious attention these latter days with the result that safety cars, safety devices, and safe operating methods have materially reduced the number of accidents.

The same trend is noticeable in other departments of the industry. It seems to us that this trend is decidedly in the right direction. Remedial medicine may help alleviate the pains of a sick man, but preventive medicine keeps him from getting sick and is therefore the most economical as well as the most logical.

Burdens, grievous ones, have fallen on the industry as a result of the war. But the old saying "'Tis an ill wind that blows no one good" is still true. The war has forced us to get down to bedrock at the roots of our problems in many instances. It has taught us that we can save in many ways that we before had not dreamed possible. It has torn away some of the old traditions that in the past have hampered us. Last but not least, it has burst asunder some of the shackles of public prejudice with which we have been tied down. We have learned that in many instances much can be gained by the application of correct engineering and accounting methods to the diverse problems of the industry. And the field is by no means exhausted. Some of the prominent men in the industry feel that we are only getting a good start in the matter and that the wider application of such methods will yield greater results than an equal amount of endeavor spent along any other line.

## Possibilities in the Zone System of Fares

SO MUCH has been said in these columns in favor of more general adoption of the zone system of fare collection that we are pleased to find the authorities giving serious thought to this innovation in many places. The recommendation of Prof. A. S. Richey, mentioned in our issues of Dec. 28 and Jan. 18, for the adoption of a two-zone system on the Boston Elevated Railway property is a case in point. Careful study of some such plan is also progressing in St. Louis and on the system of the Public Service Railway. These investigations, together with the results of experiments in various other cities, are an indication of the way the wind is blowing, and we have no doubt that the current year will find the solution of the fare problem on more than one property in having rates in cities proportioned, to some extent at least, to journey lengths.

It was established by the report of the Boston Joint Commission in 1914 that the maximum length of a profitable haul on the Boston Elevated system was 4.25 miles, without allowing a greater return on investment or allowance for depreciation than were then in effect on that property. Similarly in 1917 Professor Richey reported that the paying haul in the central 5-cent zone of Springfield, Mass., allowing the same return on investment as was then in effect, was about 2.76 miles. From two such careful surveys we may see what a difference there is between the length of profitable haul in two cities. In each case it is shown that a person who rides beyond the distance indicated is getting more than his money's worth. Consideration of the two reports suggests the folly of attempting to establish a standard distance for zone fares applicable to all cities.

Arguments which have been offered for and against a zone system are so well known as to merit no further repetition here. Professor Richey calls attention to many of them in his report. He quotes President McCulloch of the St. Louis company as saying, "every day we are doing things differently from the way they were done last year," and we are all aware of the effect of the great war on long-established habits. The American genius for overcoming obstacles is generally recognized, and if the only thing that stands in the way of making a zone system successful is a practical method of fare collection we may take it for granted that such a method will be found. The one recommended for Boston reads like a workable system, and undoubtedly this plan or some variation from it will yet be put into effective operation.

The Boston car-riding public certainly has had its share of experiment with flat fares of different grades under public trustees who can be charged with no ulterior motives in trying to put local transportation on a paying basis for the good of the community. It is very likely, therefore, that these people will welcome any change which promises a solution of their difficulties without imposing a higher unit fare. It would not be surprising either if another of Professor Richey's suggestions is given a trial—namely, the matter of experimenting with low-fare cars on short routes in congested districts. These routes, as he suggests, should be carefully chosen with a view to connecting points of common interest, the speed to be reasonably fast and headway

between cars to be sufficiently short. Any plan that will attract short riders is worthy of serious consideration. Developments in Boston will be watched closely.

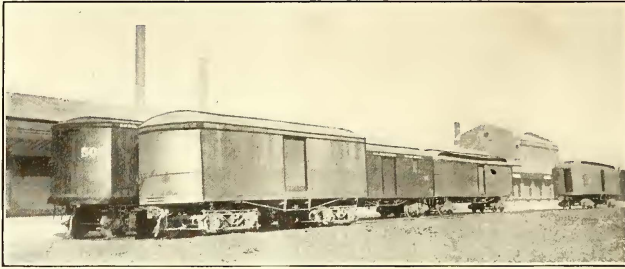
## Steam Roads Are Experimenting With Concrete Ballast

WILL the steam railroads ultimately adopt some form of concrete slab ballast or sub-ballast construction for their tracks? This question is raised by the experiments now reported after four years of service test of a form of this general type of construction on the Northern Pacific Railway. The general features of the construction used are described elsewhere in this issue. There has been a growing tendency with steam roads to use concrete in some form in the roadbed for the treatment of troubles incident to ballasted tracks in wet cuts, but we believe the 2000-ft. experimental section of the Northern Pacific Railway to be the most extensive so far undertaken by the steam roads in their endeavors to produce a more stable roadbed and track under the constantly increasing loads.

Several roads have used some form of concrete ballast in tunnel construction and at terminals with satisfactory results, and the newer subway tracks in New York City are usually built in a similar manner at stations, but in these instances the reasons for its use have been mainly for cleanliness and to simplify maintenance problems which tunnel construction presents. It is particularly difficult to renew standard ties within the close limits of subway and tunnel walls. The boldness of the experimental use of concrete for open main-line track will be appreciated as a radical departure from accepted steam road practice.

Meanwhile electric railroads, particularly in street construction, have been using concrete ballast in two principal forms, one wherein the ties are embedded in concrete and the other where the ties are laid upon several inches of ballast which in turn is laid upon a concrete slab sub-ballast. The latter is gaining in favor where conditions warrant the expense. It is interesting, therefore, to note the tendency of the steam roads, in their struggle with the roadbed and ballast question, toward the adoption of a form of construction which electric railroads have found quite successful in application to electric railway conditions. Another feature worth noting is the report that the continuous wooden stringer type of construction has given the best service of the three types of construction under test. It leads us back to the old horse-car and early electric railway days, when the wood stringer was used almost universally to support the rails.

The experiments in question will be followed with great interest, not only by steam road engineers but also by those interested in electric railroads, particularly because it is reported that the new types of construction have so far been maintained for about 5 per cent of the maintenance cost of adjacent tracks of regular ballasted construction, on the same line, under the same traffic and built at the same time. It would seem that such a saving in maintenance will justify the added cost for the new construction, although we have no information as to the cost, which must have been at least three or four times as great as regular ballasted track.

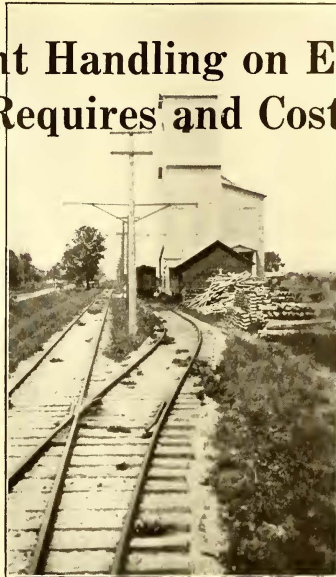


### Electric Railway Freight Terminals

At top, carload freight of the Terre Haute, Indianapolis & Eastern Traction Company, at Indianapolis, Ind. In center, Electric Package Express Company, Cleveland, Ohio. At bottom, house tracks of the Detroit (Mich.) United Railway.

# What Freight Handling on Electric Roads Requires and Costs

**Electric Railways Have a Drastic Need of Adequate Freight Terminals, and Mechanical Freight-Handling Devices Should Supplant Brute-Power Devices in the Interest of Scientific and Economical Management—Valuable Operating Data Are Given for Electric and Steam Line Freight Houses**



By A. B. Cole

*Westinghouse Electric & Manufacturing Company*

Preceding articles by Mr. Cole on the subject of electric railway freight service were published in the *ELECTRIC RAILWAY JOURNAL* of May 11, 1918, and Jan. 4, 1919.

**T**O GIVE man-size freight service upon electric railways, proper station buildings, track layouts and other facilities must be provided. Moreover, in many instances it is necessary for the company to assist in locating grain elevators, coal yards, lumber yards, stock yards, and loading chutes. Each station site should include a plot of land, say 500 ft. x 2000 ft., to permit the offering of attractive long-term leases for grain elevators and the like.

The standard station building of one progressive road is a brick, concrete and steel structure, 101 ft. x 22 ft. As nearly all passenger stations on this line are combined with an electrical substation, the building is divided into four parts. The substation equipment occupies 30 ft. 6 in. of length at one end of the building; the ticket office comes next with a length of 12 ft. and extends across the width of the building; then there is a waiting room 16 ft. long, leaving a freight room of 36 ft. long to occupy the other end of the building. At some way stations, where the traffic demands it, stock yards of six pen capacity, hog showers, and grain elevators will be found.

Of paramount importance is the length of sidings. Passing sidings are as long as 2000 ft., while the minimum length of an industrial track is 1000 ft. With the latter there is sufficient room for industries along such a track to make it pay in time, while a long passing track adds considerably to the flexibility of freight handling on a single track line with large passenger business. Once a freight train is on the passing track, it can do all its work without blocking the main line.

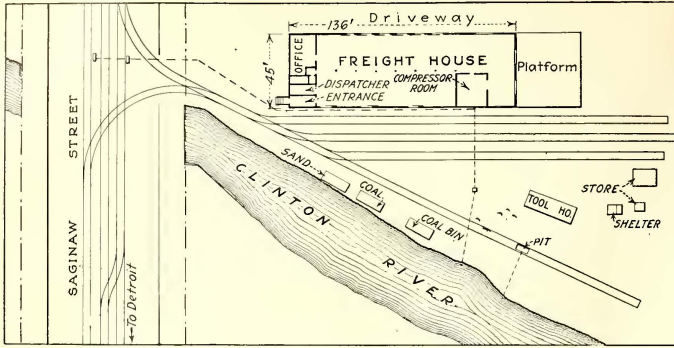
One road, when projecting its line had enough foresight to buy, in all towns, sufficient land to draw many industries next to the railroad. In other words, all industries with track facilities are on land leased from the electric line. This advantageous location of industries pleases both the shipper and the railway.

These are important phases of freight-handling in its more advanced stages. As stated in preceding articles, such complete facilities are not required for

electric railways to start the haulage of freight, but they constitute the means needed for extended development later. At present, however, some lines that are old at the business of carrying freight have not developed their facilities sufficiently about this line to answer present needs, let alone future requirements. In fact, it must be obvious that freight haulage could be considerably improved if interurban electric railways had something better than defunct store buildings, livery stables and barns—the class of buildings in which most of such companies cradle their freight business. Perhaps this condition is due to lack of money, but it must none the less be regarded as a detriment to the interurbans through the prevention of the efficient handling of freight.

Furthermore, labor-saving devices for handling freight are practically non-existent. In electric railway freight houses a large amount of freight for a certain shipper or group of shippers may be found piled around numbered posts. Since electric railway freight service is largely of a dispatch nature, it would be far better if managements would look into labor-saving devices instead of copying practices that led Mr. Brandeis, now judge of the United States Supreme Court, to accuse the steam railroads of wasting \$1,000,000 a day. Most electric railways have power houses, substations and car shops where they use power hoists, jib cranes and traveling cranes, as a matter of course—even in power houses and substations where they are rarely needed. Yet there is practically no freight house—either steam or electric—in this country that has a traveling crane!

Labor-saving devices for moving material have been extensively adopted by practically all the large industrial plants in the country. Surely in these days the use of brute-power devices like two-wheel and four-wheel trucks is entirely out of harmony with the modern idea of speed in the loading, unloading and storing of freight, and of scientific, economical management in general.



TYPICAL FREIGHT STATION LAYOUT, DETROIT UNITED RAILWAY, PONTIAC, MICH.

Moreover, work is too often not made as easy for teamsters as it should be. A satisfied customer is any company's best advertisement. Since in freight handling the teamster is often the point of intimate contact between the railway and the shipper, it is of paramount importance that the teamster be kept in the best of humor. To this end he must be supplied with facilities which will assist him in delivering his loads, receiving them and getting away from the freight house with the least loss of time.

One of the first things that should always be considered in laying out a team driveway and team yard is the provision of proper paving. A road in a muddy and rough condition is always a trial to the temper of the

teamster. He may experience some difficulty on this seemingly small point and complain that it is hard to get shipments into the electric line warehouse without serious delays. As a result his employer may finally decide to ship via some competing line that provides better facilities. This situation may seem far-fetched, but the point covered is not uncommon and should receive consideration. In handling freight, there are several types of houses peculiar to certain classes of traffic. These freight

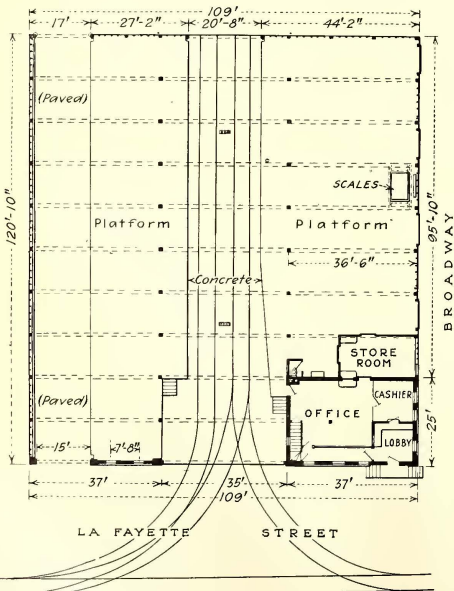
houses divide themselves as follows: 1. c. l., trap and transfer. In practically every case, however, provision is made to handle inbound as well as outbound freight. The most extensive layouts provide for the handling of two classes of freight in separate structures. This arrangement greatly facilitates the flexible handling of cars and also expedites the service for the shipper. Most interurban lines have heretofore made a specialty of less-than-carload freight. By virtue of its nature, such freight seems to be easily adapted to interurban conditions. In many cases the freight business grew up solely through service that was more or less comparable with express. Ultimately it grew so that large quantities of merchandise for various points along the line had to be handled in separate motor-freight cars, and these motor cars, in turn, were sometimes compelled to handle trailers.

As the electric railways extend their freight facilities from now on, they should handle much more carload freight. Carload freight shipments do not necessarily pass through a freight house; they may be loaded from the team track in the freight yard of the electric line or at the industry where the freight originates, the car in turn being switched to the main line.

Under present conditions, however, interurban freight traffic is of such a character that the freight houses usually come under the first classification—the 1. c. l. type. The building used is generally a low one with a driveway on one side and with a house track on the other. This track may extend beyond the platform, giving capacity for one or two cars to be loaded or unloaded by team. Often, however, one finds freight houses with the team track on the same side as the team driveway. Moreover, there are many instances where the public streets are used as the driveway. The daily carhouse capacity varies considerably, from one, two or three cars to sometimes a hundred, as in the case of the Detroit and Indianapolis terminals.

ECONOMICAL HANDLING OF L. C. L. FREIGHT

The problem of handling 1. c. l. freight properly—*i. e.*, with regularity, efficiency and economy—is of vital importance. While the transporting of merchandise freight is in itself an expensive service and while the savings from the use of freight-house mechanical equip-



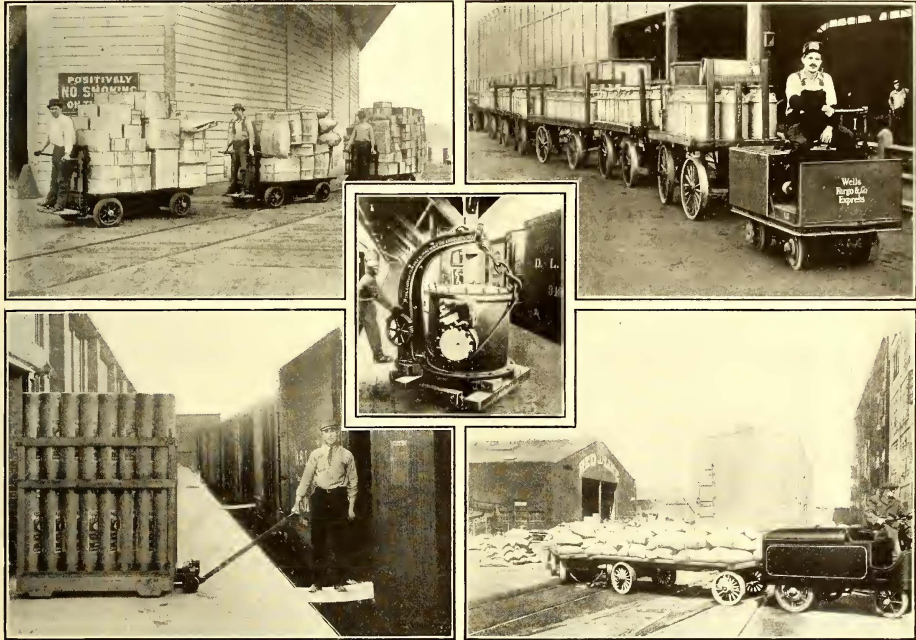
FIRST-FLOOR PLAN OF L. C. L. FREIGHT HOUSE OF NEW YORK STATE RAILWAYS, UTICA LINES

ment are, to speak broadly, small in comparison with the total cost of operation, still it is highly important that all possible handling facilities be provided that are commensurate with the traffic furnished and the revenue received.

The necessity for the relief of congestion is in itself a powerful argument for the proper use of freight-handling devices. The congestion may arise from special causes or it may be the result of the gradual growth of traffic, l. c. l. business having been found to double in volume every fifteen years. All congestion means increased costs, and in numerous cases this factor has run

consideration. That an appreciable reduction in cost per ton is possible, is accepted by many of the best engineers studying this particular problem. With a four-wheel auto truck one man can move from 2000 to 3000 lb. as compared to an average of 400 to 600 lb. on a two-wheel truck. The most up-to-date freight stations almost invariably have the four-wheel type of freight-handling rolling stock, and its use is very essential to the successful operation of the l. c. l. type of freight house.

The automobile industrial truck, which is equipped with a storage battery and propelled by electric motor,



HOW FREIGHT HANDLING IS MADE EASY

the operating costs to a high figure. Conditions of congestion in many electric railway freight terminals would be considerably relieved through the use of certain mechanical devices.

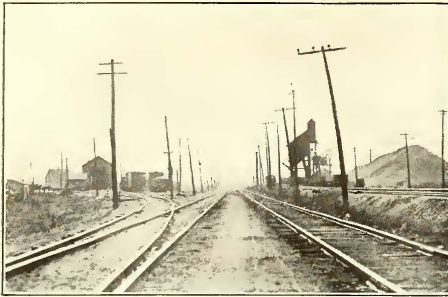
The subject requires study in each particular case, of course, for most electric railway freight terminals are not so extensive as steam ones, and all the factors of cost should be considered before an electric line determines how far to go in regard to using mechanical devices. In general, however, it may be said that the four-wheel auto truck seems to be the unit which would largely help electric lines to solve the problems of freight handling.

Both steam and electric men seem to have the erroneous impression that the well-known two-wheel type of truck is the most practical unit for freight handling. In recent exhaustive investigations, however, it has been proved that the four-wheel auto truck merits first

has been in common use in many manufacturers' warehouses. Being what might properly be called an electric tractor, it can in many cases be used with trailers of the four-wheel type, which save a large amount of time, labor and expense.

One form of this truck has a platform which can be lowered to pick up a loaded multiple platform. The multiple platform is built in the form of a sled, without steel runners, and it is only used as a vehicle for quickly loading and unloading a given amount of freight. The truck platform, having an adjustable height, can be run under a multiple platform, and the latter can be picked up and hauled to any point in the warehouse. This would seem a most logical device for electric railways generally.

In addition to inside facilities, better unloading arrangements should be provided in the yards for heavy tonnage freight which requires team-track unloading.



GRAIN ELEVATORS ARE CLOSE BY ON THE TOLEDO & WESTERN RAILROAD

Some steam railroads provide a derrick, and others a bridge which extends over the cars and part of the driveway. This bridge has a traveling hoist so that large pieces of freight can easily be lifted from the car into the shipper's truck

In the mechanical handling of any freight, one point must be borne in mind, *i. e.*, the impossibility of keeping down the cost per ton unless close supervision is provided. The maximum economy to be obtained is only possible when freight from starting point to destination is kept on the same set of wheels. This is a fundamental in the mechanical handling of freight.

Transfer freight houses of electric railways are generally employed for the transfer of freight collected by trap cars, or for the distribution of interline l. c. l. freight.

Trap-car operation means that certain industries are supplied with one or more empty small cars each day, as the occasion demands, it being understood that the shipments will be less-than-carload. The trap cars are picked up at specified times during the day and taken to the transfer freight house. Here the freight for certain destinations is assembled in carload lots to secure efficient loading.

The use of trap cars not only increases the capacity of the warehouse but also makes possible the more efficient handling of l. c. l. freight. The steam-railroad way of handling this class of freight with regulation cars is very inefficient, as cases are known where the daily load of l. c. l. freight is not more than 400 to 500 lb. The trap car, however, is built to carry a small tonnage,

and when it is held for l. c. l. service the unused capacity is minimized.

How a line can extend its freight-handling facilities through the use of trap cars is shown by the experience of the Waterloo, Cedar Falls & Northern Railway. This company operates a 7½-mile freight belt line which, as shown by the map on page 225, extends around the factory district of both east and west Waterloo, and ties together all steam lines entering Waterloo.

The company has two trap cars, each comprising a flat car with cab equipped with four 40-hp. motors. These cars call regularly on the manufacturers of Waterloo to secure the smaller freight shipments, which are conveyed to the East Waterloo terminal freight house, for mixed or l. c. l. shipments.

The trap-car service includes calling at the East Waterloo freight house of the Chicago Great Western Railroad and the office of the American Express Company for l. c. l. and express shipments respectively. These last two points are reached by a track on city streets and are used by the trap cars only.

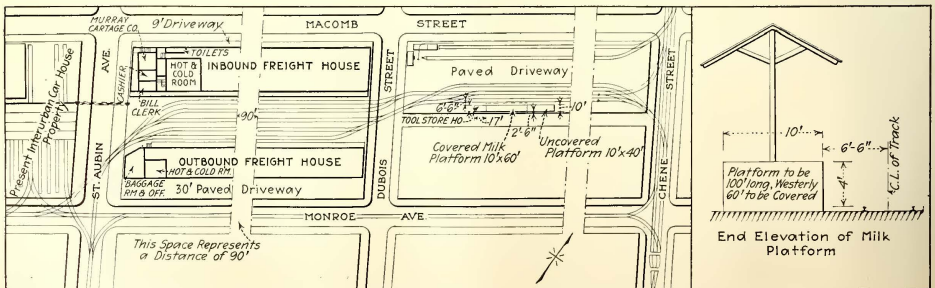
Trap-car service makes it possible for the Cedar Valley road to provide the manufacturing interests of Waterloo with one of the highest class and most efficient freight services that could be desired for both carload and l. c. l. shipments.

HANDLING A HEAVY FREIGHT BUSINESS IN DETROIT

The value of modern freight-terminal facilities is clearly shown in the case of the Detroit (Mich.) United Railway. This company has been able practically to triple its freight-handling capacity by placing in use a spacious new freight terminal. This has materially reduced the cost of handling freight and provided accommodations for the greatly increased business of the company.

The Detroit United Railway was formerly much limited in freight-handling facilities at its main source of business, Detroit. Conditions at the old terminal necessitated considerable rehandling of goods in effecting deliveries—a condition found in many electric freight houses. Embargoes had to be declared often to give the railway a chance to clean up, and new means for conducting the business were found imperative.

The new terminal site is located 1 mile east of the Detroit City Hall, a location which necessitates for the present a long haul by shippers of the west side. The company also has on the west side a large new freight



LAYOUT OF EAST-SIDE FREIGHT TERMINAL ON THE DETROIT UNITED RAILWAY



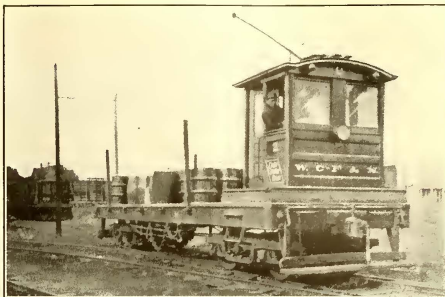
building, 100 ft. longer than the east side one and representing one-half of the pending west-side terminal development. Unfortunately the company has been prevented by existing war conditions from securing the materials for the completion of the west-side terminal, and the building that is finished is leased as a garage. When the whole west side terminal is built and added to the east-side development the Detroit United Railway will be in an enviable position from the standpoint of electric railway freight handling, as its facilities will in many ways be commensurate with those of steam roads.

But already, as said before, the company's freight-handling capacity has been increased threefold by the east-side terminal, and a description of the facilities used to effect this result may be of interest. Previous notes in regard to this terminal were published in the ELECTRIC RAILWAY JOURNAL of April 12 and Aug. 11, 1917, but a brief resurvey will be made here. It is noteworthy that such an extensive terminal could be developed so near the center of the city.

The outbound freight house of the east side terminal, shown in an accompanying diagram, is 45 ft. x 405 ft., and the inbound 60 ft. x 405 ft. Between these two buildings is a yard, consisting of five loading or house tracks. The streets along the outer sides of the freight houses serve as a team and truck way to the station. The buildings and house tracks occupy a complete city block, and in the block beyond are storage tracks for loading and unloading carload shipments. These include four team and storage tracks 600 ft. long, connecting between the two buildings, and also the main line.

The outbound freight house is built two bays wide, with practically continuous doors on the track side and with pairs of doors spaced 35 ft. on the receiving or team side. These are wooden and counter-balanced so that they can be lifted easily. At the far end of the outbound building a chain hoist, for heavy shipments, is mounted on a monorail across the building. The end bay of this building is used by the American Express Company, and at the opposite end the regular baggage room is located in a space 30 ft. x 45 ft. Here a 1000-lb. automatic scale is installed. The company does not handle any baggage on its passenger trains; all baggage is delivered to the outbound freight house and is loaded into express cars.

The inbound freight house, which is 15 ft. wider than



TRAP CAR OF THE WATERLOO, CEDAR FALLS & NORTHERN RAILWAY

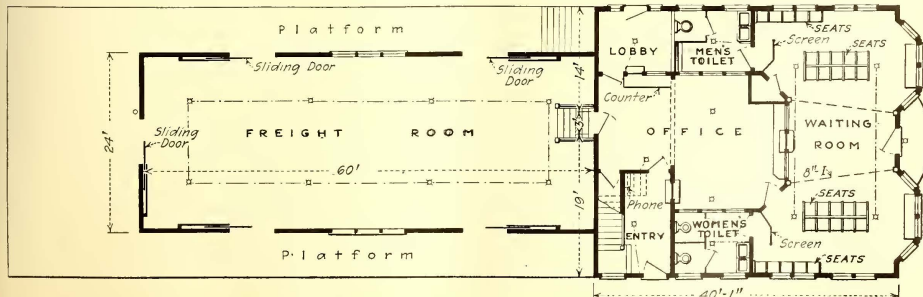
the outbound freight house, is in practically all other respects a duplicate of the outbound building. It is also equipped with a monorail hoisting system, opposite that in the outbound freight house. Two automatic 4000 lb. scales are conveniently located for checking.

The front end of the inbound freight house is two stories high and is utilized for offices. The cashier's office, which is on the first floor with that of the cartage company, has facilities for handling a large volume of work. On the first floor also are the bill clerks and freight-house foreman with clerks working in the cashier's office. The general freight office is located on the second floor, and the local freight agent has there a private office.

On the average eighty to 100 cars a day are landed out of the east-side terminal of the Detroit United Railway, thus making approximately 2000 to 2200 cars per month. This compares favorably with the record of many a steam line terminal. It must be remembered, too, that each electric motor car is equivalent in service to from three to five steam railroad cars. When the electric cars go out they quickly discharge their loads and are readily available for new business.

CEDAR VALLEY LINE HAS INTERESTING TERMINAL

Another terminal to which attention may be directed is that of the Waterloo, Cedar Falls & Northern Railway, located only a short distance from the principal business district of Waterloo, Ia. The freight house and yard tracks are on a 32-acre site near the Cedar River. The freight house is a one-story brick structure



PLAN OF WAY STATION OF THE DETROIT UNITED RAILWAY AT IMLAY CITY, MICH.

TABLE I—COST OF HANDLING FREIGHT AT COLUMBUS FREIGHT HOUSE OF OHIO ELECTRIC RAILWAY\*

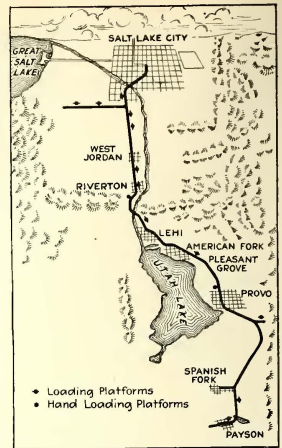
Month, 1918	Tonnage Handled by Pounds	Total Revenue	Average Revenue Per Ton	Depot Labor Expenses	Cost per Ton to Handle
January.....	5,475,834	\$11,194.03	\$3.28	\$895.00	32 cents
February.....	6,378,698	12,000.76	3.76	1,055.00	32 cents
March.....	7,543,619	16,320.57	2.70	1,057.46	28 cents

\* Tonnage handled includes only freight originating at and destined to Columbus, and does not include freight transferred.

ACTUAL PAYROLL FOR COLUMBUS FREIGHT HOUSE IN MARCH, 1918

Agent.....	\$85.00
Chief clerk.....	75.00
Cashier.....	65.00
Bill clerk.....	65.00
Delivery clerk.....	40.00
Utility clerk.....	65.00
Abstract clerk.....	70.00
Day foreman at 24 cents per hour.....	41.94
Night foreman at 22 cents per hour.....	72.72
One freight handler at 22 1/2 cents per hour.....	71.55
Six freight handlers at 20 cents per hour.....	66.45
	339.80
Total.....	\$1,057.46

having a two-story office end with basement. The roof is tar and gravel composition, laid on steel trusses and purlins. The foundation is of concrete and for part of the way is carried down 20 ft. to bed-rock. On the team side of the building there are five sliding steel doors, of sufficient width to accommodate two teams. The track side is composed entirely of rolling steel doors, eighteen in all. These doors are so arranged that it is possible to run in a string of empty cars to the house track without "spotting" them, so that the car and freight house doors will be exactly opposite, a procedure which is not always easy or convenient. By this arrangement the freight house can be opened up to a car wherever it may be on the track.



LOADING STATIONS FOR SUGAR BEET FACTORIES ON THE SALT LAKE & UTAH RAILWAY

On the team side, there is a wide, wooden canopy covered with Barret specification roofing and fastened by heavy rods to the building columns. On each side of the building above the doors extends a row of windows, so that the interior is excellently lighted. Two Fairbanks dial scales of 4-ton capacity each and with a hard maple floor are used.

For taking care of its large amount of perishable freight the company has built in one corner of the freight house an insulated storage room about 17 ft. square. The walls of this compartment, which are 10 ft. high, are made from 19 in. of plain brick and 4 in. of cork with a cement plaster lining on the inside.

The two-story portion, which is trimmed in cut limestone, houses a freight office on the first floor, and on the second, offices for the line superintendent and roadmaster and dispatcher. The floors in this part are of reinforced concrete. In the basement are located the boiler room, the coal storage and the fireproof vault (15 ft. x 20 ft.) The heating plant consists of a tubular boiler of sufficient capacity to heat the offices, the warming room and five standard road cars in the yard. Three tracks extend into the freight yard. Five cars can be "spotted" at the freight house per track; or by trucking through the cars, fifteen cars can be loaded at one time.

FREIGHT HOUSE OPERATING DATA

So much for the physical side of freight-handling facilities; let the attention now be turned to their accounting aspects. What does it cost to operate freight houses? This is a subject upon which every prospective freight-carrying line should put serious study.

TABLE II—FREIGHT-HOUSE DATA OF NORFOLK & WESTERN RAILWAY AT COLUMBUS, OHIO

	Cents per Ton
Operating cost, March, 1918.....	32.1
Outbound Freight House:	
Receiving.....	1.5
Trucking.....	26.7
Delivery (loading check clerks).....	4.1
Stowing.....	3.1
Supervision.....	3.6
Miscellaneous } Overhead.....	0.9
Total cost.....	36.8
Inbound Freight House:	
Receiving (unloading check clerks).....	4.8
Trucking.....	12.5
Delivery (connecting line traffic and city).....	4.3
Stowing (outbound trip cars).....	1.3
Supervision.....	0.9
Miscellaneous }.....	0.9
Total cost.....	23.8

GENERAL DATA ON FREIGHT HOUSES USED

	*Outbound	*Inbound
Actual length (feet).....	480	300
Width (feet).....	47	36
Length used (feet).....	450	280
Number of house tracks.....	3	2
Number of team tracks.....	3	25
Width of driveway (feet).....	3	25
Driveway frontage (feet).....	800	700
July.....	1,544	1,474
August.....	1,489	1,547
September.....	1,605	1,574
October.....	1,785	1,499
November.....	1,382	1,391
December.....	1,305	1,226
Per year.....	15,600	13,500

\* Separate inbound and outbound stations, located one city block apart.  
† Includes team-track cars.

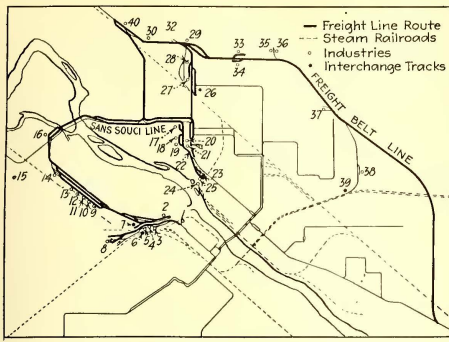
L. C. L. MERCHANDISE CARS PER YEAR:

	1913	1914	1915	1916	1917
January.....	1,379	1,311	1,142	1,370	1,630
February.....	1,367	1,387	1,192	1,431	1,470
March.....	1,680	1,497	1,496	1,722	1,823
April.....	1,347	1,545	1,470	1,598	1,792
May.....	1,598	1,437	1,444	1,667	1,821
June.....	1,544	1,474	1,457	1,623	1,779
July.....	1,490	1,476	1,423	1,601	1,624
August.....	1,489	1,547	1,465	1,698	1,617
September.....	1,605	1,574	1,575	1,776	1,595
October.....	1,785	1,499	1,656	1,845	1,802
November.....	1,382	1,391	1,623	1,810	1,633
December.....	1,305	1,226	1,568	1,729	1,312

	Inbound	Outbound
L.c.l. car-standing capacity at freight warehouses.....	15	48
Ratio of cars per day to car capacity (per cent).....	167	100
Driveway frontage per car capacity.....	10	10
Platform (floor) area (square feet).....	10,080	19,000
Platform (floor) area per car capacity.....	272	396
Trucking distance from receiving door to car and return (feet).....	40	100

NOTE—Approximately 80 per cent of l.c.l. tonnage handled is in transfer to or from connecting line stations.  
Value of land per square foot (estimate in cents)..... 80

Seals:	Type and Make	Number	Individual Capacity
Fairbanks, warehouse.....		5	10,000 lb.
Fairbanks, wagon.....		1	20,000 lb.
Iron, automatic dial.....		1	2,500 lb.
Toledo, automatic dial.....		1	2,500 lb.
Trucks:	Type and Make	Number	
Reynolds four-wheel, hand.....		8	
Woods two-wheel, hand.....		8	
Elevators: None.....		54	



KEY TO INDUSTRIES ON WATERLOO BELT LINE

- 1—Cream separator plant
- 2—Gasoline engine plant
- 3—Wholesale oil
- 4—Furnace manufacturing plant
- 5—Ford assembling plant
- 6—C. R. L. & P. Ry. interchange
- 7—Chicago & Gt. Western interchange
- 8—W. C. E. & N. Ry. power station
- 9—Tractor plant
- 10—Meat packing plant
- 11—Agricultural plant
- 12—Foundry
- 13—Machine shop
- 14—Seed house
- 15—Motor truck plant
- 16—Dairy cattle congress
- 17—Baking manufacturing plant
- 18—Warehouse
- 19—Chemical works
- 20—Structural steel plant
- 21—Fabrication plant
- 22—Coal yard
- 23—Manufacturing plant
- 24—Waterloo lighting station
- 25—Farm wagon plant
- 26—Illinois Central interchange
- 27—Farm wagon plant
- 28—Foundry
- 29—Junk yard
- 30—Stock yards
- 31—Leaving manufacturing plant
- 32—Wholesale oil plant
- 33—Wholesale oil plant
- 34—Tank and silo plant
- 35—
- 36—Engine tractor plants
- 37—Farm tools manufacturing plant
- 38—Asphalt paving plant
- 39—Chicago & Gt. Western interchange
- 40—Stone crusher

INTERCHANGES, INDUSTRIES AND STEAM RAILROADS ALONG CEDAR VALLEY BELT LINE IN WATERLOO (See table at right for numbered key to industries)

In general, in order to arrive at the operating costs of a freight house, it is necessary to consider the following items: receiving, trucking, stowing, delivery, supervision and miscellaneous. These last two items are called over-head. Moreover, consideration must be given to certain facilities of paramount importance which

should be provided in sufficient capacity to handle the business offered. These are: platform area, platform furnished for teams, car standing capacity (including suitable lead or approach tracks) and team driveways.

Investment per car capacity varies considerably with the locality of the freight house, ranging from \$4000 to \$42,000 for single-level freight houses where the land runs from \$1 to \$20 per square foot. In freight houses of the one-level type, there is usually an allowance of 2000 sq.ft. per car. In the case of the double-deck freight houses, the cost is found to vary from \$5,000 to \$24,000 per car capacity where the land ranges in value

TABLE III—FREIGHT HOUSE DATA FOR CHICAGO, ROCK ISLAND & PACIFIC RAILWAY AT FORT WORTH, TEX.

	Cents per Ton
Operating cost†	38.89
Receiving	2.43
Trucking	17.04
Delivery	35
Stowing	4.02
Supervision	3.59
Miscellaneous (overhead)	6.52
Callers	3.90
Sealer	1.39
<b>Total cost</b>	<b>38.89</b>

† Inbound and outbound freight in one house.  
\* Included under "Receiving."

GENERAL DATA ON FREIGHT HOUSES USED

Actual length (feet)	245
Width (feet)	30
Length used (feet)	245
Number of house tracks	5
Width of driveway (feet)	35
Driveway frontage (feet)	500
Tonnage per month	2,907
Cars per day (average)	10
Cars per month (average)	362
Cars per year (average for past five years)	4,444

CARS PER YEAR

	1913	1914	1915	1916	1917
January	559	581	339	354	297
February	464	503	339	348	273
March	496	534	365	340	314
April	530	463	338	304	247
May	527	405	315	333	203
June	492	376	308	303	207
July	425	448	319	301	207
August	493	351	314	309	197
September	493	378	298	273	174
October	564	413	300	295	202
November	527	378	322	283	199
December	577	415	348	270	225
Car-standing capacity, including suitable lead and approach tracks	64				
Driveway frontage per car capacity	14				
Platform (floor) area (square feet)	17,650				
Maximum trucking distance from receiving door to car and return (feet)	614				

Scales:	Type and Make	Number
	Dormant Fairbanks	3
	Portable Fairbanks	1

Trucks:	Type and Make	Number
	Hercules two-wheel (steel)	5
	Reynolds four-wheel (wood)	8
	Reynolds two-wheel (wood)	8
	American two-wheel (steel)	31

Other power labor-saving devices: three dollies, two lifts.  
Elevators: None.

TABLE IV—DATA FOR LOS ANGELES FREIGHT HOUSE OF PACIFIC ELECTRIC RAILWAY

	Cents per Ton
Operating cost	55
Receiving	2.43
Trucking	17.04
Delivery	35
Stowing	4.02
Supervision	3.59
Miscellaneous	6.52
Callers	3.90
Sealer	1.39
<b>Total cost</b>	<b>55</b>

\* Cost of handling not segregated. Average cost for both inbound and outbound is as stated.

GENERAL DATA ON FREIGHT HOUSES USED

	1918—	
	Inbound	Outbound
Actual length (feet)	350	580
Width (feet)	55	55
Length used (feet)	350	580
Number of house tracks	2	3
Number of team tracks	3	1
Width of driveway (feet)	56	56
Driveway frontage (feet)	28	28
Tonnage per month		\$12,600
Cars per day (average)	22	32
Cars per month (average)	600	800
Cars per year	7,200	9,600

\* For both inbound and outbound houses.

CARS PER YEAR

	1913	1914	1915	1916	1917
January	950	960	950	970	980
February	870	900	910	900	920
March	960	980	990	985	990
April	940	965	970	975	980
May	890	900	900	910	925
June	900	945	950	955	960
July	940	960	975	980	990
August	955	970	980	985	1000
September	930	960	965	970	1050
October	975	990	995	990	1060
November	980	980	985	990	1050
December	1000	990	1000	1010	1100
Car-standing capacity, including suitable lead and approach tracks	81				
Ratio of cars per day to car capacity (per cent)	47.50				
Platform (floor) area (square feet)	47,850				
Platform (floor) area per car capacity	280				
Trucking distance from receiving door to car and return (feet)	280				

Value of land per square foot. Land in this vicinity has recently been appraised at \$3.10 per square foot.

Scales:	Type and Make	Capacity
	Fairbanks Platform, No. 12	2 tons
	Fairbanks Wagon, No. 1	20 tons

Trucks:	Type and Make	Number
	Two-Wheel Hand Trucks, 300	5
	Four-Wheel Dollies, 5	5

Elevators: None.

TABLE V—INBOUND TONNAGE AND COST OF HANDLING AT ST. LOUIS FREIGHT HOUSE OF M. K. & T. RY. ON MARCH 30, 1918

No.	Occupation	Days	Hours	Rate	Amount		Pounds
1	Verification	1	0	\$75.00	\$2.88		
0	Receiving and loading clerks	0	0	00	00		
5	Unloading and transfer clerks	4	5	75.00	12.96		
0	Routing clerks	0	0	00	00	Inbound cars (M. K. & T.)	7 111,973
5	Delivery clerks	5	0	75.00	14.40	Cooler cars	0 0
5	Delivery clerks	5	0	70.00	13.45	Inbound cars (T. St. L. & W.)	20 435,426
16	Total	15	5		\$43.69	Total	27 547,399
Handling:							
0	General foreman	0			00	Average per car transferred	0 20,026
1	1st ass't foreman	1		\$85.00	\$3.26	Inbound shipments delivered	{ 97 (M. K. & T.)
1	2nd ass't foreman	1		80.00	3.07		{ 270 (T. St. L. & W.)
10	Pickers		100	235	23.50		
0	Stowers				00		
32	Truckers		2	320	72.00	Reported for work	7 (a.m.)
1	Coopers		10	24	2.45	Hours relieved	6 (p.m.)
1	Current			.01	4.11	Hours on duty	10
45	Total	2	430		\$108.39		
61	Grand total				\$152.08		
Total tons handled inbound, 274. Inbound cost of handling per ton (cents), 55.50.							

TABLE VI—OUTBOUND TONNAGE AND COST OF HANDLING AT ST. LOUIS FREIGHT HOUSE OF M. K. & T. RY. ON MARCH 30, 1918

No.	Occupation	Days	Hours	Rate	Amount		Pounds
0	Verification	0	0	\$75.00	\$0.00		
6	Receiving and loading clerks	6	0	75.00	17.28		
3	Unloading and transfer clerks	2	5	75.00	7.76	Outbound cars (T. St. L. & W.)	6 116,600
1	Routing clerks	1	0	75.00	2.88	Outbound cars (M. K. & T.)	34 769,785
1	Car sealer	1	0	60.00	2.30	Cooler cars	0 0
4	Delivery clerks	4	0	70.00	10.76	Inbound cars	0 0
15	Total	14	5		\$40.98	Total	40 886,385
Handling:							
1	General foreman	1	0	\$115.00	\$4.42	Average per car	40 22,640
0	1st ass't foreman	0	0	00	00	Cars transferred	10
0	2nd ass't foreman	0	0	00	00	Cars delivered in yard	{ 1 (M. K. & T.)
9	Pickers		90	23	21.15		{ 5 (T. St. L. & W.)
5	Stowers		50	24	12.25	Cars loaded in yards	{ 2 (M. K. & T.)
34	Truckers		335	22	75.37	Reported for work	{ 2 (T. St. L. & W.)
1	Coopers		10	24	2.45	Hours relieved	7 (a.m.)
50	Total	1	485		\$115.64	Hours on duty	10 (p.m.)
65	Grand total				\$156.62		
Total tons handled outbound 443 Cost \$156.62 Outbound cost of handling per ton (cents) 35.35							
Total tons handled inbound 274 Cost 152.08 Inbound cost of handling per ton (cents) 55.50							
Total tons handled 717 Cost \$308.70 Combined cost of handling per ton (cents) 43.05							

TABLE VII—INBOUND TONNAGE AND COST OF HANDLING AT ST. LOUIS FREIGHT HOUSE OF M. K. & T. RY. ON OCT. 9, 1916

No.	Occupation	Days	Hours	Rate	Amount		Pounds
1	Verification	1	0	\$70.00	\$2.69		
0	Receiving and loading clerks	0	0	00	00		
3	Unloading and transfer clerks	3	0	65.00	7.50		
0	Routing clerks	0	0	00	00	Inbound cars (M. K. & T.)	4 40,193
1	Delivery clerks	1	0	65.00	2.50	Cooler cars	0 0
2	Delivery clerks	2	0	70.00	5.38	Inbound cars (T. St. L. & W.)	25 338,154
7	Total	7			\$18.07	Total	29 378,347
Handling:							
0	General foreman	0			00	Cars transferred	0 0
1	1st ass't foreman	1		\$85.00	\$3.27	Inbound shipments delivered	{ 140 (M. K. & T.)
0	2nd ass't foreman	0		00	00		{ 452 (T. St. L. & W.)
11	Pickers		100	20	20.10	Cars delivered in yard	592
0	Stowers				00	Reported for work	7 (a.m.)
20	Truckers		194	19	36.95	Hours relieved	6 (p.m.)
0	Coopers				00	Hours on duty	10
0	Current				2.83		
0	Electrician				00		
32	Total	1	295		\$63.15		
39	Grand total				\$81.22		
Total tons handled inbound, 189. Inbound cost of handling per ton (cents), 42.97.							

TABLE VIII—OUTBOUND TONNAGE AND COST OF HANDLING AT ST. LOUIS FREIGHT HOUSE OF M. K. & T. RY. ON OCT. 9, 1916

No.	Occupation	Days	Hours	Rate	Amount		Pounds
0	Verification	0	0	\$0.00	\$0.00		
7	Receiving and loading clerks	7	0	70.00	21.52		
5	Unloading and transfer clerks	5	0	65.00	12.50	Outbound (T. St. L. & W.)	5 25,857
1	Routing clerks	1	0	70.00	2.69	Outbound (M. K. & T.)	47 794,240
1	Car sealer	1	0	55.00	2.11	Cooler	1 6,470
0	Delivery clerks	0	0	00	00	Inbound	0 0
14	Total	14	0		\$38.82	Total	53 826,567
Handling:							
1	General foreman	1		\$115.00	\$4.42	Cars transferred	11
0	1st ass't foreman	0		00	00	Cars delivered in yard	{ 1 (M. K. & T.)
0	2nd ass't foreman	0		00	00		{ 6 (T. St. L. & W.)
10	Pickers		100	20.00	20.00	Cars loaded in yards	{ 1 (M. K. & T.)
8	Stowers		80	21.00	16.80		{ 0 (T. St. L. & W.)
36	Truckers		360	19.00	68.40	Reported for work	7 (a.m.)
1	Coopers		10	21.00	2.10	Hours relieved	6 (p.m.)
56	Total	1	550		\$101.72	Hours on duty	10
70	Grand total				\$140.54		
Total tons handled outbound 189 Cost \$140.54 Outbound cost of handling per ton (cents) 34.02							
Total tons handled inbound 189 Cost 81.22 Inbound cost of handling per ton (cents) 42.97							
Total tons handled 602 Cost \$221.76 Combined cost of handling per ton (cents) 36.83							

from \$1 to \$20 per square foot. This is based on a floor area of 1000 sq.ft. per car.

Data covering the freight house of the New York Central Lines located at Columbus, Ohio, show an average operating cost of 38.6 cents per ton. From this freight house about 900 cars per month are handled. To give a general idea of the cost of service in additional existing freight houses, a number of interesting operating costs are herewith presented to assist electric railway men to determine the probable cost of operation of their freight terminals.

Table I shows the cost data for handling freight at the Columbus freight house of the Ohio Electric Railway. The tonnage includes the freight forwarded and received, local and interline, but does not include the transfer freight handled in local cars for other divisions. There are no figures available on just what this amounts to, although at one time a record was kept at the Dayton freight house, which is a large transfer

point, and it was found that the transfer-freight cost was about one-third of the total freight-handling expense. In the case of the Columbus freight house it would not be so large.

The cost of handling freight on the Ohio Electric Railway varies from 11 cents to 25 cents per 1000 lb., or about 22 cents to 50 cents per ton. This variation is due to physical conditions at the freight house, which sometimes do not permit as much direct loading from wagons into the cars as desired.

It is the policy of the company that rather than spend a large amount of money to enlarge freight houses to take care of increased business, it is better and cheaper, from not only the investment standpoint but also the operating standpoint, to build team tracks to permit the loading of freight direct from the wagons and tracks into the cars. There are a number of advantages in direct loading, for the receiving clerk checks the freight into the car and notes the car number on the bill of lad-

TABLE IX—COST OF HANDLING ALL KINDS OF FREIGHT AT PRINCIPAL STATIONS OF THE GULF, COLORADO & SANTA FE RAILWAY

Table with columns: Station, Month, Tons Handled, Total Payroll, Cost per Ton, Avg. No. Men per Day, Trucking Force (Payroll, Tons per Day), Clerical Force (Payroll, Tons per Day), Total Cost per Ton, Supervision (Cost per Ton, Tons per Day), Distance in Feet (Handled, Average), Kind. Rows include Houston, Dallas, Temple, Ft. Worth, Galveston, Cleburne, Beaumont, Gainesville, and a recapitulation of averages.

RECAPITULATION OF AVERAGES

Summary table with columns: Station, Tons Handled, Total Payroll, Cost per Ton, Avg. No. Men per Day, Trucking Force (Payroll, Tons per Day), Clerical Force (Payroll, Tons per Day), Total Cost per Ton, Supervision (Cost per Ton, Tons per Day), Distance in Feet (Handled, Average), Kind. Rows include Houston, Dallas, Temple, Fort Worth, Galveston, Cleburne, Beaumont, Gainesville.

ing. It is almost impossible to load the goods into the wrong car; the whole shipment moves in the same car; there is less handling of freight; there is no trucking expense in the freight house, thus permitting more room for the handling of inbound freight, and there is less liability from claims arising from extra handling or goods lying around the freight house.

At the large freight houses, such as those at Dayton, Springfield, Columbus, Lima and Toledo, the freight forces work twenty-four hours a day. This has been found to be very advantageous, as the night men transfer the freight from the cars into the house. Thus the freight is ready for delivery as soon as the house is opened in the morning. This same force also loads up as much freight as possible so that when the day force arrives the house is cleaned up and ready for the day's business.

The costs of operating two steam-railroad freight houses, one belonging to the Norfolk & Western Railway at Columbus, Ohio, and one to the Chicago, Rock Island & Pacific Railway at Fort Worth, Tex., are shown in Table II and Table III. Table IV gives operating data on the Los Angeles freight house of the Pacific Electric Railway. A study of these data may be of particular interest to electric railway men who are interested in the electric railway freight-house operating costs.

As a matter of special interest, data on the Broadway double-deck freight house operated by the Missouri, Kansas & Texas Railway, St. Louis, Mo., are shown in Tables V, VI, VII and VIII. In these tables it will be noted that the inbound and outbound costs are separated, but a combined cost is figured on the outbound sheets. The amount was 43.05 cents per ton on March 30, 1918. The office clerical force is not included in arriving at the cost per ton, but the laborers for loading and unloading the transfer clerks, the general foremen and the assistant foremen are included. Moreover, 1½ cent per ton is included on the inbound cost for current consumed by the elevators.

From Table VIII it will be noted that this road on Oct. 9, 1916, handled, inbound and outbound, 1,204,000 lb. of package merchandise. On this date they delivered to the drays from the inbound platform 592 inbound shipments, representing 285,200 lb. On the same day, 137 drays loaded from the inbound platform, the average tonnage for each dray being 2080 lb. There were 82 cars loaded and unloaded, the average tonnage per car being 14,681 lb., inbound and outbound. On that day fifty-six truckers worked, averaging per warehouse truck load 254 lb. The total tonnage handled by each trucker was 21,800 lb., and a close estimate of the number of packages handled was 16,200.

One particular advantage of this double-deck type of freight house is that the inbound storage platforms run across the building instead of lengthwise. An elevator is located on each of the inbound platforms, which are separated by 40-ft. driveways. Freight can be handled in double-deck freight houses economically providing the house is properly laid out, and the elevators so located as to be able to take care of the unit moves.

Many engineers have laid great stress on the cost of trucking freight. They seem, however, to have been laboring under the impression that if the trucking is

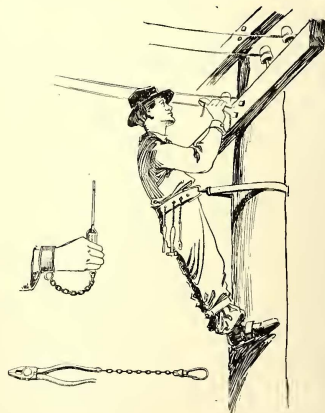
reduced, the cost per ton is decreased, but this is not the case. By working out the platform sheets, it will be noted that the percentage of trucking does not enter into the proposition. The layout of the freight house and supervision are what controls the cost of handling of package freight.

The elevators in the Broadway Station of the Missouri, Kansas & Texas Railway are 14 ft. 8 in. long in the clear, and 8 ft. 7 in. wide in the clear, and they operate at a speed of 75 feet per minute. Each elevator handles an average of fifteen loads per hour, averaging 30,000 lb. per elevator per hour. When operated at their full capacity, they handle on an average of 300,000 lb. per day.

Table IX shows the cost of handling freight in the principal stations of the Gulf, Colorado & Santa Fé Ry. The study was made for the purpose of determining the proper balance between mental and manual labor in freight handling. These data may be of particular interest in showing how steam railroads endeavor to arrive at a definite cost of operating different stations on their lines.

### Preventing the Dropping of Linemen's Tools

IN line with the "safety first" movement in all branches of industry the following method of securing linemen's tools has proved very successful. To avoid the accidental dropping of such tools which may result in injury to the passer-by as well as prove a source of inconvenience to the workmen each tool is fastened to the belt by means of small chain with a snap catch. To



"SAFETY FIRST" ATTACHMENTS FOR LINEMAN'S TOOLS

eliminate the danger of causing short-circuits to live wires these chains should not exceed 5 in. in length. A band with a ring is buckled round the wrist of the linemen and while using any particular tool this is un-snapped from the belt and fastened to the wrist band. The short length of chain gives sufficient freedom for carrying out the work and there is no danger of the tool being dropped to the ground.

# Papers Read at I. E. R. A. Chicago Meeting

At Annual Meeting Illinois Association Shows Vital Interest in Regulation, Safety and Freight and Express Transportation

**A**T THE MEETING of the Illinois Electric Railways Association, held in Chicago on Jan. 17, papers were presented by H. B. Adams, safety supervisor Aurora, Elgin & Chicago Railroad; Hon. Carl D. Jackson, chairman Wisconsin Railroad Commission, and Charles A. Laney, traffic manager Northern Ohio Traction & Light Company. R. N. Hemming, superintendent of transportation Fort Wayne & Northern Indiana Traction Company, repeated the allegory of the "Grim Reaper" and followed with an address on the subject of the conservation of humanity. H. A. Johnson also sent a brief paper on mechanical developments of the industry. The discussion at the meeting was digested in the issue of the ELECTRIC RAILWAY JOURNAL for Jan. 25, page 179. This included the additions made by Mr. Laney to the text of his paper as printed in the issue for Nov. 30, 1918. The same is true with regard to Mr. Henning's address. Abstracts of the papers by Messrs. Johnson, Jackson and Adams follow.

## Mechanical Developments of the Industry\*

Developments in the Mechanical Engineering Division Include the Increased Use of One-Man Cars and Power Checking Device

BY H. A. JOHNSON

Master Mechanic Chicago Elevated Railways

**I**N LOOKING over the progress made in the mechanical engineering division of the electric railway industry during the past year it seems to me that the chief items of interest may be grouped under four general headings as follows: (1) Continued experimentation on the types of car bodies with reference to the exit and entrance of passengers and methods of fare collection; (2) the extended use of the one-man car (3) power checking devices and (4) the Electric Railway War Board "standardized" car.

1. Various combinations and locations of doors are now being used, such as, (a) entrance at the rear—exit at the front; (b) both entrance and exit at the center of the car; (c) both entrance and exit at the front of the car, and (d) entrance at the front and exit at the center of the car. As to methods of fare collection there is the prepayment plan where the passenger pays either on the rear platform or at the front of the car at time of entrance, and the "pay-pass" system in which the conductor is located at the center door of the car, which in this case is used as an exit. Passengers remaining in the front part of the car pay their fare as they pass the conductor when leaving the car, while those who go into the rear half of the car pay the conductor upon passing to the rear section and then exit directly from the rear at the center exit door.

2. During the last year the use of the one-man car has been widely extended and this method of operation is being applied to larger cars. The small one-man safety cars are being placed in operation in larger cities than ever before. The American Electric Railway Association War Board submitted a brief on one-man cars after studying their operation in the following cities: Columbus, Ga.; population 21,000; Tampa, Fla., population 37,000; Beaumont, Tex., population, 50,000; Houston, Tex., population 120,000; Fort Worth, Tex., population with soldiers 100,000; El Paso, Tex., population with soldiers 100,000; Tacoma, Wash., population 100,000; Seattle, Wash., population 400,000; Everett, Wash., population 25,000, and Bellingham, Wash., population 37,000.

The War Board summarized the information gained in its study as follows: First, the one-man safety car is applicable to a wide range of electric railway conditions; second, safety cars of new construction permit enormous savings in fuel; third, all safety cars permit greatly increased service to the public while still permitting a large reduction in platform personnel; fourth, the safety car, because of the use of automatic devices, can be operated at a higher schedule speed by one man than an older style car can be operated by two men; fifth, the safety car fully justifies its name as a preventer of accidents through the inter-operation of control, brakes, doors, steps, sander and emergency brake; sixth, only the economies in operation and improvements in service made possible by the safety car have made it financially practicable to maintain railway service in small cities where short headways are a necessity and in larger cities where the shortage of labor has seriously impaired the ability to give adequate service even with but one man per car, as at Seattle and Tacoma; seventh, the safety car is preferred by the men themselves because it eliminates all manual labor and avoids division of responsibility with a second platform man; eighth, the safety car promotes better public relations in demonstrating the good-will of the railway, thereby paving the way for a solution of the local utility problems.

3. Since the United States entered the war and since the unfavorable experience of last winter in connection with the coal situation, the Fuel Administration and the Electric Railway War Board have advocated economy to reduce the amount of fuel necessary to operate the electric railways. This has caused many companies to install some device for measuring or checking the amount of energy used by motormen for the operation of cars or trains. Although these devices were being installed by a considerable number of companies before the war, the last year has given an added impetus to this movement and in checking up the various installations it seems that, practically without exception, the devices are producing good results. I believe that shortly every electrically operated car will be equipped with some kind of a power-checking device.

\*Abstract of a paper prepared for delivery before the Illinois Electric Railways Association in Chicago on Jan. 17, but not read because of the absence of the author.

4. The development and sale of the one-man safety car during the last four years was one of the first long steps toward a uniform electric railway car. It was found that these one-man safety cars could be built on a stock order by the car builders and later sold to various railway companies. The idea of a "standardized" car has been further worked out by the American Electric Railway Association War Board in co-operation with the United States Bureau of Industrial Housing and Transportation, following a request for designs and specifications from Otto M. Eidlitz, director of the bureau. The problem was to design one or two uniform cars which could be ordered from the car builders by the government in comparatively large quantities and be placed in any part of the country to meet the requirements of the local railway system. This would reduce the cost of cars especially to those companies ordering in small quantities. Keeping these cars in stock would enable the local railway company to obtain prompt relief and save the time necessary to build cars to its specifications.

As the designs and specifications were completed just prior to the signing of the armistice, we did not have a good opportunity to try out the operation of these cars in various parts of the country, but the fact that a car upon which a committee could agree could be designed is certainly a great step in advance in the electric railway field and points toward interesting and valuable development in the future.

## Public Utility Regulations\*

### Commissions Have Justified Their Existence During War Period—Municipal Ownership Not Ultimate Solution of Present Problem

BY HON. CARL D. JACKSON

Chairman, Wisconsin Railroad Commission.

**PUBLIC** utility and railroad acts provide that the rates shall be reasonable, fair and non-discriminatory. They are subject to investigation either on petition of municipalities or consumers, or on the petition of the public utility. The spirit of the laws was one not only of securing just and fair rates to the consumers but of establishing just and fair rates for the public utility. While regulation in its present form unquestionably grew out of the necessity of curbing any unjust exercise of arbitrary power by those engaged in the public utility business, and while it was unquestionably the intent of the legislators that public utility commissions would prevent any such abuse and secure to the consumers fair, reasonable and non-discriminatory rates, a glance at the statutes will also show that the legislators had in mind a fair and square deal to the public utilities and those investors who risk their capital in establishing and developing utility service for the benefit of the public.

Unquestionably there was also the thought that this power of regulating rates should be placed in a body competent to handle the matter fairly and justly to all having an interest in the matter. Such a body could act intelligently only when it understood the problems of manufacture and distribution and had at hand the

assistance of experts, both statistical and engineering, capable of furnishing necessary information to those acting upon the subject.

### HAVE THE COMMISSIONS JUSTIFIED THEIR EXISTENCE?

During the early history of regulation, the improvement in the generation and distribution of electrical energy often made it possible to bring about lower rates to the consuming public without affecting a fair return to the public utility. However, a severe and wholly unforeseen test of regulation came with the world war. With new labor conditions, world monetary inflation, and greatly increased operating costs in practically all departments, the public utilities faced in a large number of instances throughout the United States emergency conditions demanding relief to prevent bankruptcy and to permit a continuance of public service. Have the commissions as a whole met this test and justified their existence? In answer, I think that it can be said that on the whole the commissions have acted justly, fearlessly and patriotically, and that in years to come the measures taken to meet the entirely changed conditions will redound to the credit of these commissions. Secondly, I am of the opinion that with exceptions here and there, the great body of the consuming public have understood the necessity for the actions taken, have patriotically and fairly accepted and approved of these actions, and that on the whole the public utility commissions still retain the confidence and respect of the public.

I am perfectly aware that in some instances we shall be met by the claim on the part of the public utilities that the action taken by the commissions has not been adequate or has been delayed, or that it has not given the full measure of relief demanded. Perhaps some will deny that the commissions have met the situation as it should have been met. On the other hand, many instances in all the different states can be found where the actions of the commissions have not always been received without adverse and sometimes bitter criticism on the part of some particular community. This is especially so in those instances where relations between the public and the public utility are either subjects of long political struggle or are positively unfriendly.

### THE UTILITIES HAVE BORNE THE BURDEN

It has been our experience in Wisconsin that in the vast majority of instances where applications have been filed with the commission for necessary increases in rates such applications have not been filed by the public utilities until they themselves have for some time borne the burden of changed conditions, and very often the relief asked has been of an emergency or temporary nature and often without a demand for a full measure of return. Such attitude on the part of these public utilities, which could and did bear their share of the war burden without asking the full transfer to the consuming public, should be fully recognized and appreciated. Certainly my own experience with the different utilities has convinced me that in the large majority of cases the public utilities are operated by men with the highest sense of patriotism and with a liberal spirit.

\*Abstract of address presented at annual convention of Illinois Electric Railways Association, Chicago, Jan. 17, 1919.



I believe that regulation has on the whole justified itself and that it must and will remain as a permanent public policy. There are many reasons why this should be so. On the one hand, no one acquainted with the temper of the public mind can for a moment conceive that public utilities will be allowed a free hand either in making rates or in establishing practices. The return to the unregulated condition of twenty years ago is not contemplated by the public. Therefore, if our public regulating bodies are not to remain, something must be substituted for them, either public ownership of all public utilities with regulation by the public owning body, or the substitution of regulation through local units for regulation by an expert body. The only substitute for these alternatives is federal regulation of all public utilities throughout the United States, a proposition which I do not think will appeal either to the public utilities or to the thinking citizen.

#### THE AVERAGE CITIZEN IS UNKNOWINGLY PART OWNER OF THE LOCAL UTILITY

Perhaps during the last year and a half, or two years, regulation would have been more easily acquiesced in by the consuming public where dissatisfaction may have existed, were the public really to think more clearly below the surface of things. The actual ownership of most public utilities is by the people themselves. The first liens on most public utilities are very often owned by trust companies, banks, and largely by insurance companies throughout the United States. Nearly every man carries an insurance policy. The average citizen has a bank account, yet not one citizen out of a hundred realizes that in one form or another his actual savings and insurance and his wife's and children's welfare depend upon the solvency and continued operation of public utilities. There is probably not one man in fifty whom we meet on the street who does not own a part of a public utility, whether he knows it or not. So the questions relating to public utilities are not confined to the consumers on one side and the public utilities as such on the other, but the whole question is one involving financially nine-tenths of the entire population. Furthermore, public utilities should not only be solvent in themselves, but there should still remain a reasonable incentive to reasonable development along the lines to be demanded by future generations. Nothing should take place in this country to discourage individual and collective efforts along progressive lines.

The public utility law in Wisconsin recognizes public ownership of public utilities as a contingency which may be desirable. The public utility law provides the necessary machinery therefor, and some public utilities, mostly water works, have been taken over from time to time and are now municipally owned, and in many instances successfully operated. Up to the present time there has not been a pronounced movement in the direction of general public ownership, nor would it, in my opinion, be a solution of any existing problems. If public ownership shall increase in the future it should be undertaken gradually and only where the municipality is in a position to acquire such public utility and handle it efficiently. In many instances the municipalities are not in a position to take over the large systems though in some instances they act as distributors, buying the power at wholesale rates.

The most pressing and difficult problem now presented in the public utility line is unquestionably in the street railway field, where the conditions cannot be said to be satisfactory either to the public or to the companies. In Wisconsin's smaller cities, the problem has in some instances become acute, and the question is really one of continuing to render public service. In many instances the feeling is growing that direct municipal participation is perhaps advisable and fully justified. Certainly the solution is not in federal control or operation of public utilities, unless it be a mere question of regulation of interstate relations. There is nothing in the present federal control, either of railroads or the telephone companies, which encourages one to believe that the solution of any public utility problems lies in a federal direction. My conclusion, is that the welfare of the utilities, the communities and the state depend upon the continued regulation and control through commissions and that their abolition can mean nothing but loss to investors, general financial unrest, deteriorating service to the public and abandonment of all hope for future progress through individual initiative and enterprise.

If the public could learn the facts in regard to valuation and operating results of utility properties, many of the difficulties of regulation would be eliminated. Take the question of valuation alone. It is not an uncommon thing for experts on one side to differ with experts on the other in the ratio of three to one as to the value of the property, the experts for the utility including all possible elements of valuation or reproduction, while the experts for the municipalities are often equally as far from the truth. These various figures are given publication either in the newspaper or from the stump and the public, which isn't an expert to begin with and hasn't the time or means actually to arrive at the facts, is left in a confused state of mind, and only in so far as it has confidence in the commission's fairness and ability is it able to arrive at anything like the actual truth. We have been hoping in Wisconsin finally to fix upon valuations which shall be stable for the value, subject only to those changes coming from renewals, extensions, etc. If this condition could possibly be brought about and the public utilities would in all instances follow the commission's rulings as to the treatment of new capital, renewals, depreciation funds, etc., a large element of discussion and dispute would be eliminated. The same could follow in the matter of revenues and disbursements.

## The Preservation of Humanity\*

The Management of an Electric Railway Is Responsible for the Safety of Its Employees and Should Lead in Safety Work

BY HENRY B. ADAMS

Safety Supervisor Aurora, Elgin & Chicago Railroad, Aurora, Ill.

SAFETY work by electric railways has been more or less a feature of operation during several years past, and many companies have reaped benefits commensurate with the effort put forth. At a time like this the analysis of statistics is tiresome, but such analysis is

\*Abstract of a paper presented at annual convention of Illinois Electric Railway Association, Chicago, Jan. 17, 1919.

worth while in proving that continual, regular and systematic work brings results in proportion to the unanimity with which the management and the employees co-operate for the prevention of accidents.

Our nation has voluntarily given many of its best citizens and vast amounts of money and materials to make the world safe forever from the power of evil autocracy over the lives and well-being of the people, and when we realize that in connection with our allies this magnificent result has actually been accomplished, our hearts swell with patriotic pride in the knowledge that the co-operation of over 100,000,000 individuals, all doing our full share, was the prime factor in the glorious victory. But the loss of life through so-called accidents in the United States during the period of the war exceeds the deaths in the entire army of the nation for the same time. Now that our thoughts are free from war problems, let us direct our energies to the elimination of the causes which bring so much sorrow and suffering to our fellow citizens.

The management of an electric railway carries a vast responsibility for the safety of its employees and its patrons, and should lead in safety work. It should first do all that is possible to eliminate dangerous physical conditions, and then ask for the co-operation of employees in the work of correcting careless and dangerous practices. The company and its employees should be always ready to take an active part in public safety, and not selfishly confine to their own properties their efforts in saving life and limb. There are many methods of doing safety work, and we are all desirous of showing results.

As he who profits by his own experience does well, he who profits by the experience of others does better, and hence membership in the National Safety Council is advisable in that it furnishes the ideas of safety workers from all over the country. The National Safety Council, the greatest organization in the world for the prevention of accidents, furnishes its membership with weekly bulletins which are forceful and up to date; has a large number of stereopticon slides and moving picture films, and has a library of safety literature of unlimited scope, the use of which is available to members at actual cost. It also furnishes first-class speakers for safety meetings anywhere, without charge beyond actual traveling expenses. The headquarters are in Chicago, where is maintained a corps of competent safety experts always ready to confer with and advise members upon questions of organization and special problems in safety work. There are now 131 electric railways operating nearly 16,000 miles of track who are receiving the benefit of the Council through its electric railway section.

The International Register Company has practically completed the airplane instrument work for the Army and Navy which it had undertaken during the war period and is now prepared, with about double its former facilities, to handle promptly all electric railway orders. A statement in Professor Richey's report on the Boston zone system, recently published in this paper, relating to the crowded condition at this company's shops, was based on a statement made by the company before the armistice was declared and does not apply to present conditions.

## Manufacturers' Night Celebrated by New England Street Railway Club

Four hundred and fifty members and guests of the New England Street Railway Club assembled at the Hotel Somerset, Boston, Mass., on Jan. 23, to celebrate Manufacturers' Night, which has become an annual institution in the affairs of the club. The entire evening was devoted to relaxation and from the opening strains of the "Star Spangled Banner" to the close of the vaudeville entertainment which followed the dinner, good-fellowship reigned supreme. Nearly 100 electric railway manufacturing and supply organizations contributed to the success and hospitality of the occasion. William W. Field was general chairman and Charles C. Peirce director of the evening's program, the committee chairmen being: George C. Ewing, hotel; Warren L. Boyer, finance; George Acker, entertainment, and Charles A. Record, program.

## Cedarmen Meet at Minneapolis

THE Northern White Cedar Association held its twenty-third annual meeting at Minneapolis, Minn., on Jan. 22, with representatives of twenty-four firms in attendance. In outlining the situation in the white cedar industry President Gerich called attention to the importance of the labor problem in this field, where labor constitutes so large a part of the total expense. He urged that labor unrest and trouble be forestalled by showing the men that increased production and higher wages are partners, and by creating as nearly ideal living and housing conditions as is possible in camp life. He said further that, while dormant recently, the competition from steel and iron fence posts, which have been popularized by means of scientific advertising, is increasing. The association has not done much in the way of post advertising, but the pole advertising has been continued during the past year with good results. The actual consumer has been reached directly, particularly through the trade journals.

Secretary Boucher reported for a number of committees of the association, the work of which had to do with practical matters such as accident compensation, transportation relations, inspection, etc. He stated that considerable dissatisfaction had resulted from the specifications for ties prescribed by the United States Railroad Administration. A meeting of manufacturing tie contractors had been scheduled to be held at an early date to consider the matter. In the discussion of the secretary's report it was stated that the pole situation was not as good as might be wished, the sales for the year being about 50 per cent of the preceding annual rate, while the stocks on hand were probably 75 per cent of the 1917 production. Weather conditions had not been favorable to the business. In this matter the arbitrary position taken by the carriers in the producing territory was causing producers no little concern.

The election of officers resulted in the choice of L. L. Hill, Page & Hill Company, Minneapolis, for president; L. A. Furlong, Valentine-Clark Company, for vice-president; W. B. Thomas of Manistique for treasurer; N. E. Boucher of Minneapolis for secretary, and Benjamin Finch of Duluth and M. J. Bell of Minneapolis for directors to serve two years.

# Telling the Public the Truth About the Skip Stop

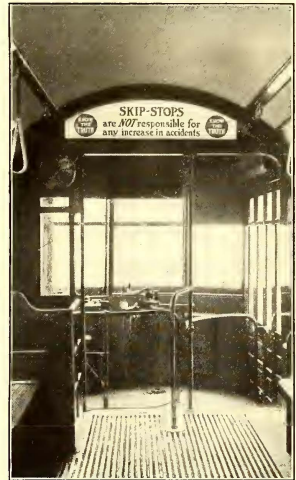
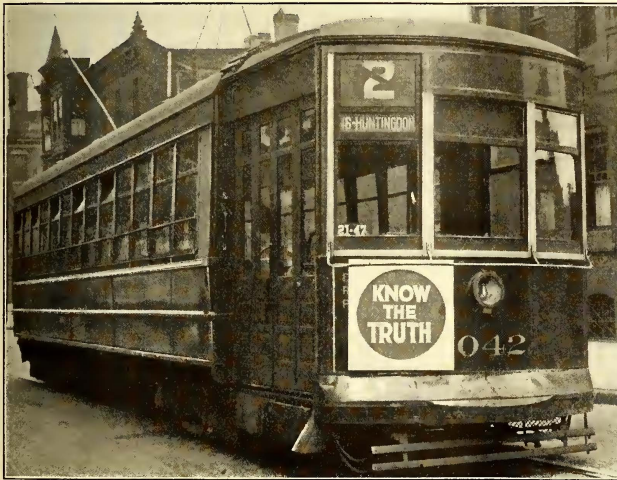
**Strong Effort Being Made in Philadelphia to Acquaint the Public With the Merits of Rapid Transit and Correct Misapprehension About the Skip Stop**

**A** VIGOROUS publicity campaign has been waged by the Philadelphia Rapid Transit Company since last December for the purpose of correcting statements made by certain of the local newspapers to the effect that the skip stop had caused an increase in fatal accidents, and for the further purpose of making generally known the many advantages to be secured by the public through a continuation of the skip-stop plan.

The principal medium used for bringing the facts before the car riders was a series of signs carried on the front dash of the cars, in combination with interior

that the skip stop was not a plan local to Philadelphia, but that it had been adopted successfully in other large cities throughout the country.

As an evidence of the fairness of the company's position, and to refute the charge that the skip-stop plan was being forced upon the public against its will, the management announced that after the stops had been properly adjusted and the schedules shortened to take advantage of the time saving, the car riders on each line would be asked by vote whether they wanted skip-stop operation continued or discontinued.



FIGS. 1 AND 2—THE FIRST DASH SIGN FOLLOWED BY A BULKHEAD SIGN

signs in the bulkhead spaces over the end doors. As described in *THE ELECTRIC RAILWAY JOURNAL* for Dec. 7, 1918, the crusade was opened by the displaying on the front dash of all the cars of white cardboard signs (Fig. 1) bearing the words "Know the Truth" in large white letters in a bright red circle. The appearance of this sign on the streets caused wide conjecture and interest as to the meaning, and after this curiosity had been allowed to run for three days, the first of the interior bulkhead signs (Fig. 2) was posted, reading "Skip Stops are *not* responsible for any increase in accidents."

After three days, the front dash sign was changed to read as shown in Fig. 3, and at the same time the interior bulkhead sign, shown in Fig. 4, was displayed. The effect of this set of signs was to inform the public

Accordingly the dash sign reproduced in Fig. 5 was displayed on Dec. 10 and 11, and the interior sign, Fig. 6, was carried from Dec. 10 to Dec. 23 inclusive.

As exaggerated and misleading statements were still being made in certain quarters with regard to the skip-stop system, the front dash of the cars was again used for three days, Dec. 18, 19, and 20, for what is known as a "teaser" or mystery advertisement by posting in large, black letters a sign reading, "Proverbs XII:19," with the "Know the Truth" trade-mark reproduced in one corner (Fig. 7). The verse referred to in Proverbs is as follows: "The lip of truth shall be established forever: but a lying tongue is but for a moment."

The appearance of this sign sent many thousands of people scurrying for Bibles, and the application of the verse was generally appreciated. In this connection the

secretary of the Philadelphia Branch of the American Bible Society promptly issued a public statement announcing that a great many people had visited the office of the Society seeking information as to the meaning of Proverbs XII:19. The Society expressed its appreciation of this method of advertising in the following words:

"The object of this communication is not to discuss the merits or demerits of the present system, but simply to call attention to the most commendable motive of the present management to take their patrons into their confidence and to secure, if possible, an intelligent de-

termining the truth of these statements. The members of the committee were drawn from all walks of life, including state and city government, business, education, religion, and the home.

This committee held two public meetings at the City Hall for the purpose of hearing all who might have evidence or testimony to present as to the skip stop having been responsible for fatalities or casualties. It addressed an invitation to the responsible head of each of the newspapers which had made such charges, asking them to appear before the committee and present the evidence upon which these charges were based. None

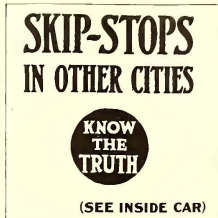
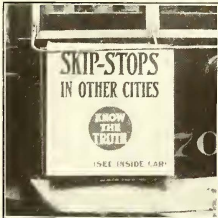


Fig. 3

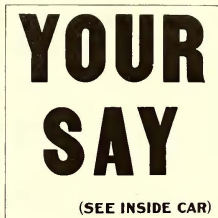


Fig. 5

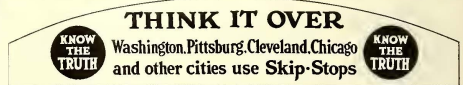


Fig. 4

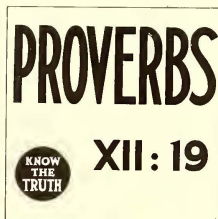
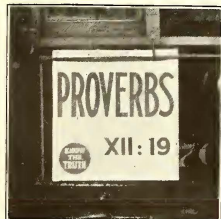


Fig. 7

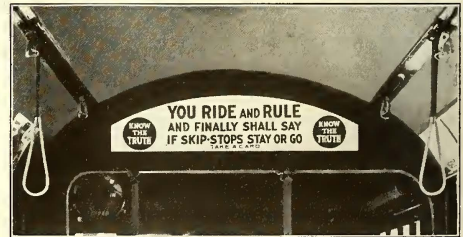


Fig. 6

FIGS. 3 TO 7—DASH SIGNS AND INSIDE BULKHEAD SIGNS IN THE ORDER OF THEIR USE

cision. President Mitten and his associates should be commended in the highest possible terms for the substantial interest that they are showing in their thousands of employees and in their undoubtedly sincere efforts to do what is best for the largest number of citizens."

As stated in the article in these columns previously referred to, President Mitten, finding that, as a result of the misleading headlines in the newspapers, the public mind was becoming confused on the question of whether skip-stop operation was causing accidents, requested thirteen of the most representative citizens of the city to act as a committee for the purpose of de-

termining the truth of these statements. The members of the committee were drawn from all walks of life, including state and city government, business, education, religion, and the home.

On Jan. 3 the committee of thirteen made public its findings, which were in part as follows:

"1. That there has not been presented to the committee of thirteen any evidence to justify the charges made that deaths have been caused by skip stops.

"2. That there has not been furnished to the committee any evidence to prove that any other casualties have been caused by the operation of skip stops."

The coroner also appeared before the committee to give evidence concerning the testimony at the coroner's inquests held in such fatal trolley cases as had occurred

### KNOW THE TRUTH

The Skip-Stop will go on or remain as the car riders finally decide after the facts have been presented in the judgment of the thinking majority of the general public, as represented among the more than 2,000,000 riders daily.

A noisy minority has been trying to force a decision overnight, without reference to facts.

**Truth and facts count.**

Theaters and bluster won't do.

The Committee of 13, after hearing the evidence, will be asked to say whether Skip-Stops are really worthy of causing death and increased accidents as charged.

It will be shown later how Skip-Stop can be made to save over \$1,000,000 a year and also WHO will get the million.

The Committee of 13 may later tell you things the papers don't print. This Committee is dependable. It represents State and City Government, Business, Education, Religion and the Home.

STOTESBURY-MITTEN MANAGEMENT

### THE COMMITTEE OF 13

Honorable WM. D. BAINEY, Chairman, Public Service Commission.

Honorable THOMAS B. SMITH, Mayor City of Philadelphia.

MR. JAMES E. LENNON, President, Select Council.

DR. EDWARD B. GLEASON, President, Common Council.

MR. EDGAR F. SMITH, Provost, University of Pennsylvania.

MR. ERNEST T. FRIGG, President, Chamber of Commerce.

RAYMOND MACNELLIE, Esq., Chairman, United Business Men Association.

Most Rev. DENNIS J. DOUGHERTY, D. D., Archbishop of Philadelphia.

REV. DR. PHILIP M. RHINELANDER, Bishop of Philadelphia.

DR. JOSEPH KRAUSKOPF, Rabbi, Keneseth Israel Temple.

MRS. RUDOLPH BLANKENBURG, Cmt. Clal.

MRS. HENRY JUMP, Council of National Defense.

MRS. J. WILLIS MARTIN, Emergency Aid.

### TRUTH ABOUT SKIP-STOP

and how

**Stotesbury-Mitten Management**

"It is patent that the only man on our fighting list in this newspaper and hereafter, although if you intend to name newspapers, you would think we were trying to stir the mob. Can't you find T. E. Mitten of the P. R. T. before the Committee of 13."

**FIGURE IT OUT FOR YOURSELF**

Election of the Inquirer pleads to Committee of 13, the newspaper print only "the record the day." "Mitten, Rapid, answers," "It isn't news if it isn't true."

Lodge headline, November 17th: "SKIP-STOP SYSTEM COSTS TWO LIVES."

Inquirer headline, November 25th: "SKIP-STOP SYSTEM HAD RESPONSIBLE FOR ANOTHER DEATH."

Evening Ledger, editorial of November 29th: "SKIP-STOPPING IS MURDER."

Press headline, November 30th: "THE FATAL SKIP-STOP."

"The Coroner testified as to fatal accidents before Committee of 13 at public hearing, City Hall, December 29th."

"I can frankly, freely, and truthfully say there has not been any case up to the present time where it could have been charged directly to the Skip-Stop system."

**WHAT'S THE ANSWER?—YOU SAID IT!**

### SKIP-STOP

When effectively adjusted as proper stopping places, by Vice President Tully and the Committee of experts, aided by the suggestions of Citizens and Associates, Skip-Stop will be best trying to any person and of great help to all as a time saver, and to immediate rapid transit. From 5 to 15 minutes will be saved to the Car Rider on each trip.

Fares can be kept lower than is otherwise possible, by savings of one million dollars a year!

BOSTON 8 cents—PITTSBURGH 7 cents

Other cities meeting increasing costs by higher fares.

Philadelphia is trying to hold fares down and wages up by economical management.

Government by the People—for the People

AIMS TO PRODUCE

**The Greatest Good to the Greatest Number**

Skip-Stop removes one-third of the car stops. ONE-THIRD of the Car Riders are inconvenienced. ALL of the Car Riders are benefited by rapid transit and low fares.

FIG. 8—FRONT AND BACK OF CARD, GIVING NAMES AND PURPOSE OF COMMITTEE OF THIRTEEN

FIG. 10—FIRST AND THIRD PAGES OF FOUR-PAGE FOLDER DISTRIBUTED ON THE SKIP STOP

subsequent to the institution of the skip stop. The coroner testified: "I can frankly, freely and truthfully say there has not been any case up to the present time where it could have been charged directly to the skip-stop system."

President Mitten appeared in person at the hearing before the committee of thirteen and gave a complete outline of the whole skip-stop question. The following is a summary of his statement:

**WHAT THE SKIP-STOP MEANS**

By PRESIDENT MITTEN

Skip-stop operation having been put in by order of the government, was installed in a hurried way. There was little time and no opportunity to select the stops properly—we were told that they should be six to the mile.

We found that there was a very great saving in coal to be made by the skip stop. We saw that it enabled a very great saving in time of men, in time of passengers on the cars, and that it would help us bridge the almost impassable gulf between reasonable service to the public and what we have been able to give pending ability to utilize the city's projected transit development, which at best we cannot hope to help us for some considerable time to come.

When the skip stop no longer was required as a war measure, we continued it as an economic measure. A campaign of misrepresentation designed to convict the skip stop of murder was begun, and the skip stop stood in the felons' dock accused of being responsible for many fatalities. The public mind was becoming so convinced. The

management knew that skip-stop operation was now the only hope for increased capacity and quicker service and that it would go far to keep wages up and fares down, but so long as the public was misled into the belief that the skip stop was a murderous thing, maintained for the profit of the company, no reasonable consideration of its real merits could be expected.

Hence, because Mr. Stotesbury is engaged in an endeavor to help Philadelphia by straightening out the middle in which he found the Philadelphia Rapid Transit Company eight years ago and, because I am trying to carry out this idea, the committee of thirteen was formed in the knowledge that their influence, through the organizations they represent, and their positions and reputations in the community, were such that their findings in the matter at issue would be accepted by all fair-minded people as based on the evidence and facts.

The complainants were requested by this committee to appear in public meeting and support the charges. They failed to do so. Not one particle of evidence that the skip stop is responsible for a single accident was presented.

The conclusion that the skip stop is not responsible for fatalities or casualties is therefore clear, and fair-minded people can now thank this committee for the opportunity given by which the car rider can finally and without prejudice say if the skip stop shall go or the skip stop shall stay.

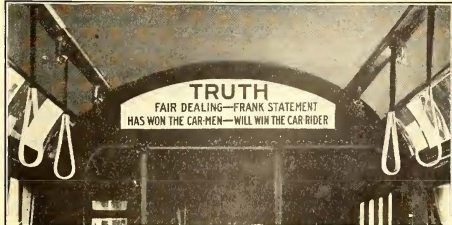
The problems confronting us are that we have crowded cars; we have slow service; we have long delays coming to work in the morning and going home in the evening; and we ask the co-operation of the car riders in helping us solve these problems for their benefit.

The city contract says that the Rapid Transit Company shall get 5 per cent per year on its \$50,000,000 of capital actually paid in. It provides for increased fares as may

KNOW THE TRUTH IF IT ISN'T TRUE KNOW THE TRUTH



TRUTH FAIR DEALING—FRANK STATEMENT HAS WON THE CAR-MEN—WILL WIN THE CAR-RIDER



FIGS. 9 AND 11—FINAL BULKHEAD SIGNS CARRIED ON THE SKIP STOP

be necessary to meet the higher costs and still pay to the company the agreed 5 per cent. Not 1 cent more or less—just 5 per cent per year.

If the transit management did throw away a saving of more than \$1,000,000 a year from skip stop operation without careful investigation and explanation, then the management would be both cowardly and incompetent, because the million, if wasted, must be added to the cost of your rides.

We are practically the only city that is not already either demanding or collecting an increased fare. Boston is charging 8 cents, Pittsburgh 7 cents. All the little roads surrounding Philadelphia are going to 6, 7 and threatening 8 cents. Even Cleveland is now charging 5 cents with an extra penny for a transfer. *We are here endeavoring to hold the fares where they are, or at least as low as possible. We say nothing about trying to cut wages down when the soldiers come back. It will be our effort to keep wages up.*

You are interested in getting the best service that the money will buy. We are interested in giving you just that. Now, how are we going to bring it about? You, the car rider, shall say. But when shall you say? When we have shown you what we are driving at. Our duty now is first properly to place the car stops by a competent force of experienced engineers, who will consider all suggestions from citizens and business men's associations, addressed to Vice-President H. G. Tulley, Eighth and Dauphin Streets. Having accomplished the shortening of the time required to take you to and from your home, we shall then say to the riders on each line, "Do you want what you have now got or do you want what you had?" And upon their decision each line will either keep the skip stop, as we finally put it in, or go back to the old method.

#### FINAL EFFORTS IN CAMPAIGN

Concurrently with the appointment of the committee of thirteen and its public hearings, the company continued its campaign of publicity.

On Dec. 12 2,000,000 cards, one of which is reproduced in Fig. 8, were distributed in the cars. On one side of the card appeared the names of the committee of thirteen and on the other the statement shown.

From Dec. 24 to 27 inclusive there was displayed in the bulkhead spaces of all the cars the sign reproduced in Fig. 9. This sign was in answer to the plea of the newspapers that they had only printed the news of the day. On Dec. 26 the company distributed on all the cars a small folder headed, "Truth About the Skip Stop and the Stotesbury-Mitten Management." The first and third pages of this folder are reproduced in Fig. 10. The folders were distributed from a small metal holder located in each car near the exit door, within convenient reach of the passengers. A sign bearing the invitation, "Read the Answer. Take a card" was displayed in a frame suspended from the ceiling over the aisle.

Following the publication of the report of the committee of thirteen, all the bulkhead signs were, on Dec. 28, changed to that shown in Fig. 11. This slogan was carried on the cars until the hearing on the skip stop before the Public Service Commission on Jan. 29.

At the hearing before the Public Service Commission on that day less than twenty individuals were present to protest against the plan. The complaint of most of those who spoke was that the cars did not stop at the corner nearest their store or home. The commission pointed out the desirability of rapid transit, and at its suggestion the United Business Men's Association, which was represented at the meeting, agreed to appoint a committee to confer with the company's officials as to any change which should be made, the matter to be considered then later by the commission.

Later on the same day skip stops were considered by the Common Council, and the City Solicitor was asked to give an opinion whether the Council or the Commission had jurisdiction in the matter.

The Philadelphia Rapid Transit Company instituted the skip stop in several steps, beginning in July and extending into October, 1918, each section of the city being treated separately. The introduction followed a thorough field survey with the object of securing to the public the advantages of the skip-stop system with the least inconvenience to the car riders.

The elimination of unnecessary stops increased the average distance between stops from 480 ft. before the change to 720 ft. under the skip-stop plan. About one-third of the total number of previous stops were discontinued. Skip-stop operation, it is estimated, will, when in full effect and thoroughly adjusted, afford improved service equal to the supplying of 200 additional cars on the system and will save the car riders from five to fifteen minutes in their daily rides.

### Attractive Display Box for Safety Bulletins

A NEW TYPE of display box for bulletins arranged with stereopticon slides at either side to attract attention is used by the Tacoma Railway & Power Company. The box, as shown in the accompanying illustration, is arranged for a bulletin in the center with three stereopticon slides on each side. A 300-watt lamp in the back of the box illuminates the bulletin and slides through a plate of ground glass which diffuses the light,



ILLUMINATED DISPLAY FOR SAFETY BULLETINS

distributes it evenly and eliminates glare. The box is painted dark green similar to the color of metal filing cases. The bulletin and slides are changed each week.

Previous to the installation of this box the men showed little interest in the safety bulletins and would hardly read them, and it was a very difficult matter to get the trainmen together to present an illustrated lecture. This box has been placed prominently in the extra room at the trainmen's depot, where the men examine the slides and of course they read the bulletins. The design has been copyrighted by E. C. Clarke, former superintendent of instruction and efficiency.

# Connecticut Lines Need Help\*

If the Public Is to Have Electric Railway Service, It Must Recognize the Legitimate Needs of the Industry and Support It Properly

By L. S. STORRS

President The Connecticut Company, New Haven, Conn.

THE Connecticut traction situation at present is this: Two of the properties are in receivership and another property is only continuing in private control because of considerable revenue obtained from power and electric business. Another of the smaller companies is unable to pay its bills. One of the larger companies is in a position to escape receivership solely because of the personal pride in the continued operation of that property of the man who brought together under one control a large number of small units. And finally the largest property in the State has not been able to accumulate sufficient cash at the present time to pay its annual taxes to the State.

It takes but little thought to appreciate the full value of the electric railways to the State. The great development of the lines through the rural districts has been of great importance to the welfare of the State as a whole and has a direct bearing upon its industrial supremacy. It is doubtful if towns which now have electric railway service would care to go back to the days before the trolley rails were laid in their streets. These railways have made possible the development of industries in these small towns. They have brought about the development of real estate. They have linked the country with the city so effectively that the dependency of one community upon the other is more and more being realized.

To do this it has been necessary to build lines in many cases through sparsely settled territory. Mile upon mile of electric railway goes through territory that contributes but little revenue. If an abandonment policy were to become necessary—all, of course, hope it will not be—these country lines would, of course, be the first ones to be suspended. Such a suspension would be calamitous because there are not a few communities in Connecticut that are almost entirely dependent upon the trolley lines for easy communication with the outside world.

It has been possible for the cities to develop rapidly because the electric railways have been built into suburban territory and in many cases have preceded the coming of the householder and industrial plants. Were it not for this development, the growth of industry, business and commerce in large cities would have been very much slower. The new suburban construction thus created has a value of many millions of dollars, the taxes on which have made possible the improvement of the cities and towns themselves.

The investors in electric railways built the lines in the hope that eventually there would be a fair return upon their investment. It was the investment in these lines that created in a large measure the increased val-

uation of the cities and towns. Therefore, should there be a reduction in service, or a further destruction of incentive to invest in electric railway securities, there would naturally follow a slackening of community and industrial development.

## DECLINING EARNING POWER OF CONNECTICUT COMPANY

On Oct. 31, 1914, the entire property of the Connecticut Company was placed in the charge of trustees appointed by the court in the suit for separation brought against the New York, New Haven & Hartford Railroad by the Federal Department of Justice. The trustees are directed to operate the property "solely in the interest of the Connecticut Company without regard to the interest of the New Haven company, but with due regard for the public interest." Since their appointment all their efforts have been given to carrying out this intent, and to this end they have authorized the application of all surplus funds to a continual betterment of the property.

As showing the trend of the gradual impoverishment of this system the following tabulation from annual reports to the Public Utilities Commission are illuminating. The figures are the net revenue of the property after the payment of operating expenses, taxes, fixed charges and rentals, but without the application of any of the revenue to a return upon the value of the property or interest upon the amount expended by this company in betterment of the plant:

1913	.....	\$1,609,021
1914	.....	1,501,072
1915	.....	1,323,457
1916	.....	1,678,488
1917	.....	619,848
1918	..... (approximate)	400,000

The great importance in keeping the equipment and plant in good repair and having an ample supply of coal so that there would be no possibility of interruptions to the service that would have the effect of slowing down any of the numerous war industries in the territory made it necessary to have a supply of materials for repairs and coal far in excess of the requirements. Payments for such materials and supplies have so depleted the cash resources that money has not been available to settle taxes and fixed obligations other than such as have been necessary to keep the property intact.

Since the independent control of its property by the Connecticut Company, the amount of revenue available for the payment of a return upon the value of the property has averaged only 3 per cent per year upon the fair value of all of the property, this return having dropped to below 2 per cent during that period. In the four years since the appointment of the trustees by the government, however, only \$1,200,000 has been paid in the way of dividends to the New York, New Haven &

\*Abstract of address presented before the Connecticut Editorial Association at New Haven on Jan. 25.

Hartford Railroad, the owner of the stock—representing an investment by that company of \$40,000,000. All surplus cash resources have been used for additions to or betterment of the plant, leaving absolutely no surplus from which any dividend could be paid during the last two years.

#### CREDIT MUST BE RESTORED

In order to obtain funds for development it is essential that the credit of the company be established. For some years the New York, New Haven & Hartford Railroad acted as the banker, advancing the necessary cash to meet capital obligations, but because of the dissolution proceedings it has no longer been possible to borrow from that source. The only money that has been available has been from the current income.

This diversion of the entire surplus current income to capital account, however, is unusual. It must, of course, be clear why new units of the utility plant should be paid for by the addition to capital account instead of from current income. In the first place, in order to provide the necessary cash from revenues the rates of fare would have to be materially increased, and then, too, any investment made at the expense of the car riders during any year would be for the benefit of those of future years. In the opinion of the regulating commissions the charge of the cost of additions to the property to current expenses would make possible exorbitant charges for the service rendered.

Briefly, the capital expenditures for additions to and betterment of the Connecticut Company property have averaged \$2,000,000 per year since the purchase of the original lines. Owing to the inability to obtain funds, these items totalled but \$700,000 in 1917 and still less in 1918. The company has been able to obtain the assistance of the United States Housing Corporation in the purchase of some new rolling stock and for a few track extensions, solely by reason of the fact that during the progress of the war the essential character of the transportation of munition workers was recognized. This loan has only postponed the day of reckoning, for the amount advanced will ultimately have to be repaid through the issuance of some sort of marketable securities.

There is a constantly accumulating list of essential betterments that will have to be provided if the property is to continue its proper function, but before loans can be made it is essential that full solvency may be assured. To be a recognized factor in the money markets the revenues of the company must be sufficient to pay all the operating expenses, taxes, fixed charges, depreciation allowance and a reasonable return upon the fair value of the property.

An essential to the consideration of the entire problem is the determination of the return upon the investment: First, what rate of return is a reasonable one to consider in fixing the amount of revenue provided through fare collections by the public? and second, what actual return must be made to the investor in order to induce the continued supply of funds needed to keep the plant up to an adequate capacity?

Numerous different expedients have been resorted to by the traction utilities all over the United States in an effort to stimulate the revenues by increasing the rates of fare. In no instance, however, has the re-

sulting revenue even approximated the percentage in the increase in rate, and in most instances it has not produced an amount sufficient to even meet the increase in payrolls made necessary during these times.

Prior to Oct. 1, 1917, the Connecticut Company was operating on a 5-cent fare; on that date it was increased to 6 cents. The period since the increase has been one of intense industrial activity throughout the territory served. Almost all of the industries in Norwalk, Bridgeport, Waterbury, New Haven, Hartford, New Britain and surrounding towns were devoted to intense development looking toward the rapid production of the essentials of war. The actual results upon railway revenue from the increase in fare is no indication at all of the change in the riding habits of the community brought about by this industrial condition.

The passenger revenue for the first twelve months during which the 6-cent fare was in effect was \$9,227,460, an increase of only \$80,431 or less than 1 per cent. The contributing factors in connection with this are primarily the loss of so many men to active service in the army and the desire of the young women of the community to do their bit in the factories or offices, which eradicated the desire to continue those purely social activities upon which the pleasure riding was based.

Moreover, the financial necessities of the government have developed a spirit of thrift and saving heretofore unusual in this country, and unnecessary expenditures have been eliminated from the average family budget, thus automatically reducing the non-essential travel. During the summer months the company generally carries a large number of people to the shore resorts from the interior section of Connecticut, but last summer the conditions of the communities were such that the people did not take their usual shore vacation or even the one-day trip to such resorts. This was not due to the increased rate of fare, because the transportation item is such a minor portion of the expenditures necessary for a day's excursion, but was entirely due to a change in habits.

During the months of December, January and February last winter the conditions were so extreme that in some of the territory service was severely crippled, and the cold was so great that people did not move so freely within the community.

The inducement of high wages in the industries made it impossible to obtain the full complement of platform men, with the result that car mileage was reduced. This, of course, had a tendency to reduce revenues. In Bridgeport a contributing factor has been an intensive jitney competition which was fostered by the 6-cent fare, for while there were jitneys in operation prior to Oct. 1 there has been a great increase since that time, and the railway has lost very largely to that form of competition.

After having weighed all the various factors, I have come to the final conclusion that the increase to 6 cents has had the effect of increasing revenues about 10 per cent over what the company might have expected to receive had it continued to operate under a 5-cent rate.

Of these contributing factors the only one in which the public is deeply interested is that of jitney bus competition. At present this form of transportation closely follows the trend of traffic in the most congested



portions of the cities, all of which was developed by the transportation agencies to meet the requirements of the various communities. Such competition cannot be to the benefit of cities in their development.

There may be a certain value to jitney service when properly regulated and controlled and more especially when used as a medium for extending existing transportation facilities. Within the limits of such needs the Connecticut Company can make no exception. When 'he jittneys are allowed to run in unrestricted competition, however, it is necessary to state clearly that the communities will receive an impaired trolley service which will ultimately be a great disadvantage to such communities and seriously retard their growth and the continued growth of their industries. There is no room for both methods of transportation in general service throughout any city, and jitney service is not capable of being developed to a point where all the transportation needs of a community can be provided.

#### DETAILED TRAFFIC SURVEY BEING MADE

Some months ago it became apparent that a readjustment in the rates of fare that would increase the revenues was an absolute necessity, this in addition to some measure of relief from burdens imposed upon the revenues, in order that the property might escape a more drastic readjustment with a possible abandonment of portions of its lines.

For the purpose of having at hand an accurate picture of the service conditions as well as the actual use made of the cars, we have had a most exhaustive survey made of the traffic, the results of which are being tabulated and on which basis a complete readjustment may be worked out. As I stated before the commission, "all the Connecticut Company wishes to obtain is a reasonable rate of return upon the value of its property, this

the legislature and the Public Service Commissions are coming to realize that electric railway service deserves their earnest attention and helpful co-operation. Unless the public is willing to be fair, sooner or later it will cease to enjoy the benefits of electric railway service.

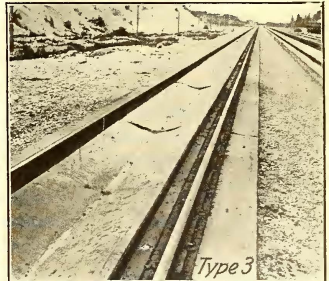
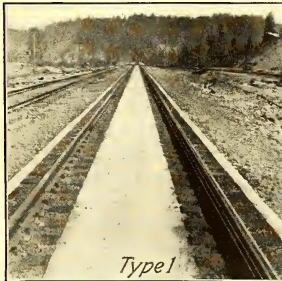
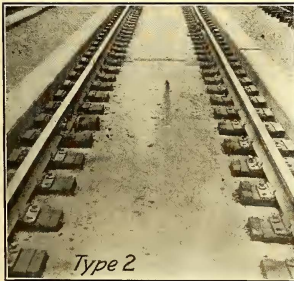
Five cents today does not go as far as 2½ cents went a few years ago, and it has been the unwillingness of the public to recognize that the electric railways cannot make 5 cents go farther than any individual can make it go that has brought the regrettable situation the electric railways are now in.

To sum up the whole situation, one might say that if the public is to have electric railway service, it must first of all recognize the legitimate needs of the electric railway companies. Having recognized them, it must be willing to give the industry proper support. It must be willing to pay the cost of transportation and a fair return upon the investment the electric railway systems represent. Instead of hampering them by severely restrictive legislation, it should adopt a liberal attitude, always retaining to itself the powers of regulation that now exist.

## Concrete-Base Track on Steam Road

Northern Pacific Railway Has Short Experimental Section of Slab Construction Very Similar to That Used by Electric Lines

THE use of reinforced concrete ballast for main-line steam road track construction in the open country upon private right-of-way is a radical departure from accepted standards of steam road track construction. Nevertheless, it is interesting to electric railway track engineers because of the extended use of this construction for electric railway tracks. An experimental stretch of double track 2000 ft. long on the Northern Pacific



NORTHERN PACIFIC RAILWAY IS EXPERIMENTING WITH CONCRETE-SLAB ROADBED DESIGNS

to be obtained from a system of fares that will be most pleasing to the great majority of the patrons."

In discussing the requirements of the electric railways, the greatest emphasis should be put upon the requirements of public co-operation. The electric railway problem is no longer merely one of transportation. It is a state and community problem. The public must realize that unless it supports the electric railways, it simply cannot have electric-railway service. The public depends upon the street cars for service. The company depends upon the public for successful operation. Boards of trade, business men's associations, municipal bodies,

Railway, using the types of concrete ballast construction shown in the accompanying illustrations, has been under test for more than four years with gratifying results. This experiment was reported upon briefly by the committee on ties of the American Railway Engineering Association at the convention held last March in Chicago and is described in detail in a recent issue of the *Engineering News-Record*.

The experiment was conducted as a part of the original construction of a new line, and a good chance was had to make comparisons with the regular standard ballast type of construction under exactly the same con-



# Metallurgical Problems Met in Electric Arc Welding\*

The Successful Welding of Steel, Malleable Iron and Cast Iron Depends on the Character of the Material and on the Skill of the Operation

LITTLE is known at present regarding the effect of impurities on weldability where the electric arc welding process is used. No data have been published on the subject. It is known, however, that steel containing 5 per cent or more of carbon is subject to "burning" at much lower temperatures than low-carbon steels. This fact can readily be observed in arc welding practice, *i.e.*, the tendency being toward "burnt" metal in the weld. The observations which have been made to date seem to indicate that the tendency toward "burning" shown in steels of comparatively high carbon content is the only considerable effect which is produced on weldability by the presence of impurities in usual amounts.

The welding process simply adds a certain amount of cast steel of a given composition. The metal added is usually in the form of a steel wire or bar which has been rolled. However, after it has been melted it cools into cast steel and the artificial structure produced by the rolling is entirely lost.

The rate of cooling of the metal in the weld is determined by the shape of the casting and by the manipulation of the arc by the operator. The rate of cooling may be different in different localities in the same weld, with a corresponding difference in character of the metal in different sections. This is, of course, more noticeable in the higher carbon steels than those which contain around 0.10 per cent.

The metallurgical problems met in the welding of steel plate are the same as those met in the welding of cast steel, so far as the character of the metal in the weld is concerned. In sheet metal, we have, however, a product which has passed through a process which improves its quality beyond that of cast steel, namely, the mechanical treatment in the rolls. The result of this mechanical treatment is greater compactness of the structure with resultant increase in toughness. The welded piece of sheet metal consists of two grades of metal—the original metal which has received mechanical treatment and the metal added by the welding process which has not received mechanical treatment. The metal added by the welding process has, in general, the characteristics of cast steel, and the original unmelted plate has the properties of rolled metal.

Up to the present time no cast steel has been produced which has all of the properties to the same degree as are found in any given piece of rolled metal. This limitation of any welding process in which steel is melted should never be lost sight of in welding.

From the foregoing several conclusions may be drawn: (1) The tensile strength of the cast steel in

the weld may be made less than, greater than or equal to the tensile strength of the metal in the original section. This holds for commercial plate only. (2) The metal may be harder or softer than the metal in the original piece. The tensile strength of the metal in the weld varies with the hardness. Burned metal is neglected in this conclusion. (3) The elasticity of the metal in the weld is always less than the elasticity of the metal in the original plate.

## CHARACTER OF WELD DEPENDS ON COMPOSITION OF WELDED METAL

The character of the finished weld depends on the composition of the metal being welded and upon the skill of the operator. The mere fact that the metal is melted and allowed to run into a joint does not indicate that the metals are welded, since it is easily possible to melt the metals without welding them. A weld is made when the metals to be welded are in the liquid state, with the slag and oxide floating on top. The simplest analogy is the case of welding together two pieces of pitch. While cold the pieces will not even adhere. Brought to the liquid state the two pieces merge into each other, and at the region of contact entirely lose their separate identities. Upon cooling, the joint is perfect. Now if the pieces of pitch be coated with paint (which corresponds to the oxide on hot steel), and the attempt is made to weld them together, it will be found that until the two pieces are perfectly liquid and the paint is floated out of the joint a perfect weld is impossible.

Flaws and imperfect welds in steel are due to the fact that the metals were not properly liquefied in welding, and the presence of the oxide, or slag, or both, prevents a perfect union. In autogeneous welding the actual union is made in plain view of the operator, so that if the union is not perfect he knows it. Knowing the tensile strength of the plate and of the metal added, the skillful and conscientious operator can predict accurately the behavior of a given welded piece under a pulling test.

The few failures of the process have been due, perhaps, to the fact that it is too easy to make an arc-welded joint which appears to have the same tensile strength as a riveted joint. The single-riveted lap joint is 55 per cent efficient under the most favorable conditions, while the quadruple-riveted, double-strapped joint may have an efficiency as high as 85 per cent. A skillful electric arc welder will make a joint which has an efficiency of 90 per cent without particular effort. Stiffness equivalent to that of the riveted joint may be produced by making the section of the joint greater than that of the unwelded section, or by the use of alloy steel electrodes.

\*From the 1918 report of the committee of the Association of Railway Electrical Engineers. For other articles on the same subject, see issues of this paper for Dec. 7, 14, 21 and 28, 1918; also Jan. 11, 18 and 25, 1919.

An intelligent analysis of the problems encountered in the service required of a given joint, together with an application of established welding methods, will leave no excuse for the failure of a joint which has been calculated to hold. The intelligent welder does not guess; he knows what the joint will do.

The failures of the past have been due to ignorance and to haphazard application, and not because the results which are obtained from the arc welding process are uncertain.

#### METAL ELECTRODES USED FOR WELDING STEEL

Practically all sheet-metal welding, where metal is added, is done by the metal-electrode process, although the carbon electrode may be used on plates over  $\frac{1}{2}$  in. in thickness in certain applications. At present two kinds of electrodes are in general use on sheet metal work; Norway or Swedish iron (or their American equivalent) and carbon-steel wire. The iron wire gives metal in the weld of a tensile strength of approximately 48,000 lb. per square inch, while the steel of the 0.10 per cent carbon content may be relied upon to produce metal in the weld of a tensile strength of about 50,000 lb. per square inch. On plates of  $\frac{1}{2}$  in. thickness and less, an electrode of  $\frac{1}{16}$  in. to  $\frac{3}{32}$  in. in diameter gives the best results. A current density in the circuit of not to exceed 75 amp. should be used with this small electrode. Plates between  $\frac{1}{2}$  in. and  $\frac{5}{8}$  in. thick are usually welded with electrodes  $\frac{1}{8}$  in. or  $\frac{5}{32}$  in. in diameter, with a current not exceeding 125 amp. for the  $\frac{1}{8}$ -in. electrode, and 155 amp. for the  $\frac{5}{32}$ -in. electrode. Plates thicker than  $\frac{5}{8}$  in. are usually welded with  $\frac{3}{16}$ -in. electrodes, using a current of approximately 175 amp.

Iron electrodes may be melted more rapidly than steel electrodes, and have less tendency to burn than the steel. In general, however, it is more difficult to weld with iron electrodes than with steel. To get the best weld possible with any electrode, the current density in the circuit should be kept as low as is consistent with a usable arc.

Practically no applications of the electric arc process have been made on plates having a thickness of less than  $\frac{1}{16}$  in. where a butt joint is required. This is due to the great intensity of the heat with the consequent tendency to "burn through." In the case where the edges of the plates are in parallel planes, however, they may be melted together with a low current carbon arc with excellent results.

The application of the electric arc-welding process to the welding of steel forgings is in every way similar to its application to boiler plate and structural shapes. This is due, of course, to the fact that forgings belong to the same classification, namely, metal which has had mechanical treatment. The metal added by this process is cast metal and has a lower degree of elasticity than the metal in the forging.

#### ANNEALED SECTIONS OF MALLEABLE CASTINGS ARE WELDED

The correction of flaws in malleable castings by the electric arc process effects very large savings. The welding is always done after the casting is annealed and made malleable. The annealing usually affects the casting to only a small depth, and it is in this annealed or softened section that the welding is done. The

annealed section is essentially low-carbon cast steel. The work may be done with either the carbon or metal electrode process, depending on the size and shape of the casting. Due to the thinness of the annealed section a comparatively low current density is used on the carbon electrode. The electrode in the hand of the operator is sometimes made the positive electrode in order to reduce the effective heat on the casting.

If the casting is to be machined in the welded section it is reannealed. This is usually necessary owing to the fact that the heat of the arc will in effect reverse the annealing process; that is, the carbon which was thrown out as graphite by the annealing is dissolved in the iron again when the metal becomes molten in the heat of the arc. The carbon in combination with the iron will of course make the casting hard.

#### SATISFACTORY WELDING OF CAST IRON IS UNCERTAIN

Cast iron is difficult to weld by any process under the most favorable conditions, due to its brittleness and low tensile strength. No reliance can be placed on a piece of cast iron which has been welded. The welded joint in cast iron may hold, but there is no way known at the present time by which the strength of the welded joint can be accurately predetermined. Cast iron can be welded by the electric arc process about as well as by any other process, but the results are always uncertain.

Cast iron should never be welded unless the person ultimately responsible for the work has a full knowledge of the facts as outlined above and a thorough appreciation of the uncertainty of the results. Broken cast-iron parts, such as cast-iron wheel centers, etc., have been successfully welded with the metallic arc by applying what may be termed a mechanically welded patch. The edges to be joined may or may not be beveled. Half-inch or  $\frac{5}{8}$ -in. holes are drilled and tapped along the edges in which studs are screwed and allowed to extend out of the casting approximately  $\frac{1}{2}$  in. The studs should be staggered to give the best results. The casting should always be preheated to remove the chill, and if there is no danger of distorting the parts, better results may be obtained by heating the casting almost to a cherry red.

#### CAREFUL WORKMANSHIP WILL PREVENT FAILURE

In the general application of welding processes to parts of machines which have within them possibilities of death and destruction in case of failure of the welded part, too much caution cannot be given the operator. Owing to the fact that in the case of electric arc welding the work is done in plain view of the operator and he is competent to judge the nature of the completed job, disastrous failures may be prevented by the exercise of ordinary judgment.

The field for the electric welding process on railways is almost unlimited. The process can be made use of in the motive power department, the car department and the maintenance of way department, in a very extensive manner, as well, of course, in any other industry that makes use of iron and steel. Thousands of dollars worth of material is scrapped by railway departments every year, a huge proportion of which could be reclaimed at slight expense by electric welding.

## Rust Prevention as a Steel Conservation Measure

The Writer Gives His Experience in Removing Rust from Steel Cars and Preventing Its Spreading to a Damaging Extent

BY DENIS O'BRIEN

Foreman Painter Fresh Pond Repair Shop  
Brooklyn Rapid Transit Company

THE importance of planning for the reconstruction period which is now about to start has long been recognized. It is evident that the great demand for steel will continue and that we shall need to conserve the supply which we already have. One method of aiding in such conservation is by instituting a vigorous anti-rust campaign.

The first step in such a conservation policy must be the re-education of the painter. He must be taught the evil that exists in allowing rust to be formed, he must be taught how to combat it and, finally, he must be made to realize that the burden of responsibility for its existence is directly up to him. Next, extreme care must be exercised in the selection of good paints. The old idea that "any old" paint will serve the purpose is wrong; instead of applying a streak of color, as was the former practice in painting steel, we must treat the surface to a mass of pigment.

Spennrath says with regard to rust and its origin: "Chemistry shows us that rust is a hydrated oxide of iron, a compound of the metal iron with oxygen and water, 100 parts of dry iron rust containing 52.2 parts of iron, 22.3 parts of oxygen and 25.5 parts of water."

The water is here in a state of chemical combination and not present as a mechanical adjunct in the form of moisture. Consequently iron exposed to the air cannot rust in the absence of water, and iron immersed in water must remain free from rust if access of oxygen is prevented.

I have seen a greater formation of rust on a piece of steel plate exposed to a brief shower of rain, than on a piece of steel plate completely immersed in water for an entire day. If rust were a solid, and formed a compact coating over the steel, we could ask for no better protection; but instead of being solid, it is porous and, being porous, it absorbs and retains water and condenses oxygen, thereby creating more rust.

### SMALL SPECK OF RUST MAY CAUSE LARGE EXPENSE

Let us figure if we can the cost of a speck of rust. Let us assume that on a steel plate of a car shopped for overhauling and painting the painter discovers a speck of rust  $\frac{1}{2}$  in. in diameter, and let us further assume that the painter has not been educated as to the evil possibilities of rust and that he works along the old line of theory that "paint kills rust." He removes the loose scale by scraping and then applies the paint. However, underneath that thin film of paint small particles of rust are left and they continue to multiply. The next time that the car is shopped we find that the  $\frac{1}{2}$ -in. speck of rust has developed to such an extent that it becomes necessary to remove the affected plate and to install a new one. The initial cost of killing the rust (labor and material) would not have exceeded 10 cents. The final cost in this case would be the cost of cutting the plate

away from the car body together with the cost of a new steel plate and cost of installation. Does it pay?

There is no better method of preparing a steel surface about to be painted than by sand blasting, but every shop is not equipped with sand-blasting apparatus. This method is economical only where the old paint is to be removed entirely and the car "brought up" from the foundation. Where the car is shopped for repainting, re-enameling or varnishing, it would not be of any advantage to sand blast the few specks of rust that might appear on the car body. In this case there is no better method for killing the rust than by applying sulphuric acid, after which the rust spot should be washed off with milk of lime. I have obtained excellent results by washing off the acid with caustic soda solution. After the surface is perfectly dry the steel can then be painted, but care must be taken to see that the acid is thoroughly removed and under no circumstances should the paint be applied to a damp surface. When we are certain that the steel contains no rust we can proceed with the painting. Unlike wood, which will absorb oil or varnish, iron and steel are impenetrable to them. We must therefore be positive that the paint used will adhere perfectly, and it must also be elastic enough to withstand the expansion and contraction that the steel undergoes due to the weather elements.

### ROUGH SURFACES TAKE PAINT BEST

I have found the best surfaces to paint are rough or pitted, rather than polished ones, since the paint cannot penetrate the steel. A rough or pitted surface insures adhesion. The particles of pigment will find lodgement in the depressions of the steel and offer an excellent foundation upon which successive coats can be built up. I do not know of any better pigment for the priming of steel or the retarding of rust than pure unadulterated red lead. The vehicle should be pure raw and boiled linseed oils. Under no circumstances should turpentine be used as this, while rendering the paint more workable, destroys the value of the linseed oil. For the same reason japan driers should never be used, as they are an oxidizing agency. An objection to red lead may be its color, but I do not know of an instance where red lead has failed.

Iron oxides, while not possessing the good drying qualities found in red lead, make excellent paint, the only objection to them being that they can only be had in dull and dark colors such as reds, browns, blacks and slates. It is wrong to reject iron oxides as pigments on the ground that they produce rust, for when suspended in oil an oxide can neither condense oxygen nor absorb water.

### RUST IS A CANCER

Rust is a "cancer" on the steel plate, and if it is not removed will permeate the entire plate and ultimately destroy it. Unlike the cancer that attacks the body and for which there is no remedy, the cancer that attacks steel and iron in the form of rust can be conquered with good workmanship, common sense, good oils and pigments.

A pigment that suspends feebly in the vehicle is not worthy of the name of paint. Lamp black, having practically no suspension, belongs in this class. If we take the weight per cubic inch of the pigments we can get an

idea of the relative numbers of particles of pigment that should be obtained from them. These unit weights are: Red lead, 0.20 lb.; white lead, 0.13 lb.; iron oxides, 0.10 lb.; lamp black, 0.06 lb. From these figures we see the true relative value of red lead. Second to it is white lead, of which Dr. A. Landolt says: "White lead, used alone and in a pure state, is not a good paint for iron work. Apart from the fact that the pure white of the pigment will speedily become impaired and dirty, the paint also sets very hard in a short time, the elasticity disappears and cracks are formed."

White lead is thus eliminated from the field unless it is used with other pigments, leaving us the alternative of using red lead or iron oxides. I give the lamp black figure simply for comparison with the others to show it has no value as a paint.

## AMERICAN ASSOCIATION NEWS

### T. & T. Association Drafts Plans for Coming Year

AT A MEETING of the executive committee of the Transportation & Traffic Association held in New York on Jan. 28, plans were drafted for the coming year. There was a good attendance of officers and members of the executive committee, those present being L. C. Bradley, Houston; W. H. Collins, Gloversville; R. P. Stevens, New York; L. H. Palmer, Baltimore, and G. T. Seeley, Chicago. R. R. Anderson, Providence, and E. B. Burritt, secretary, were also in attendance. Mr. Seeley was formally elected a member of the committee in place of H. B. Potter, of Boston, resigned, and resolutions were passed regretting the resignation of Mr. Potter and inviting him to attend meetings of the committee, whenever possible, in an unofficial capacity.

In connection with the program for the October convention the decision was reached that the association would discuss only a few topics this year with the idea that sufficient time could thus be had for a more thorough consideration of each topic than would be possible with a longer program.

There will be three sessions of the convention, and it was decided that on two of these, only one report would be presented. On the third day it is expected that two reports will be considered so that the convention of the association this year will be devoted practically to the discussion of only four reports.

The subject selected for one of the sessions is the collection and registration of fares, particularly fractional fares or fares whose payment involves the collection and registration of two or more coins. It is hoped by the committee that this session will be made a joint session with the Accountants' Association, so that the topic may be considered from both the transportation and accounting standpoints. The committee will be instructed to consider the subject both as regards a uniform and a zone system of fares.

The subject selected for the other full session was "Operation of One-Man Cars From a Transportation Standpoint." It is hoped, at this session, to show a series of moving pictures illustrating the operation of

one-man cars under different conditions in city service. An offer to prepare such a series of pictures has been received from a group of manufacturers. It is believed that such views will not only be of great interest to railway managers whose companies have not introduced one-man operation, but they will afford a very easy way of explaining to public authorities and others the many admirable features of the safety car.

The topics to be presented at the third session are (a) a report on the proper form of contract between city companies and interurban companies for the use of city terminal facilities and (b) a code of traffic principles designed to promote reliability of electric railway schedules.

It was decided to appoint two members of the executive committee to be sponsors for each of the four topics selected. The appointments made were: (1) Messrs. Stearns and Palmer; (2) Donecker and Stevens; (3) Collins and Seeley; (4) Dempsey and Bradley.

### Chicago Section Contemplates Course in Public Speaking

AT THE MEETING of the Chicago Elevated Railways company section held on Jan. 21 a plan was outlined for organizing a class in public speaking and quite a number signified their intention to become members should the plan be carried out. H. A. Johnson gave an interesting summary of what had been accomplished through the first year's operation of coasting clocks, the results obtained having been exceedingly gratifying. G. T. Seely followed with a brief talk on his work while connected with the Emergency Fleet Corporation, illustrating his remarks with lantern slides and colored posters. Capt. M. W. Bridges described briefly his experiences in the European war up to the time of his injury and told of the excellent hospital care that is given the wounded.

Among items of business, program and membership committees were appointed. The audience sang patriotic songs and J. H. Mallon told some amusing stories. The meeting was attended by 125 members and guests.

### Detroit United Railway Adds New Compressor Equipment

The Detroit (Mich.) United Railway is installing, at various carhouses, eight new type Q-3-VD National air compressors, made by the Westinghouse Traction Brake Company with a displacement of 400 cu.yd. of free air per minute as part of its storage air-brake system. These are being located at the larger stations, and the smaller units which they replace, of a displacement from 50 to 125 cu.ft. per minute, will be transferred to smaller stations.

The new machines do not take up as much floor space as the old 50-ft. units, and are a modification of the standard machine to fit local conditions. They are of the two-stage, compound type and are designed to operate against a 325-lb. mean pressure. Each compressor is driven by a Westinghouse 125-hp. type SK-190, 550-volt motor, and it is equipped with type HP (hydropneumatic) automatic control.

## Recent Happenings in Great Britain

### England Points the Way in Reconstruction Both With Respect to Labor and in Preparing for Foreign Trade Expansion

(From Our Regular Correspondent)

The industrial situation in England at the end of the past year was intensely interesting. On the one hand we had the efforts on the part of employers, capitalists and financiers for a great expansion of business, partly to make up for the arrears of work accumulated during the war, and partly for the inauguration of new developments. On the other hand, we had the constantly growing demands of labor for higher wages and shorter hours. With few exceptions, these demands were granted frequently in whole, though sometimes in part.

#### LABOR'S POWER MAY CONTINUE

Under the stress of war necessities, labor got things all its own way and the signs are that this increased power of trade unions is going to continue and the employers are going to be far more at the mercy of their work people than ever they were before the war. How far the expansion of industry is to be compatible with steadily increasing wages and large reductions in the number of hours worked per day or per week is a problem of enormous difficulty.

In the case of producing industries it may be solved in part, at least, by an increased use of machinery and by the workmen working for all they are worth during their shortened hours. But these remedies are not applicable in the case of transportation industry so far as the traffic staff is concerned. There the only visible remedy is increase of fares.

As regards the expansion of business, preliminaries are in full swing. The releasing of leading essential men from the army has begun, and during December there was a stream of government notices removing restrictions on business which had been imposed during the war. Freedom is coming to manufacturers, and in this direction the iron, steel and electrical industries are already benefiting. The whole elaborate system of priority and licenses in manufactures is going; so are the restrictions on imports and exports. Though the release of men from the army must be gradual, some help is at hand by the release of men from munition works.

#### MANUFACTURERS ON THE ALERT

Manufacturers for the traction industry are already advertising that they are prepared to take orders. The first two instances since the war of considerable orders being actually in the market come from Liverpool and Sheffield. The tramways committee of the former city have determined to order 100 motor omnibuses for the purpose of augmenting the services given by their tramways. It appears that, meantime at least, it is easier to get new omnibuses than new tram-

cars, and apparently the former will to some extent at least run on routes where there are no tramways. To get parliamentary authority to lay new tramways would take a considerable time, and to construct them afterward would take more. Meantime, that need is urgent, and it can be met temporarily as soon as the omnibuses are ready. The Sheffield City Council is apparently in less hurry, or it may have got promises of early deliveries. The Council there has invited tenders (which must be in by Jan. 7) for the supply of fifty double-deck, top-covered, vestibule trams.

On the manufacturing side the great immediate development now talked about is that of Dick, Kerr & Company, Ltd. In recent time that firm has acquired or become affiliated with the businesses of the United Electric Car Company, Willans & Robinson, Stemens Brothers, the Coventry Ordnance Works, etc., and is thus able to undertake practically any kind of engineering manufacture in addition to its production of electrical machinery. The facilities for the latter are also much increased.

#### DICK, KERR & COMPANY EXPANDING

The firm has established in France and Japan companies to exploit its manufacturing rights in connection with apparatus for railways and tramways. The affiliation with the Coventry Ordnance Works, which is the latest "deal," is very important. These works, it is expected, will be devoted to the production of heavy electric machinery. The Coventry Ordnance Works is not a public company, but is owned by the world-renowned firms of John Brown & Company, Cammell Laird & Company and the Fairfield Shipbuilding & Engineering Company. In pursuance of the expansion policy there was registered in December a new concern called the English Electric Company, Ltd., with a nominal capital of £5,000,000 in £1 shares (£1,500,000 preference and £3,500,000 ordinary). The shareholders of Dick, Kerr & Company and of the Coventry Ordnance Works will exchange their holdings for shares in the new company. The names of the first directors of the new company are instructive and significant. They are: C. T. Cayley, chairman of Dick, Kerr & Company; B. A. Firth, chairman of Thomas Firth & Sons; W. Rutherford, managing director of Dick, Kerr & Company; J. Sampson, director of John Brown & Company; P. J. Pybus, managing director of the Phoenix Dynamo Company; Col. J. H. Mansell, managing director of the Coventry Ordnance Works; A. Gracie, Fairfield Works, engineer; W. L. Hitchens, chairman of Cammell Laird & Company; and C. E. Ellis, manufacturer, Nottingham. The

offices are at 3 Abchurch Yard, London, E. C., a building which is now occupied by the head offices of Dick, Kerr & Company. It is hardly necessary to point out that great developments are indicated by the above facts.

Other engineering firms also contemplate developments as indicated by the issue of additional capital. Recent examples are the British Westinghouse Company, the Morgan Crucible Company and the Mond Nickel Company.

#### GOVERNMENT YIELDS TO MEN

As to labor, the government, which now controls British railways, has recently yielded to a demand by the two trade unions of employees for an eight-hour working day. With respect to tramway employees, the position is uncertain. Efforts have been in progress for some time for the formation of a joint industrial council of employers and employed to embrace all the tramways of the country, but so far without success. Some of the employees are said to be recalcitrant.

Councils of this sort have within recent months been formed in a number of industries and much is expected from them in the way of settling disputes and preventing strikes. The Councils are composed of representatives of employers and employed and are the outcome of a report by a Parliamentary committee (called after its chairman, the Whitley committee) recommending such councils as a means of promoting industrial peace. Meantime trade unions connected with the tramway industry are formulating impossible demands.

Another example of the labor position is indicated by the fact that apparently the tramway services in a larger number of towns than ever before were suspended on Christmas Day. The suspension does not take place because the town councils or companies concerned wish it, but because the employees refuse to work on that day. For the first time on record there was a Christmas suspension on the London County Council Tramways. The men wanted the whole day off, but a compromise was reached under which the cars ran until 4 o'clock in the afternoon. The public inconvenience in London was specially marked because the distances traversed by the cars are exceptionally long.

#### TRAMWAY SERVICES INADEQUATE

In regard to the inadequacy of existing tramway services all over the country, there is no present prospect of improvement, as the coal controller states that supplies of fuel will not for some time permit of the relaxation of the present rationing. Miners are being released from the army to come back to the mines, but the demands for coal from Britain's allies on the Continent remain unabated, and the returned miners will not for some time be able to make their influence felt.

# News of the Electric Railways

FINANCIAL AND CORPORATE • TRAFFIC AND TRANSPORTATION

PERSONAL MENTION

## Valuation Base Accepted

Buffalo Figure Placed at \$22,792,759 in Negotiations for Service-at-Cost Arrangement

An agreement has been reached between the International Railway, Buffalo, N. Y., and the municipal authorities on the physical valuation of the company's property within the city of Buffalo as of Dec. 31, 1918. The amount fixed as the base is \$22,792,759. This sum will be used by the board of arbitration to be appointed soon after Feb. 24 as a basis of a permanent agreement whereby the city will establish control over the company's property similar to the plan in effect in Cleveland.

### ARBITRATION PROVIDED

The resolution which was passed by the City Council on Jan. 25, affirming action previously taken in committee, submits all questions in dispute between the company and the city to a board of arbitration. Under the commission charter, the resolution cannot become effective for thirty days. It is subject to referendum, and petitions are now being circulated so that the voters may again be called upon to affirm or repeal the action of the Council.

Values of intangibles claimed by the company are to be arbitrated. As allowed they are to be added to the figures agreed upon by the city. From the amount agreed upon is to be deducted the amount of depreciation where the arbitrators determine depreciation exists. The city claims depreciation of about \$7,000,000. E. G. Connette, president of the company, says this sum is excessive.

Neither the city nor the company will be bound by the decision of arbitrators. Should the Council feel that the valuations found by the board are too high, it will be at liberty to reject the whole procedure. If the company feels the figures are too low, it has a like privilege. One member of the board will be selected by the city; the second by the company and the third will be chosen by these two. If no agreement can be reached, the umpire will be designated by outside parties.

### FARE MATTER STILL PENDING

Decision has been reserved by the Supreme Court at Albany, N. Y., on the application of the International Railway for a writ of mandamus directing the Public Service Commission for the Second District to receive the company's answer to the proceedings started before the commission several years ago by the city in an effort to bring about an investigation, which,

at that time the municipal authorities thought would result in a 4-cent or 3-cent fare. Arguments were heard in Albany on Jan. 25.

The railway is seeking to bring the fare question before Public Service Commission. If the court decided that the commission must receive the company's answer and thereby assume jurisdiction in the rate case, despite the franchise limiting the company to a 5-cent fare, the arbitration agreement between the city and the company will probably be waived until the final determination of the case before the commission.

The municipal authorities contend that the commission has no jurisdiction when the company is bound to give service under a 5-cent fare franchise with the city.

## City and State Consider Relief

The financial condition of the Rhode Island Company, Providence, R. I., is being considered by city and State authorities and it is possible that one or the other will in the near future propose a plan for helping the company.

At a meeting of the committee on Rhode Island Company affairs of the City Council, it was voted to extend an invitation to the United Traction & Electric Company to send representatives to a meeting of the committee to discuss the present condition of the Rhode Island Company and ascertain whether there is any common ground upon which the city and company can meet in an attempt to solve the street railway problem. While no definite action was taken, the committee also considered a bill presented to the Council providing for the presentation to the Legislature of a plan for the reorganization of the company with a view particularly to the simplification of the corporation structure. Governor Beekman and leaders of the State Legislature are opposed to any plan providing for State ownership or operation of the street railroads. The Governor said recently:

There is nothing more that the State can do for the Rhode Island Company. We are ready to do everything in reason, but we can suggest nothing more and neither can the company. Reorganization is the only remedy. It is bound to come sooner or later. If it is to come now, so much the better.

Representatives of the New York, New Haven & Hartford Railroad which owns the capital stock of the Rhode Island Company, have been in consultation with officers of the United Traction & Electric Company for the purpose of establishing a basis for a revision of present leases, but to date nothing has materialized.

## B. R. T. Policy Stated

Receiver Reviews Obligations of the Company as He Sees Them—No Room for Half-Baked Remedies

At a luncheon of the Bond Club at the Bankers' Club, New York, N. Y., on Jan. 24, Lindley M. Garrison, receiver of the Brooklyn Rapid Transit Company, said that the new management realized that the organization was a public service corporation, a quasi-public institution, and that its primary duty was to the public. In this connection he said in part:

Now, as to the policy to be pursued by the court and the receiver of course I can speak only in generalities. We have, as you know, of course, but one single policy in all that we do. We realize that this is a public service corporation, a quasi-public institution, and that its primary duty is to the public, to the masses, to the people. Of course, we intend, to the utmost measure that the facilities admit, to devote them to the best possible service that can be given to the public. We realize that in doing that we are serving our trust, because the other obligation of the trust is to the people who have put their money into this property, who have financed it, and who are entitled to proper treatment of their investment.

We have to work through and with and under the city authorities, both the Public Service Commission and the Board of Estimate, and, of course, our purpose is to work in absolutely harmonious cooperation with the purpose to start out with good intentions and then run amuck, by which I mean to put into effect the half-baked theories, or half-thought-out remedies.

We hope, therefore, that those who are interested, and that practically includes everybody, will endeavor in every way that is in their power to sympathize with our difficulties, and to hearten and cheer us on our way of progress when we are headed in the right direction, and I, for one, have very little, if any, fear that eventually the dark clouds that now overshadow the situation will not turn out their silver linings, and the situation will turn into one of great promise for the future.

In explaining the system of financing that brought about the need for seeking the protection of the court through receivership Mr. Garrison said:

In so far as the present situation of the company is concerned, it is attributed to a policy which has been pursued for many years, by which the parent company, out of income that it received from operating revenue, set aside a certain amount for betterments and improvements, capital expenditures for the subsidiaries, taking therefor their certificates of indebtedness, and not floating in loans from their own resources, bonds or stock or other means of raising capital to replace that money. It has on hand to-day some \$3,000,000 of these certificates of indebtedness, and when it was faced with the necessity of making capital expenditures, amounting to \$16,000,000, which we have got to have to complete the obligations of the company in respect to the subway contract, and to complete its own roads on account of the arrangement with the Public Service Commission and the city, they were in no position to market these securities—the market was in no position to absorb any security that they might put out—and they were faced with a stone wall and had to seek the protection of the court.

Frederick P. Royce, the new general manager of the company, has entered upon his duties. It is announced that John J. Dempsey, vice-president, will retain supervision over transportation.



## Blocks Philadelphia Rapid Transit Lease

### Commission Objects to Financial Agreement with City and to Lack of Valuation to Fix Fair Initial Rate

The rejection of the Philadelphia rapid transit lease by the Pennsylvania Public Service Commission has blocked for at least the time being the program for the operation of the new city-built lines by the Philadelphia Rapid Transit Company. Embodying features which the contracting parties accepted as being in accord with the latest and best thought concerning utility operation and control, the lease as a whole was generally believed to warrant adoption.

#### FINANCIAL CONDITIONS OPPOSED

From the explanation given by the commission for its action—this was briefly noted in the *ELECTRIC RAILWAY JOURNAL* of Jan. 25, page 199—it appears that the lease was disapproved for two primary reasons—first, because the commission disagreed in regard to some details of the lease, and second, because it felt that the city and the company had not reached a proper agreement as to fundamental financial conditions.

The commission's attitude on this second point calls for further mention. The gross revenues of the unified company and the city property, it will be recalled, were to be used for the following payments in the order named:

1. Operating cost, maintenance and damages.
2. Taxes.
3. Company fixed charges required by mortgage, lease or contract.
4. Interest and sinking-fund payments on new securities, and dividends and sinking-fund payments on new capital stock of company.
5. Depreciation reserve funds.
6. Sinking-fund payments under 1907 contract; payments to city for taxes on dividends to stockholders of subsidiary lines, and payments under 1907 contract in lieu of paving, snow removal and car licenses.
7. Payments to the city and the company in proportion to the relative investment of each equal to a return of 5 per cent per annum, the company's investment being fixed at the par value of capital stock issued, \$30,000,000, less any unpaid installments.
8. Payment to city equal to the difference between the 5 per cent return and the total amount of interest and sinking-fund charges on its investment in transit facilities.

It was provided further that all these payments should be cumulative. In the case of the first five items payments should be cumulative. In the order named and should be made before the application of gross revenue in subsequent years to current payments. But deficits in items 6 and 8 should not be made up out of subsequent gross revenue until all current payments in any year were made and the initial surplus restored, and then any deficit in item 7 should be made up before deficits in items 6 or 8.

The commission objected to this arrangement, however, upon the ground that the payments to the city under item 6, now amounting to nearly a million dollars a year, should be paid before any dividends were declared and should not be "postponed." That the priority of item 7 would exist only in an emergency period and that even then the city could receive a return commensurate with the company's dividends apparently did not in the commission's mind justify any concession

on the city's part. It was asserted that the 1907 contract specifically prohibited any preference for dividends over the sinking-fund payments, although the commissioners elsewhere were quick to assert their refusal to approve even by indirection the 1907 contract.

Moreover, the commission alleged that the very right of the company to a 5 per cent dividend on \$30,000,000 of stock had not been established. This phase of the case relates not only to the objections made against the financial arrangement noted above, but also to those presented against the rate-making basis of the lease. The commission on the latter point objected to the adoption of a fare revision plan without a valuation to determine the proper initial fare. This idea was brought out in various ways. For example, the main report said:

"We cannot approve of the method proposed for increasing or lowering the rate of fare. To do so would in effect be determining that the initial rate is just and reasonable. This the commission declines to do except in accordance with the methods and upon consideration of the principles recognized by the public service company law."

According to the concurring opinion of Commissioner McClure, an indirect approval of the 1907 contract and the provisions for the revision of fares would evidence "assent to all the rentals and other obligations of the transit company to its underlying companies, amounting to \$7,365,900 per annum, being used in the making of a rate base regardless of the real value of their properties used and useful in the transportation of passengers." But, in his opinion, nothing in the contract would prevent the commission upon complaint from fixing a reasonable rate based upon fair value. Commissioner Rilling in concurring raised the same issue.

### Power for St. Paul Electrification

More than 15,000 hp. is to be delivered the latter part of this year by the Washington Water Power Company, Spokane, for the electrification of the Chicago, Milwaukee & St. Paul Railway from Avery, Idaho, to the Columbia River. The contract for the power was made some time ago with the Intermountain Power Company. The electrification has been delayed, for under the contract 10,000 hp. was to have been utilized by this time. At the Long Lake plant an additional unit of 16,500 hp. is in process of installation, to meet the requirements of the Milwaukee contract. Indicative of the growth of the electric railroad business, there is a showing that for the calendar year 1916 the company pro-

duced 163,000,000 kw.-hr.; in 1917, 188,000,000 kw.-hr.; and for the twelve months ending Nov. 30, 1918, 194,500,000 kw.-hr.

### Why the Milwaukee Men Struck

The Milwaukee Electric Railway & Light Company, Milwaukee, Wis., has publicly disclaimed that it is trying to dictate the form of revenue increase to be granted the Milwaukee car lines by the Railroad Commission of Wisconsin. The company says that it merely asks the commission to decide the matter in time to prevent a threatened strike of trainmen on Feb. 1. With respect to the recent short strike the company says:

"That strike was ordered by majority vote of the transportation department members of the Employees' Mutual Benefit Association. The vote was taken by the Australian secret ballot system. The majority of votes cast for a strike was large.

The company knew the men were entitled to the wage increase they demanded, and said so frankly. It also told the men it was unable to pay the increase, without robbing its stockholders of all wage on their investment, unless increased car earnings could be obtained.

The Employees' Mutual Benefit Association, through its own independent audit of the company's books, was satisfied that what the company said was true. Nevertheless, the men struck. The company will be unable to prevent them from striking again on Feb. 1, if their January wage increase is not continued. Contrary statements are incorrect. Upon this point, as upon every other detail of the company's affairs, it welcomes the most searching investigation by any impartial organization or committee representing the public.

All the electric company's employees, except the executive officers, are hired by the employment office of the Employees' Mutual Benefit Association, under its contract with the company. All such men, if permanently employed, must become members of the Employees' Mutual Benefit Association, just as in a "closed shop" of any kind all workers must be or become members of the unions which supply employees.

Intervention of a committee of the Milwaukee Association of Commerce was largely responsible for the settlement of the recent strike. That association obtained the views of the men, the company and the commission and on the evening of the first day of the strike induced the company to pay during the month of January the increased wages asked by the men. The business men's committee in return promised to use its best efforts to have the commission render a decision by Feb. 1.

The company says that to prevent a renewal of the strike on Feb. 1 the commission only has to decide whether or not the company can afford to pay the increased wages out of earnings. If the commission says the company cannot pay the increase out of its earnings, presumably fares will be increased.

The alternative is for the commission to rule that the company has sufficient revenue out of which to pay the men an additional \$460,000 a year. In this event the company will continue to pay the wage increase. There will be no strike as the company, if the decision is unfavorable to it, will have the privilege of appealing to the courts on the grounds that its property is being confiscated.

## Some Columbus Problems Remain Unsettled

Redemption slips issued to passengers of the Columbus Railway, Power & Light Company, Columbus, Ohio, while a straight 5-cent fare was charged, are giving the new board of directors and officers of the company considerable concern. The aggregate liability under these redemption promises is about \$75,000. Passengers are filing the slips with the company and asking for their money under the promise which was made when the reorganization was effected recently. Representatives of the Federal War Labor Board, who visited the city recently to learn how the company is meeting the increased wage problem, insist that the redemption slips be held in abeyance until the back pay due employees is made good. An official order from the board touching upon this is expected soon.

Charles E. Kurtz, president of the company, has announced that the directors want to redeem the slips, but that the attitude of the War Labor Board will make delay necessary. He has asked the people to be patient and has explained that an attempt will be made to arrange to exchange the slips for tickets at the old rate of eight for a quarter with universal transfers.

A decision was reached recently to the effect that the stockholders at the annual meeting will not adopt blanket resolutions indorsing the acts of the directors. This would put the stockholders on record as not in sympathy with some of the recent moves of the management that resulted in public criticism of the company.

Attorneys for some of the stockholders are still gathering data to be presented in case of future hearings on the Slaymaker receivership case. This case was left open in order that certain features of the management by the Clark Management Company may be considered further, if necessary.

## Boston Freight Terminal Destroyed

A tank containing more than 2,000,000 gal. of molasses collapsed at Boston, Mass., on Jan. 15, killing at least eleven persons, injuring many others and destroying most of the electric freight terminal owned by the Boston Elevated Railway on Commercial Street and operated under lease by the Bay State Street Railway and Boston & Worcester Street Railway.

The collapse of the tank sheared off one column and bent two others supporting the elevated railway structure passing the site of the disaster, causing the fall of two spans and forcing the immediate suspension of traffic on both north and south tracks of the rapid transit lines connecting the two principal railroad terminals of the city.

An elevated train had just passed when the disaster occurred. No employees of the railway companies lost

their lives, but several of the Bay State force on the premises were injured. The Boston company lost two cars, and several other cars are being salvaged from the wreckage of molasses and building debris which covers the district.

The brick office building of the freight terminal escaped with little or no injury. It has not been decided whether the terminal will be restored, as it was established in large measure to facilitate the handling of molasses from the waterfront to the plant of the United States Industrial Alcohol Company, Cambridge, active in munitions work.

## Fort Collins M. O. Plans Maturing

The city of Fort Collins, Col., with a population of 13,000, at an election held on Jan. 7, voted five to one on a \$100,000 bond issue to purchase the local property of the Denver & Interurban Railroad, referred to in the ELECTRIC RAILWAY JOURNAL of Jan. 25, page 204. The railroad went into the hands of a receiver last spring. This system comprises 7.51 miles of operative line, about 5 miles of which are within the city.

The property, consisting of all the tracks, both in and out of the city, carhouses and considerable other equipment, is being purchased by the city for \$75,000, on a junk valuation basis. The old cars, although in excellent shape, are considered heavy for the local conditions and will be sold. A portion of the line also is to be junked. The 300-kw. rotary converter, formerly used, will be sold and replaced by a 75-kw. motor generator. Four light-weight safety cars will be operated in place of the old heavy ones.

An interesting feature in connection with financing the purchase is that the municipal purchase bonds bearing 5 per cent will be sold locally in denominations of \$50 and \$500. It is the intention of those in charge to give the bonds the widest possible local distribution in order to create a better spirit of co-operation among the citizens. Officers of the city were advised by bond dealers that the bonds, to be salable on the market at par, would have to bear 5½ per cent interest. One citizen has applied for one-half of the issue.

## Expediting Seattle Purchase

The State Supreme Court of Washington has set Feb. 7 for the hearing on the appeal in the case to restrain the city of Seattle from completing the purchase of the railway property of the Puget Sound Traction, Light & Power Company. Corporation Counsel Walter F. Meier applied for an early hearing. In two actions brought in the King County Superior Court to prevent the completion of the railway purchase, the court decided in favor of the city, and the case was appealed. The consummation of the purchase is awaiting the disposition of the friendly court proceeding now in progress.

## Twin City President Explains Predicament

Horace Lowry, president of the Twin City Rapid Transit Company, addressed a mass meeting at Lake Harriet on Jan. 13 on the railway problems before the company in Minneapolis and St. Paul. He outlined frankly the present predicament of the company, showing the inability to give satisfactory service in a constant effort to keep out of a receiver's hands, and the need for a cost-of-service franchise to insure its maintenance in the future. In this connection he said:

The street car service to-day is admittedly far below what it has been. It cannot be improved under the present conditions. With the revenue to-day it is a problem to operate the lines on the present reduced service scale. Last year we operated on a basis of 2,800,000 car-hours, meaning actual time that cars were in operation. The year before the total was 3,500,000 hours.

Mr. Lowry said that he could not suggest a satisfactory fare increase, one which would mean sufficient revenue to operate the lines efficiently. This was due, he said, to uncertainty as to the actual amount of revenue increases to 6, 7 or 8 cents would bring.

Should the new franchise be adopted in which the company would turn over all surplus over and above a reasonable return on the money invested and the cost of depreciation, Mr. Lowry suggested that 75 per cent should go to the city and the remaining 25 per cent go to the corporation. The surplus could be used to allow ultimate fare reductions, he declared, and to build extensions. In conclusion Mr. Lowry said:

We have no secrets. Our books are always open. Our one big purpose is to serve the people. Our second purpose is to give the men who have money invested in a company a reasonable return on their investment.

## San Francisco Encroachment Case Before Supreme Court

United States Senator Hiram W. Johnson has been requested by the city of San Francisco, Cal., to represent it as its advocate when the suit of the United Railroads against the San Francisco Municipal Railway for paralleling its tracks on Market Street is heard before the United States Supreme Court in Washington in February.

Mayor Ralph of San Francisco was recently quoted as follows:

Senator Johnson is not only one of the nation's foremost champions of municipal ownership, but is a man who always has the interests of San Francisco at heart. He has been a loyal friend of the Municipal Railway here. Personally I believe the city will have just cause for congratulation if it succeeds in getting him to be its spokesman in this suit.

The suit pending before the United States Supreme Court promises to be a major legal combat. While not a part of the suit, damages asked against the city by the United Railroads for \$6-, 870,130 are indirectly involved.

As noted in the ELECTRIC RAILWAY JOURNAL for Jan. 25, page 201, the Superior Court recently upheld the city's demurrer in this case, stating that any damage resulting to the value

of the franchises of the United Railroads had arisen as a result of rightful competition by the city and that the loss did not constitute a cause of action.

### Paris Employees Strike

Cable dispatches from Paris dated Jan. 25 announced that the strike on the transportation lines of that city had come to an end after the government had announced it would requisition transport facilities.

The employees of the subway and surface railway companies adopted a resolution declaring they had decided "to respond to the requisition," it being understood that negotiations will be opened immediately with the companies or the government, which has substituted itself for them. Work was resumed progressively.

The employees of the Metropolitan subway earlier in the day put forward these demands: Permanence of work, eight hours a day after demobilization, an increase in wages of 2 francs daily, an annual vacation of twenty-one days with pay, a minimum pension of 2000 francs a year after twenty years of service, back pay of 3 francs daily on account of the high cost of living from Oct. 15, 1917, to July 1, 1918.

### St. Louis Mayor Defended

Mayor Henry W. Kiel of St. Louis, Mo., apparently has as many defenders as detractors of his action in settling tax matters with the United Railways, to which reference has been made before in the *ELECTRIC RAILWAY JOURNAL*. The opposition was quick and loud in voicing its protest, but the element that is accustomed to withholding its opinion until it has inquired carefully into the merits of such controversies as come before it is making its strength felt. A resolution of confidence in the Mayor adopted by representative business men follows:

We, the undersigned, interested in St. Louis and its prosperity, and in its good name for fair and honest dealing with its citizens who invest in its public service corporations, do hereby assure to that we most heartily approve of, and thank you for, the recent agreement made with the United Railways and the spirit which actuated you in making it.

You have been watchful of the city's interest, with no desire to play the demagogue or the destroyer of other people's property, and you have made a good, fair, honest settlement with the railways.

We feel you are entitled to and will receive the approbation of the people of St. Louis. As taxpayers in St. Louis, we are thoroughly content to leave our interests in your hands.

For the convenience of the committees representing the Board of Aldermen and the Chamber of Commerce, President Richard McCulloch and General Counsel T. E. Francis of the United Railways, have issued a statement of facts in regard to settlement of litigation between the company and the city. This statement discusses the mill tax litigation, franchise agreements and sets forth the reasons for and terms of the recent settlement between the company and the city.

## News Notes

**Increase in Wages in San Juan.**—The board of arbitration has awarded motormen and conductors of the Porto Rico Railways, Ltd., San Juan, P. R., an increase in wages of about 40 per cent, in settling the strike which began on Thanksgiving's Day.

**Minor Changes in Oakland Grant.**—The matter of a resettlement franchise for the San Francisco-Oakland Terminal Railways, Oakland, Cal., which has been referred to previously from time to time in the *ELECTRIC RAILWAY JOURNAL*, has not yet reached a final conclusion. During the last month or six weeks the franchise has been in the hands of a committee consisting of officials of the city of Oakland. This board is understood to have made a few minor changes in the grant.

**Knoxville Wages Increased.**—Trainmen in the employ of the Knoxville Railway & Light Company, Knoxville, Tenn., have been granted wage increases by a decision of the War Labor Board. The new wage scale is: 36 cents for the first six months; 38 cents for next three months and 40 cents for the time thereafter. The new scale will be retroactive from Aug. 3, 1918. The old wage scale allowed conductors 22 to 29 cents an hour according to the length of service with an additional 2 cents an hour bonus, when the employees worked continuously for twenty-eight days in the month.

**Arbitration in Washington.**—All questions in dispute between the Washington Railway & Electric Company, Washington, D. C., and 700 of its union employees, including recognition of the union, will be submitted to the National War Labor Board for arbitration and settlement. In accordance with the terms of a resolution adopted by the directors of the company, W. F. Ham, president, was willing to proceed at once to the discussion of any of the questions raised in the contract, but the committee of the employees stated it was only empowered by the union to sign the contract, which had been adopted at the recent mass meeting of the company's union employees.

**Governor in Role of Accelerator.**—A conference between Governor Smith of New York and the members of the Board of Estimate of New York City was held in Mayor Hylan's office on Jan. 25 at which the letter of the Public Service Commission to the Governor, complaining of the board's refusal to grant appropriations for rapid transit work, was thoroughly discussed. Apparently the results of the meeting were not highly satisfactory. The Governor, when asked about it, said: "There are two sides to the question.

I can't make any decision. The only thing I can do is to urge both sides to stop quarrelling and get together; and vote the necessary appropriation to finish the subway."

**Brooklyn Venue Change Allowed.**—The five officials and the motorman of the Brooklyn (N. Y.) Rapid Transit Company who were indicted for manslaughter as a result of the wreck in the Malbone Street tunnel of the road in Brooklyn on Nov. 1 last, when almost 100 persons were killed, were granted a change of venue to Nassau County on Jan. 21 by Justice Stephen Callaghan of the Supreme Court in Brooklyn. The five officials and the motorman were to have been tried on the charge of manslaughter on Jan. 6 last, but the cases were postponed when they applied for a change of venue. Mineola, where the cases will be tried, is easy of access from Brooklyn over the Long Island Railroad.

**Texas Going In for Regulation.**—Senator Dorough has introduced a bill in the Texas Senate placing all public utility corporations, including electric railways, under control of the Railroad Commission of Texas. This bill is arousing strong opposition from Dallas, Fort Worth, Houston and other cities of the State that have exercised control over their local railways. It is maintained that State control would result in unified regulation that would destroy the efficiency of the individual systems. An amendment has been proposed that would not make the bill applicable in cities of more than 50,000 population, but this amendment does not satisfy the opponents of the measure, who want the act killed.

**Bill to Protect Women Workers.**—Assemblyman James H. Caulfield, Jr., of Brooklyn, at the request of the Women's Joint Legislative Conference, on Jan. 24, introduced a bill in the Legislature similar to the one which Senator Lockwood offered a few days ago regarding the hours of work of women on surface, elevated and subway cars. The measure limits the hours of women transportation workers to nine consecutive hours a day and provides for one day's rest in seven and no night work after 10 o'clock. Certain sanitary facilities are made compulsory. It also seeks to eliminate the "swings," and provides that the women should be paid from the time they report for work, whether or not they are immediately sent out on "swing."

### Program of Meeting

Southwestern Electrical & Gas Association

Galveston, Tex., has been selected as the convention city for the Southwestern Electrical & Gas Association, according to announcement made by H. S. Cooper, Dallas, secretary of the association. The convention will be held between April 15 and June 10, the exact date to be chosen later.

# Financial and Corporate

## Receivership in Birmingham

Municipal Attacks Principal Factor in Destroying Credit of Railway, Light & Power Company

The Birmingham Railway, Light & Power Company, Birmingham, Ala., has gone into the hands of Lee C. Bradley as receiver. The appointment was made by Judge Grubb of the Federal Court in that city. This is the third property under control of the American Cities Company for which a receiver has been appointed within the last few weeks. The others are the New Orleans Railway & Light Company and the Memphis Street Railway.

### PARENT COMPANY FILED PETITION

The appointment at Birmingham was made on the application of the American Cities Company. The receivership was asked in equity to safeguard the interests of the bondholders and creditors of the company. It is not a bankruptcy proceeding. The credit of the company has been destroyed largely through demands made upon the company from the local city administration. One of the previous creditors of the company on receipt of a recent order for goods notified the company that "due to existing local conditions the shipment would not be made unless cash was guaranteed."

Attached to the receivership application was the resolution of the City Commission of Birmingham in which it was outlined that the company must meet certain fixed requirements in the operation of the railway lines. The company considered these requirements to be unduly burdensome.

The total bonded indebtedness of the company is set out in the complaint to be \$16,991,000, which includes \$2,000,000 of short-term notes and \$1,000,000 of bonds of the Tidewater Company.

The company has failed to pay any dividends on its common stock since 1914. In that year 6 per cent was paid. A 6 per cent dividend was paid on the preferred stock through 1914, but in 1915 only 3 per cent was paid. In 1916 and 1917, in addition to the regular 6 per cent on preferred stock, an additional dividend of 1 per cent was paid on account of arrears.

### DETAILS OF ORGANIZATION

The Birmingham Railway, Light & Power Company was incorporated under the laws of Alabama on June 6, 1901, as a consolidation of the Birmingham Railway, Light & Power Company, the Birmingham Gas Company and the Consolidated Electric Company. About 86 per cent of the common stock and 80 per cent of the preferred stock is owned by the American Cities Company.

The Birmingham Tidewater Company,

which is owned by the Birmingham Railway, Light & Power Company, was incorporated on Sept. 1, 1916, to take over the Birmingham Ensley & Bessemer Railway. The Tidewater Company was acquired by the Birmingham Railway, Light & Power Company on Feb. 26, 1917. The capital stock of the Tidewater Company is \$325,000, with a property investment of \$1,807,566, and a funded debt of \$1,500,000.

## Receiver for Providence

Company Operating All Rhode Island Lines Succumbs Under War-Time Conditions

Frank H. Swan, an attorney of Providence, R. I., on Jan. 30 was appointed temporary receiver of the Rhode Island Company, Providence. A hearing on the question of making the receivership permanent will be held on March 4. This action was taken by Justice Tanner in the Superior Court on petition of John J. Orr, Providence, a contractor, whose bill of complaint alleges that the company owes him \$605; that it is unable to pay its bills, and is insolvent.

The affairs of the company have been before the public in one form or another for the last two or three years. War prices on labor and material have forced the company to seek aid wherever it could be found. A special commission of the last General Assembly found conditions desperate.

The Public Utilities Commission authorized a substantial increase in fares, but the extra revenue failed to cover increasing expenses. Among the largest of these expenses was an increase granted to employees by the War Labor Board. More recently, as noted on page 247 of this issue, the city and State authorities decided again to inquire into the affairs of the railway company with a view to recommending help for the company.

The inability of the company to pay rentals totaling \$147,500 due to the United Traction & Electric Company on Dec. 24 resulted in the latter company making a demand for the payment of the same before Jan. 26. This matter was satisfactorily compromised, however, under an arrangement whereby the Rhode Island Company made a payment of \$100,000 on Jan. 22 and was allowed an indefinite period of grace in which to pay the remaining \$47,500. The sums represented payments on three leases.

Still more recently the general treasurer of the State of Rhode Island, as required by law, notified the Attorney-General of the failure of the company to pay its franchise tax approximating \$125,000 and due on Oct. 1 last.

Under proceedings in the New Haven dissolution case, the railroad agreed to dispose of its electric railways. Federal trustees have since administered the Rhode Island property. The company operates 400 miles of line.

## \$22,500,000 Financing

New Jersey Corporation Outlines Plan for Meeting Maturing Obligations, Floating Debt and Capital Needs

The Public Service Corporation of New Jersey, Newark, N. J., has completed plans for comprehensive financing. It was necessary to procure \$22,500,000 in order to put the corporation in a position to meet its collateral notes, amounting to \$7,500,000 at par, maturing on March 1 next; to pay off all the other unfunded and floating indebtedness of the corporation, and to provide it with sufficient fund for its capital requirements for the current year. Subject to the approval of the shareholders of the corporation, at a meeting called to consider the plan, to be held on Feb. 10, the financing has been worked out in the following manner:

The board of directors at its meeting on Jan. 28 authorized the creation of an issue of 8 per cent cumulative preferred stock to the authorized amount of \$5,000,000, at par, that being the authorized amount of the existing capital of the corporation. The condition of the money market at the present time made it essential to make this stock an 8 per cent stock, in order that it might have proper selling quality, and it is provided that the corporation may, upon proper notice, redeem so much of this authorized issue of preferred stock as it may desire to time by time and outstanding at 110 per cent of its par value. This will serve to protect the corporation against the permanent existence of an 8 per cent preferred stock, should financial conditions return to a normal basis.

When the necessary legal machinery shall have been compiled with it is proposed to offer to the existing shareholders of the corporation \$12,500,000 of gold collateral three-year 7 per cent notes of the corporation, to be secured by \$14,000,000 at par of the general mortgage bonds of the corporation and \$5,000,000 at par of the stock of the Public Service Electric Company belonging to the corporation. These notes are to be offered to the shareholders at 93½ per cent of their par value, and may be converted into the 8 per cent preferred stock of the corporation, at the option of the holders thereof, any time prior to Dec. 1, 1921.

A syndicate has been formed by Messrs. Drexel & Company, Philadelphia, and Bonbright & Company, Inc., New York, which has agreed to take such of these notes as may not be taken by the shareholders. It is simultaneously proposed to offer to the existing shareholders the right to subscribe pro rata to \$10,000,000 at par of the new preferred stock.

The corporation will thus be entirely free from unfunded debt, except as to the new collateral gold note issue above referred to. It is expected that during the life of the notes either all or the major portion of them will be converted by the holders into the new preferred stock. If all are converted the corporation will be entirely free from unfunded debt, with a large amount of free and available assets in its treasury.

### \$3,000,000 Loan Approved

Brooklyn Receiver Authorized by Court to Arrange for This Sum for Immediate Use

Federal Judge Julius M. Mayer on Jan. 27 authorized Lindley M. Garrison, receiver of the Brooklyn Rapid Transit Company, to borrow \$3,000,000 for immediate use with such resources as he has. Judge Mayer said that he would appoint E. Henry Lacombe, retired judge of the United States District Court, as special master to determine conditions affecting the issue.

The chief assets upon which the loan by the receiver can be based is \$5,000,000 in 4 per cent refunding first mortgage bonds of the Brooklyn Rapid Transit Company in its treasury. The receiver expressed confidence in his ability to meet obligations as they develop.

Interest amounting to \$539,000 on first mortgage bonds of the Brooklyn Union Elevated Railroad and the Kings County Elevated Railroad, subsidiaries of Brooklyn Rapid Transit Company, will be due on Feb. 1. A default on this interest might lead to a foreclosure suit that would jeopardize the dual subway contract.

Interest on paper in banks amounting to \$40,000 is past due. The Brooklyn Rapid Transit Company has outstanding bank loans amounting to \$3,800,000. Other interest payments will become due soon. A number of lawyers representing banks and Mr. Bogue of the War Trade Board, which holds \$17,000,000 in notes, spoke in behalf of these claims.

The receiver said that it was his intention to pay interest on loans, but he would not renew the loans in a form that would make them obligations against the receivership. The lawyers assented to this and were in agreement that their clients would not press the receiver to put up additional collateral.

Some concern was expressed about the effect on existing collateral if the

4 per cent Brooklyn Rapid Transit bonds in the receiver's possession are put on the market. The receiver said he would not take this course without giving notice to the creditors.

### Epidemic Effects Earnings

Operating Ratio for October for Country Reaches 80 Per Cent, Establishing New Record

The effect of the influenza epidemic on the receipts of electric railways is plainly shown in the comparative figures for October, 1918 and 1917, made public by the information bureau of the American Electric Railway Association.

Not only was there a decrease of 45.43 per cent in the net earnings of the companies, but for the first time since the association began the publication of statistics an actual decrease in the operating revenues per mile of line was shown. For the United States this amounted to 6.74 per cent. At the same time operating expenses continued to mount, there being an increase of 13.16 per cent. The consequence was an operating ratio for the country of 80.12, which again establishes a high record, the highest preceding operating ratio being that for January, 1918, which was 73.60 per cent.

#### SOME HARDSHIPS SUFFERED

Thus in 1918 the railways, in addition to the adverse conditions brought about by the war, were subjected to the hardships entailed by the severe weather of January, February and March, which not only greatly increased operating costs but cut down travel as well; the large increases in wages caused by the decisions of the National War Labor Board and an epidemic, which as previously stated caused an immense falling off in the number of passengers carried.

The Southern District makes the worst showing. This was to be ex-

pected, however, in view of the virulence of the influenza in that section of the country. Here operating revenue decreased 23.19 per cent while net earnings showed a decrease of 64.55 per cent. The operating ratio rose to 81.04 per cent. For the Western District the decrease in operating revenue was 9.07 per cent, the decrease in net earnings 48.15 per cent, and the operating ratio 78.53 per cent. The Eastern District showed a 4.21 per cent decrease in operating revenue, a 42.35 per cent decrease in net earnings, and an operating ratio of 80.38 per cent.

#### NOT SO BAD IN SOUTH

If the Southern District had experienced the same increase in operating expenses as did the Eastern and Western Districts its net earnings statement would have been even worse than it was. In the two latter districts the increase in operating expenses was more than 14 per cent, while in the former it amounted to but 5.65 per cent. This may in part be accounted for by the fact that wage awards of the National War Labor Board have been effective in more instances in the East and West than in the South.

How much better showing the returns for November will indicate is problematical. It will be remembered that the influenza was active in both months and that while it was perhaps at its height in October the situation was by no means entirely cleared up in November.

#### UNUSUAL CLASSIFICATION FOLLOWED

The returns from the city and interurban electric railway companies, as shown in detail in the appended tables, have been classified according to the following geographical grouping: Eastern District—East of the Mississippi River and north of the Ohio River. Southern District—South of the Ohio River and East of the Mississippi River. Western District—West of the Mississippi River.

COMPARISON OF REVENUES AND EXPENSES OF ELECTRIC RAILWAYS FOR OCTOBER, 1918 AND 1917

Account	United States				Eastern District				Southern District				Western District			
	Amount, October 1918	Per Mile of Line			Amount, October 1918	Per Mile of Line			Amount, October 1918	Per Mile of Line			Amount, October 1918	Per Mile of Line		
		1918	1917	% Increase Over 1917		1918	1917	% Increase Over 1917		1918	1917	% Increase Over 1917		1918	1917	% Increase Over 1917
Operating revenues.....	\$8,492,548	\$1,771,889	16.74	\$6,725,750	\$1,978,206	14.22	\$586,129	\$1,176,531	123.19	\$1,150,669	\$1,304,134	14.34	\$1,497,190	\$1,361,921	9.15	
Operating expenses.....	6,806,731	1,419,254	13.16	5,428,526	1,590,392	14.22	474,920	953,902	5.65	903,285	1,024,894	14.54	1,000,000	1,000,000	0.00	
Net earnings.....	1,685,817	352,635	145.43	1,327,224	388,673	148.35	111,209	223,629	164.55	247,384	280,540	18.15	497,190	361,921	36.20	
Operating ratio, per cent.....	1918, 80.12;	1917, 66.03		1918, 80.38;	1917, 67.41		1918, 81.04;	1917, 58.92		1918, 78.53;	1917, 62.34		1918, 82.77;	1917, 61.52		
Av. No. miles represented.....	1918, 4,795;	1917, 4,272		1918, 3,415;	1917, 3,409		1918, 498;	1917, 448		1918, 882;	1917, 865					

COMPANIES REPORTING TAXES

Account	1918			1917			1918			1917			1918			1917			
	Amount	Per Mile	% Increase	Amount	Per Mile	% Increase	Amount	Per Mile	% Increase	Amount	Per Mile	% Increase	Amount	Per Mile	% Increase	Amount	Per Mile	% Increase	
Operating revenues.....	\$4,870,077	\$1,680,738	13.31	\$3,734,552	\$1,818,843	11.36	\$9,648	\$546	\$591	\$17,601	\$1,125,877	\$1,361,921	\$1,497,190	\$1,361,921	\$1,497,190	\$1,497,190	\$1,361,921	\$1,497,190	
Operating expenses.....	4,042,564	1,394,123	13.33	3,154,863	1,536,135	13.02	9,392	531	482	10,177	878,309	1,061,921	921,152	1,061,921	921,152	1,061,921	1,061,921	1,061,921	
Net earnings.....	827,513	286,615	143.70	579,689	282,484	111.74	256	15	109	86,424	247,568	300,540	576,038	300,540	576,038	300,540	300,540	300,540	
Taxes.....	376,067	130	121.74	288,963	141	130.84	192	11	131	38	86,912	105	100	100	100	100	100	100	
Operating income.....	451,446	156	287,69.69	290,726	141	354,60.27	64	4	96	193.89	160,656	195	476,659.02	195	476,659.02	195	476,659.02	195	
Operating ratio, per cent.....	1918, 82.98;	1917, 70.77		1918, 84.49;	1917, 73.74		1918, 97.25;	1917, 81.56		1918, 77.96;	1917, 61.52		1918, 82.77;	1917, 81.00					
Av. No. miles represented.....	1918, 2,900;	1917, 2,878		1918, 2,055;	1917, 2,050		1918, 18;	1917, 18		1918, 827;	1917, 810								

†Indicates decrease.

Boston Doing Better

The net earnings of the Boston (Mass.) Elevated Railway for December were only about \$150,000 less than "cost of service," which compares with a \$500,000 loss in November and nearly \$800,000 loss in October. December's proportion of dividends was \$116,997, which of course means that nothing was earned toward dividends in the month. Charges, however, were very nearly covered, for the first month since the property has been operated by the public trustees.

The receipts and number of revenue paying passengers in the six full months of public operation are as follows:

Table with 4 columns: Month, Fare, Receipts, No. of Passengers. Rows for July through December.

The Boston News Bureau regards the improvement as progressive. That paper says:

While the road may soon be able to write in black figures the results of operation under an 8-cent fare, there is no sound basis for the belief that an 8-cent fare will very quickly make up any material part of the \$3,274,467 deficit accumulated in the six months to December, inclusive. Eventually, with materials and operating costs generally lower, 8 cents may yield a good surplus. But for the time being the State guarantee will be needed.

Sale Postponed

Charles J. Finger, Delaware, Ohio, receiver of the Columbus, Magnetic Springs & Northern Railway, reports that the proposed sale by him of the property of that railway was postponed from Jan. 15 to a date not yet fixed by the court.

Financial News Notes

Discontinuance Allowed.—The Railroad Commission of California has authorized the Los Angeles & San Diego Beach Railway, Los Angeles, Cal., to discontinue its railroad service, having been shown that receipts from operation are insufficient to pay operating expenses.

Bondholders Buy Road.—The right, title, interest and franchise of the Carbon Transit Company, Mauch Chunk, Pa., were sold on Jan. 20 on a second mortgage claim of \$100,000. Believing the company to be hopelessly involved the second mortgage creditors have been agitating for their money for some time and the court appointed William Dobbs and Grant S. Muhlitz, Mauch Chunk, as receivers. The property was bought in behalf of the receivers who represent the second mortgage bondholders, the purchase price was \$5,000, subject to the first mortgage of \$150,000 and a number of claims for taxes, wages and liens, aggregating \$20,000.

Connecticut Line Threatens Abandonment.—The Shore Line Electric Railway, which operates from New London north through Norwich, Baltic and Willimantic to South Coventry, has threatened to discontinue that part of the line between Baltic, Willimantic and South Coventry unless the present General Assembly grants it some measure of relief. The company says that

the part of the road referred to has been run at a loss for the past year, due to poor patronage, increased wages and taxes which it regards as excessive. The Chamber of Commerce of Willimantic, the population of which has remained practically stationary for more than a decade, has taken the matter up.

Deposit of New Orleans Bonds Asked.—The holders of New Orleans Railway & Light Company 4 1/2 per cent general mortgage, gold and other bonds affected by the default and receivership are invited to deposit their bonds with coupons due on Jan. 1, 1919, with the New York Trust Company, Hibernia Bank & Trust Company, New Orleans, La.; Commercial Trust & Savings Bank or the Interstate Trust & Banking Company, New Orleans. Negotiable certificates of deposit will be issued for deposited bonds. Application will be made to list such certificates on the several stock exchanges where the bonds are now listed.

Philadelphia Company Financing.—Shareholders of the Philadelphia Company, Pittsburgh, Pa., are being asked in a circular to send their proxies to a committee in order to secure enough stock to authorize the carrying out of the company's financial plan, which calls for authorization of a mortgage upon the property to secure \$30,000,000 of bonds which will be used as collateral for an issue of \$15,000,000 of 6 per cent notes. It is proposed, however, to sell only \$10,000,000 of these notes in the immediate future for refunding purposes. The special meeting of shareholders will be held on Feb. 3. The proxy committee consists of Charles Hayden, chairman, Benjamin Guinness, Everett B. Swezy and Eugene V. R. Thayer.

Electric Railway Monthly Earnings

BATON ROUGE (LA.) ELECTRIC COMPANY

Table with 6 columns: Period, Operating Revenue, Operating Expenses, Operating Income, Fixed Charges, Net Income. Rows for Nov., Dec. 1918 and Nov., Dec. 1917.

BROCKTON & PLYMOUTH STREET RAILWAY, PLYMOUTH, MASS.

Table with 6 columns: Period, Operating Revenue, Operating Expenses, Operating Income, Fixed Charges, Net Income. Rows for Nov., Dec. 1918 and Nov., Dec. 1917.

CAPE BRETON ELECTRIC COMPANY, LTD., SYDNEY, N. S.

Table with 6 columns: Period, Operating Revenue, Operating Expenses, Operating Income, Fixed Charges, Net Income. Rows for Nov., Dec. 1918 and Nov., Dec. 1917.

COLUMBUS (GA.) ELECTRIC COMPANY

Table with 6 columns: Period, Operating Revenue, Operating Expenses, Operating Income, Fixed Charges, Net Income. Rows for Nov., Dec. 1918 and Nov., Dec. 1917.

EASTERN TEXAS ELECTRIC COMPANY, BEAUMONT, TEX.

Table with 6 columns: Period, Operating Revenue, Operating Expenses, Operating Income, Fixed Charges, Net Income. Rows for Oct., Nov., Dec. 1918 and Oct., Nov., Dec. 1917.

EL PASO (TEX.) ELECTRIC COMPANY

Table with 6 columns: Period, Operating Revenue, Operating Expenses, Operating Income, Fixed Charges, Net Income. Rows for Nov., Dec. 1918 and Nov., Dec. 1917.

GALVESTON-HOUSTON ELECTRIC COMPANY, GALVESTON, TEX.

Table with 6 columns: Period, Operating Revenue, Operating Expenses, Operating Income, Fixed Charges, Net Income. Rows for Nov., Dec. 1918 and Nov., Dec. 1917.

HOUGHTON COUNTY TRACTION COMPANY, HOUGHTON, MICH.

Table with 6 columns: Period, Operating Revenue, Operating Expenses, Operating Income, Fixed Charges, Net Income. Rows for Nov., Dec. 1918 and Nov., Dec. 1917.

JACKSONVILLE (FLA.) TRACTION COMPANY

Table with 6 columns: Period, Operating Revenue, Operating Expenses, Operating Income, Fixed Charges, Net Income. Rows for Nov., Dec. 1918 and Nov., Dec. 1917.

NORTHERN TEXAS ELECTRIC COMPANY, FORT WORTH, TEX.

Table with 6 columns: Period, Operating Revenue, Operating Expenses, Operating Income, Fixed Charges, Net Income. Rows for Nov., Dec. 1918 and Nov., Dec. 1917.

PENSACOLA (FLA.) ELECTRIC COMPANY

Table with 6 columns: Period, Operating Revenue, Operating Expenses, Operating Income, Fixed Charges, Net Income. Rows for Nov., Dec. 1918 and Nov., Dec. 1917.

TAMPA (FLA.) ELECTRIC COMPANY

Table with 6 columns: Period, Operating Revenue, Operating Expenses, Operating Income, Fixed Charges, Net Income. Rows for Nov., Dec. 1918 and Nov., Dec. 1917.

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

# Traffic and Transportation

## Patrons Organize Relief

**Plan to Do What Commission Recommended But Can't Do and City Has Failed to Do**

Prospects seem to be bright for the New York & North Shore Traction Company, Roslyn, N. Y., obtaining through the concerted and voluntary action of its patrons the measure of relief from war-time burdens which has been withheld from it by the officials of the city of New York.

### RESIDENTS TO THE RESCUE

Residents of the territory through which the company operates have taken up the matter by enlisting in a campaign to induce the riders voluntarily to pay the company a 7-cent fare. The movement appears to be becoming cumulative in its effect. Conductors reported on Jan. 28 that for the three days ended Jan. 27 they had received on an average 250 7-cent fares a day.

Those behind the movement have had placards printed calling attention to the needs of the company and have had these posted in the cars and at conspicuous places along the route to acquaint strangers with the facts and gain adherents to the cause. In the localities served by the company petitions have been prepared requesting the authorities to authorize the company to collect a 7-cent fare. When these petitions have been filled with signatures they will be presented to the Board of Estimate.

The effort of the company to obtain additional revenue through a fare increase was started early in 1917 in an action before the Public Service Commission. Decision was rendered in January, 1918. The commission held that, due to the agreement of the company with the city, it was powerless to act in the matter. This view of the commission with respect to its authority over fares was later sustained in the so-called Rochester case.

### CITY OFFICIALS LISTEN ATTENTIVELY

The agitation in favor of an increase in fare was continued and carried direct to the city officials of New York. In consequence, Mayor Hylan, Comptroller Craig and Borough President Connelly of Queens discussed the case of the company in June before a crowd that packed the courtroom in Flushing.

The declared purpose of this meeting was to hear whether the public desired to pay 7 cents or preferred to have the line abandoned. At the close of this meeting the question was put to a vote. The decision was overwhelmingly in favor of the fare increase. Mr. Connelly explained at this meeting that the

application of the company was before the Board of Estimate because the Court of Appeals in the Rochester case had ruled that the Public Service Commission was limited in its rate-making powers by the terms of the municipal franchise contracts and that an increase could be obtained only by a modification of the franchise by the Board of Estimate. Despite their knowledge of the situation confronting the company and their acquaintance with the attitude of the public members of the local administration in New York have taken no action on the matter.

### COMPANY THREATENS TO SUSPEND

In September, the company declared that operation would cease unless the city granted financial relief or positively signified its intention to do so at an early date. This threat was renewed by the company recently and patrons of the railway, convinced that the company was entitled to an increase and fearing that service would be suspended, organized to do voluntarily what the Public Service Commission was powerless to do and what the city officials of New York had failed to do through inaction.

## New Paper in Buffalo

The first issue of *The Service Spot Light*, published by the newly organized publicity department of the International Railway, Buffalo, N. Y., was issued on Jan. 20. The publication is an eight-page pamphlet issued every Monday. The motto of the publication, printed on the first page is "A White Light on Open Dealings." A feature of the publication is "The Transformer" page, which contains poems and witty paragraphs.

*The Service Spot Light* is placed in the "Take One" boxes in the cars and in the stations along the company's interurban lines. The object of the pamphlet is to present to the traveling public the company's side of traction problems.

"Our Hero Gallery" is another feature of the publication. Pictures will be reproduced from week to week of the company's men in the military service. The interurban and owl schedules are published together with a page devoted to "What's Doing in Buffalo." The public is invited to send the editor of the publication the numbers of conductors and motormen whose acts of courtesy should receive publicity. The company's lost and found department is featured and space is given to the advantages of the International's interurban express trains and service. The editor is a prominent Buffalo newspaperman.

## Los Angeles Running Behind

**Commission on Feb. 4 Will Start Inquiry of Relief for Los Angeles Railway Corporation**

The Railroad Commission of California has set Feb. 4 as the date for the beginning of its investigation into the affairs of the Los Angeles Railway Corporation. The inquiry was asked by the company in an effort to devise ways and means for meeting its financial troubles and its traffic troubles. The preliminary hearing will be held at the Los Angeles office of the Railroad Commission, and the merits of the case will be gone into by E. O. Edgerton, president of the commission, and Commissioners Brundige and Martin.

Last December the company, after vainly striving to find a means to meet its financial obligations and preserve its standard of service without asking for help in the shape of increased fares, determined to call in the aid of the Railroad Commission. In its petition to the commission it set forth that it had already taken the matter up with the city authorities of Los Angeles and the board had recommended certain service changes that would result in more economical operation. The company says further:

The company has other suggestions and recommendations to make in the way of retrenchment and desires the benefit of such advice and recommendations as the commission may make after careful study and investigation.

The Los Angeles corporation declares that for some time past it has been sustaining a heavy financial loss because of the increase in wages and in cost of materials. During the last two years, the company says, wages have been increased at least 45 per cent, and the cost of materials from at least 50 to 150 per cent, the increase in wages alone amounting to \$1,200,000 a year.

### TEN MONTHS' DEFICIT \$336,400

According to exhibits filed by the corporation, its gross income for the past ten months has been \$5,548,431 and the gross expenses, including operation, depreciation, taxes and interest, \$5,744,610, showing \$196,178 expenditures in excess of revenue. This does not include \$170,221 sinking fund. With this fund added, the total deficit for the last ten months will reach \$336,400.

## Pittsburgh Service Order Suspended

The Public Service Commission of Pennsylvania has suspended until Feb. 8 the order of Dec. 10 requiring all cars of the Pittsburgh Railways, except summer cars, to be put in condition for use. In the meantime a study of conditions is to be made and the order will be repealed if a decided improvement is shown in the service. Under the original order the company would have to make repairs to nearly 200 cars, which it is claimed are unsuited for operation. The order as now in force requires 1302 cars to be put in use.

## International Railway, Buffalo, Prepared

### Following Investigation Commission Finds City Lines Fully Equipped for Service Demands

A report of an investigation of traffic conditions in Buffalo has been sent by Chairman Hill of the Public Service Commission for the Second District of New York to Mayor Buck and the International Railway. The commission says the general facilities for rendering railway service in Buffalo have been very substantially improved, and that systematic checks which have been made of the present service indicate that the service is reasonably satisfactory.

#### COMMISSION POINTS OUT DEFECTS

The commission in a report made to the company on May 22, 1917, pointed out defective facilities and made certain recommendations. Full compliance was delayed for various causes and the improvements contemplated were not effected during the winter of 1917-18. This was one of the causes of the unsatisfactory service last winter, which was aggravated by unusually severe weather conditions.

The report now forwarded to Mayor Buck and the railway by Chairman Hill makes further recommendations to insure good service in Buffalo this winter.

The commission found that one of the important causes of the poor service last winter was insufficient number of cars, principally owing to the large number out of service, damaged and crippled, also the practical breakdown of the mechanical equipment. On Feb. 21, 1918, there were 276 or 42.3 per cent of the cars out of service, damaged or crippled. Inadequate and unsatisfactory service followed, especially during rush hours. The company lost forty-five cars by fire in April and two were retired. The company since that time has received 130 new cars of which 127 have been assigned to the Buffalo service, so that at present there are assigned to the city service 732 cars, a net increase at present, compared with last year, of eighty cars. On Nov. 5 there were 111 cars out of service or 15.2 per cent of the assigned equipment.

#### SHOP FACILITIES INCREASED

Increased shop facilities and improved methods justify the estimate of the company that 660 cars are available for service in Buffalo. The winter's schedule requires 620 cars, and allowing 10 per cent for cripples and overhaul there will be 659 cars available to meet the city's requirements, or thirty-nine more cars than required.

As far as the number of cars is concerned, the report states that the company seems to be reasonably equipped for the present winter's operations. This improved condition is due in a great measure to the improvements in shops, carhouses and mechanical equipment brought about by compliance with the recommendations of the commission, including rearrangements and ad-

ditions of facilities in the Cold Springs shop, appliances added in the carhouses, complete reorganization of the mechanical department and an improvement in standard of car maintenance.

Shortage of cars prevented lack of seating capacity last winter during rush hours. To improve this condition the report says:

The company is making schedules on a basis that, during each fifteen minutes interval of the rush hours, the number of passengers carried past a given point shall not exceed the seating capacity furnished by more than 50 per cent. While the commission does not believe it advisable at this time to establish a precedent by approval of this basis, yet in some other cities the basis of 50 per cent of standing passengers is exceeded and it is believed that if cars required by a schedule on this basis are run on schedule regularly that the people of Buffalo will receive a materially improved service over that furnished last winter, and one which can be properly classified as reasonable.

The report decides not to recommend a resumption of discontinued night

service at the present time. The company is to be allowed further trial of the present night service schedules.

Following the commission's recommendations, 348 cars have been equipped with the modern system of forced draft hot air heating and ventilation and 127 new cars are likewise equipped. The work of equipping the remaining 262 cars has been delayed by reason of the company's inability to secure materials, even if its financial condition would permit. Defects in lighting have been remedied.

The railway has added five modern sweepers and the snow fighting equipment has been overhauled and necessary repairs made. This equipment is considered sufficient and in proper shape, if efficiently utilized, to keep the tracks in condition for service run on schedule regularly except perhaps in extreme and unusually severe storms, and in such cases the duration of interference with operation should be limited.

The commission says that the company is properly equipped with power for this winter's operations.

## Houston Must Have More

### Review of Fare Relief Case Which Had Its Beginning Last June—City Commission Decision Recalled

The Houston (Tex.) Electric Company is facing financial collapse, according to David Daly, general manager, in an appeal to the public for support of the company's efforts to secure a 6-cent fare. Mr. Daly said:

The problems facing this company and the disaster which it is struggling to avert are bad enough, viewed only from the standpoint of the company, but it is not alone the company that is involved, for the breaking down of the transportation system would mean a blow to the development of Houston. Our problem is at once the problem of every citizen and taxpayer in Houston.

The Houston Electric Company has long since reached the point where it costs more than 5 cents to furnish a ride. If the company is to live and furnish service to the people of Houston, it must have an increase in fares. That it can continue indefinitely to do business at a loss is obviously impossible.

At a meeting held in November we were denied an increase in fares. The point was made against us that the public had not been furnished sufficient information as to the value of our property. In order to meet this criticism and as a part of the plan to get this increased fare, which the company must have, we have arranged to have a valuation of our property made at once.

The valuation just referred to will be made by Halford Erickson, Chicago; Robert M. Feustel, Madison, Wis., and Mr. Powers, New York.

Prior to this action, the Houston Electric Company has tried by every means to secure an increased fare, but without avail. Last September, following an exhaustive investigation of the company's properties and operating income, the City Commission of Houston enacted a city ordinance authorizing the company to charge a fare of 6 cents with half-fare tickets for children and students. Upon petition of the required number of taxpayers, the City Commission then suspended this ordinance and submitted it to the

people for ratification under the referendum provision of the city charter. At this election, held on Nov. 5, last, the ordinance was defeated. Members of the City Commission considered the results of this election as instructions on the fare question and the ordinance was repealed, and another enacted fixing the fare at 5 cents.

#### CASE CARRIED TO COURT

The next move made by the traction company was the filing of a suit in the Sixty-first District Court asking for an injunction to restrain the city from enforcing the 5-cent fare ordinance. The company in its petition to the court, which was referred to in the ELECTRIC RAILWAY JOURNAL of Jan. 25, page 208, asked that the city be enjoined from interfering with the company in collecting the 6-cent fare provided in the ordinance passed on Sept. 19 and preventing it from delegating its rate-making powers to any other authority. The company contended that rate-making is a legislative function, which under the charter granted the city of Houston by the Legislature in 1905 was specifically delegated to the governing body of the city of Houston, which in fact is the Mayor and City Commission. It was further contended that the city is without authority to re-delegate this power and that therefore the action of the commission in submitting to the people for ratification the 6-cent fare ordinance was null and void and that this ordinance is still in effect.

The pleading, with numerous exhibits attached, recites a history of the company's negotiations with the city for



an increase in fares beginning in June, 1918. It is shown that while the petition for an increase in fare was pending the War Labor Board made a ruling requiring still further increase in wages amounting to approximately \$100,000 a year, and that the company amended its original petition by asking for a 7-cent fare in order to enable it to grant this further increase in wages to employees. Acting in good faith in accord with the city ordinance of Sept. 19, the company granted increased wages to its employees, which it was wholly unable to do and earn a fair and just return upon its investment.

Final hearing on the company's petition will be postponed pending a report from the board of engineers appointed to make valuation of the company's properties.

### Receiver Wants Citizens to Help

James E. West, Chief Scout Executive of the Boy Scouts of America, has written to Lindley M. Garrison, receiver of the Brooklyn (N. Y.) Rapid Transit Company, suggesting that the receiver "organize a small citizens' committee among those who use each of the various divisions of the lines in receivership, to serve without compensation as advisers to you with reference to improvement in service."

Mr. West said that he was convinced "that men and women of ability would gladly enter into the spirit of such a scheme and render you valuable service, not primarily to increase the dividends of the Brooklyn Rapid Transit Company, but to give the public better service, and this course would mean increased dividends in the long run. Certainly it would serve as a clearing house for the consideration of the merits of various complaints and suggestions which will be made to you."

Mr. Garrison wrote to Mr. West immediately accepting the suggestion, but in somewhat different form from that in which it was made. In his letter Mr. Garrison said:

I do not think it would be desirable for me to organize the citizens' committee of which you speak, but I would be very glad if such a committee should be organized. I am extremely desirous of rendering the very best service with the facilities under my control, and I recognize the benefit of sensible and well-meaning advice from every source, and I have no doubt that such a committee as you speak of would be of great use to me in the proper execution of my duties. May I venture to suggest that you set about organizing a committee for that purpose, and I assure you that I will work in the fullest co-operation with you and with such committee.

### Six Cents in Springfield

The Public Service Commission of Missouri on Jan. 22 advised the Springfield Traction Company that it had granted the company's application for an increase of passenger fares from 5 cents to 6 cents, effective on Feb. 1.

The additional fare was recommended some time ago by a citizens' committee headed by Judge John T. SturGIS, presiding judge of the Springfield Court of Appeals. It was approved by the City Commissioners.

The increase in the fare followed a demand on the part of the railway employees for increased pay as motormen and conductors. A few weeks prior to this demand an increase of 20 per cent had been granted, but the men held that this increase was not in keeping with war-time cost of living. A change in the working hours was also sought in order that the men would work only nine hours a day.

Effective at the same time the increased fare is authorized, the men will receive an increase of wages amounting to about 43 per cent. The total increase will increase the payroll of the company from \$95,000 to about \$175,000 a year. The men will now receive 36 cents to 40 cents an hour. The installation of pay-as-you-enter cars will enable the company to operate the street cars with practically the same force it now has. One man will be assigned to each car.

There is no change in the transfer system. Children's fares will be 3 cents. The new fare will be effective for a period of six months.

The matter has been carried to a satisfactory settlement through the cordial co-operation of the citizens as reflected in the attitude of the committee appointed from among them. This committee's activities were referred to in the ELECTRIC RAILWAY JOURNAL for Nov. 30, page 988.

## Transportation News Notes

**Board of Trade Convicted.**—The Louisville (Ky.) Board of Trade is said to favor a 6-cent fare after investigating the condition of the Louisville Railway as shown by its earnings and operating costs for 1918.

**Proposed Increase Suspended.**—The application of the East St. Louis (Ill.) Railway to increase rates in East St. Louis has been suspended until July 20, 1919, by the Public Service Commission of Illinois. The company is now charging 6 cents.

**Skip Stops Go in St. Louis.**—The skip-stop system of operation put into effect by the United Railways, St. Louis, Mo., on Sept. 22, 1918, as a fuel conservation measure, has been ordered eliminated by the Public Service Commission of Missouri. The order also affects St. Joseph and Springfield.

**Rhode Island Hearing Again Postponed.**—The Supreme Court of Rhode Island has postponed from Jan. 27 to Feb. 14 the hearing before it on the appeal of the towns of Warwick, North Providence, East Providence, Johnston and the city of Cranston from the decision of the Public Utilities Commission in granting the Rhode Island Company permission to increase fares.

**Organizing Its Own Express System.**—The Illinois Traction System, Peoria, Ill., is perfecting plans to organize an express company to operate over the 400 miles of its lines. The tariff schedules are being prepared for filing with the Public Service Commission of Illinois. No express shipments have been handled over the Illinois Traction System since the American Railway Express contract expired.

**Schenectady Tariff Further Suspended.**—The Public Service Commission for the Second District of New York has passed an order further suspending to and including Feb. 28 operation of the new schedule of passenger rates on all divisions of the Schenectady Railway, the investigation of the reasonableness of the increased fares not having been concluded by the commission. The suspension order previously in force expired on Jan. 30.

**Objects to Service Order.**—The St. Paul (Minn.) City Railway, included in the system of the Twin City Rapid Transit Company, went into Federal Court on Jan. 23 and procured an order from Judge Wilbur F. Booth, restraining the city from invoking mandamus proceedings to force the railway to comply with the service ordinance adopted by the City Council on Jan. 28, 1918. The petition of the company asks for a temporary injunction against the city, pending a hearing on a permanent injunction.

**Rochester-Syracuse Rates Restored.**—The Rochester & Syracuse Railroad under special permission of the Public Service Commission for the Second District will restore joint one-way fares in effect prior to Nov. 24 from Clyde, East Rochester, Fairport, Jordan, Lyons, Macedon, Memphis, Newark, Palmyra, Port Byron, Port Gibson, Rochester, Savannah, Warner and Weedsport to Auburn, Baldwinsville, Fulton, Minetto, Oswego and Phoenix on the Empire State Railroad. Reductions are effected.

**Freight Service Between Canton and Detroit.**—Through freight service has been established by the Northern Ohio Traction & Light Company between Canton, Ohio, and Detroit, Mich. Beginning on Jan. 27 cars will be operated on Monday, Wednesday and Friday of each week until the volume of business warrants more frequent trips. The cars will start from each end of the line in the evening, thus making the greater part of the trips at night. Operation will be over the line of the Lake Shore Electric Railway.

**Rate Appeal Matter Undecided.**—At the annual meeting of the New Jersey League of Municipalities held at the Municipal Building, Trenton, N. J., on Jan. 22 the matter of appealing to the United States Supreme Court the right of the Board of Public Utilities Commissioners of New Jersey to abrogate municipal franchise contracts was thoroughly discussed. It was decided to refer the matter of appealing the Public Service Railway rate case to the

League's legal advisory committee. The committee will make a report on it later.

**Fare Boxes in Washington.**—On Jan. 26, cars of the Pennsylvania Avenue line of the Capital Traction Company, Washington, D. C., were equipped with coin-registering fare boxes. It is the purpose of the company to complete the equipment of all its cars with these boxes as soon as they can be obtained. The conductors have been instructed to give passengers, requiring it, the exact change for any amount up to \$2. The Washington Railway & Electric Company also installed fare boxes and the prepayment method of collection on Jan. 26. Both companies advertised the change extensively in the daily papers.

**Des Moines Fare Hearing Feb. 3.**—Judge Martin J. Wade has notified city officials, the Des Moines (Iowa) City Railway, the Harris Trust & Savings Company, and the North American Construction Company that he will hear the petition of the Des Moines City Railway for an increased fare on Feb. 3. According to Judge Wade the hearing will be only on the construction of the terms of the franchise secured three years ago by the City Railway. The company is in the hands of a receiver. It carried its case to the court after failing to obtain some measure of relief from the city from burdens that had become to onerous for it to bear.

**Special I. T. S. Commuter Rates.**—The Illinois Traction System, Peoria, Ill., is contemplating a special tariff for the convenience of commuters who regularly use the lines between stated points. This tariff, which will probably be put in effect within the next thirty days, will affect the rate between points where the one-way fare is between 15 cents and 90 cents. It will provide for a 20-mile ride commuter's book at a discount of 10 per cent; a forty-mile book at a discount of 20 per cent; and a fifty-two-mile book which will reduce the fare to slightly below 2 cents per mile. The books will be limited to use of the purchaser within the calendar month in which issued.

**Indiana Commission Denies Fare Advance.**—The Public Service Commission of Indiana has denied the petition of the Hammond, Whiting & East Chicago Traction Company, Chicago, Ill., for an increase in fare from 5 cents to 7 cents. The company filed its petition last August. According to the commission the company is earning 9.03 per cent on \$1,168,145, which sum the commission found to be the reproduction value of the property. The figure represents a valuation of approximately \$30,000 a mile. The commission estimated that net revenue for 1919 would be \$121,029. The commission engineers found the book value of the company to be \$2,762,746.

**Dayton Fare Concessions Unsatisfactory.**—It is rumored that the railways of Dayton, Ohio, will reject the

offer of the City Commission for a straight 5-cent fare. Officers say that the proposed means of relief will be of no benefit to them, particularly as there is nothing to prevent the wholesale purchase of tickets at the old rate, should the new ordinance be passed. The City Commission has, however, now amended the ordinance in such a way that tickets will be void when it goes into effect, but a bureau must be established to take over the tickets at cost. One section of the ordinance was rewritten to make it plain that the new grant is only a temporary measure. The companies have ten days within which to accept the ordinance.

**A. E. & C. Wants Illinois Commission Restrained.**—The Aurora, Elgin & Chicago Railroad, Wheaton, Ill., has brought suit to enjoin the Public Utilities Commission of Illinois from enforcing its maximum fare ruling of 2 cents a mile, pointing out that Judge Landis held that other electric lines operating in Illinois could charge 3 cents a mile. It is alleged that the Interstate Commerce Commission set the rate for electric roads during the war at 2.4 cents per mile, but that the Public Utilities Commission of Illinois continued the 2-cent fare on the Aurora, Elgin & Chicago Railroad and that the Supreme Court of Illinois upheld its power to do so. The present action is similar to others in Illinois to which reference has been made at length previously in the ELECTRIC RAILWAY JOURNAL.

**Four-Cent-a-Mile Rate in Effect.**—Increased passenger rates went into effect on Jan. 23 on the Southern New York Power & Railroad Corporation's road between Mohawk and Oneonta, under the recent decision of the Public Service Commission for the Second District. The order permitting the increase from 3 cents to 4 cents a mile is on the understanding that application to reopen the order may be made when reasons for the increase in fare no longer exist. The mileage book rate is to be increased from 3 cents, to 3½ cents a mile. New rates do not apply in Oneonta and between Oneonta and Junction and between Herkimer and Mohawk over the New York State Railways' tracks. The decision of the Commission in this case was reviewed in the ELECTRIC RAILWAY JOURNAL for Jan. 11, page 116.

**Mr. Ross Retained in Birmingham.**—I. W. Ross, vice-president and general manager of the Tuscaloosa Railway & Utilities Company, Tuscaloosa, Ala., has been retained by the City Commission of Birmingham, Ala., to report on the financial status and operating and physical condition of the Birmingham Railway, Light & Power Company. In a statement which he made Mr. Ross said that he had not been advised and did not know what use the city intended to make of the information he was gathering and that he was not interested in that feature of the matter. In this connection he

is quoted as follows: "I am only temporarily in Birmingham for the purpose of collecting information and turning it over to the city authorities. This information will consist primarily of statistical data which I am obtaining with the co-operation of the Birmingham Railway, Light & Power Company."

**Wants Interchangeable Transfers Abolished.**—The receiver for the Buffalo & Lackawanna Traction Company, Buffalo, N. Y., has applied to the City Council of Buffalo for permission to abolish interchangeable transfers with the International Railway. It is pointed out that by abolishing these transfers, the company would be able to increase its revenue by almost \$1,600 a month. The Council "received and filed" the company's request and has promised to make an investigation. The company operates from a terminal in the heart of the retail business section of the city to the city line of Lackawanna. It accepts transfers from the local lines of the International Railway and issues transfers to the International lines. The property is being run at a deficit and the receiver told the Council that unless the company is allowed to increase its income through higher fares or other means, he will be forced to apply to abandon the route.

**Booklets Review New York Fare Appeals.**—A recapitulation of the arguments used by the New York Railways and the Interborough Rapid Transit Company in support of their applications for increased fares and in opposition to municipal operation is contained in two booklets sent out and signed by Theodore P. Shonts, president of the companies. One is entitled, "Your Subways: A statement of the Facts About the Partnership Between the City and the Interborough Rapid Transit Company," and the other is called "Your Street Car Service: A Statement of the Facts About the Situation of the New York Railways Company." In the railways booklet the statement is made that the New York Railways is on the verge of a receivership; that the company is not over-capitalized; that it is economically operated and that it has never paid a dividend on its stock. With respect to the Interborough Rapid Transit Company the situation is presented briefly as follows: The city of New York is facing deficits amounting probably from \$13,000,000 to \$15,000,000 a year on the operation under 5-cent fare of the dual subway system. Owing to abnormal costs for labor, materials, and supplies, taxes, etc., due to conditions produced by the war, the system is not now earning the preferential payments to be made from operating revenue to the companies. These payments are cumulative, with interest compounded semi-annually. The question which the company asks is: Shall the situation be met by higher fares or additional taxation?

# Personal Mention

## W. C. Sparks Elected

Vice-President of Rockford & Interurban Railway Made President of the Illinois Electric Railway Association

W. C. Sparks, vice-president and general manager of the Rockford & Interurban Railway, Rockford, Ill., was elected president of the Illinois Electric Railway Association at the annual meeting held in Chicago on Jan. 17.

Mr. Sparks has been actively connected in the electric railway field for the last seventeen years, and has been identified with his present company for eight years. He was graduated from the civil engineering school of the University of Indiana in 1900, and immediately entered government service in the Philippines, where he remained for nearly two years. Upon returning from the Philippines he entered the engineering department of the Union Traction Company of Indiana, and was chief engineer of that company when he resigned in 1910 to become general manager of the Rockford & Interurban Railway Company. He was in addition made vice-president of this company in 1916.

While with the Union Traction Company of Indiana, Mr. Sparks was active in the Central Electric Railway Association, and since his present connection with the Rockford & Interurban Railway he has for many years been active on legislative and executive committees of the Illinois Association. The company of which Mr. Sparks is now vice-president and general manager operates more than 100 miles of interurban lines, doing an extensive passenger, freight and express business. It is a subsidiary of the Union Railway, Gas & Electric Company.

## A Prophecy Becomes Fact

James F. Shaw, of Knauth, Nachod & Kuhne, New York, N. Y., investment bankers, and former president of the American Electric Railway Association, was interviewed by the *Wall Street Journal* in its issue of Jan. 13 on the traction situation in New York. Mr. Shaw says that the bottom has been scraped in that city. He then is quoted in part as follows:

"The worst that can happen has already happened. It is not conceivable that the city administration can or will in the long run deny to the companies an increase in rates. The city has too heavy an investment in the enterprise deliberately to wreck it and I am willing to predict that even if politics have to be adjourned, an increase in fares will be forthcoming in the not distant future.

Mr. Shaw referred to statements made by him as far back as 1910 about the inadequacy of the nickel fare to show more than a 3 or 4 per cent return on the cost to reproduce the property of

the old Metropolitan Street Railway, now the New York Railways, not taking into consideration the expenditure for organization and obsolescence.

## Mr. Royce Made Manager

New B. R. T. Official Who Replaces Colonel Williams Is a Practical Operating Official

Frederick P. Royce, a member of the Stone & Webster organization, Boston, has been appointed general manager for the receiver of the Brooklyn Rapid Transit Company. Mr. Royce will take up his new work by Jan. 31, will be in full charge under the receiver of all



F. P. ROYCE

matters pertaining to operation and will take the place of Col. Timothy S. Williams, president of the company, who, at his own request, will be relieved of all responsibility for the administration of the system. The new manager will have the same relation toward Mr. Garrison, the receiver, as the chief of staff when Mr. Garrison was Secretary of War. His duties will be to investigate different matters and do everything possible to bring about a better condition of affairs in the operation of the various lines.

Mr. Royce has had a wide experience with his firm in all branches of administration, including construction work, investigation and analysis of public utility situations, the preparation and carrying out of financial plans, the direction of local operating managers and the maintaining of satisfactory relations with the public served. He is in a position to bring to bear on the problems of the Brooklyn Rapid Transit Company the varied knowledge the Stone & Webster organization has acquired through its many years of city railway management.

Mr. Royce was born in Newton, Mass., on Oct. 5, 1858. He attended the Massachusetts Institute of Technology and

since 1890 has been associated continuously with the electrical and public utilities interests, in charge of operating and construction matters. For several years he was the head administrative officer for an important group of public utilities companies in Massachusetts and in 1909 became one of the leading men in the Stone & Webster organization of Boston. In addition to being a vice-president of the Stone & Webster Management Association, Inc., he is a director of the American Pneumatic Service Company, Lamson Consolidated Store Service Company, Boston Woven Hose & Rubber Company, Concord (Mass.) Electric Company, Paducah Traction & Light Company, Houghton County Electric Light Company, Blackstone Valley Gas & Electric Company, Haverhill Gas Light Company and Fall River Gas Works.

## New I. T. S. Appointments

New appointments by the Illinois Traction System during the week ended Jan. 25 are as follows:

J. I. Catherman, engineer of maintenance of way, Springfield.

A. S. Bergschneider, superintendent of transportation, Springfield.

A. McNeil, superintendent, Decatur.  
Henry C. Leuter, general agent, St. Louis.

James J. Dooley, traveling freight and passenger agent, St. Louis.

F. J. Blalcher, contracting agent, St. Louis.

W. M. Long, traveling freight and passenger agent, Peoria.

C. E. McGuire, general agent, Decatur.

H. H. Happe, city freight and passenger agent, Springfield.

E. L. McKee, general agent, Springfield.

George Palm has been appointed general manager and purchasing agent of the Southern Cambria Railway, Johnstown, Pa., to succeed C. A. Houghton.

J. A. Trawick, formerly vice-president of the Appalachian Power Company, Bluefield, W. Va., has been elected president of the company to succeed R. C. Morse.

R. Broadwater, formerly vice-president of the Union Traction Company, Sistriville, W. Va., has been elected president of the company to succeed H. W. McCoy.

K. K. Garrett has been appointed manager and purchasing agent of the Hanover & McSherrystown Street Railway, Hanover, Pa., to succeed E. H. Ramsbotham.

Curnal Fox has been appointed master mechanic of the Chambersburg, Greencastle & Waynesboro Street Railway, Waynesboro, Pa., to succeed William Sheldon.

S. H. J. Reid has been appointed secretary, treasurer and general freight and passenger agent of the Brantford (Ont.) Municipal Railway to succeed John Creasser.

Paul McKay has been appointed secretary and treasurer of the Spokane & Inland Empire Railroad, with headquarters at Portland, Ore., to succeed W. G. Davidson.

C. Bibby, secretary of the Sudbury, Copper Cliff & Suburban Electric Railway, Sudbury, Ont., has also been appointed treasurer of the company to succeed L. O'Connor.

George K. Hyde has been appointed purchasing agent of the Toronto & York Radial Railway and the Schomberg & Aurora Railway, Toronto, Ont., to succeed Walter C. Douse.

A Nevin Pomeroy has been elected vice-president of the Chambersburg & Shippensburg Railway, Chambersburg, Pa., to succeed C. P. Miller, who still retains the position of treasurer.

Charles Basse has been appointed auditor of the Arkansas Valley Interurban Railway, with headquarters at Wichita, Kan., vice H. M. Dobbins, resigned to engage in other business.

Harry S. Calvert, secretary and general manager of the Westmoreland County Railway, Pittsburgh, Pa., has also been appointed treasurer of the company to succeed Joseph G. Vilsack.

Charles B. Attlesley has been appointed acting division superintendent at the Ninth Avenue depot of the Brooklyn (N. Y.) Rapid Transit Company, to succeed the late Henry Mueller.

M. H. McLean, secretary of the Harris Trust & Savings Company, Chicago, Ill., has been elected a vice-president of the Des Moines City Railway and the Inter-Urban Railway, Des Moines, Iowa.

E. R. Heiny has been appointed superintendent of the Arkansas Valley Interurban Railway with headquarters at Wichita, Kan., vice Charles A. Stanley, resigned to accept services elsewhere.

Francis Tingley has been appointed superintendent of construction of the Altoona & Logan Valley Electric Railway to succeed F. D. Hain, who some time ago was appointed engineer of the city of Altoona.

R. J. Semsch, local auditor of the Wisconsin Railway, Light & Power Company at La Crosse, Wis., has been appointed chief clerk to the general manager, in charge of the La Crosse office. This position is a new one.

Alba H. Warren, formerly manager of the Galveston (Tex.) Electric Company, a Stone & Webster property, has been transferred to El Paso, where he has been made manager of the El Paso Traction Company, also owned and operated by Stone & Webster.

J. D. Callery, formerly one of the receivers of the Pittsburgh (Pa.) Railways, and chairman of the board of the Philadelphia Company, has been elected vice-president of the Beaver Valley Traction Company, New Brighton, Pa., to succeed J. H. Reed.

Josiah M. Billing, who has been chief clerk in the office of the Montgomery

Light & Water Power Company, Montgomery, Ala., for some time, has been promoted to the position of secretary and treasurer of the Athens Railway & Electric Company, Athens, Ga.

Albert McNeil, who has been chief dispatcher for the Illinois Traction System at Decatur, Ill., for the last seven years, has been made superintendent of the lines of the company in that city to succeed A. S. Bergschneider, transferred to Springfield.

A. S. Bergschneider, who has been superintendent of the Illinois Traction System at Decatur, Ill., for a number of years, has been appointed superintendent of transportation of the company with offices in Springfield. He succeeds F. R. Edmonston, who has gone to the Wabash Railway at Moberly, Mo.

Alexander Shapiro, who for the last four and one-half years has been connected with the secretary's office of the American Electric Railway Association as research assistant and statistician, has been forced to resign on account of ill health. He has been undergoing a rest cure and is reported to be recovering rapidly.

Lieut. W. T. Waters, Jr., advertising manager of the Georgia Railway & Power Company, Atlanta, Ga., and editor of *Here We Are*, published by that company, is back in America after a long stay in France. Lieutenant Waters, it is expected, will resign from the service soon and return to the company in his former capacity.

Paul Stark has been appointed auditor of the Eastern Wisconsin Electric Company, with headquarters at Sheboygan, Wis., to succeed William E. McGovern, who resigned to undertake government work at Washington in the late summer. Mr. Stark was formerly connected with the accounting department of the **Public Service Commission** of Indiana.

William B. McKinley, president of the Illinois Traction Company, Peoria, Ill., and Congressman from the Nineteenth Illinois District, is mentioned as a candidate to succeed United States Senator Lawrence Y. Sherman, who has decided that he will not be a candidate for re-election upon the completion of his present term.

Brig.-Gen. Henry Worth Thornton, formerly general superintendent of the Long Island Railroad, has been raised to the knighthood by King George in recognition of his services to the British nation during the war as general manager of the Great Eastern Railway of England. Only a few months ago Mr. Thornton was promoted from a colonel to a brigadier general in the British army.

B. F. Wickersham has been appointed general manager and purchasing agent of the West Chester, Kennett & Wilmington Electric Railway, Kennett Square, Pa., to succeed Hamilton Baluss, who, as noted in the issue of the **ELECTRIC RAILWAY JOURNAL** of

July 20, 1918, resigned to accept a position with the United States Ordnance Department as army chief inspector at Philadelphia, Pa.

Edwin W. Clapp, former superintendent of the Bristol & Norfolk Street Railway, Randolph, Mass., who entered the employ of the Bay State Street Railway, Boston, Mass., five months ago, has been advanced to head of the safety department with offices in Boston. Mr. Clapp was a former Bay State Street Railway employee at South Braintree and was superintendent of the Bristol & Norfolk street railway for three years.

J. P. Tretton has been appointed superintendent of transportation of the Indianapolis Traction & Terminal Company, Indianapolis, Ind. Mr. Tretton has been connected with the company since 1899, when he began work in the truck department at the repair shops. He was appointed storekeeper in 1902; paymaster in 1906; schedule maker for the transportation department in 1907; and has been assistant superintendent of transportation since 1908.

John I. Catherman, formerly assistant engineer of maintenance of way of the Illinois Traction System, Peoria, Ill., who has been in military service for the last year, has been appointed head of the maintenance of way department with headquarters at Springfield, Ill. Mr. Catherman succeeds L. B. Martin, who was recently named general superintendent of the Illinois Traction System. Mr. Catherman was with the Pennsylvania Lines for some time before he became associated with the Illinois Traction System in 1913.

Homer Loring has been elected chairman of the recently appointed trustees of the Eastern Massachusetts Street Railway, the proposed successor to the Bay State Street Railway, Boston, Mass., under the conditions set forth in the **ELECTRIC RAILWAY JOURNAL** for Jan. 25, page 210. The trustees will not assume the responsibility of operating the property until it has been transferred to the new company, probably about April 1. In the meantime, they will study the many problems of the system and co-operate with the various committees in completing the reorganization plans.

Major Joseph Caccavajo, who organized the Nineteenth United States Engineers, has returned to New York from the French battle front. The major, prior to entering the national service, was consulting engineer for New York City subway construction. He wears the Croix de Guerre, awarded him for extraordinary bravery and heroism at the Champagne front. Major Caccavajo was a member of the general staff of the Thirty-sixth, comprising Texas and Oklahoma national guardsmen. He was in command of the American camp near Brest, at which 36,000 troops were landed daily.

Capt. J. C. McPherson, just returned from army service with the railroad engineers in France, has been made assistant general superintendent of the

Pacific Electric Railway, Los Angeles, Cal. Capt. McPherson served with the Pacific Electric as motorman, dispatcher and in various official positions, including superintendent, from 1895 to 1913. In June, 1913, he was transferred to Oakland as superintendent of the electric lines of the Southern Pacific Company, which also controls the Pacific Electric Railway. He remained at Oakland until he received his commission with the army. Immediately thereafter he was sent to France and for a time was superintendent of terminals at Bordeaux, the port through which an immense volume of supplies for the American army was handled.

F. R. Edmonston has resigned as superintendent of transportation for the Illinois Traction System at Peoria, Ill., to become connected with the Wabash Railroad at Moberly, Mo. Mr. Edmonston had jurisdiction over all the lines west and north of Decatur and South of Springfield. He was born in Galloway County, Mo., on Dec. 1, 1878. He was connected with the Chicago & Alton Railroad at various places on the Kansas City division as student operator and agent from April, 1894, to September, 1896. He was with the Wabash Railroad at various places on the Kansas City division as telegraph operator, agent, trainmaster, clerk and train dispatcher from September, 1896, to September, 1907. He next entered the service of the Missouri, Kansas & Texas Railroad, with which he continued from September, 1907, to March, 1913. He was appointed division superintendent of the Illinois Traction System, northern division, on March 10, 1913, and served in that capacity until Aug. 1, 1914, when he was appointed superintendent of transportation with jurisdiction as noted previously.

J. D. O'Keefe, recently appointed receiver of the New Orleans Railway & Light Company, New Orleans, La., is second vice-president of the Whitney-Central National Bank, that city. For three years Mr. O'Keefe handled one of the biggest receivership proceedings ever instituted in the Federal Court at New Orleans—that of the Frisco railroad. He is a man of wide experience in such matters, has the complete confidence of the public, and enjoys also the confidence of the financial interests involved in the railway receivership. Moreover, he is especially competent to deal with the labor situation. During the Frisco receivership when the Southern Pacific strike took place, and the Frisco car repairers refused to work because they thought they were being used to repair cars from roads on which the men were on strike, Mr. O'Keefe settled the matter very quickly and satisfactorily. Only recently he successfully handled labor troubles at the plant of the New Orleans Dry Dock Company, of which he is managing secretary. Mr. O'Keefe was at one time a member of the Dock Board of New Orleans, holding a public office very successfully. His experience has thus covered many lines of endeavor.

E. K. Stewart has resigned as vice-president and claim adjuster of the Columbus Railway, Power & Light Company, Columbus, Ohio. Mr. Stewart was formerly general manager of the road, but relinquished that office some time ago that he might accept duties somewhat less arduous. Mr. Stewart was born in Columbus in 1845. His educational advantages were confined to the common schools of that city. His first work was in a bank. He continued in this line until he became cashier of the P. Heyden & Company Bank. For several years he had held a financial interest in the East Park Place Street Railway, Columbus, which later became the Long Street line. This property was included in the Main and High Street consolidation and Mr. Stewart remained as an officer of the company. In 1892 he was made vice-president and general manager of the Columbus Street Railway, the first of several local consolidations. He retained that place and title in each succeeding enlargement of railway activities in the city. Mr. Stewart is president of the Case Crane Company and of the Columbus Dry Goods Company, vice-president of the Union National Bank and a director of the Columbus Gas Light & Heating Company, the Citizens' Savings & Trust Company, and other institutions. Mr. Stewart thus closes a career of more than twenty-five years with the local railroads.

R. M. Howard, manager of all departments of the Wisconsin Railway, Light & Power Company, except the La Crosse Street Railway, has been appointed general manager for the company at La Crosse, succeeding Dean Treat, who resigned. Mr. Howard will co-operate with Peter Valier, vice-president, who will be resident executive officer, having jurisdiction over all departments including Winona and Hatfield. Mr. Howard has been with the Wisconsin Railway, Light & Power Company since it was organized in 1913, having previously held the same position for two years with the receiver of the La Crosse Water Power Company. He has heretofore had charge of the power and electrical department of the company, including the Hatfield dam, the hydro-electric power station, the power transmission lines from Hatfield to La Crosse and Winona, the substations and distribution system in La Crosse, the Onalaska electric utility and steam power stations and electric distribution system in Winona, and the Winona Street Railway. Prior to becoming connected with the Wisconsin Railway, Light & Power Company, Mr. Howard was general manager of the Green Bay Traction Company, the Green Bay Gas & Electric Company and the Northern Hydro-Electric Power Company, Green Bay, which have since been consolidated under the name of the Wisconsin Public Service Company. Before going to Green Bay, Mr. Howard was general manager of the Clinton (Iowa) Street Railway for nine years. The

Wisconsin Railway, Light & Power Company is one of the group of properties controlled by the Clement C. Smith interests.

J. P. H. De Windt, formerly chief of the transit bureau of the Public Service Commission for the First District of New York, will continue with the Pratt Engineering & Machine Company, Atlanta, Ga., in the capacity of chief of construction. In the spring of 1918 Mr. De Windt was requested by the Pratt Engineering & Machine Company to assume charge as field executive of the construction of a \$7,000,000 picric acid plant at Little Rock, Ark., being erected and equipped for the government. In order to take up this work Mr. De Windt was granted a leave of absence without pay for three months by the Public Service Commission. At the expiration of this period, however, the work had not been completed and as Mr. De Windt's further services were essential to the carrying out of the construction the government authorities refused to release him. In consequence he tendered his resignation to the commission effective on the expiration of his leave of absence. Mr. De Windt was for some time vice-president and general manager of the Birmingham Railway, Light & Power Company, Birmingham, Ala., and while with that company was assigned in addition to his regular duties to considerable engineering work with the American Cities Company, by which the Birmingham property is controlled. As noted previously in the ELECTRIC RAILWAY JOURNAL, Mr. De Windt has been succeeded with the Public Service Commission by George F. Daggett, former assistant secretary of the commission.

## Obituary

A. R. Walbridge, recently appointed receiver for the St. Paul (Minn.) Southern Electric Railway, died at his home in Hastings, Minn., on Jan. 15. Mr. Walbridge was prominent in Hastings in business and social circles and was also well known in St. Paul and Minneapolis. He is survived by his widow and two daughters.

Percy Dwight Henders, auditor for the Chicago, Ottawa & Peoria Railway, Ottawa, Ill., died recently at his home in Ottawa, following an illness of several months. Mr. Henders was born in Ottawa in 1882, and practically all his life has been spent in that city. His education was obtained in the schools of Ottawa and the University of New York. After fitting himself for commercial life, he entered the employ of George W. Reed & Company, later going with the First National Bank. Eleven years ago he became connected with the Chicago, Ottawa & Peoria Railway and was advanced several times, finally becoming auditor.

# Manufactures and the Markets

DISCUSSIONS OF MARKET AND TRADE CONDITIONS FOR THE MANUFACTURER.

SALESMAN AND PURCHASING AGENT

ROLLING STOCK PURCHASES

BUSINESS ANNOUNCEMENTS

## Prevailing Condition in Wire Market

New Standards Discontinue Certain Grades in Small Sizes—Easier Manufacture of Circ.Mil Sizes

January is hardly the time of year to look for heavy buying in the wire market. While the month has provided few orders of a large size, it has created a market for small amounts in many instances. Only absolutely necessary extensions have been made, but considerable maintenance and repair work has been carried into effect.

### STEADINESS IN PRICE ANTICIPATED

With the departure last week of the committee of copper producers for Europe, the price of copper will probably hold rather steady until word from them is received. Since the price of wire depends largely on the price of the base copper, as soon as the large buyers have decided that the bottom level has been approximately reached, the larger orders may be expected to come in. The price of copper in most cases has been on a 23-cent base, but one case is known when it has been as high as 27. Some of the smaller producers have been selling as low as the 20-cent base, but it is probable that as soon as their stock becomes pretty well depleted they will raise their price somewhat. Quotations in the open market this week went below 20 cents for spot shipments of electrolytic. Little copper is being sold to the wire manufacturers, as their stocks as a rule are ample for current production at prevailing wire prices.

### INQUIRIES SHOW SATISFACTORY CONDITION

There have been many inquiries received by the larger wire producers for quotations on large orders. One manufacturer has a standing order which is to take effect when he, the manufacturer, is satisfied that copper has become satisfactorily low and stable.

Some inquiries on bare trolley wire have come from South American countries. In the South the month of February should begin to show an increase, but throughout the country generally buying in any large amounts will probably not be felt before March and April. Where in season there would be found an order for 30 or 40 miles of trolley wire, there is now found nearer 2 or 3 miles.

There have likewise been inquiries for copper-clad trolley wire for both foreign and domestic use. Until the metal market shall have found itself

substitutes are being used. There have been cases where bare copper wire has been used, although copper-clad may have been more desirable, just as where in one case in South America condenser tubes have recently been made of iron, even with their short life, as being cheaper in the end than present copper. Deliveries in bare trolley wire are running three to four weeks, as it is not stocked; it is, however, kept in rods.

Considerable standardization on rubber-covered wire and cable has been effected. Code, 30 per cent and 40 per cent are insulation standards. No. 8 B. & S. gage and smaller rubber-insulated N. E. C. with double braided wire and twin wire will not be manufactured. Single-conductor single-braid will be substituted therefore. The number of standard colors of flexible cords has been limited to black, green, yellow, red and white. Lamp cord and brewery cord are the standard types of N. E. C. flexible cords.

### CHANGE IN WIRE STANDARDS

In the manufacture of stranded conductors cables of even diameters have been eliminated and approximate diameters substituted therefor. Thus where 400,000 circ.mil is called for a cable of thirty-seven strands of No. 10 B. & S. gage wire, giving 384,095 circ.mil will be sold. The same will hold good for other sizes. In some cases the approximate size will be nearer the even hundred than in the above instance, but in no case will it be very far off. There are the same number of steps between the present No. 16 and 2,000,000 circ.mil as formerly, and each step approximates more or less closely the former corresponding step.

## Railway Material for Sale by Government

Equipment valued at \$10,000,000 and owned by the United States Spruce Production Corporation, with headquarters in Portland, Ore., is to be sold and sealed bids for the same will be received by the sales board in the Yeon Building in that city up to Feb. 15.

The equipment, which consisted of everything from picks and shovels to complete railroads and mills, contains many items of interest to the electric railway field, as follows: A. C. motors, 440-volt, three-phase, 60-cycle, 3 to 75 hp., with or without starters; 2581 tons new 60-lb. rails; 5030 tons 67½-lb. new rails; 2910 tons new 80-lb. rails, besides a number of standard automobile trucks of 1½ to 5-ton capacity.

## Outlook on Rail Bonds Hopeful

Further Reduction This Past Week Said to Bring Price to Bottom Level

This track accessory has pretty consistently followed copper in price movement for some time. When copper, the cost of which enters so materially in the cost of the finished bond, rose some time ago the rail bond's cost followed it up, and came down with it early this winter. In the last two months discounts from list for rail bonds have increased from 10 per cent to 17½ per cent, and early it was brought up to 20 per cent. With this last drop in price it is predicted in the trade that the bottom level has been reached.

Distributors are of the belief that buying should be quite active this spring as electric railways have not kept their maintenance in this line up to the standard for the past four years. Most new orders from traction systems for bonds, the trade reports, have been for short extensions, no large new lines having been laid.

There have been many inquiries received by manufacturers for quotations on fair sized orders for this country, and others have come through from Europe, notably France, Spain and Sweden. There is no difficulty with deliveries as in most cases they could come from stock.

## Mild Winter Easy on Car Glass

Although there has been a very dull market for car window glass in the United States, within the last two weeks 125,000 boxes of glass have been reported on order from France. How much of this will find its way into rolling stock is not known, but returning soldiers bring reports that French rolling stock is virtually being operated as open cars. Discounts on car window glass, single strength, A and B quality, remain at 77 per cent, while double strength remains at 79. Maintenance orders have been the only ones of account from the traction systems. Ordering for one month's requirements is now taking the place of the former practice of placing orders for six months' requirements by one elevated railway in the East. The very open and mild winter in the East has had considerable to do with the small maintenance orders.

Little car window glass is being stocked either at the factory or locally. Orders are being filled at the factory in from two to three weeks.

**Trade Notes**

W. J. Ritchie & Company, Sheffield, England, steel manufacturers and engineers, have moved their London office to 9 New Broad Street, E. C. 2.

Steel City Electric Company, Pittsburg, Pa., has appointed R. S. Wakefield its representative at Dallas, Tex.

William K. Swift, Philadelphia, Pa., has become associated with the sales department of the Bound Brook Oilless Bearing Company, Bound Brook, N. J.

Phoenix Utility Company, 71 Broadway, New York City, is the new name for the Phoenix Construction Company. This company, which handles used machinery and equipment, had its name changed because of the existence of two different construction companies with the same name.

J. C. Hill, pioneer street car advertising man of Kansas City, and for twenty-four years head of the Central Advertising Company, has recently announced his retirement from the active advertising field, and the disposal of his interests in the company to Barron G. Collier of New York. Mr. Hill is retained on the board of directors of the Central Advertising Company and will maintain his office at 311 Bryant Building. He did much to bring street car advertising to a high level and incorporated many new ideas.

Roller-Smith Company, New York City, announces the appointment of James E. Wood as manager of its Cleve-

land office, located at 711 Williamson Building. Mr. Wood assumes the position formerly held by C. S. Ripley. Mr. Wood has been engaged in telephone development, first with the Screw Machine Products Corporation of Providence and later with the Western Electric Company at Chicago. Recently he has been with the government in radio work. The Roller-Smith Company also announces the opening of a Detroit office in the New Telegraph Building, in charge of C. H. Nicholson, who was formerly connected with the Chicago office of the company. During the war Mr. Nicholson was with the Signal Corps.

Drew Electric & Manufacturing Company, Indianapolis, Ind., manufacturer of line materials and electric railway supplies, announces the appointment of R. B. McDonald as sales engineer. Mr. McDonald has been previously identified as an engineer in the electric and traction field and his past experience and knowledge of engineering requirements will again be available with Drew specialties. Frederick B. Schafer, formerly advertising and sales counsel on the staff of the McGraw-Hill engineer publications, will direct the publicity and sales of the Drew company. The Drew Electric & Manufacturing Company has completed its biggest year and enters the new year with the most promising plans. In the opinion of James H. Drew, president of the company, the central stations and the electric railway field are facing one of the most successful periods ever experienced in their history.

**Rolling Stock**

Stockton (Cal.) Electric Railroad will shortly begin remodeling one of its older type cars and install safety devices.

Stark Electric Railroad, Alliance, Ohio, expects to purchase this year two quadruple motor equipments and trucks for two interurban cars.

Southwestern Gas & Electric Company, Texarkana, Ark., lost its carhouse and twelve cars by fire on Dec. 21, causing a loss of about \$100,000.

Evansville (Ind.) Railways, which was recently sold to the Evansville & Ohio Valley Railway Company, expects to purchase several new cars.

Bamberger Electric Railroad, Salt Lake City, Utah, has rebuilt in its own shops, six excursion cars which had been burned in the fire at the company's Ogden carhouse last May, as reported in these columns of May 25, 1918. A number of other cars are to be rebuilt so that the road will be suitably equipped with rolling stock when the resort season opens.

**New Advertising Literature**

Republic Engineers, Inc., 60 Broadway, New York City: Bulletin on 66,000-volt transmission line in Mahoning Valley.

Heine Safety Boiler Company, St. Louis, Mo.: Booklet, "The Heine Idea," describing its boilers and superheaters.

**NEW YORK METAL MARKET PRICES**

	Dec. 5	Jan. 30
Copper, ingots, cents per lb.	26	19
Copper wire base, cents per lb.	28 75	28 75
Lead, cents per lb.	7 05	5 50
Nickel, cents per lb.	47 50	40
Solder, cents per lb.	8 75	7 00
Tin, cents per lb.	172 50	172 50
Aluminum, 98 to 99 per cent., cents per lb.	133 10	133 10

† Government price in 50-ton lots or more f. o. b. plant.

**OLD METAL PRICES—NEW YORK**

	Dec. 5	Jan. 30
Heavy copper, cents per lb.	21 00 to 21 50	15 50 to 16 00
Light copper, cents per lb.	17 00 to 17 25	12 00 to 12 25
Red brass, cents per lb.	21 00 to 21 50	9 00 to 9 50
Zinc, cents per lb.	7 00 to 7 50	5 00 to 5 25
Yellow brass, cents per lb.	15 00 to 15 50	7 00 to 7 50
Lead, heavy, cents per lb.	5 75 to 6 00	4 50 to 4 75
Steel car axles, Chicago, per net ton	\$41 52	\$28 00 to \$30 00
Old carwheels, Chicago, per gross ton	\$29 00	\$24 00 to \$25 00
Steel rails (scrap), Chicago, per gross ton	\$34 00	\$22 00 to \$23 00
Steel rails (relaying), Chicago, gross ton	\$60 00	\$50 00 to \$55 00
Machine-shop turnings, Chicago, net ton	\$16 00 to \$16 50	\$6 50 to \$7 50

**ELECTRIC RAILWAY MATERIAL PRICES**

	Dec. 5	Jan. 30
Rubber-covered wire base, New York, cents per lb.	34	27
Weatherproof wire (100 lb. lots), cents per lb., New York	38 75 to 40 00	30 75
Weatherproof wire (100 lb. lots), cents per lb., Chicago	38 75 to 39 76	32 76 to 36 75
T rails (A. S. C. E. standard), per gross ton	\$70 00 to \$80 00	\$60 00 to \$65 00
T rails (A. S. C. E. standard), 100 to 500 ton lots, per gross ton	\$67 50	\$57 00 to \$60 00
T rails (A. S. C. E. standard), 500 ton lots, per gross ton	\$62 50	\$55 00 to \$60 00
T rail, high (Shanghai), cents per lb.	4 1/2	4
Rails, girder (grooved), cents per lb.	4 1/2	4
Wire nails, Pittsburgh, cents per lb.	3 1/2	3 1/2
Railroad spikes, drive, Pittsburgh base, cents per lb.	4 1/2	3 90
Railroad spikes, screw, Pittsburgh base, cents per lb.	8	8
Tie plates (flat type), cents per lb.	*3 1/2	3
Tie plates (brace type), cents per lb.	*3 1/2	3
Tie rods, Pittsburgh base, cents per lb.	7	7
Dish plates, cents per lb.	*3 1/2	3
Angle plates, cents per lb.	*3 1/2	3
Angle bars, cents per lb.	*3 1/2	3
Rail bolts and nuts, Pittsburgh base, cents per lb.	4 90	4 90
Steel bars, Pittsburgh, cents per lb.	*2 90	2 70
Sheet iron, black (24 gage), Pittsburgh, cents per lb.	*5 00	4 55
Sheet iron, galvanized (24 gage), Pittsburgh, cents per lb.	*6 25	5 60
Galvanized barbed wire, Pittsburgh, cents per lb.	4 35	*4 35

	Dec. 5	Jan. 30
Galvanized wire, ordinary, Pittsburgh, cents per lb.	3 95	3 95
Car window glass (single strength), first three brackets, A quality, New York, discount 1	77%	77%
Car window glass (single strength), first three brackets, B quality, New York, discount	77%	77%
Car window glass (double strength, all sizes AA quality), New York discount	79%	79%
Waste, wool (according to grade), cents per lb.	13 to 15	15
Waste cotton (100 lb. bale) cents per lb.	12 1/2 to 13	12
Asphalt, hot (150 tons minimum) per ton delivered	\$38 50	
Asphalt, cold (150 tons minimum, pks. weighed in, F. O. B. plant, Maurer, N. J.), per ton	\$42 50	\$43 00
Asphalt filler, per ton	\$45 00	\$45 00
Cement (carload lots), New York, per bbl.	\$3 20	\$3 20
Cement (carload lots), Chicago, per bbl.	\$3 34	\$3 34
Cement (carload lots), Seattle, per bbl.	\$3 68	\$3 68
Linseed oil (raw, 5 bbl. lots), New York, per gal.	\$1 63	\$1 48
Linseed oil (boiled, 5 bbl. lots), New York, per gal.	\$1 65	\$1 55
White lead (100 lb. keg), New York, cents per lb.	14	13
Turpentine (tbl. lots), New York, cents per gal.	64	75

\* Government price. † These prices are f. o. b. works, with boxing charges extra. ‡ Bid price, no quotation.

### Franchises

Cardin, Okla.—James H. McNicholas and associates have asked the City Council of Cardin for a franchise to construct an electric line on Main Street or Jefferson Highway.

Dallas, Tex.—The City Commissioners of Dallas have granted to the Dallas Railway an extension of 9 months in which to carry out the provisions of its franchise involving the expenditure of \$1,200,000 in improvements and betterments. The improvements called for include extensions of several lines, two new lines, laying of heavier rails in connection with paving on several streets and betterments in the service in various respects. The new lines will be the Oakland Cemetery line and the Oak Lawn and City Hospital extensions.

### Track and Roadway

Denver & Interurban Railway, Denver, Col.—A bond issue of \$100,000 has been voted by the city of Fort Collins for the purchase of the local lines of the Denver & Interurban Railway in Fort Collins. Of this amount, \$25,000 will be spent by the city in improvements.

Peoria & Chillicothe Electric Railway, Peoria, Ill.—At the recent annual meeting of the Peoria & Chillicothe Electric Railway, which proposes to construct a line between Peoria and Chillicothe, John F. Lynch was elected president, A. O. Brock elected vice-president, W. E. Emery re-elected secretary and E. A. Mitchell re-elected treasurer. [March 2, '18.]

Indianapolis Traction & Terminal Company, Indianapolis, Ind.—As soon as weather conditions permit concrete construction, the Indianapolis Traction & Terminal Company will begin work on permanent double tracks on South Street from Delaware Street to Virginia Avenue. In the meantime, the company will construct a temporary single track on South Street from Delaware to Alabama Streets, on Alabama to Louisiana, thence east to Virginia Avenue, for the use of the interurban cars of the Indianapolis & Cincinnati Traction Company and the Interstate Public Service Company.

Arkansas Valley Interurban Railway, Wichita, Kan.—This company reports that it plans to construct 4 miles of new track during 1919.

New Orleans, La.—A conference will be held on Feb. 27 and 28 to arrange plans for the construction of a proposed municipally-owned electric interurban railway to connect New Orleans, La., and Mobile, Ala., with all of the Mississippi coast towns. All of the cities and towns along the route of the proposed interurban will send commissioners to lay the groundwork for building the line. Among the plans to be considered will be the construction of hydro-electric plants on streams near the

coast to generate current for the interurban system. The conference will arrange for estimates of the cost of the railway and take steps to prorate the bonds among the municipalities interested in the enterprise. [Nov. 9, '18.]

Kansas City (Mo.) Railways.—The citizens of Independence have voted a loan of \$50,000 to the Kansas City Railways for the extension of the Independence line from its north terminus at Liberty Street to Sugar Creek.

Interborough Rapid Transit Company, New York, N. Y.—Announcement has been made by Travis H. Whitney, acting chairman of the Public Service Commission for the First District of New York, that the Clark Street subway of the Interborough Rapid Transit Company will be opened for service by April 1.

Goldshoro (N. C.) Electric Railway.—A report from this company states that it will reconstruct 1 mile of track in 1919.

Columbus, New Albany & Johnstown Traction Company, Columbus, Ohio.—This company reports that during 1919 it will reconstruct  $1\frac{1}{2}$  miles of track.

Windsor, Essex & Lake Shore Rapid Railway, Kingsville, Ont.—A report from the Windsor, Essex & Lake Shore Rapid Railway states that during 1919 it expects to replace the trolley wire on 36 miles of its line or install steel auxiliary wire under its present trolley wire. The company will also replace 10,000 ties.

London (Ont.) Street Railway.—This company reports that it will purchase 2 miles of No. 00 wire during 1919.

Dallas (Tex.) Railway.—Announcement has been made by the Dallas Railway that it is ready to proceed with the improvement of its tracks on Jefferson Avenue from Lancaster Avenue to Polk Street, a distance of about 2 miles, in connection with the repaving of this thoroughfare. The company will lay heavier rails and pave that portion of the street between and under its tracks. This is the largest paving job to be undertaken by the city this year and will involve an expenditure of nearly \$200,000 by the traction company.

Newport News & Hampton Railway, Gas & Electric Company, Hampton, Va.—This company reports that during 1919 it expects to purchase 2900 ft. of 500,000-circ.mil feeder cable, 5400 ft. of 300,000-circ.mil feeder cable and 32,000 ft. of 4/0-circ.mil feeder cable.

Seattle, Wash.—Plans are being worked out and will be recommended to the Public Service Commission of Washington by R. H. Thomson, former city engineer of Seattle, for the construction of two large freight yard terminals, one to serve Seattle and Tacoma and another to be accessible on north to Seattle and Everett, in order to relieve the congestion of freight at Puget Sound centers. Tentative plans provide for the electrification of all rail lines serving the proposed terminal facilities.

### Power Houses, Shops and Buildings

Fort Smith Light & Traction Company, Fort Smith, Ark.—The Fort Smith Light & Traction Company has completed an addition to its boiler room and has installed one 600-hp. B. W. boiler and one 3000-kva. General Electric generator.

Hagerstown & Frederick Railway, Hagerstown, Md.—Fire recently destroyed the substation and warehouse of the Hagerstown & Frederick Railway at Myersville. Plans are being made for rebuilding the structures.

Boston (Mass.) Elevated Railway.—The Public Service Commission of Massachusetts has granted the Boston Elevated Railway an extension of time until July 1 in which to begin construction of subway and terminal facilities in connection with the continuation of the elevated railway service to Everett. The actual building of the new line from Sullivan Square is practically completed, and is expected to be in operation with a temporary terminal in Everett within two months.

Southern Power Company, Charlotte, N. C.—It is reported that the Southern Power Company, which furnishes energy to the Piedmont & Northern Railway, will begin a mammoth power development on the Catawba River early in the summer. According to the report, two big dams and power plants will be built—one at Rhodhiss and the other at Horseford Shoals, 2 miles below Rhodhiss.

Oklahoma (Okla.) Railway.—A new turbo-generator is being installed by the Oklahoma Railway in its Belle Isle power house, at an approximate cost of \$125,000. A new automatic machine for shoveling coal has also been installed at the power plant at a cost of \$75,000.

Pennsylvania Central Railway, Johnstown, Pa.—This company reports that during 1919 it will purchase one 1200-volt d.c. rotary converter equipment for its power house.

Bamberger Electric Railroad, Salt Lake City, Utah.—This company contemplates purchasing one automatic substation equipment to convert present manual control.

Lewiston-Clarkston Transit Company, Clarkston, Wash.—This company reports that it will purchase a new motor generator set.

Puget Sound Traction, Light & Power Company, Seattle, Wash.—Plans are being prepared by the Puget Sound Traction, Light and Power Company for the construction of a one-story concrete structure to be built at the Jefferson Street substation to house lightning arresters.

Tacoma (Wash.) Municipal Railway. A report from the Tacoma Municipal Railway states that a new 1000-kw. motor generator set will be purchased in 1919. A new shop will be built and fully equipped.