

# Electric Railway Journal

Consolidation of STREET RAILWAY JOURNAL and ELECTRIC RAILWAY REVIEW

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## Electric Railways Are Now Recognized as a National Institution

ONE of the gains which has been made by the electric railway industry during the war is its coming to realize that it is national rather than provincial in its character and in the scope of its activities. The public has begun to appreciate the same fact. The Electric Railway War Board has been an important factor in this achievement. According to the action of the executive committee of the American Association taken on Tuesday of this week, the war board will now cease to function as such, the war being over to all intents and purposes, but its place will be taken by a committee on national relations. This committee will continue the work so well begun by the war board, so modifying it as to synchronize with the national transition from the state of war to the state of peace.

Every virile electric railway operating staff in the country has a different feeling with respect to its opportunities and responsibilities from that which it had before the war. There is more of a spirit of co-operation in the air. It is important to conserve and intensify this spirit. The committee at Washington will help, but this is not enough. The co-operative spirit cannot be delegated to a committee. The spirit must manifest itself and exercise itself in divers ways. The new Trans-Mississippi association, whose formation was outlined in last week's issue of this paper, is an omen of the times. Older associations can be utilized as means of putting conviction into action. But whatever the means employed, a feeling of national consciousness in the industry must be fostered. There is an inspiration in being part of a country-wide movement, and inspiration is needed in the business now as never before.

## The Conscientious Objector to a Reasonable Fare

IN A RECENT ISSUE of this paper there was a news item to the effect that in the months of September and October almost 3,000,000 passengers rode on the street cars in Columbus, Ohio, without paying fares. They were the conscientious objectors to the 5-cent fare which the company adopted because it could not operate on the eight-for-a-quarter rate.

In Chicago recently an alderman requested the City Council to indorse a boycott of the elevated roads because they were beginning to collect a 6-cent fare under authority of the State utilities commission. In the same city some days later the people were urged through an anonymous circular to "strike" for a 5-cent fare and to "make the companies' shameful trickery and greedy extortion cost them dear."

The conscientious objector has been in disrepute with his fellow citizens since the first days of our entry into the great war. There are signs now that he is being succeeded by men of more extreme views. These men are destructive in their preaching and in their methods, and it is natural, perhaps, that they should seize on occasions such as the inauguration of higher street car fares for getting a foothold. However, we are not worried that they will make much progress along this path or that there are many of them.

The public has been educated during the past few years so as to appreciate the justice of petitions for relief filed by electric railways. From the President of the United States down, there have been many advocates of a fair deal to these utilities. The public will not go out of its way to help the companies secure higher fares, but once an increase has been approved by the proper tribunal we believe the patrons will become reconciled to the change. At any rate, we have too much faith in the fairness of the average American to fear any serious indorsement of such views as those cited above.

## When Should Surface Cars Be Operated in Trains?

WHAT is the present status of surface car train operation? On the Hog Island Shipyard line of the Philadelphia Rapid Transit Company and on a number of other lines in congested war industry districts, as has been described in recent issues of this paper, surface cars are being operated in trains. In view of the progress which the small one-man car is making even in cities of considerable size, the practice noted above seems to be a direct reversion.

Surface car train operation is not a new idea. Transportation companies have experimented with it ever since the operation of electric cars in trains has been a practical possibility. With the introduction of light multiple-unit control systems a few years ago attention was again directed to it but, like the double-deck car, it was usually discarded after a short trial. As was pointed out in these columns at that time, the inherent defect is that operating units of large passenger carrying capacity, be they single cars or groups of cars operated as single units, slow down the schedules. The reason for this is that in ordinary surface line traffic the number of stops per mile increases with the number of passengers per car.

Train operation is almost ideal where masses of passengers are loaded or unloaded at definite stations, as in rapid transit service. It has been characteristic of the war industry service that most of the industrial or military plants requiring the transport of large numbers of



employees during the rush hour are located in places removed from the housing districts and the normal centers of urban traffic distribution. The service to these plants, therefore, has been more akin to rapid transit than to ordinary surface line service. The problem has been to secure a high passenger density per mile of track, and this, of course, is most easily secured by the use of large operating units where the traffic is of the rush-hour character. For this service train operation has been highly successful. That it has been is no indication of its merit for all classes of service, however. Rather it serves to illustrate the value of careful analysis of traffic in connection with the purchase of new rolling stock.

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### Skip-Stop Movement Must Not Lose Momentum

**N**OW that permanent peace is in sight, there is a tendency to "let down" in certain quarters. This may be all right with respect to some practices which were incident to the war, but it should not affect the progress of the skip stop in electric railway operation. The savings which were possible through the simple expedient of omitting stops were recognized long before the war, but it required the war to overcome the inertia which opposes even such reasonable innovations.

The skip-stop plan of operation is one that benefits all concerned. Fuel saving, greater speed and increased service are all advantageous to the public, and at the same time they contribute toward enabling the utility to meet the public's demands at less expense per unit of service rendered. To offset these gains there is the slight inconvenience to passengers due to their having to walk a short distance to a car stopping point. There is also a possible source of danger of accident while the public is becoming accustomed to having cars pass certain points without stopping.

In Philadelphia several recent accidents have been laid by the public at the door of skip-stop operation, and there has been an agitation in favor of abolishing this. It is probably true, however, that here or elsewhere there is no increase in accident risk commensurate with the gains secured. The public should remember also that all progress in transportation and in other fields is accompanied by a tendency toward reaction. It would be better, and it is practicable, to safeguard danger points in ways other than by reducing car speeds. We do not believe that there need be any increased danger at non-stop points if pedestrians and vehicle drivers will take reasonable safety precautions, and if the motormen will pass possible danger points with cars well under control.

The railways are handicapped in their advocacy of the skip stop because they are among the beneficiaries of its adoption. Hence they have had to wait until circumstances forced upon the attention of public regulatory bodies the advantages to be obtained for the public by the elimination of unnecessary stops. Now, however, that a demonstration of these benefits has been made on a large scale, it will be lamentable if hasty action by citizens and civic organizations undoes the work of so many months of progress. There is an opportunity for effective publicity work at this time, to show the public all of the facts in the case.

### A Word of Appreciation for the Harassed Purchasing Agent

**T**HE purchasing agents of the electric railways have in the few years past had one of the hardest jobs in the gift of the industry, and the job will remain difficult for some time to come. The task of these men is to see that everybody has what he wants when he wants it. They have first to learn what the several departments need, then to locate sources of supply for the required material, and finally to induce reasonably prompt delivery of goods which are ordered. War conditions have, of course, added greatly to the complication of their work, not only because these conditions have caused scarcity of materials and exorbitant prices, but also because of the necessity for establishing priority claims in many instances.

For example, a certain railway wanted some condenser tubes for emergency use. A supply was located in a jobber's stock and could have been released in due course except for the fact that the priority permit applied to the manufacturer and not to a jobber. The manufacturer had to be located and new priority certificates secured authorizing him to deliver the tubes through the jobber as agent. All of this took many weeks and imposed a great amount of labor on the part of the purchasing agent concerned. In the meantime the power plant needed those tubes. This case may be extreme but it illustrates the general principle that we have in mind.

Heads of departments can assist in mitigating the purchasing agent's load by informing him well in advance of anticipated requirements. For example, if it is likely that an unusual number of cars are to be remodeled next summer a tip to the purchasing agent will enable him to do a little "scout work" for materials now. At least one purchasing agent requests heads of supply-consuming departments to meet him at frequent and regular intervals to go over together the company's prospective requirements. This insures co-operation, prevents the ordering of materials not strictly necessary and permits the exercise of foresight generally.

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### Keeping the Current in the Railway Return Circuit

**S**OME months ago a very valuable paper on the subject of protecting underground cables and pipes from the effects of stray currents was read by D. W. Roper at an A. I. E. E. section meeting in St. Louis. Mr. Roper has long been in charge of underground and other power distribution work in Chicago and is in a position to know "what is what" in the matter of electrolysis mitigation. The company with which he is connected, the Commonwealth Edison, supplies the power for the electric railways in Chicago, and by virtue of the relations thus involved he has been obliged to co-operate with the railways in determining the best means for safeguarding the power company's vast investment in underground cables. It is a source of considerable satisfaction to note that an insignificant sum (in the neighborhood of  $\frac{1}{150}$  of 1 per cent) spent annually is all that has been necessary for this purpose. This fact will tend to dispel the "bogy" of fear of high cost of protection which has sometimes worried the power company engineer or the railway manager.



Mr. Roper's observation and experience incline him to favor the "drainage system" of protection in the interest of economy of investment, as against the insulated negative return feeder system. He explains that the drainage system is simply an insulated negative return feeder system applied to the pipes instead of the rails. This being the case it is obviously a matter of economics to determine where the return system should be applied in cases where protection of underground pipes and cable sheaths is necessary. And it is equally obvious that the parties concerned should get together to use the most economical plan and to determine how the bill for protection should be split between them.

Space limitations preclude the printing of Mr. Roper's article in full but an extended abstract with a number of his diagrams have been given because the full text may not appear in the Institute proceedings. We regard the paper as a distinct contribution to literature on the subject, especially in view of the author's relation to the practical problem of insuring long life of the cable sheaths under his care.

### Government Should Not Ask Charity for Mail Carriers

**S**HOULD not mail carriers, when bearing pouches, be transported by electric railway cars at a flat monthly rate? This question, which is being raised by postal authorities in various cities throughout the country, has elicited from the Milwaukee company a clear-cut comprehensive reply which may be suggestive to other railways. In denying the request Mr. Mortimer passes over legal objections, and he frankly admits that the practice could probably be established without serious public complaint. Upon the basis of economic principles and good government, however, he finds that a concession to mail carriers would be unwarranted.

In the first place, the practice would not result in offsetting economies, for it would probably require cars to stop more frequently in outlying sections of the city, with an increase in energy consumption, decrease in schedule speed and consequent increase in wage disbursements. In the second place, electric railways are obligated to give the best service at cost without discrimination. One class of patrons should not be favored with service at less than cost at the expense of other classes, for each class should pay its full share of the cost of operation, including a reasonable return on the investment.

In the third place, even if an electric railway were under public operation as is the post office, it would be highly desirable that they both stand on their own bases in their respective costs of operation. Free passes or reduced rates to post office employees might be given provided the government would give a corresponding franking privilege or reduced mail charges to the railway and its employees, but such an exchange of courtesies would be most unbusinesslike. It would then be impossible to determine whether each utility service was paying its own way.

Mr. Mortimer's position is impregnable. It is neither wise nor just for the government to try to profit at the expense of the non-postal patrons of electric railways,

or to countenance the efforts of postmasters toward this end. As the leading exponent of the American policy of fair play, the government ought to be willing to pay for what it gets. It has not thus far been eager to pay fully for the carriage of mail itself, but it should atone for rather than increase its sins of this sort.

### What Constitutes an "Excessive" Fare?

**T**HE recent grant of a 7-cent fare in Ithaca was accompanied by two remarks on the part of the Public Service Commission for the Second District of New York which are worthy of comment. These were:

It is practically conceded that dividends have been paid in the past when the money so used "in ordinary prudence" should have been used for the rehabilitation of the property.

There is a limit beyond which trolley fares should not go; in fact, they cannot be advanced beyond a certain point without disastrous results to the company. In these times of heavy burdens, the people should not be required to pay an excessive fare.

The first statement raises an unwarranted counterclaim against the plea of the Ithaca Traction Corporation for a reasonable fare. In the first place the Ithaca Traction Corporation was reorganized in 1914 after foreclosure sale of the predecessor property, and the new company has never declared any dividends. In the second place, as the same New York commission stated in granting the company a 6-cent fare late in 1917, the reproduction value of the property in the public service, including intangibles, was ascertained by the commission at the time of the reorganization.

In granting the 6-cent fare last year, therefore, the commission made what it even now considers a "fair and proper adjudication" by allowing what in its opinion was a fair return upon the property value, adjusted to date. With valuation data readily available, the commission was not justified in inserting in its second decision a suggestion that the present company is responsible for any sins of commission or omission of the former owners of the property. Such a theory is erroneous and unlawful and the company is justified in repudiating it.

The second remark refers to the effect on the company and also on the public of the 10-cent fare proposed. In view of the monopolistic nature of electric railway service the right of the commission to limit the fare to a reasonable amount is admitted, though we believe that in the great majority of cases the fare necessary to yield a fair rate of return on the value of the property would not be so high as to be deemed unreasonable. Ten cents is not so very much higher than 7 or 8 cents which are charged in many other places as to bar it from consideration. If it was found after a trial that the company was earning an excessive amount or that the fare was unreasonable in other respects, it could be reduced. In that case steps should be taken by the city or State to determine what other form of relief, such as exemption from certain taxes, could be extended to the company to compensate for its lower fare.

The public must realize that in the final analysis it must pay for the service it uses and insists on having. The commissions, which understand these facts, can help greatly to educate the public by explaining this fact in their decisions as well as the necessity for higher fares under existing conditions.



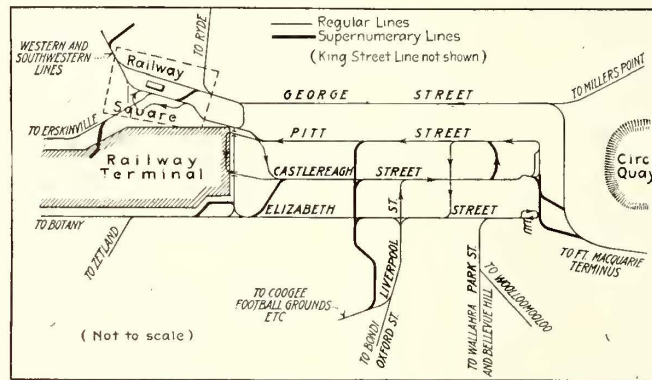
# Taking Care of Downtown Traffic at Sydney, Australia

“Supernumerary” Tracks Are Useful in Preventing Congestion—Nature of Traffic Makes Reconstruction Work Difficult

By C. F. DEWEY  
Sydney, N. S. W., Australia

THE layout of the city of Sydney, Australia, is not exactly favorable to the usual methods of tramway permanent-way construction, and various means have been employed from time to time to get out of “tight corners” and at the same time render the best possible service. The relation of the city to its suburbs presents difficulties in the matter of traffic distribution. Furthermore, the city is the oldest in Australia and in general the streets are narrow and crooked. They follow approximately the old bullock and horse trails which led inland from the harbor. As a consequence of these conditions, coupled with great density of traffic, the operation and maintenance of the lines in the center of the city are far from easy. Of all the city streets two bear the greatest amount of traffic. George Street, which is

considered to be the principal thoroughfare, takes all the tramway traffic for the western and southwestern suburbs. This requires fourteen different routes all having frequent terminal and intermediate services. The other main street is Elizabeth Street, which is the most eastern of the chief thoroughfares. It takes all the traffic for the eastern and southeastern suburbs, which also require fourteen different routes with frequent service. As several of the Elizabeth Street routes leave the main line a short distance from the terminus, the traffic on this street is not as dense as that on George Street. Between George and Elizabeth Streets are two intermediate thoroughfares, Pitt and Castlereagh Streets which, on account of their narrowness, accommodate but one track each. The one-way traffic, up on Pitt Street and

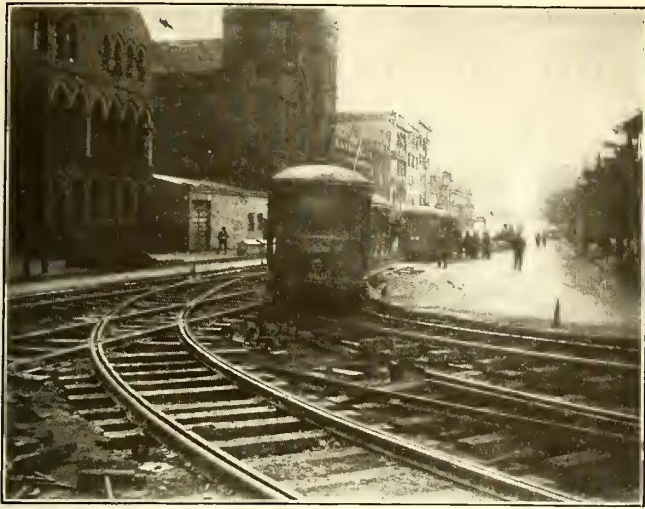


DIAGRAM, NOT TO SCALE, SHOWING THE CENTER OF GREATEST TRAFFIC CONGESTION IN SYDNEY



RAILWAY SQUARE, SYDNEY, AUSTRALIA. FROM 4000 TO 5000 CARS PASS THIS POINT DAILY BETWEEN 6 A.M. AND MIDNIGHT





TRACK WORK UNDER RECONSTRUCTION AT A CONGESTED INTERSECTION IN SYDNEY

down on Castlereagh Street, flows between the steam railroad terminal and various parts of the city, and the Circular Quay (ferry) and *vice versa*. These streets also take the two suburban services of Erskenville and Surrey Hills, thus relieving George and Elizabeth Streets.

The accompanying rough diagram, which is not to scale, shows the streets mentioned and also the provision made for interconnecting the lines upon them. Particularly important is the provision for relief of blocks by means of "supernumerary" tracks, which have been laid for this purpose and also for the accommodation of special football, race, circus and show services without interference with regular traffic. The ways in which these supernumerary tracks accomplish their purposes will be evident from an inspection of the diagram. The track layout is such that should a block occur on any one of the city routes the traffic can be immediately diverted to another regular track by means of existing loop lines or to one of the supernumerary tracks.

On account of the abnormally heavy traffic to which these city routes are subjected it is almost impossible to keep the tracks in perfect order. Reconstruction or repair is constantly necessary. However, to minimize this work the permanent way is built as substantially as possible, and the accompanying photographs have been



RECONSTRUCTION AND REALIGNMENT OF TRACKS ON ELIZABETH STREET, SYDNEY

taken to show a typical job of reconstruction and realignment of the tracks in Elizabeth Street at the intersection with Park Street. This is one of the busiest junctions on the line and the work is being carried out with a minimum interference with traffic. Referring to the photographs the following points will be of interest. One shows the Railway Square at Sydney. In the center of the picture may be seen the tramway waiting room, on the roof of which is the signal box controlling the movements of cars in the square. To the left in the picture is the general Parcel Post Office, next to which are the entrances to the railway terminal. Between 4000 and 5000 cars pass this point between 6 a.m. and midnight each day. Another illustration shows the reconstruction job under way, with a "jumper-box" car taking a temporary curve. The third is a general view of the junction layout looking south.

## Stamp Tax Cuts Traffic

Higher Costs Due to War Conditions Have Made Existence Difficult for Italian Tramways

THE country or secondary tramways in Italy formerly enjoyed the privilege of freedom from stamp tax on tickets. With a decree several months ago, however, this privilege was ended, and according to *Rivista dei Trasporti* the result has been a large contraction of traffic. On the basis of a comparison in an actual case between the thirty days before the application of the stamp tax and a similar period thereafter, it appears that the pre-tax ticket total of 245,965 was reduced to 199,693, a decrease of 19 per cent. With the normal traffic increase taken into consideration, the ticket loss would be 20 per cent.

It is not asserted that the decrease in traffic in other cases cannot be less, but the example cited is said to be sufficient to show that the stamp tax tends to destroy the object upon which it is levied, namely, the tickets. It is hoped that the matter will be revised, as there are probably some means for securing a well-designed scheme of taxation which will give as much revenue to the government without reducing railway traffic.

It is generally believed that the country tramways are in a rather poor condition, for the government has not defended them against the claims of local authorities and institutions for payments of various sorts, the sharing of profits and the like. The city tramways, however, have been thought to be more or less profitable.

After the beginning of the war some displacement of population and development of war industries created the illusion that the good standing of the city companies had not changed. Soon, however, there came an increase in wages as a result of the higher cost of living, and the subsequent increases in the prices of material made the situation serious even for the most prosperous companies. The deleterious effects of the reduction of maintenance will be seen in a short time.

Out of thousands of kilometers of city tramways in Italy, more than one-third are composed of small lines in small cities. Although of enormous value to the inhabitants of these cities, such lines do not have in the small traffic a sufficient financial support for the high cost of installation and operation. These companies were in a poor condition before the war; to-day they can hardly continue their existence.



# Speeding Up Traffic in Dallas

## Mr. Beeler Recommends Various Recent and Successful Developments in Proper Control of Traffic for Use in Texas City—Congestion Relieved by Through Routings

THE city of Dallas, Tex., in the opinion of John A. Beeler, has now arrived at the point where the general traffic situation must receive the treatment that metropolitan conditions demand. Street-car and vehicular-traffic requirements must be correlated and adjusted for the good of all the people. How this should be done is indicated in the first sections of Mr. Beeler's report regarding his recent investigation in Dallas. The first section covers the relief of congestion, the promotion of safety and the acceleration of traffic movements generally, while the second section is devoted particularly to the subject of rerouting of car lines. Favorable comment by the Mayor of Dallas upon the proposals was noted in the *ELECTRIC RAILWAY JOURNAL* of Nov. 23.

It will be recalled that the Dallas Railway is a corporation which began formal operation on Oct. 1, 1917, under a new service-at-cost franchise adopted a short time before. Under this the company agreed to expend \$1,000,000 in altering, improving and extending the city property. This formed the basis for the present investigation.

### SPEEDING UP TRAFFIC

After calling attention to the irregularity of the street system in Dallas (the various subdivisions being laid out at different angles), the extremely irregular length of the blocks, the traffic congestion in the business district, the reckless automobile driving, the unlimited automobile parking, the bunching of the electric railway cars and the routing of each car line completely through the business district to the far side, Mr. Beeler suggests a number of remedies to relieve the present situation. Abstracts of these recommendations follow:

#### *Install Loading Platforms at the Principal Car Stops and Employ Double Berthing*

One of the worst features in connection with the present traffic congestion is the danger from reckless automobile driving to patrons waiting for street cars. The surest way to protect the prospective passengers, it is said, is to provide a position at the car stop where they can wait in safety. The principal argument in favor of the safety zone as against a raised platform is that the former can be used during the rush hours and removed at other times. Mr. Beeler believes, however, that if a safety zone can be created during the period of maximum travel to accelerate traffic, there is no reason why it should not remain in place at all hours. Without question the raised platform gives greater safety to pedestrians. It is also a material aid in speeding up car loading, as the first step from the street level to that of the car platform has already been taken. The platform should be about 6 ft. wide, 10 in. high and 60 ft. long. Their construction is recommended at eleven points in the business section, as shown on the map on page 1001.

The headway given in the present time-tables frequently calls for two or more cars at the same time, which is not deemed desirable practice, but in other cases cars are being operated with trailers, which is called the proper way to operate two cars on the same schedule. After consideration of the subject from various angles, it is considered desirable to load at least two cars at once so as to reduce the wasted time at the stop and increase the schedule speed. Consequently double berthing is recommended for all times of the day at twenty-two points in the business section. These include, in the main, the intersections of Elm, Main and Commerce Streets with Lamar, Akard and Ervay Streets.

#### *Employ Front-End Collectors at the Principal Stops*

Front-end collectors should be stationed on the loading platforms at the principal stops in the congested district and should be on duty at least during the period of the evening rush hour. These men should collect fares, issue transfers, assist in loading non-prepayment cars and do anything else possible to keep the traffic moving. Experienced conductors or inspectors should be used for this purpose. The result will be additional comfort to patrons, faster operation, more even loading and better co-ordination with the signals of the traffic officer.

#### *Change the Location of Some of the Stopping Places*

While Mr. Beeler disavows the intention of criticising the adoption of the near-side stop in Dallas, he finds a few points at which a readjustment of stops will aid materially in speeding up traffic. For example, where car lines diverge the stopping places should be located so that the cars on one line do not hold back those of the other line. This is done by making the stops in both directions beyond the junction point, the stops on the tracks approaching the junction being near-side and those on the tracks leaving the junction far-side. Such treatment is recommended for the congested corners at Main and Ervay Streets and at Commerce and Ervay Streets. At three other points two stops should be consolidated into one on account of the shortness of the block. The accompanying map shows the proposed location for stops in the congested district.

#### *Give Precedence to the Street Cars Over Other Traffic*

Since the street cars are loaded with passengers far outnumbering all other users of the streets, they should have the right-of-way wherever practicable. Traffic officers should be instructed to give them precedence over other traffic as far as possible. When a car makes the far-side stop, the near-side traffic stop may sometimes be avoided.

#### *Modify or Eliminate the Traffic Signals*

The design of the present traffic signals used by the police is good, but the position of the signals between



the car tracks leaves no room for the traffic officer to stand if he attempts to pass cars in both directions at once. The officer should be placed at one side of the tracks and a mechanical device arranged to control the traffic signal from this position, or else these signals should be done away with entirely in the crowded locations. The change will permit the street cars to pass in opposite directions at the same time, thus blocking the intersection only half as long as at present. Furthermore, if cars are ready to proceed, two of them should be passed through the intersection in each direction at one time.

*Regulate Automobile Parking*

In Mr. Beeler's opinion, the roadways of the busy streets of Dallas are needed almost entirely for the movement of traffic and not as at present to a great extent for garage purposes. The existing regulations regarding the parking of automobiles should be modified as follows:

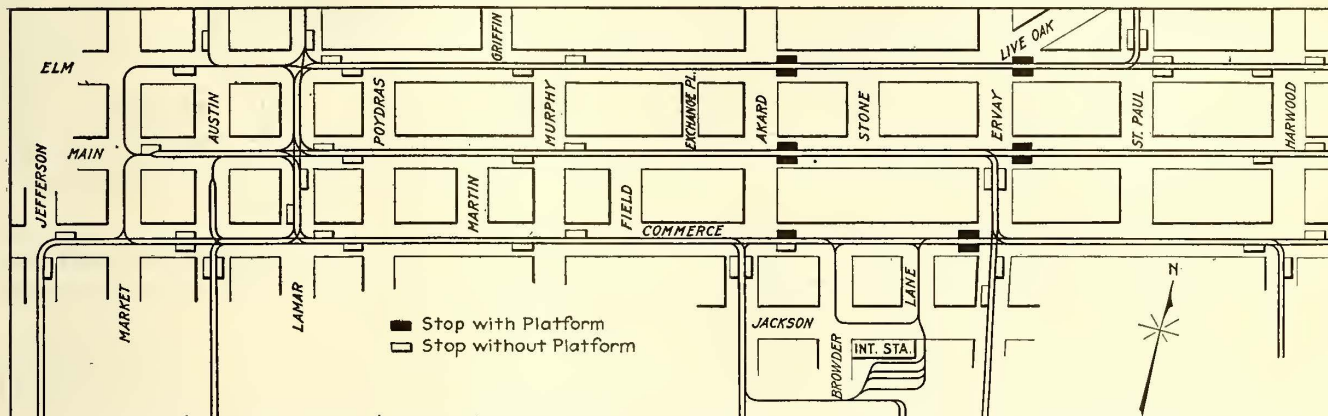
No parking opposite any street-car stopping place

*Establish Right-Hand Rule for Right-of-Way for All Vehicular Traffic*

In order to avoid accidents, prevent confusion and provide for the relief of congestion in general street traffic, the plan of giving the right-of-way to the vehicle approaching from the right is said to be the simple and logical one. The "east and west" and "north and south" plans are generally unsatisfactory. Visiting motorists are more or less unfamiliar with local rules, and even if they do know the rules, many are not able to tell exactly in what direction they are running. In fact, this is sometimes a question with local motorists, especially where the streets run at the semi-cardinal points of the compass.

*Revise the Street-Car Schedules to Give a More Even Headway*

The street-car schedules, Mr. Beeler says, should be revised to conform to the service requirements proposed in the new routing, noted hereafter. As far as possible two cars should not be scheduled to operate over any



PROPOSED STOPPING PLACES AND LOADING PLATFORMS IN BUSINESS SECTION OF DALLAS

within the congested district, and no parking at any place in the city between the curb and a car-stop sign or loading platform or within 10 ft. of either.

No parking at any point within the congested district on Elm, Main and Commerce Streets, Ervay Street between Main and Commerce Streets and Lamar Street between Elm and Commerce Streets, from 4.30 to 6.30 p.m., but parking for thirty minutes only on Elm, Main, Commerce, Ervay, Akard and Lamar Streets except as noted above.

Parking for two hours only on any other street in the congested district except that the parking privileges of the present ordinance be not enlarged.

*Abolish Left-Hand Turns for Vehicles at Certain Points*

In order to safeguard and speed up the traffic movement generally, it is stated that the left-hand turn must be abolished at the intersection of Ervay and Main Streets, which is at present the most congested corner of the city.

In order to protect pedestrians crossing the streets in the congested district, the limitations of the crosswalks should be plainly marked on the paving, the simplest and quickest way being to make a line approximately at the building line with a heavy, quick-drying, white-lead paint.

track at the same instant but should be spaced so as to provide an even distance between cars.

Furthermore, it is recommended that the old law prohibiting a speed of more than 8 m.p.h. in the central section of the city or 12 m.p.h. outside be repealed and an ordinance enacted limiting the schedule speed in the congested district to 12 m.p.h. and outside thereof to 18 m.p.h. This will be in keeping with the actual requirements of good service.

Instead of all street cars being flagged across steam railroad tracks by the conductors, Mr. Beeler believes that much better results in time-saving and safety could be obtained by placing the entire responsibility on the motormen. At blind crossings regular flagmen should be stationed to flag all traffic. These men should be joint employees of the steam and electric railroads, although the burden primarily belongs to the former as steam train operation creates the dangerous condition.

*LINES SHOULD BE THROUGH-ROUTED*

The principal criticism which Mr. Beeler makes in the second section of his report is that the majority of the lines in Dallas terminate in the downtown business district instead of being carried completely through and into another residential district. A step in the right direction was made several years ago in the establishment of a number of through routes—the Akard-San Jacinto,



Harwood-Oak Lawn, Hickory-Lake and Munger-Highland Park lines. These have demonstrated their effectiveness and have assisted in relieving the downtown congestion. The time has now arrived when the same principle should be applied to all routes which can be connected up, as the street congestion is fast approaching a point where radical measures will have to be adopted to relieve the situation.

To be successful, it is said, a through route should serve sections of the community with as nearly as possible the same riding characteristics. The loading on the two ends of the line should be fairly well balanced, so that if adequate service is given on the one end the other will not be largely over-served. Accordingly no material changes are recommended for the four old through routes, but the various other lines are rerouted so as to make every line a cross-town one except the new Second Avenue line. This will pass through the business section and terminate at the Sanger loop. It is recommended that two sections of lines be abandoned because of insufficient traffic. In spite of the elimination of non-essential service and unnecessary duplication of lines, however, the service throughout the city is increased on an average of 20 per cent by the rerouting.

On the two lines of heaviest traffic two-car train operation is recommended for the rush hours. The North Belt line, it is said, would be ideal for one-man car operation, and one-man cars might possibly be desirable on the South Belt line later.

The present mid-day schedules call for ninety-four cars, whereas the proposed schedules require ninety cars. As far as possible all odd intervals like seven, eight, nine, eleven, fourteen, eighteen and twenty-four minutes have been eliminated from the schedules, and five, seven and one-half and fifteen minute spaces substituted.

Among the advantages of the new routings are the facts that the congestion in the business district will be reduced and the necessity for transferring will be decreased. Furthermore, the union station will be connected directly with large sections of east and west Dallas heretofore dependent on transfers, and it will be possible to give express service to the city's eastern section.

### Pay-As-You-Leave Bus Operation at Winnipeg


SINCE May 1 the Winnipeg Electric Railway has been operating a bus service on Westminster Avenue for a distance of 1.2 miles. Strictly speaking, this is not merely an extension but a link with one end at Sherbrooke Street and the other at Portage Avenue whereby free transfer connections are established with a large number of routes. The buses run over paved streets except for three blocks.

Four Studebaker buses with 1-ton truck chassis were bought for this service. Of these, two are run regularly, three during the morning, noon and evening peaks, while the fourth is a spare. As shown in the accompanying reproduction of a card designed by a returned Canadian

## AT YOUR SERVICE

**BUS LEAVES TERMINALS**  
SHERBROOKE, WESTMINSTER  
AND  
PORTAGE & LIPTON

EVERY 7 MINUTES BETWEEN 6:30 A. M. - 8:30 P. M.
5      7:00      8:00
5      8:00      9:00
5      9:00      10:00
5      10:00      11:00
5      11:00      12:00
5      12:00      1:00
5      1:00      2:00
5      2:00      3:00
5      3:00      4:00
5      4:00      5:00
5      5:00      6:00



PLEASE DEPOSIT FARE  
  
WHEN  
LEAVING BUS

SUNDAY SERVICE EVERY 7 MIN FROM 10 TO 10:30

## WINNIPEG ELECTRIC RAILWAY

*W. M. Stewart*

POSTER ADVERTISING BUS SERVICE OF WINNIPEG ELECTRIC RAILWAY

soldier, the headways are either five or seven and one-half minutes. There is no service between midnight and 6 a.m.

The total daily mileage is 450 to 500, with each car averaging 150 miles a day. Cash and ticket revenues, averaging 4 cents per ride, range from \$44 to \$55 a day. Revenue riders constitute only 25 per cent, the rest riding on transfers. Owing to the fact that the buses are boarded by groups rather than individuals, pay-as-you-leave fare collection is used. The buses seat twelve passengers each but often carry sixteen to eighteen. Their schedule speed slightly exceeds 10 miles per hour.



FLEET OF PAY-AS-YOU-LEAVE BUSES OPERATED IN WINNIPEG, CANADA



# Drainage if Necessary vs. Negative Feeder Electrolysis Protection\*

A Comparison of the Plans Used in St. Louis and Chicago for Eliminating Damage to Underground Structures, from the Power Company Viewpoint—The Commonwealth Edison Company Spends Only \$1,000 a Year in Repairing Electrolysis Damage to \$15,000,000 Worth of Underground Cables

By D. W. ROPER

Superintendent Street Department, Commonwealth Edison Company, Chicago, Ill.

ELECTROLYSIS troubles made their appearance shortly after the first electric railways were placed in operation and since that time a great many papers have been written on electrolysis and the methods of its mitigation. This article deals with what St. Louis and Chicago have in common on the subject.

The literature regarding the electrolysis situation in St. Louis is rather meager. It appears that in the earlier days the so-called drainage system was used, and that in later years the insulated negative return feeder system has been adopted in a few locations. Several reports, however, have been published regarding the insulated negative return feeder system installed in the Ann Avenue district.

## EDISON COMPANY IN CHICAGO USES THE DRAINAGE SYSTEM

In Chicago the gas company undertook some extended electrolysis surveys in 1901 and as a result installed a number of drainage cables for the purpose of protecting the pipes in several portions of the city. During the period previous to 1903, the Commonwealth Edison Company suffered very little from electrolysis, principally for the reason that its cables were not located in those portions of the city where they would be subjected to trouble. With the construction of the company's Fisk Street power station, however, and the installation of underground transmission lines between this station and the downtown district and to some of the outlying substations, electrolysis trouble first became of consequence. The drainage system of protection has been used by the company from the first. A careful record kept for more than ten years of the cost of repairing burnouts caused by electrolysis shows that on underground cables having a book value of about \$15,000,000 the cost is roughly \$1,000 per year. The other utilities in the vicinity using underground cable

have also adopted the drainage system with satisfactory results, but their exact cost figures are not available.

As the ordinance providing for the unified operation of the surface lines, passed in 1913, gave the Board of Supervising Engineers authority to determine the system of protection against electrolysis to be used by these lines, the board arranged for test installations of a drainage system in the Illinois Street substation district and an insulated negative feeder system in the Crawford Avenue substation district. It then invited all of the interested utilities to co-operate in making careful tests and potential surveys, in the hope that they might be able to determine which of the two systems should be installed throughout the city. The location and extent of these two districts are shown in Fig. 1. As the systems of protection used in these two trial systems are also the ones which have been used in St. Louis, it is interesting to compare the published figures regarding the installations in St. Louis with the hitherto unpublished data regarding the two trial installations in

Chicago. For the purpose of comparing the two methods of protection the potential profile method of analysis was adopted. The potential gradient at any point is the current in the rails at that point multiplied by the resistance of the track per unit length. A specification for maximum potential gradient, therefore, is equivalent, for any type of track construction, to a limit on the maximum number of cars beyond the point where the gradient is measured and supplied with current from the station in question. If there are connections between the pipes and the rails, then the pipes will be negative to the rails at the points remote from the station and positive to the rails near the station.

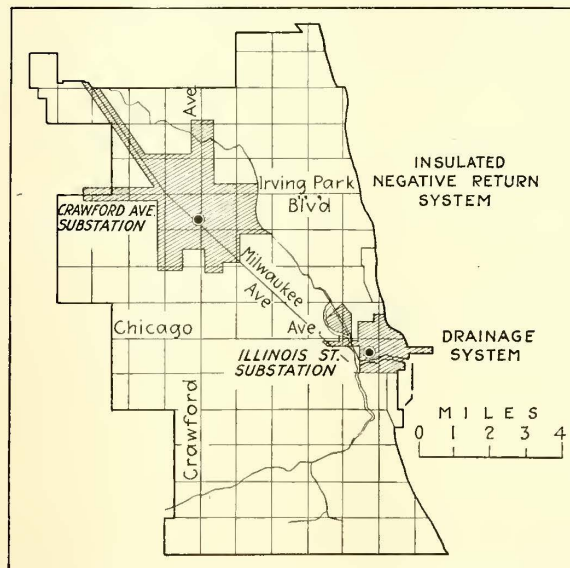


FIG. 1.—MAP OF PORTION OF CHICAGO SHOWING TWO DISTRICTS SELECTED FOR TESTS OF ELECTROLYSIS CONDITIONS

The damage to the pipes occurs near the station where the pipes are positive to the rails. It is the elimination of this positive area that is the object of both of the systems under discussion. Curves are shown in Figs. 2 and 3, which were plotted from the readings taken along two of the principal streets in the Illinois Street

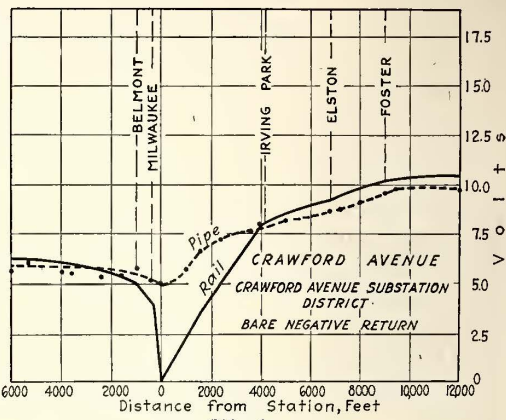
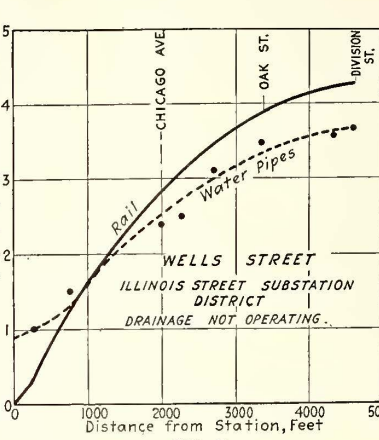
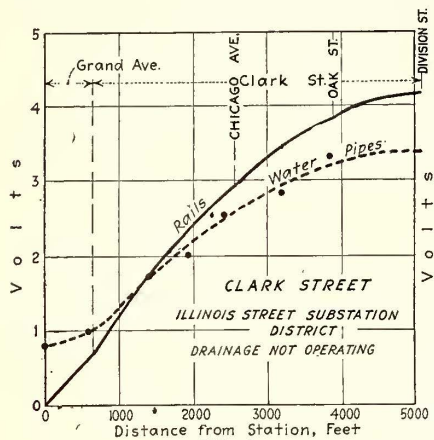
\*Abstracted from a paper presented before the St. Louis Section, American Institute of Electrical Engineers.



substation district in Chicago before the drainage system was placed in operation. Fig. 4 shows a similar curve along the portion of Crawford Avenue which is in the Crawford Avenue substation district.

An additional power supply station makes a considerable reduction in the maximum overall potential and the potential gradients, as does also the installation of nega-

sential points of difference between the insulated negative feeder system and the drainage system, or the railway system where no method of protection against the electrolysis is applied. The difference in potential between the rails and the negative bus will, of course, vary with the local conditions, but in order to obtain reasonable economy in copper, this potential will ordi-



FIGS. 2 AND 3—DIAGRAMS SHOWING POTENTIAL DIFFERENCES BETWEEN RAILS AND WATER PIPES NEAR ILLINOIS STREET SUBSTATION, CHICAGO. FIG. 4—DIAGRAM SHOWING POTENTIAL DIFFERENCES BETWEEN PIPES AND RAILS ON CRAWFORD AVENUE, CHICAGO

tive feeders from the original station. In order to operate such negative feeders economically, negative boosters have been used in Europe, while in this country the usual method is to insert a resistance between the negative bus in the station and the point in the tracks nearest the stations. Ordinarily more than two feeders are not economical. It may be found necessary to insert a resistance in the shorter feeder to prevent overloading and to secure a proper division of the load between the feeders. The potential profile of the pipe is altered by the use of negative feeders and the positive area in front of the station is considerably reduced. New positive

narily be as large or larger than the over-all potential on the tracks before the negative feeders were installed.

Figs. 5 and 6 show potential profiles along streets in the Ann Avenue substation district in St. Louis, the curves being made up from the data given in the published reports.

RESISTANCE IN NEGATIVE FEEDER SAVES COPPER

Somewhat greater economy in the insulated negative feeders can be obtained by adjusting their resistance so that the direction of current in the rails is not reversed. This is the plan adopted in the design of the Crawford Avenue insulated feeder system, as the ordinance specified a maximum gradient as well as a maximum overall potential. The data from the Crawford Avenue installation are shown in Fig. 7. It will be noted that the positive readings between the pipes and the rails have been considerably reduced by the installation of the insulated negative feeder system.

In 1894 Isaiah H. Farnham, in a paper before the American institute of Electrical Engineers, concluded that: "A large conductor extending from the grounded side of the dynamo entirely through the danger territory and connected at every few hundred feet to such pipes as are in danger, will usually insure their protection."

This system has since been termed the drainage system. In an ideal case with this method of protection the positive area is eliminated and the pipes throughout their length are negative to the rails. It should be noted that in order to secure this result the potential gradient along the pipes or along the drainage cables connected to the pipes must be lower than the potential gradient along the rails. If, for example, the maximum potential gradient along the pipes is specified as 1 volt per 1000 ft. it would mean that the current density in the drainage cables must be less than 90 amp. per 1,000,000 circ. mils. If, however, the negative bus is extended in some manner so that it is adjacent to the rails at some remote

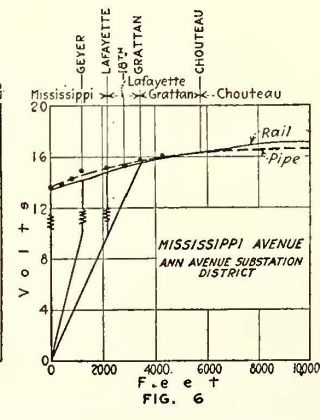
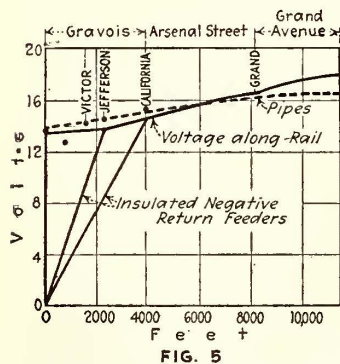


FIG. 5 AND 6—POTENTIAL PROFILES ALONG STREETS IN THE ANN AVENUE SUBSTATION DISTRICT IN ST. LOUIS, MO.

areas, however, are formed at the points where the insulated negative feeders are attached to the rails.

In some instances the error has been made of installing bare negative feeders, but if this is done a voltage between the pipes and the feeders is available for causing damage to the pipes by electrolysis. The presence of this voltage means that the negative bus in the station must be insulated and constitutes one of the es-



point, a voltage is available which under proper conditions might be a source of damage from electrolysis.

**PECULIAR CONDITION RESULTS FROM LACK OF TIE LINES**

Some years ago when the utilities in Chicago attempted to co-operate in preventing damage by electrolysis, one of the first difficulties encountered was the fact that the elevated and surface lines were supplied from independent sources and were not interconnected at any point. In two portions of the city the elevated and surface lines were only one-half block apart and parallel for several miles. A similar condition, although not quite so aggravated, existed in several other portions of the city. These conditions are shown in Fig. 8, in which, for simplicity, it is assumed that the negative buses in the two stations are at the same potential. In several blocks where these conditions existed, a gas main was located in the alley and a water main in the street. Suppose, now, that a customer who had both gas and water services on his premises desired to install a water heater in his bathroom, using gas as fuel. In such a case we would have the potential difference indicated by R-B in Fig. 8 between the gas main in the alley and the water main in the street. Such a case did actually occur and it is not at all surprising that a large current flowed through the gas service, the water heater and the water service. A somewhat similar condition is described in Bulletin No.

used, and such conditions must be eliminated before any system of protection against electrolysis can be successfully applied.

At the Illinois Street substation where the trial installation was installed, the lead-covered cables had been in very fair condition for several years, being protected by a drainage system. This cable drainage system was in operation throughout all of the tests described on this trial installation, which was installed primarily for the

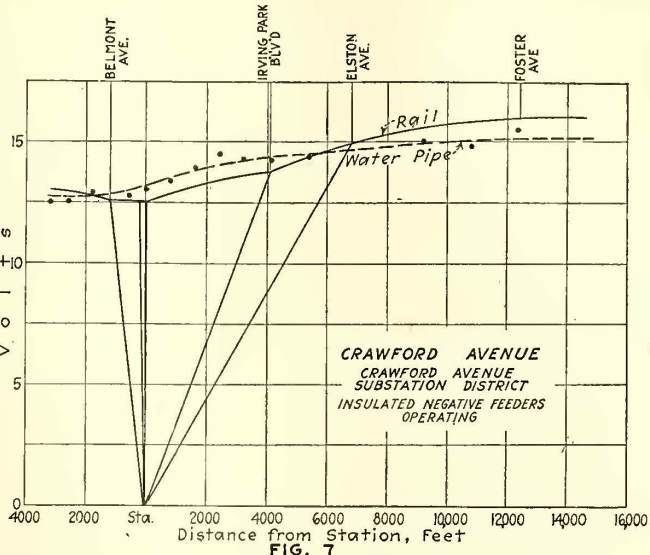
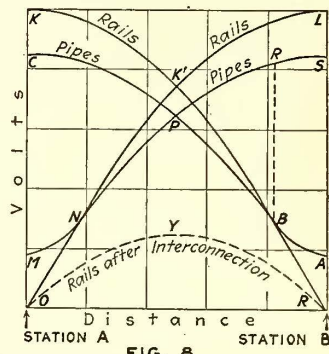


FIG. 7—POTENTIAL DIFFERENCE CONDITIONS NEAR CRAWFORD AVENUE SUBSTATION WITH INSULATED NEGATIVE FEEDERS IN OPERATION.



8—DIAGRAM SHOWING EFFECTS ON PIPE-TO-RAIL POTENTIAL OF INTERCONNECTION OF RAILWAY SYSTEMS

purpose of draining the gas and water pipes. A diagram of the pipe drainage feeders is shown on Fig. 9. These drainage cables, as actually installed, were all 1,000,000-circ.mil cables, as this was the standard size used by the railway company. Cables of this size were installed, therefore, so that if the drainage system were abandoned for any reason the cables could be used as

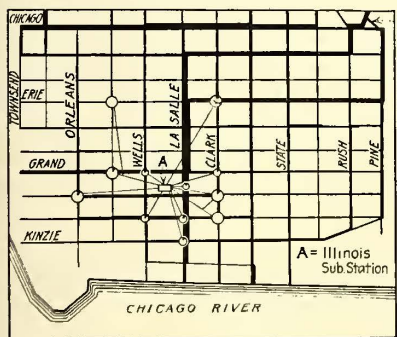


FIG. 9 DIAGRAMS OF PIPE DRAINAGE CONDITIONS AROUND ILLINOIS STREET SUBSTATION, CHICAGO

Fig. 9—Pipe drainage feeders and conductivity of gas and water pipes. Fig. 10—Conductivity of railway return circuits. Fig. 11—Conductivity of lead sheaths of cables and sheath drainage cables

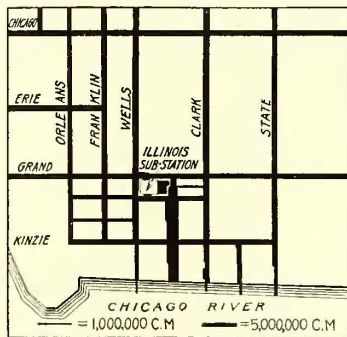


FIG. 10

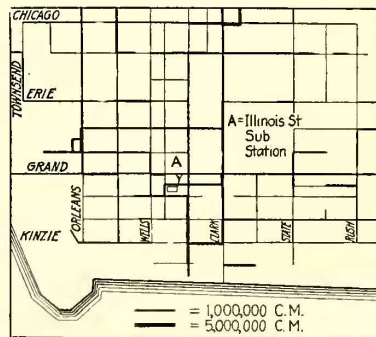


FIG. 11

27 of the Bureau of Standards as existing at Springfield, Ohio. In both cases the trouble has been eliminated by the interconnection of the return circuits of the two companies. Troubles similar to that described with the water heater have, in a number of instances, been cited in the past as an argument against the drainage system. As a matter of fact, the trouble is independent of the system of electrolysis protection that is

positive feeders at the same or, perhaps, some other location. After the cables were placed in operation it was found necessary to insert resistances in several of the shorter drainage feeders, in order properly to adjust the current in the feeders.

The areas of the circles at the feeder ends on Fig. 9, show the areas of the several drainage cables, on the assumption that the sizes of the cables are properly ad-



justed to give the cables the correct resistance without the insertion of any external resistances. The ratio of the shaded area to the entire area of a circle shows the percentage of full load carried by each of the cables, assuming that the full load current is figured on the basis of 1 amp. per 1000 circ.mil. On the same sheet the equivalent copper conductivity of the metal of the gas and water pipes is shown, the width of the line being proportional to the conductivity of the metal.

Fig. 10 shows the conductivity of the railway return circuit in the same manner and to the same scale. Fig. 11 shows in the same way the lead sheaths of all of the underground cables, together with the auxiliary drainage cables. Although the conductivity of the cable sheaths is considerably lower than that of the pipes, and the cables are not in as good contact with the earth as the pipes, the drainage current from the cables is some-

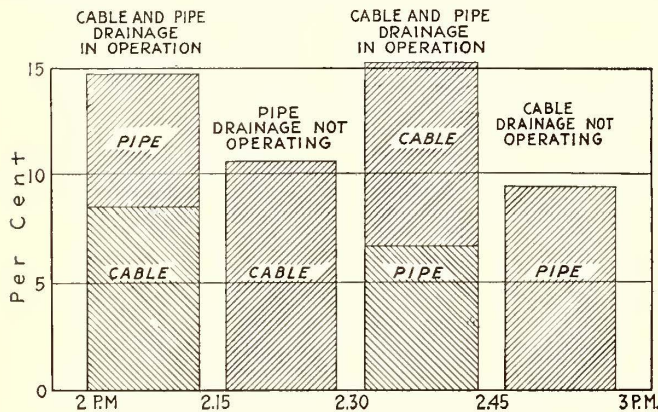


FIG. 12—GRAPHICAL REPRESENTATION OF RESULTS OF TESTS TO SHOW PERCENTAGE OF TOTAL CURRENT CARRIED ON PIPE AND CABLE DRAINAGE SYSTEM

what more than from the pipes. This is undoubtedly due to the resistance of the joints in the pipes.

PIPE DRAINAGE VERSUS RAIL DRAINAGE

Tests show that the potential profile along the pipe with a pipe drainage system is very similar to that along the rails with an insulated negative return feeder system. We might, therefore, describe a properly installed drainage system as an insulated negative feeder system applied to the pipes, or, conversely, we might describe what is ordinarily called an insulated negative return feeder system as a drainage system applied to the rails.

The current drained from the various cables and pipes during the tests is shown in Table I. It will be noted that there is some change in the percentage of drainage current between the midday and the peak-load periods. Apparently this difference is due to the shifting of load between this and the adjacent substations to which it is connected through positive tie feeders.

After the pipe and sheath drainage cables were all in operation, the experiment was made of opening the pipe drainage cable switch, then closing it and opening the cable drainage switches. The results of this test are shown graphically in Fig. 12. From the diagram it will be noted that when the pipe drainage cable switch is opened the sheath drainage cable picks up about one-third of the drainage current formerly carried by the pipe discharge cable, and practically the same condition occurs if the cable sheath switch is opened.

TABLE I—RELATIONS BETWEEN SUBSTATION LOAD AND DRAINAGE CURRENT

All Drainage Systems Operating. Based Upon Readings of Indicating Meters in Substations. Made at Fifteen Second Intervals

Drainage Current From	Per Cent of Substation Load, Period	
	2 p.m. to 3 p.m.	5 p.m. to 6 p.m.
Edison Company cables	1.94	1.92
Surface railway cables	2.50	2.31
City cables	1.70	1.27
Telephone cables	2.66	2.30
All cables	8.80	7.80
Gas and water pipes	8.10	6.88
All pipes and cables	16.90	14.68
Total amperes drained	1,121	1,703

Table II shows a summary of the pipe drainage currents. The notable feature of this table is the small average current carried by the pipes. In only one case does the current exceed 50 per cent of the current allowed by the Chicago (1912) ordinance, or 8 amp. per pound-foot.

CONDITIONS IN ST. LOUIS

In an article published in the ELECTRIC RAILWAY JOURNAL for Jan. 17, 1914, describing the results in the Ann Avenue installation, Messrs. Rosa, McCullon and Logan gave a table showing thirty-two readings where the pipes are positive to the rail by an average amount of 0.435 volt, Table III. Later in the article the same authors state that "the potential differences have been reduced to so low a value as to make the pipes comparatively safe." In a separate report issued regarding the same installation by Messrs. Ganz, Waterman, Wyer, Warren and Miller, it is stated that these average potentials are "values which experience has shown offer a substantial measure of protection from injury by electrolysis to underground structures." In the Illinois Street substation district the pipes are negative to the rails through the district with the drainage system in operation, but they are positive to the lead-covered cables at 355 locations by an average amount of 0.230 volt. This average potential is only a little more than half the average potential in the Ann Avenue district, and in view of the statements by the above authorities on the subject it appears that no damage to the gas pipes from electrolysis is to be apprehended from this cause in the Illinois Street substation district.

Another way in which pipes may be injured is by the so-called "joint electrolysis." This is caused by the

TABLE II—SUMMARY OF PIPE-DRAINAGE CURRENTS

Location	Number of Water Pipes	Drainage Current in Water Pipes, Amperes		Number of Gas Pipes	Drainage Current in Gas Pipes, Amperes	
		Total	Average per Pipe		Total	Average per Pipe
La Salle and Kinzie	3	5.3	1.8	4	15.03	3.76
La Salle and Austin	2	11.08	5.54	2	9.49	4.75
La Salle and Al. S. Grand	2	2.82	1.41	4	17.27	4.32
Clark and Grand	1	1.98	1.98	4	34.99	8.75
Clark and Illinois	1	3.56	3.56	4	25.51	6.38
Clark and Austin	1	3.36	3.36	4	27.76	6.94
Wells and Austin	4	4.78	1.195	3	35.54	11.85
Clark and Erie	3	18.62*	6.20	3	6.88*	2.28
Franklin and Erie (Note A)	2	9.62*	4.81	1	35.12*	35.12
Franklin and Grand	2	20.13*	10.06	1	1.54*	1.54
Grand and Pine	3	3.69	1.23	2	6.97	3.48
Grand and State	3	4.62	1.54	2	9.29	4.65
Grand and Wells	2	26*	13	4	57.60*	14.40
Orleans and Illinois	1	8.95*	8.95	2	26.23*	13.11
Totals and averages	30	124.51	4.15	40	309.22	7.73

\* Reading taken before insertion of regulating resistances.

NOTE A—At this intersection, there are two gas mains on each side of each street, all interconnected. All four mains are drained by one drainage connection.



current in the pipe encountering a high resistance joint and leaving the pipe through moist earth on one side of the joint, returning to the pipe again on the other side. The damage occurs at the point where the current leaves the pipe. An earnest endeavor was made to find an actual case of joint electrolysis in Chicago, but no such case has ever been found. In the literature on the subject a number of references have been made to joint electrolysis, but it seems difficult to find specific data regarding a case telling definitely the location and the circumstances under which it occurred. We also find statements showing that individual pipes carry several hundred amperes. A. A. Knudson, in a report made in 1905 on the water and gas pipes of Detroit, in referring to the possibility of melting joints, placed a limit of 900 amp. as the highest that should be permitted on any underground main. In the Illinois Street drainage district, the highest current found on any gas pipe is only 35 amp. and this is the sum of the currents flowing from

plied as a means for preventing damage by electrolysis. The results in the Illinois Street substation district, where such a trial system was installed, appear to indicate that where the number of underground pipes and cable sheaths is so large that the amount of drainage current carried by any individual pipe or cable is relatively small, it may be possible for the total drainage current considerably to exceed 10 per cent of the station output without causing any appreciable damage.

In conclusion the author acknowledges his indebtedness to Ralph H. Rice of the Board of Supervising Engineers, who had general supervision of the design and tests of the two trial installations, for his assistance in compiling the data and for his many helpful suggestions during the preparation of this paper.

### Intensive Reading of Technical Papers

ALTHOUGH the major portion of the ELECTRIC RAILWAY JOURNAL is made for operators, it has many keen readers among the manufacturers. The accompanying forms show how one manufacturer insures careful reading of this and other journals. One form is the librarian's record card and the other a sticker which is pasted on the periodical itself.

The record card gives the periodical file number,

TABLE III—COMPARISON OF POTENTIAL DIFFERENCES

Substation District	System of Electrolysis Mitigation	Kind of Readings	Number of Readings	Average Potential Difference Volt
Crawford Avenue..	None	Water pipes negative to rails	257	0.490
Crawford Avenue..	None	Water pipes positive to rails	45	0.637
Crawford Avenue	Insulated negative feeders	Water pipes negative to rails	221	0.476
Crawford Avenue	Insulated negative feeders	Water pipes positive to rails	38	0.250
Ann Avenue..... (St. Louis)	Insulated negative feeders	Water pipes positive to rails	32	0.435
Illinois Street.....	Drainage	Gas pipes positive to cables	355	0.230
Illinois Street.....	Drainage	Gas pipes positive to water pipes	117	0.047
Illinois Street.....	Drainage	Water pipes positive to gas pipes	105	0.064
Illinois Street.....	Drainage	Water pipes positive to rails	1	0.040
Illinois Street.....	Drainage	Water pipes negative to rails	313	0.470

two directions. The highest individual reading on any water pipe was 27 amp. and this was on a 36-in. main. It seems probable, in the absence of more specific information on the subject, that the cases of joint electrolysis which have been reported have occurred in those locations where several hundred amperes were flowing in the pipes, and that very little danger is to be apprehended where the currents are 30 amp. or less.

### DRAINAGE CABLES BETTER THAN NEGATIVE FEEDERS

The drainage cables are considerably shorter on the average than the insulated negative feeder cables and they carry only 15 or 20 per cent of the total output of the station as against 70 or 80 per cent for the insulated negative feeder cables. Part of this difference is offset by the lower current density on the drainage cables. Calculations on the several systems as installed indicate that the total cost of the cables for the drainage system will be about 20 or 25 per cent of that of the insulated negative feeder cables for the same substation district. In addition the insulated negative feeder system has an increased loss in the return circuit.

It is to be regretted that about six months after the Illinois Street drainage system was placed in operation the city authorities directed that its operation be discontinued. The installation, however, remains intact, ready to be placed in operation on short notice whenever permission for so doing can be secured.

A study of several statements and opinions on the subject seems to indicate that where the conditions are favorable the drainage system may be successfully ap-

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As this issue of the ELECTRIC RAILWAY JOURNAL goes to press the British Educational Mission to the United States and the Society for the Promotion of Engineering Education are holding a joint meeting at Boston for discussion of the relation of education to reconstruction problems after the war.



# A. S. M. E. Holds Annual Meeting

Topics Considered at New York Meeting, Dec. 3 to 6, Covered Wide Range—  
Standards of Various Kinds Were Discussed

**T**HIS week the American Society of Mechanical Engineers held its annual meeting in New York City with a large attendance. The program comprised a few papers of a general nature but most of them contained the results of detailed studies of standards, or of scientific or engineering problems. A number of the papers were of interest in the electric railway field.

## KEEPING THE HEAT IN THE PIPES

The results of tests of heat radiation from pipes, made for the Magnesia Association of America by the Mellon Institute of Industrial Research, were given in paper by Glen D. Bagley, Pittsburgh, Pa. Experiments were made on bare pipes and on pipes covered with various thicknesses of 85 per cent magnesia coverings. These were the product of several makers.

Referring to the generally accepted figure for radiation for bare pipe of 3 B.t.u. per square foot per hour per degree Fahrenheit temperature difference between the surface and the surrounding air, Mr. Bagley said that the loss might vary from less than this to much more than this. It varies with the temperature from say 2 B.t.u., at less than 100 deg. difference, to 5 or more at 500 deg. A 1-in. magnesia covering reduces the average loss to  $\frac{1}{2}$  B.t.u., a 2-in. covering to  $\frac{1}{3}$  B.t.u. and a 3-in. covering to  $\frac{1}{4}$  B.t.u.

There is, of course, an economical limit beyond which it does not pay to increase covering thickness, depending upon cost of applied covering, cost of steam and temperature difference. For example, with magnesia at 30 cents per square foot per inch of flat surface, and assuming 20 per cent of the list price for application cost and 13 per cent of total cost as the annual charges, with steam at 80 cents per 1,000,000 B.t.u. and with 400 deg. temperature difference, the economical thickness works out at slightly more than 2 in. for a  $\frac{3}{4}$ -in. pipe.

While the tests showed that magnesia coverings, properly cared for, do not lose their heat-insulating properties with age it is important not to allow oil to be absorbed by them as this makes them better heat conductors. The tests also showed that, when subjected to a current of air at 30 m.p.h., a 3-in. pipe covered with 3 in. of magnesia radiated about 40 per cent more heat when the temperature difference was 460 deg. Fahr. Some startling figures were given by Mr. Bagley which showed that the covering of a 60-hp. and an 80-hp. boiler (locomotive type) in a power plant reduced radiation so as to save more than  $\frac{3}{4}$  ton of coal per day. This was 15 per cent of the coal burned.

## GOOD OPERATING PRACTICE IN THE BOILER ROOM.

A very complete paper on "The Chemical and Physical Control of Boiler Operation" was read by A. E. Uehling, New York City. This was designed to demonstrate the importance of attention to the operating conditions in individual boilers in the power plant. He

said that the economical status of a boiler plant can be approximately determined by either of two methods; the mechanical one based on the heat utilized, and the chemical and physical one based on the heat wasted. In the former reliance is placed on the coal weigher and the water meter or steam-flow meter; in the latter the CO<sub>2</sub> meter and the pyrometer are used. While both methods are necessary for complete results, the chemical and physical method gives more directly useful information. No wholesale method is adequate, however; each boiler must be treated individually. It must be known what each boiler is doing all the time, and adjustments made to keep the results right.

Mr. Uehling pointed out that there is no such thing as a fixed adjustment in the operation of a boiler. The rate of combustion must be changed to keep the steam pressure right, and the thickness of the fire must be changed to keep the efficiency of combustion (per cent of CO<sub>2</sub>) right. As the fuel and ash bed thickens a stronger draft is necessary to keep the required rate of combustion, and there are numerous minor variables which require changes in the draft adjustments if combustion efficiency and the required boiler capacity are to be maintained, *i.e.*, maximum CO<sub>2</sub> and a uniform steam pressure. To insure these results CO<sub>2</sub> as well as boiler and furnace draft indicators must be placed at or near the boiler front within easy view of the fireman and in close proximity to the draft-regulating wheel or lever. Mr. Uehling believes that the CO<sub>2</sub> meters, the boiler draft gage and the pyrometers, the last and first-named being inserted in the main gas flue at or near the chimney, should be autographic recording in order that data may be furnished for study of operating conditions in detail. In addition to the autographic instruments an Orsat apparatus for analyzing the flue gases is essential.

In order to make the general principles concrete Mr. Uehling gave formulas for the actual calculation of the physical quantities involved in boiler operation, illustrated them by sample calculations and applied them to data of a number of boiler tests.

## BRITISH HAVE STANDARDS ASSOCIATION

In a paper prepared by C. A. Maistre, secretary British Engineering Standards Association, 28 Victoria Street, Westminster, London, an account of the organization and activities of this association was given. It includes more than 900 members and deals under one central authority with standards relating to practically the whole field of engineering. As part of the work accomplished by the association the author mentioned the standardization of tramway rails, steel-section materials specifications for portland cement and road material, rules for electrical machinery, screw-thread tolerances, etc.

The association has been in existence for seventeen years, the work having been inaugurated in 1901 by



the Council of the Institution of Civil Engineers. Many of its standards are in general use. For example, its standard sections for steel sectional material number 175 and more than 95 per cent of the tonnage rolled is rolled to the standard sections. In the case of tramway rails, standardization has had the effect of reducing to a minimum the sections required. At present there are only five sections as against more than seventy sections prior to the advent of the committee. These sections are now being reduced to three, one being a special section for interurban railways operating at speeds higher than city speeds.

The funds for this work have been provided by the government and the industries concerned, including the electric tramways. The main committee, as the governing committee is termed, consists of members nominated by the leading technical institutions. There are also two representatives of the Federation of British Industries and three members at large elected for their eminence in the engineering profession.

#### FLANGE AND PIPE FITTING STANDARDIZATION

The A. S. M. E. committee on standardization of flanges and pipe fittings presented a report containing tables of proposed 800-lb., 1200-lb. and 3000-lb. "Hydraulic American Standard" hydraulic fittings. In regard to high-pressure steam fittings the committee advised that for 400 lb. steam pressure and not to exceed 250 deg. superheat the 800-lb. Hydraulic American Standard in steel is adequate. A standard to be known as the "American Low-Pressure Standard," for 50 lb. working pressure was also presented.

#### DAYLIGHT VERSUS SUNLIGHT IN SAWTOOTH ROOF CONSTRUCTION

In a paper presented by W. S. Brown, Providence, R. I., attention was directed to the fact that diffusion of daylight in sawtooth buildings is obtained by placing the "saw teeth" so that the glass or lighting area faces the northern sky; sufficient intensity being dependent, among other things, upon the size and slope of the lighting area. Evenness of distribution is procured by properly apportioning the lighting areas. The amount of direct sunlight admitted daily, and the time of its admission and its duration are evidently dependent upon three considerations, the last two of which may be varied within certain practical limits. They are: (1) The day of the year, determining as it does the sun's path across the sky. (2) The direction in which the lighting area faces as regards the points of the compass. (3) The slope of the lighting area.

For a given lighting area, a variation in its slope is accompanied by a very appreciable change in the amount of daylight admitted. That is, as the pitch of the lighting area is made steeper the amount and duration of direct sunlight entering the building is lessened, and at the expense of the general illumination. Conversely, as the slope of the lighting area is decreased, the intensity of daylight is correspondingly increased, but there is also concurrent therewith a greater amount and duration of direct sunlight.

The questions then become: How steep should this slope be? What is the proper balance between the two contending requirements of little sunlight and much day-

light? Also at what time of day will the direct solar rays fall upon the working plane, in what locations and volume, and for how long a period? Naturally, no general answer can be given to these questions. Each individual problem should be worked out only after careful study has been made of the particular conditions and requirements which have to be met, not excluding first cost. In the Southern States, for example, the tendency is to adopt a more nearly vertical lighting area than in the northern part of the United States or Canada, on account of the greater altitude of the sun and its intense heat. Occasionally it has been found advantageous to so locate machinery as to avoid any direct sunlight during the working hours.

#### DIRECT SUNLIGHT SHOULD NOT BE ENTIRELY EXCLUDED

Various means have been adopted to exclude direct sunlight from the interior of buildings and all of them seem to have the disadvantage of reducing the total illumination. Sawtooth buildings with vertical glass, that is, with the effective angle of the lighting area actually overhanging, are not uncommon. Whitewashing the glass results in some protection against direct solar rays and a cooler interior but also in glare and considerable loss of light, the latter being especially noticeable on dark days and when the sun is not shining.

Whatever glass is used, cleanliness is essential; furthermore it is important to use, where practicable, light-colored roofing materials such as white slag and also white dust-resisting, washable paints upon sawtooth ceilings of buildings in which maximum daylight is desired.

During cloudy weather the amount of useful light contributed from the top of the sawtooth roof is, of course, decreased, but, on the other hand, the quantity of direct skylight, which has been found to constitute the major portion of the total, is considerably increased, depending upon the relative brightness of the clouds.

From the analysis made by the author it followed that the height of valley for a given construction should be made as low as is consistent with protection against the elements, including snow and ice. It is a happy coincidence that in the South, where some difficulty is often encountered in obtaining the desired intensity of daylight (on account of the increased slope of the glass which it is felt necessary to adopt), the lighting area may be considerably augmented by using a shallower valley than would be considered advisable in the North.

Furthermore it will be seen that, for a given building, the use of a small number of large-scale saw teeth as against a greater number of smaller units having the same pitch, results in considerably increased daylight due to the smaller number of valleys, and consequently less proportionate obstruction. This principle, of course, should be applied with due regard to structural limitations and architectural considerations which may be involved, together with the important question of evenness of daylight intensity.

It is also worthy of note that the adoption (for the reasons above outlined) of flatter sawteeth with increasing terrestrial latitudes works out well in conjunction with the heating requirements, since it results in smaller cubical content and radiating surface.



## Skip-Stop Campaign in Philadelphia

### Company Points Out the Advantages and Expresses Its Willingness to Leave the Whole Matter to a Committee

FOLLOWING the orders issued by the National Fuel Administration last spring to the several state fuel administrations with reference to the inauguration of the skip-stop system, the Philadelphia Rapid Transit Company was one of the first of the larger companies to undertake to eliminate unnecessary stops. After a survey of the system to determine the best stops to omit, the company, on July 15 last, applied the skip-stop system in the central business district, and it was extended to other sections of the city at intervals, the final step being consummated in October.

The standards set by the Fuel Administration, namely, an average of eight stops to the mile in the central business district, six to the mile in the residential section and four to the mile in suburban territory, were closely followed. Shortly after the armistice was signed, agitation against the plan was started by some who did not fully appreciate its advantages to both company and public, so that the company has started a comprehensive campaign of education of the riding public.

As one charge made was that the skip stop had increased the number of fatal accidents, the company

to kill, maim or injure anyone. Human impulses forbid. And to answer some who question all motives, no matter how good their intent, business sense would interpose to stop any practice which led to heavy damage costs.

Before this skip-stop matter can run to worse confusion and with a desire to clarify the matter in the minds of the thinking public, this further statement is made and with it the announcement that the management has arranged to do that which, it is believed, will demonstrate the entirely frank position of the company in the matter.

1. The skip stop was inaugurated here, as elsewhere throughout the United States, at the urgent request of the Fuel Administration as a war measure to save coal.

2. In practice the skip stop, when fully worked out, which can be done only after sufficient time to rearrange and readjust car operation to secure best results, accomplishes two things: (a) Reduces the total cost of providing street railway service, and (b) Enables service to be performed in a way to carry all car riders faster and so save their time, without putting more than very trivial inconvenience upon anyone.

3. The skip stop as it has been put into effect as a war measure should be continued as a peace measure for the economic advantage and gain of the car riders of Philadelphia.

4. The manage-





# SKIP-STOPS

## are *NOT* responsible for any increase in accidents



BULKHEAD AND DASHBOARD SIGNS USED BY P. R. T. IN SKIP-STOP CAMPAIGN

caused to be posted on the front dashers on all of its cars, during Sunday night, Dec. 1, white cardboard signs, 28 in. wide by 29 in. high, carrying the legend "Know the Truth" in large white letters, within a bright red circle. This sign appeared simultaneously in all parts of Philadelphia and the suburbs on Monday morning and set the entire town, including the newspapers guessing as to just what the legend meant. Early Wednesday morning the first of a series of signs on the interior bulkhead of the cars over the forward doors appeared, carrying the statement "Skip stops are *not* responsible for any increase in accidents." These dash and bulkhead signs are to be continued as the medium for telling the public the exact truth about the skip stops.

In a statement to the newspapers under date of Nov. 30 President Mitten briefly outlined the company's position and announced the appointment of a committee of thirteen of the most representative men and women in the community, who had been requested to investigate the skip stop in all its phases and make report thereon. This statement reads as follows:

Most unfortunately, there has been created and fomented a lamentable misunderstanding in the skip-stop matter. There exists no real basis for the violent and unreasoning attack upon the system of skip-stop operation. In it there are both merit and public advantage.

The Stotesbury-Mitten management above all things desires to avoid and reduce fatal and other accidents to the minimum. Certainly no one will believe that this management would either do or permit to be done anything likely

ment of the Philadelphia Rapid Transit, recognizes its duty to provide street railway service at the minimum possible cost to the car riders—of whom there are now 2,250,000 daily—must contend for the skip-stop system as an operating measure for the public good.

5. As it has so far worked out here, the skip stop has produced important economies which are standing in a large way to hold down the rate of fare in Philadelphia.

6. Notwithstanding all this, safety comes first, and if savings in transportation cost, gains in time, and generally improved service can be had only at expense of life and limb in Philadelphia, then the Philadelphia Rapid Transit Company management would say safety first and act accordingly. But, as the records show, the skip stop has not killed and hurt Philadelphians. Knowing this to be so, knowing also that the skip stop will be worth more than \$1,000,000 per annum to the car riders of this city and that it benefits them in several ways, the Philadelphia Rapid Transit Company management will submit the whole matter, in all its phases and with all ascertained or ascertainable facts, to a committee composed of the following:

Chairman, Public Service Commission  
 President, Chamber of Commerce  
 Provost, University of Pennsylvania  
 Mayor of City  
 President, Select Council  
 President, Common Council  
 Archbishop Dougherty  
 Bishop Rhinelander  
 Rabbi Krauskopf  
 Mrs. Rudolph Blankenburg, Civic Club  
 Mrs. Judge Martin, State chairman of the Women's Committee of the Council of National Defense  
 Mrs. Henry Jump, Philadelphia County chairman of the Women's Committee of the Council of National Defense  
 Chairman MacNeille, United Business Men's Association  
 A representative of Philadelphia daily newspapers



# Business Men Discuss Reconstruction

## War Service Committees of Chamber of Commerce Meet at Atlantic City—Railway Affairs Considered on Dec. 4 and 5

THE "War Emergency and Reconstruction Congress," conducted under the auspices of the United States Chamber of Commerce and made up of committees of American industries and others, met in Atlantic City, Dec. 3 to 6. Some 4000 delegates were present and the congress was still in session as this paper goes to press. The program included addresses by men prominent in the industrial field as well as group meetings of the different industries.

Electric railways formed a part of "Related Group No. 5, Public Utilities and Electric Railroads," which met on the evening of Dec. 4, and also a part of "Major Group No. 2, Heat, Light and Power, Public Utilities," which met on Dec. 5.

Any resolutions passed or other action taken of special interest to electric railways at the final meetings of the congress on Dec. 6 will be reported in next week's issue of this paper.

### THE MEETING ON DEC. 4

At the meeting on Dec. 4, the chairman was H. L. Doherty and the scheduled speakers were Philip H. Gadsden, Charleston, S. C., J. B. McCall, Philadelphia, and W. H. Gartley of Philadelphia. The meeting was attended by about sixty leading representatives of the electric railway, light and gas interests in the country.

Mr. Gadsden's subject was the imperative need of the electric railways for greater income if they are to give adequate service and an improved form of franchise or basis of working relation with the community served. Among other things, Mr. Gadsden said:

"The public utilities have been officially declared by the President of the United States to be essential to the nation's life but independently of this official recognition, the dependency of the nation upon the facilities and service rendered by them has been fully recognized. These facilities constitute the very base of our industrial, commercial and social life. Never has the reliance of the nation, as a whole, upon them been greater than during the war. In any discussion of peace problems, in any convention called to adopt plans for readjustment, it is inevitable that public utilities should have a prominent place in the program."

Taking up the matter of income for the electric railways in the country, Mr. Gadsden said: "A tabulation of the income accounts of 388 electric railways, representing over 63 per cent of the electric railways mileage of the United States, shows a falling off in net income of 82 per cent for the first six months of 1918 as compared with the corresponding period of 1917. Many of the companies are facing an actual operating deficit in spite of the increases in gross receipts." He then explained that before a company can justify an increase of its rates it must first show that for a longer or shorter period it has suffered loss under the existing rates, which loss cannot be compensated for by the new rates. In any other business the manager is able

to provide against increases in cost by promptly advancing his selling price. But the public utility must stagger along under inadequate rates for months until its credit is destroyed, its service impaired, its equipment deteriorated, and it has become obvious to the community that it is on the brink of destruction before its case has been sufficiently made out to justify an increase in its rate.

"Of all the problems of readjustment which the nation will have to meet and solve," he said, "none will be more serious or more difficult than that presented by the public utility. In the light of our experience as emphasized by war conditions, it is manifest that to insure the efficient operation of these companies, there must be a re-casting of the entire basis of the relationship existing between them and the communities they serve. In view of the disastrous experiences of electric railways during the war, it is not reasonable to suppose that they will be able to attract, in the future, the private capital necessary for their further development. The fact that the public has been willing to permit this great industry to stagger on under the burdens of the war, with inadequate relief in the way of increased rates, while exposed to the full brunt of the extraordinary increases in cost of labor and material, raises a question of fundamental equity and fair dealing. The public must be brought to realize that their interest in the electric railways of the country is greater than that of the stockholders or bondholders, and that if the electric railways are to continue to discharge their essential service, the public must, in some way, guarantee an adequate return upon the capital invested."

Speaking further along these lines Mr. Gadsden said: "What is needed at this time is a thorough and impartial study of the whole question of electric railway franchises, with the end in view of establishing the industry on a wholesale, economic basis which will guarantee continued efficient service to the public. Such a study should be made primarily from the standpoint of the public interest—what is best for the communities served. It is a national problem and not one for the owners of the railways alone, or chiefly."

J. B. McCall, president of the Philadelphia Electric Company, spoke optimistically of the future of public utilities. He also stated that the 800 employees of his company who had gone to war, nearly all of whom were in service abroad, would find instant employment on their return.

On motion of J. W. Lieb of the New York Edison Company a resolution was unanimously adopted favoring similar action by all industrial corporations.

W. H. Gartley of the United Gas Improvement Company spoke of the use and importance of gas in war service. Other speakers were W. R. Addicks of New York; P. J. Kealy of Kansas City; Henry G. Bradlee of Boston; R. W. Perkins of Norwich, Conn., and the chairman.

The importance of favorable waterpower legislation



was then discussed by Mr. Lieb, Calvert Townley and Mr. Doherty.

On motion of Mr. Gadsden a resolution was adopted recommending that a committee be appointed by the Chamber of Commerce of the United States to study the question of local transportation as it relates to rates, franchises and investment and report its recommendations in the manner provided for in the constitution of the Chamber of Commerce.

#### MAJOR GROUP MEETING OF DEC. 5

The major group meeting of Dec. 5 was held at the Chelsea Hotel with J. W. Lieb of the New York Edison Company as chairman. Constructive use of capital, thrift and economy in the conservation and development of our great national resources were its outstanding features. Unanimous approval of a resolution favoring immediate water-power development in this country was registered.

John W. Lieb recounted in his opening remarks the need of returning soldiers so far as practicable to their former places in industry, the advantage of promoting technical and industrial research and the necessity of considering some method of relief for the electric railroad industry if it is to serve the public in the face of rising costs.

W. W. Nichols, Allis-Chalmers Company, pointed out that in the United States 56 per cent more power is used to aid every workman in production than in Great Britain. Mr. Nichols urged that the development of our resources for power would make it possible for America to meet world competition in world markets.

Throughout all the various technical addresses, a distinction was drawn between the serious conditions of the street transportation systems of the country and the relatively good conditions of the electric light and power plants.

Mark L. Requa, of the Fuel Administration, pointed out that our industries were on a basis to export as never before. "America," he said, "must compete with economy and thrift in Europe." Trade, he continued, will be controlled only by satisfactory service and terms, acting under a just administration by a league of nations. Government supervision in some form is inevitable, but government supervision must be on such a basis that it will leave industry to execute the plans agreed upon.

Mr. Requa offered as a solution of our national problems, first, the principle of a national budget, second, that members of the cabinet sit in the House of Representatives and be answerable to the House of Representatives for their actions, and, third, that a United States Board of Trade endowed with the dignity of the Supreme Court be established as a method of proper government supervision.

*The Subway Sun* brings the message to women employed by the Interborough Rapid Transit Company that there will still be work for them when the men come back from war. A similar message has gone from the Railroad Administration offices in Washington to the 100,000 women added to the payrolls of the American railroads since the United States entered the war.

## No Excuse for Prevailing Pessimism

With Darkest Days Behind, the Electric Railway Industry Should Seize the Opportunity for Reconstruction Along Service-at-Cost Lines

BY P. J. KEALY

President Kansas City (Mo.) Railways

AT THE annual meeting of the American Electric Railway Association a resolution was introduced which would put the Association on record as recommending to member companies the turning over of their properties to the municipalities, urging full co-operation with public authorities to this end. This resolution, which has created much discussion, was not adopted. In lieu thereof a resolution was passed to the effect that if the industry was to continue to render efficient public service a radical revision of electric railway franchises should be made. A committee has been appointed to make a careful study of the franchise question and other reconstruction problems.

Why should the electric railway industry of the United States, after having fought through the bitterest part of its struggle and carried a burden which no other industry could have successfully sustained, now raise the white flag and unconditionally surrender? Are the operators willing now to admit that the case is hopeless?

There has been an accumulation of pessimistic opinion about the whole situation that has enshrouded the entire subject with crape, and which has brought about a condition comparable to mental paralysis on the part of many of those responsible for the operation of properties. Simply because the desired end has not been reached the attitude has crystallized into one that nothing can be done, and the great advances we have made in the past three years are minimized in comparison with the general depression of the entire industry.

#### MARKED PROGRESS HAS BEEN MADE

Advances have been made. For one thing, in almost every city of any size in the United States we have broken away from the shackles of the 5-cent fare. We have overcome the public thought of connecting an electric railway ride with a nickel. We have awakened a large part of the public to the fact that the price of service must be measured by its cost. We have stirred up the slumbering class consciousness of the electric railway industry until we are beginning to get something like co-operative action. We have awakened the interest of the various state commissions and demonstrated to them that relief must be given. We have so hammered home the service-at-cost principle that many cities are already turning to it as a solution of the traction problem, most notably Boston and Cincinnati. We have so impressed the various governing bodies and the public that the electric railway industry is the "sick man of business" that already we have aroused interest to an extent that business physicians are turning their attention towards a cure.

There has been nothing to show any necessity for taking the industry out of the hands of those who by bitter experience have become skilled in its development and management and turning it over to the



political pack which has been howling at its flanks for the last twenty years. There is nothing to indicate that the easiest way out is the best way, nor can we as operators justify ourselves to our stockholders or relieve ourselves from our responsibility by sidestepping the problem and deserting the ship.

#### CONDITIONS POINT TO SERVICE-AT-COST PLAN

We are conducting an essential industry—essential in peace as well as in war. Our American cities are based on rapid and convenient transportation, and to date nothing has appeared which will supplant the electrically-propelled track-operated unit. The only other solution would be buses, and until the varied nature of municipal downtown districts is changed, it is useless to contemplate any means of transportation which will increase congestion. So we can start with this fundamental that electric railway transportation is a present essential and a necessary one for years to come. We know that the public must pay for this service either directly or indirectly. We also know that this obligation to pay the cost of the service carries with it as a corollary the right to have some supervision over the service-giving company. We have a body of trained men whose life has been passed in the development of the industry. We have invested about six to seven billion dollars of the public's money. All the necessary elements are present and their combination leads to the service-at-cost theory, which of course involves public co-operation.

Service at cost embodies the following essential elements: (1) An agreed valuation; (2) a fair return on capital invested, which necessarily implies a capitalization in proportion to the valuation; (3) supervision of security issues; (4) economic management, and (5) a rate of fare which at all times will meet all proper charges and pay this fair return.

The plan, like every other, has its limitations, and it finds the greatest one in the fact that the electric railway industry is only a monopoly up to a certain point. When this is reached, of necessity that part of the cost which cannot be secured from fares will have to be met as in Boston by some form of general tax or by other means yet to be suggested.

The question to-day is not so much one of attracting the capital for future investment as of stabilizing and saving the investment now made. The industry is to-day and has for some time been giving service below cost until its credit has gone and it is unable to secure funds for capital additions or even for the upkeep of the existing property, which means of course the dissipation of the present investment. Undoubtedly, therefore, one of the first essentials in the improvement of the situation is the re-establishment of confidence on the part of the public as well as of the investor.

#### ELECTRIC RAILWAYS MUST BE REMOVED FROM POLITICS

In connection with public education we must find some method of putting a stop to those irresistible individuals who make use of the prevailing prejudice to ride into office by making unwarranted accusations.

This involves the removal of the electric railway industry from politics. It can be done, as has been demonstrated by the telephone companies. That service is probably used more frequently daily by a larger

number of individuals than use the electric railway, but in many communities telephone officials are unknown.

The public service commissions have not helped to remove railway properties from politics to the extent that was presumed at their creation, although they have been a great aid. They have helped the situation more than the Interstate Commerce Commission did the steam railroads. Upon return to private management the steam railroads companies will probably be placed under the jurisdiction of an interstate commerce commission with amplified powers, which will be coupled with some form of responsibility. Perhaps some of the unwarranted attacks made upon our companies by municipal authorities could be stopped by giving these authorities some responsibility in the management, a plan which with modifications has been worked out in a few communities. If the city's chief executive could be made *ex officio* a member of the electric railway board of directors, this would to an extent curb vicious and unjust statements by estoppel.

#### STEPS TO BE TAKEN

There is nothing in the situation to show that at this time a municipality can operate more cheaply than is being done under private operation. If the industry has become bankrupt under efficient management by men who have spent their lifetime acquiring experience, it certainly could not be helped if turned over to the tender mercies of those who know nothing of it. The situation boils itself down to this:

1. Municipal ownership and operation have nothing to offer that cannot be secured under private management on the service-at-cost plan.

2. A closer class consciousness must be developed in the industry, and in doing this its security holders should be organized.

3. A national advertising campaign should be conducted similar to that of the American Telephone & Telegraph Company and the steam railroads.

4. Local franchises must be amended so as to make possible the adoption of service-at-cost methods.

5. The entire subject must be transferred from its local significance into that of a national problem.

There is no real excuse to-day for the prevailing pessimism throughout the industry. We have passed through the darkest days, and the opportunity is here for an improvement which will for all time place the industry on a solid footing—something it has lacked from its inception.

### Coal Price and Zone Restrictions May Be Lifted

Bituminous coal production and distribution have reached such a satisfactory point in relation to demand that the United States Fuel Administrator is contemplating the possibility of abolition of all price and zone restrictions on bituminous coal on Dec. 15.

Anthracite distribution remains a problem that will require the active attention of the Fuel Administration for an indefinite period, Dr. Garfield said. Other branches will so far have completed their work by Jan. 1 that only a nucleus of their organizations will be necessary after that date.

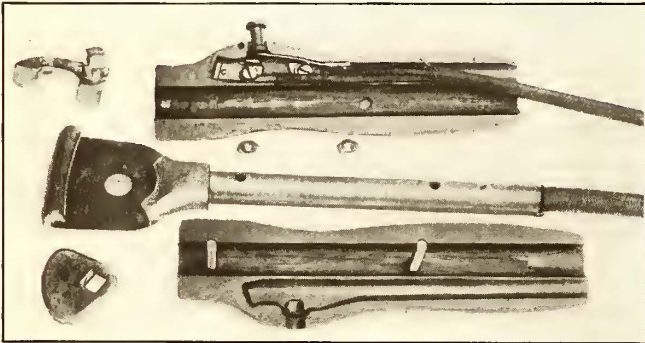
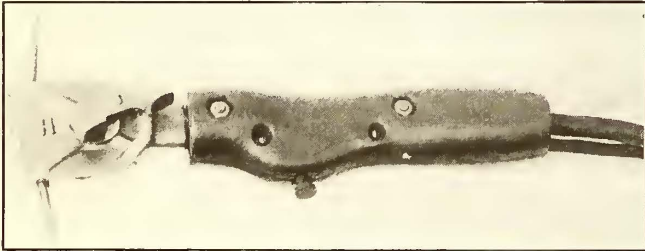


## Improved Arc-Welding Tool Facilitates Changing Electrodes

**I**N ARC WELDING, a considerable portion of the operator's time is consumed in changing welding electrodes. Therefore, the lack of a suitable welding tool is a distinct disadvantage. Up to the present time a large variety of welding tools have been developed and placed on the market. The oldest forms consist of spring tongs which have to be spread apart by an instrument similar to an off-set screwdriver when it is desired to insert the electrode and release it. The type in most common use employs a strong compression spring. If this spring is strong enough to hold the electrode when it freezes to the work so that the electrode cannot be pulled away from the tool, it requires considerable strength to operate it, and therefore it is not always well suited where women operators are employed.

A new type of holder being placed on the market by the Arc Welding Machine Company, New York, was designed to make the operation of changing electrodes absolutely definite. It also permits any amount of pull, in case the electrode freezes to the work.

The welding current enters at the rear end of the composition handle and passes along the shank to the head of the tool, and from there directly into the electrode. There are no joints in this tool except where the cable is soldered into the shank, therefore, heating



ARC WELDING ELECTRODE HOLDER AND DETAILS

due to contact resistance cannot occur. There is a relatively large contact surface between the electrode and the holding head, which precludes any possible heating at this point. The electrode is clamped by a spiral segment operated by a lever. Any attempt to pull out the electrode, results in tightening the grip of the segment which is made of case-hardened steel. This welding tool is covered by patents.

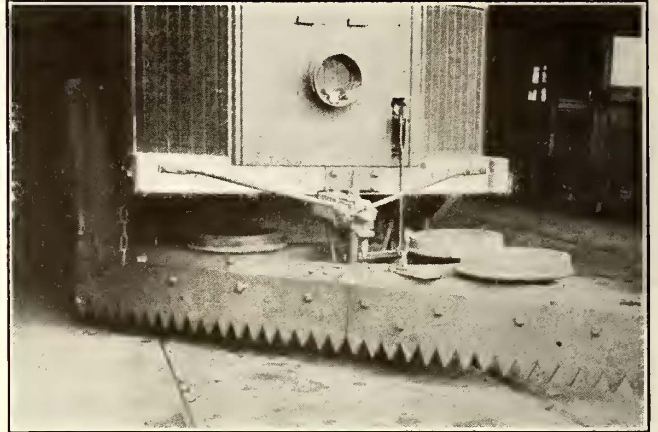
The trigger shown in the illustration is intended for remote control employed with the closed-circuit system, manufactured by the Arc Welding Machine Company, Inc. Whenever this holder is used on other systems, the trigger can be omitted.

## Effective Ice-Removal Attachment for Small Snowplow

BY A. F. REXROTH

Master Mechanic Harrisburg (Pa.) Railways

**D**URING the winter of 1917-1918, snow and ice conditions were the most severe ever experienced in this section, and the removal of the accumulations between the rails was a great problem with us. The ice not only caused the equipments to be overworked but produced great damage to gear cases. To remove it we first tried a disk harrow, but this proved a failure. Next at the suggestion of P. F. Gerhart, our electrical



ICE CUTTING ATTACHMENT FOR SNOW PLOW

engineer, we tried the attachment shown in the accompanying illustration.

This form of ice scraper was made up of steel plates  $\frac{1}{4}$  in. x 14 in. in size. Saw-tooth points were cut with an acetylene torch along the lower edge and the plates were then bolted to one of our standard plows. Additional weight was added by using three 21-in. car wheels. We found the device very satisfactory. The best results were obtained by using two plows coupled together at the same time. These were followed by a sweeper which cleaned out all the snow and loose ice cut by the plows. On occasions when conditions were unusually severe it was necessary to use a four-motor equipment for a pusher.

## Army Engineers Develop Gasoline Substitute

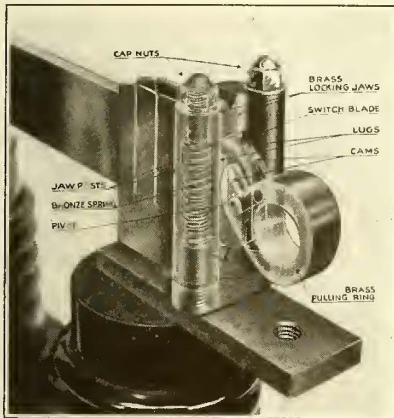
According to information made available by the division of research and development of the engineering division of the United States Army, officers engaged in research work in that division have perfected a fuel which is said to be superior to gasoline. It is practically scentless and tasteless, and the products of combustion are cooler than those from gasoline. The "Liberty fuel," as it is termed, is made from kerosene by a chemical process and distillation and it can be substituted for gasoline for any purpose without special apparatus or change in engine or carburetor.

The process has been devised by Capt. Edwin C. Weisgerber of the division of research and development and Major O. B. Zimmerman. It is stated that arrangements have been completed for making the fuel available in the near future.



## New Type Switch Lock Prevents Blade Opening by Electrical Expulsion Forces

A NEW type of switch lock known as the "Franklin" positive lock has recently been placed on the market by the Philadelphia Electric Company supply department. The switch blade is held in its closed position by two brass locking jaws which project inwardly over the blade.



CONSTRUCTION DETAILS OF POSITIVE LOCK FOR KNIFE SWITCH

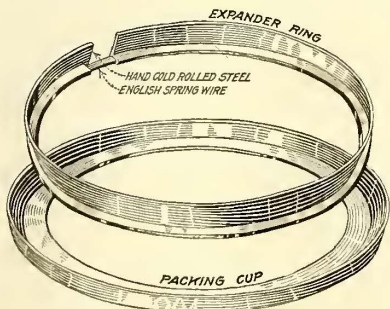
Each jaw is mounted on an upright steel post about which it may be rotated by means of a pulling ring. To open the switch a hook is inserted in the pulling ring and a pull of the hook rotates the jaws against the action of two springs inside the posts. The bridge over the switch blade is thus

opened and the blade may be withdrawn. The locking jaws are beveled at the top so that the switch may be closed readily by pushing it past the jaws. When the blade is entirely closed the springs return the jaws with a strong, vigorous snap.

Disconnecting switches with "Franklin" positive locks are furnished in capacities of from 300 to 2000 amp. and with either front or back connected switches. Cable terminals are supplied up to and including 1200 amp.

## Air-Brake Cylinder Packing Set Developed as a War Measure

THE war has compelled the development of many devices and materials to meet the demands of the railway engineering field. Materials have been sought to take the place of those that have been commonly used but which are not now available. The demand for leather and the resulting increased cost of this material during the past year have been so great that its use in many services has been made almost prohibitive. The quality which can be obtained has also suffered, so that



AIR-BRAKE CYLINDER PACKING SET

the most rigid inspection is necessary before it can be used where it is required for holding air, as in air-brake service. Any initial leakage causes unnecessary work of all brake parts, and continuous operation of compressors and in turn involves a waste of fuel. The natural porosity of leather made it difficult to maintain the high cylinder efficiency re-

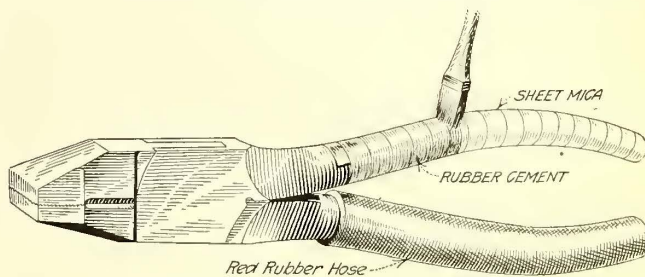
quired. The old-fashioned leather cup, coupled with the mechanical limitations of a round wire expander ring, made air leakage a necessary evil.

A packing set recently placed on the market by the H. W. Johns-Manville Company and shown in the accompanying illustration, consists of an asbestos packing cup and a slip-type expander ring. The construction of the cup makes it air-tight, proof against heat, pressure and condensate. It does not become porous in service, and when used with the expander ring gives a flat bearing surface four times that of a round ring and practically eliminates air leakage.

## Insulating Plier Handles in the Shop

IN ORDER to make safe the work on live wire with pliers, manufacturers have placed on the market a line with insulated handles. Some shopmen prefer to insulate their own tools, especially for work on very high voltage. The accompanying illustration shows a very successful method of insulation which can be conveniently applied by the man in the shop.

The handle, first shellacked, is wound tightly with



PLIERS WITH INSULATED HANDLES

mica cut in strips. A coat of rubber cement, of the kind used for repairing auto tires, is applied and while the cement is soft a piece of red rubber hose with  $\frac{1}{8}$ -in. wall is slipped over the handle. The cement facilitates the putting on of the hose, and finally hardens and holds it firmly in place.

By using red rubber the insulated pliers can be quickly picked out of a drawer full of miscellaneous tools. The end of the rubber tube is finally vulcanized to protect the handle.

## Contact Shoe With Renewable Wearing Plate



CONTACT SHOE IN RAISED AND RUNNING POSITION

IN THE accompanying illustrations are shown a form of over-running third-rail contact shoe used by one of the lines composing the Lehigh Valley Transit Company. This shoe has a steel insert which can be readily replaced when worn and this prevents the scrapping of the entire shoe casting. The wearing piece is held in place by two rivets.



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## AMERICAN ASSOCIATION NEWS

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### Committee on Reconstruction Meets at Atlantic City

THE members of the committee on reconstruction of the American Electric Railway Association met at Atlantic City on Dec. 4, at the time of the congress there of the War Service Committees of American industries. Those present were P. H. Gadsden, chairman; Henry G. Bradlee, Boston; P. J. Kealy, Kansas City; H. H. Crowell, Grand Rapids, and E. W. Wakelee, Newark, N. J. The program for the coming year was discussed but the committee has made no announcement for publication.

### New American Executive Committee Holds First Meeting

A MEETING of the American Association executive committee was held in New York on Dec. 3. On the recommendation of the American Electric Railway Association War Board it was decided to discontinue this board but to provide a committee to maintain Washington headquarters for the present, this committee to be known as the committee on national relations. The committee was authorized to make the arrangements necessary to retain W. V. Hill in the service of the association, together with the necessary clerical assistance, and to continue the Washington office until such time as it may be deemed to have fulfilled its mission. It was the feeling of the executive committee that the association and the industry need representation at Washington during the transition from a war to a peace basis. Immediately after the appointment of the committee was authorized President J. H. Pardee announced the appointment of the members of the war board as the members of the committee on national relations.

The executive committee accepted with great reluctance the resignation of E. C. Faber, who for about a year has at considerable personal sacrifice devoted more than one-half of his time to the work of manager of the War Board. He will return about Jan. 1 to the Aurora, Elgin & Chicago Railroad, through whose courtesy the contribution of his time and ability was made possible. A resolution of thanks to Mr. Faber for his invaluable services was adopted by the executive committee.

The question of the mid-winter meeting was discussed and it was the sentiment of the members present that a one-day conference should be held at a time and place to be determined later. The matter will be submitted to the entire executive committee by letter ballot which, if favorable, will authorize the president to appoint the necessary committees to handle the arrangements.

Members of the executive committee and the war board in attendance at the meeting were J. H. Pardee, New York City; Philip J. Kealy, Kansas City, Mo.; R. E. McDougall, Rochester, N. Y.; Charles L. Henry, Indianapolis, Ind.; H. G. Bradlee, Boston, Mass.; P. H. Gadsden, Charleston, S. C.; L. S. Storrs, New Haven, Conn., and E. B. Burritt, New York City. Messrs. Gadsden and Bradlee were present especially to represent

the war board, of which Mr. Storrs is also a member. S. M. Curwen, E. W. Rice, Jr., and James H. McGraw of the executive committee were represented by G. M. Haskell, F. H. Gale and H. H. Norris respectively.

### Stag Get-Together Meeting at Toledo

AFTER interruption of activities due to the influenza epidemic the Toledo joint company section held a social meeting on Nov. 29. The program included the singing of patriotic and other popular songs, the exhibition of the Westinghouse film "Romance of Rails and Power" and a six-round boxing bout. "Smokes" and simple eatables were served during the meeting and thrift stamps were sold to those present. On Nov. 20 the section held a benefit dance for the "Rail Light Orchestra" which netted \$40. Another dance will be held on Dec. 18. These social events are especially helpful as the Toledo section represents the four branches of the local company's service—railway, electricity, gas and heat.

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## LETTER TO THE EDITORS

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### Guarantee, Not Method of Fixing Fares, Made Stock Valuable

COMMONWEALTH OF MASSACHUSETTS

PUBLIC SERVICE COMMISSION

BOSTON, MASS., Nov. 27, 1918.

To the Editors:

You will, I am sure, permit me to correct a misapprehension which is likely to be created by the article by Ivy L. Lee, which appeared in your issue of Nov. 23. In speaking of recent legislation in Massachusetts, Mr. Lee said:

Under this legislation people in Boston, for instance, have been paying a 7-cent fare and they have been doing it without complaint. It may be that they will have to pay a 10-cent fare, but they know that the increase, whatever it may be, will come because it is a necessity of the service and not for the enrichment of stockholders. The legislation has, however, in the service-at-cost plan, provided for the stockholder and has rehabilitated the credit of the Boston Elevated, so much so that its preferred stock has been sold over the counter at par, and its common stock and bonds have both notably increased in value.

As a matter of fact the Boston Elevated legislation provided for a form of public operation. It contains a service-at-cost plan for regulating fares, but this is merely incidental. The essential feature of this act is that practically the entire management and control of the company is placed, for a period of at least ten years, in the hands of a board of trustees appointed by the Governor of the State, the stockholders receiving in return a certain guaranteed return upon their investment. The State assumes responsibility for this return, and it will be paid no matter what the earnings of the company may be. If the earnings are insufficient, the deficiency will be met by the State and apportioned among the cities and towns in which the company operates. It is clearly this guarantee which made it possible to sell preferred stock at par and which increased the market value of common stock and bonds, and not the service-at-cost plan. JOSEPH B. EASTMAN, Commissioner.



## Recent Happenings in Great Britain

### Liverpool Typical of Conditions That Exist Generally in British Isles—Wage and Bonus Awards Attract Attention

(From Our Regular Correspondent)

The chairman of the tramways committee of Liverpool, speaking at the concluding meeting of the municipal year held recently, said that the traffic returns of the undertaking for the past nine months (the tramway year does not end until Dec. 31) had exceeded all previous records as regards total receipts, number of passengers carried, and car-mile earnings. Confronted with many obstacles almost impossible to surmount, restricted by the shortage of materials and deprived of many employees by the war, the management had had to overcome difficulties hitherto unknown in municipal tramway operation.

In referring to the matters of overcrowding and the rushing to board cars at the principal terminus at the Pierhead and some of the principal stopping places in the city, the chairman said that the problem thus presented seemed to be insurmountable. In pre-war times, say in 1913, about 50,000,000 fewer passengers were carried on a greater number of cars than at present, and these were operated by an efficient and permanent staff, but owing to the extraordinary conditions prevailing it was impossible to secure material for repairs and upkeep, to say nothing of the inability to get new cars.

#### PLANS FOR QUEUE LOADING

The question of providing queues at the Pierhead and other places in Liverpool had not been forgotten, but until the Pierhead terminus was reconstructed the institution of such a system was impossible, while queues at city stations were impracticable until further facilities for carrying the people were provided. Owing to the extraordinary increase of the cost of labor and materials, and to the fact that Liverpool was carrying the average passenger nearly 3 miles for 1d., a revision of the stages was considered necessary, and the amendment was being put into operation.

The number of employees who had left the service at Liverpool to join the forces was 2290. Of this number information had been received that more than 200 had been killed in action. Since Jan. 1, 1918, free passes to the military and nurses had been granted to the number of 3,103,007, equal to £14,532, while the total since the commencement of the war was 16,643,050, equal to £77,945. The operating results in Liverpool are reviewed on page 1022.

The tramway department of the London County Council has distributed a bonus of £1,614 among its drivers and conductors. This sum represents half the price of fuel for power saved during the quarter ended Sept. 25 and is awarded in connection with a scheme

for inducing the men to co-operate in the economizing of fuel and light. During that period 1175 tons of coal were saved—a reduction of nearly 5 per cent on the average consumption. The cars ran 12,110,824 miles at a consumption of 26,142,671 units of electricity, effecting a saving of 1,348,899 units. The offer is renewed for the present quarter, during which it is hoped that even greater economies will be effected.

#### INCREASED PAY FOR WOMEN

By an award of the committee on production the wages of the women employees of the Bradford Corporation Tramways are to be advanced 2s. a week. This is the result of the representation of the Bradford Corporation war wages committee to the committee on production for its interpretation of certain points in dispute. The interpretation is that women are entitled to only 2s., plus the 3s. received last June. The award raises their pay to 18s. above pre-war rates. The women contend that they ought to have at least 21s.

At a recent meeting of the tramways committee of the Bradford Corporation a tentative report was submitted showing the results of the six months of the financial year from April 1 to Sept. 30, in comparison with the results of the corresponding period of the preceding year. The receipts in 1918 were £243,280, as compared with £203,592 for 1917, an increase of £39,688. This is largely accounted for by the fact that during four months of the half year just closed increased fares have been charged. The number of car-miles run decreased from 2,858,344 to 2,573,434, or 284,910. The number of passengers carried decreased from 42,893,176 to 40,136,206, or 2,756,970. The receipts per car-mile have risen from 16d. to 21.18d. Against this increase of earnings, however, must be set an increase in wages from £90,695 in the half year ended Sept. 30, 1917, to £114,072 for the similar period of 1918, or £23,377. Of this increase, £5,275 is accounted for by a larger total payment to dependents of fighting men. In the half year ended September, 1917, the amount for war allowances was £9,943; during the last half year it went up to £15,218.

#### STOCKTON TO PURCHASE RAILWAY

The Corporation of Stockton has decided to exercise the right of purchase of that portion of the Middlesborough, Stockton & Thornaby Tramways in the borough, and to co-operate with Thornaby in doing so. It has also been resolved that in connection with the purchase and subsequent working of the system it be suggested to the Thornaby Corporation that the financial proportions of the two boroughs be Stockton

three-fourths and Thornaby one-fourth.

The Glasgow Corporation has adopted a recommendation of the tramways committee that as an experiment a special car be run on the route between Glasgow and Uddingston for the conveyance of parcels. This proposal has been made in view of the recent recommendation of the Road Board that to relieve the traffic on railways and by petrol-driven vehicles on roads, arrangements might be made for carrying parcels on tramways. The corporation has Parliamentary powers to act as a carrier of parcels.

The Town Council of St. Helens has confirmed a minute by the Parliamentary committee authorizing the tramway sub-committee to negotiate with the tramway company for an extension of the lease for a period not exceeding five years. The present lease, which is for twenty-one years, expires in October next year.

In continuation of the arrangement brought into force last August for maintaining fares at a level sufficient to meet the expenses brought about by the payment of war bonuses and increased prices for materials, certain fares have been increased on the District and all the tube railways in London. There has also been an increase in certain season ticket rates on all the tube railways. As expenses increase further revisions in fares will have to be contemplated.

#### MR. WILKINSON AND MR. POTT CHANGE

R. H. Wilkinson, tramway manager of the Huddersfield Corporation, has been appointed general manager of the Bradford Corporation Tramways in succession to C. J. Spencer. Mr. Wilkinson, who has been the tramways manager and engineer at Huddersfield for fourteen years, for four years previously held a similar position at Oldham, and was two years in the service of the Liverpool Corporation. He has had mechanical, electrical and marine engineering experience. The salary at Bradford is £800 a year.

A. H. Pott has resigned the management of the Metropolitan Electric Tramways and the London United Tramways to take a position under the tramways committee of the Board of Trade. The two tramway companies have, however, been able to retain Mr. Pott's services as consultant. C. J. Spencer, the late manager of the Bradford Corporation Tramways, has been appointed to fill the vacancy created by Mr. Pott's resignation.

The Parliamentary committee of the Newcastle Corporation has issued a report on the electric power supply proposals of the government committees. The report is against the conclusions of the committees, on the ground that private monopolies will be maintained, and public services may pass into private hands. A statement, giving reasoned objections, prepared by the town clerk, will be submitted to other authorities on the Northeast Coast area, with a view to joint representations being made.

A. C. S.



# News of the Electric Railways

FINANCIAL AND CORPORATE • TRAFFIC AND TRANSPORTATION

PERSONAL MENTION

## Labor Board Needed

Mr. Taft Believes that Future Labor Situation Demands National Body Like War Labor Board

In response to the question whether the activities of the War Labor Board should be considered at an end after the settlement of pending cases, the Secretary of Labor after conference with President Wilson has advised the board that it is deemed necessary for the board to continue in action until peace shall be declared by the President after the ratification of the peace treaty.

In a current signed article in the Philadelphia *Public Ledger*, William Howard Taft, one of the joint chairmen of the War Labor Board, states that the conclusion of the President is wise. Indeed, Mr. Taft continues, the experience of the board justifies the conclusion that a board of somewhat similar jurisdiction should be created either by the President or by law as an instrumentality for the peaceful settlement of industrial disputes during the period of readjustment after the war, if not thereafter. The board, it is said, should be constituted, as the present one is, of representatives of organized labor, chosen or nominated by organized labor, and of representatives of the employer group, chosen or nominated by the associations of that group. Then, if such can be found, there should be put upon the board other men of intelligence, with no predilection for either side.

In regard to the general labor situation Mr. Taft speaks in part as follows:

Organization of labor has become a recognized institution in all the civilized countries of the world. It has come to stay, it is full of usefulness and is necessary to the laborer. It shows serious defects at times and in some unions. These are an apparent willingness to accept benefits enforced through a fear of lawlessness, a disposition to use duress to compel laborers to join unions, and efforts to limit output, and create a dead level of wages. There are evils that as the unions grow in wise and intelligent leadership we may well hope are being minimized.

Much can be done by employers in anticipating just demands of employees. Workers have had too many instances of holding back of employers until they are forced to do justice. Too many employers seek to justify failure to raise wages by pointing to their welfare work for their employees. This is of a paternal character, and impresses the workers with the idea that they are being looked after as wards and not treated as men capable of exercising independent discretion as to their welfare. They are apt to give the employees the idea that it is a generous concession they are making out of the goodness of their hearts, and that they are not merely yielding a right for a *quid pro quo* for what they receive.

Of course those individual laborers who do not see the advantage to them of the group system have a right to stay out and must be protected in doing so. But whether we will or not, the group system is here to stay, and every statesman and every man interested in public affairs must recognize that it has to be dealt with as

a condition, to be favored in such a way as to minimize its abuses and to increase its utility.

The workmen of the country, since the war began and the importance of their group action has been emphasized by the requirements of the war, have been given a sense of power in their united action which we must recognize and deal with. Of course, they may abuse this power, and, if so, they may find that they are not the entire community. But if under level-headed leadership they do not push it to an excess, they will be able to do much for their members and indeed for the community at large. The junkers and the hunkers on both sides must stand aside and will be set aside if common sense prevails. The danger from Bolshevism is far greater than from reaction to the Bourbon type of employment. The intelligent, conservative leaders of the labor movement should be encouraged. Their difficulties in dealing with their extreme constituents should be recognized.

## Favors Buses for Buffalo

Edward G. Connette, president of the International Railway, Buffalo, N. Y., favors motor transport service for Buffalo. He opposes the so-called jitney lines, but favors motor bus lines patterned after those of Fifth Avenue in New York City. He believes that buses would do well in Buffalo as supplemental to the city railway lines.

Mr. Connette says he was about ready to start motor bus service when the United States entered the war. When money is again reasonably available, he may put the plan through.

The fare would have to be 5 or 10 cents according to the distance. An electric railway transfer would be worth 5 cents on the bus line. Fifty buses would be needed on Delaware Avenue alone.

## Compliments of Mr. Neal

The Boston *Post* made the election of J. Henry Neal to the presidency of the Boston Elevated Railway the subject of its leading editorial in the issue of Nov. 22. The *Post* said:

"The election of J. Henry Neal as president of the Boston Elevated Railway is a recognition on the part of the trustees of ability and faithful service. As auditor for a number of years, Mr. Neal gained a knowledge of every phase of the road's affairs not equaled by that of any other man. He has been a close student both of theory and practice, and this should stand him in good stead in his new position.

"One of the gratifying things about the selection is that Mr. Neal has come up from the very bottom of the ladder to the top by his own merits and no other causes. He began as a boy in the shops and he worked his way along with the honorable ambition to become a high official of the road, as he now has. He furnishes a striking example of the opportunity for advancement open to hard work and intelligence."

## Oakland Mayor for M. O.

Commissioners Reject Proposal, but Mayor Insists on It Going on Ballot in Spring

John L. Davie, Mayor of Oakland, Cal., has come out for municipal ownership of the lines of the San Francisco-Oakland Terminal Railways in Oakland. In furtherance of his ideas he recently had a resolution introduced before the City Commissioners instructing the city attorney to take the steps necessary to place the matter on the ballot to be voted by the people at the election in May. An effort was made to have the resolution acted upon at the time of its presentation, but the commissioners voted against this so as to have an opportunity more carefully to consider the matter.

Later the commissioners refused to put the question on the ballot. The Mayor then announced that he would invoke the initiative in order to get the matter before the voters.

## COMPANY STATES ITS ATTITUDE

W. R. Alberger, vice-president and general manager of the railway, had addressed the Mayor in part as follows:

"The board of directors of the San Francisco-Oakland Terminal Railways has instructed me to assure you, and through you the people of the city of Oakland, that our company will be perfectly willing to sell its railway properties to the city at a fair valuation to be fixed either by the State Railroad Commission or by a jury, whenever the people desire to take over the properties.

"While the company that I represent would welcome an expression of opinion by the voters of the city on the question of the purchase of our properties, we feel that the voters at the same time should be given the opportunity to express their opinion on the proposed resettlement franchise."

## Mr. Manly Succeeds Mr. Walsh

The resignation of Frank P. Walsh, as joint chairman of the National War Labor Board has been accepted by President Wilson, and Basil M. Manly has been appointed to fill the vacancy. William Harmon Black, Mr. Walsh's alternate on the board, also resigned, but was reappointed as alternate.

In accepting Mr. Walsh's resignation President wrote that he was "compelled, in justice to the cogent and almost imperative professional reasons you give, to consent to your retirement from the high position whose duties you have administered with such judgment, tact and robust integrity."



## Wages Advanced in Nine More Cases

### Committee on Public Information Gives Out Text of Various War Labor Board Awards Previously Announced

The full text of the nine wage awards, preliminary notice of which was published in the *ELECTRIC RAILWAY JOURNAL* of Nov. 23, has been released by the Committee on Public Information. In these decisions the War Labor Board has awarded to motormen and conductors minimum and maximum wage rates of 38-42 cents an hour for the city lines in Syracuse and Auburn and 43-48 cents an hour for the lines in Cincinnati and Denver, and rates ranging from 38 cents to 48 cents an hour for interurban employees. In three cases the interurban wage rates allowed were 41-45 cents an hour.

In each award where other employees were involved, the same percentage of increase as in the case of the trainmen was granted up to the limits of 42 or 42½ cents an hour. It was stipulated further that such increases should not operate to increase the wages of men receiving union-craft rates.

In all cases except that of the Cincinnati Traction Company, which has a flexible-fare clause in its franchise, the board urged the necessity of the fare question being reconsidered by the proper authorities. In the Lewiston, Augusta & Waterville decision it added these words: "We desire to point out to the riding public the absolute necessity of continuing the patronage of the past, if the company is to continue to give any service upon its lines. A public service corporation must be supported by the public, and if that support is withdrawn the company must of necessity either cut down its service radically or else cease its operations altogether."

Abstracts of the various awards, and also an earlier one for Dayton, follow:

#### SYRACUSE & SUBURBAN RAILROAD, SYRACUSE, N. Y.

*New Wages for Motormen and Conductors:* First three months, 38 cents an hour; next nine months, 40 cents an hour, and thereafter, 42 cents an hour.

*Time of Award:* Effective as of Aug. 5, for the duration of the war, with opportunity for the reopening of the case at six months intervals beginning May 1, 1919. The company has until Feb. 1 to make back payments.

#### EMPIRE STATE RAILROAD CORPORATION, SYRACUSE, N. Y.

*New Wages for Motormen and Conductors:* City lines first three months, 38 cents an hour; next nine months, 40 cents an hour, and thereafter, 42 cents an hour; interurban lines—first three months, 41 cents an hour; next nine months, 43 cents an hour, and thereafter, 45 cents an hour.

*New Wages for Other Employees:* The wages of employees (other than motormen and conductors) which have been submitted to the board for fixation shall be increased by the same percentage as the maximum of the wage scale paid to motormen and conductors on the city lines is increased by this award; provided, however, that if this increase does not bring the wage of any adult male employee up to a minimum of 42 cents an hour, he shall be paid this minimum for up to not more than ten hours' work per day. Where women are employed in the same classification as men, they shall receive equal pay for equal work. The foregoing provisions shall not apply to employees who already are receiving union-craft rates, or operate so as to increase their wages beyond such rates.

*Time of Award:* Effective as of Aug. 12, for the duration of the war, with opportunity for the reopening of the case at six months intervals beginning May 1, 1919. The company has until Feb. 1 to make back payments.

#### LEWISTON, AUGUSTA & WATERVILLE STREET RAILWAY, LEWISTON, ME.

*New Wages for Motormen and Conductors:* First three months, 39 cents an hour; next nine months, 41 cents an hour, and thereafter, 43 cents an hour.

*New Wages for Other Employees:* The wages of employees (other than motormen and conductors) which have been submitted to the arbitrators for fixation shall be increased by the same percentage that the maximum of the wage scale paid to motormen and conductors is increased by this award, the percentage increase to be applied to the wage rates set forth in the agreement between the company and the Amalgamated Association and not to the wage rates as increased since the date of this agreement; provided, however, that if this increase does not bring the wage of any adult male employee up to a minimum of 42½ cents an hour, he shall be paid this minimum for up to not more than ten hours' work per day. Where women are employed in the same classification with men, they should be paid for equal work. The foregoing provisions shall not apply to employees who already are receiving union-craft rates, or operate so as to increase their wages beyond such rates.

*Time of Award:* Effective on Nov. 20, for the duration of the war, with opportunity for the reopening of the case at six months intervals beginning May 1, 1919.

#### CUMBERLAND COUNTY POWER & LIGHT COMPANY, PORTLAND, ME.

*New Wages for Motormen and Conductors:* First three months, 41 cents an hour; next nine months, 43 cents an hour, and thereafter, 45 cents an hour.

*New Wages for Other Employees:* Same as in the case of the Lewiston, Augusta & Waterville Street Railway.

*Time of Award:* Effective as of Nov. 20, for the duration of the war, with opportunity for the reopening of the case at six months intervals beginning May 1, 1919.

#### EAST ST. LOUIS, COLUMBIA & WATERLOO RAILWAY, EAST ST. LOUIS, ILL.

*New Wages for Motormen and Conductors:* First three months, 41 cents an hour; next nine months, 43 cents an hour, and thereafter, 45 cents an hour; freight motormen, 48 cents an hour.

*New Wages for Other Employees:* Wages of employees (other than motormen and conductors) which are before the board for fixation shall be increased for the same percentage that the maximum of the wage scale paid to motormen and conductors is increased by this award; provided, however, that if this percentage increase does not bring the wage of any adult male employee up to a minimum of 42½ cents an hour, he shall receive this minimum, and provided further that where women are employed in the same classification as men, they shall receive equal pay for equal work.

*Time of Award:* Effective as of July 15, for the duration of the war, with opportunity for the reopening of the case at six months intervals beginning April 1, 1919. The company has until Feb. 1 to make back payments.

#### AUBURN & SYRACUSE ELECTRIC RAILROAD, SYRACUSE, N. Y.

*New Wages for Motormen and Conductors:* City lines—first three months, 38 cents an hour; next nine months, 40 cents an hour, and thereafter, 42 cents an hour; interurban lines—passenger service, 41 cents an hour, and express and freight service, 47 cents an hour.

*New Wages for Other Employees:* Same as in the case of the Empire State Railroad Corporation.

*Time of Award:* Effective as of Aug. 5, for the duration of the war, with opportunity for reopening the case at six months intervals beginning May 1, 1919. The company has until Feb. 1 to make back payments.

#### CINCINNATI (OHIO) TRACTION COMPANY

*New Wages for Motormen and Conductors:* First three months, 43 cents an hour; next nine months, 46 cents an hour, and thereafter, 48 cents an hour.

*New Wages for Other Employees:* Same as in the case of the Empire State Railroad Corporation, except that the minimum is placed at 42½ cents an hour.

*Time of Award:* Effective Nov. 21, for the duration of the war, with the opportunity for the reopening of the case at six months intervals beginning May 15, 1919. The company has until Jan. 1 to make back payments.

#### DENVER (COL.) TRAMWAY SYSTEM

*New Wages for Motormen and Conductors:* First three months, 43 cents an hour; next nine months, 46 cents an hour, and thereafter, 48 cents an hour.

*New Wages for Other Employees:* Same as in the case of the Empire State Railroad Corporation, except that the minimum is placed at 42½ cents an hour and no clause in regard to women is present.

*Bonus Paid for Elapsed Time:* Where the elapsed time consumed by swing runs exceeds thirteen hours, an addition of pay shall be allowed as follows: For the fourteenth hour, fifteen minutes; for the fifteenth hour, thirty minutes; for the sixteenth hour, forty-five minutes, and for the seventeenth hour and each successive hour, one hour. These allowances are to be applied to successive periods of one-half hour each; less than one-half of such a period is to be neglected and more than one-half is to count as allowed time for the full allowed period.

*Time of Award:* Effective as of Aug. 24, for the duration of the war, with the opportunity for the reopening of the case at six months intervals beginning May 15, 1919. The company has until Feb. 1 to make back payments.

#### DETROIT (MICH.) UNITED RAILWAY

*Wages of Car Inspectors and the Like:* The wages of car inspectors, controller men, pitmen and pitmen helpers shall be increased by 20 per cent, provided, however, that if this percentage increase does not bring the wage of any adult male employee up to a minimum of 42½ cents an hour, he shall receive that minimum, and provided further that where women are employed in the same classification as men, they receive equal pay for equal work.

*Time of Award:* Effective as of June 1, for the duration of the war, with the opportunity for the reopening of the case at six months intervals beginning Feb. 1, 1919. The company had until Dec. 1, 1918, to make back payments.

#### DAYTON (OHIO) STREET RAILWAY

*New Wages for Motormen and Conductors:* First three months, 41 cents; next nine months, 43 cents, and thereafter, 45 cents.

*New Wages for Other Employees:* Minimum wage of 42½ cents an hour. Women employed in the same class of work as men shall receive equal pay for equal work. This award does not apply to employees receiving union-craft rates or increase wages beyond such rates.

*Recognition of Union:* The evidence discloses no interference with the right of employees to join the union. The railway, however, is under no obligation to recognize, deal with or contract with the union.

*Time of Award:* Effective as of June 24, for the duration of the war. The company has until Feb. 1 for back payments.

### Jersey Men Free Agents

The Public Service Railway, Newark, N. J., has issued the following statement to its employees:

"The employees shall also understand, once and for all, that they are always free to join any organization they choose and may remain members of such organization as long as they like, always provided, however, that no act by any employee will be tolerated by the company or the public which directly or indirectly interferes with the continuance of that safe, convenient and adequate service required by law of the company, its officers and employees."



## Cleveland Men Out on Strike

Contend that Company Broke Agreement Under Which Women Were to Have Been Replaced on Dec. 1

Motormen and conductors of the Cleveland (Ohio) Railway almost to a man left their cars at 5 o'clock on the morning of Dec. 3. They had voted the preceding night to take this action unless the company removed the 160 women conductors before that hour. Both J. J. Stanley, president of the Cleveland Railway, and George Radcliffe, general manager of the company, informed the representatives of the union that the company would refuse to discharge the women until ordered to do so by the War Labor Board. About 2000 men are involved in the strike.

### CONFLICT OF AUTHORITY

The strike grew out of the news received in Cleveland on Nov. 30 that the National War Labor Board had ordered the railway to retain its women conductors until a final decision is made on the controversy over their employment. The Secretary of Labor had extended the time for their quitting their places on the cars to Dec. 1. The company decided to abide by the instructions of the War Labor Board and the women operated their cars on Dec. 2.

W. M. Rea, secretary of the local branch of the Amalgamated Association, at once announced that a demand would be made upon the company to dismiss the women, and, in the event the demand was not complied with, he said a vote would be taken by the members on a strike to enforce the demand.

Fred Telschow, president of the local branch of the Amalgamated Association, in a statement made after the strike was declared, said that the action was the result of the failure of the Cleveland Railway to live up to an agreement with the union. He charged that the company, through Mr. Stanley, had refused the demand of the men to remove the women conductors from the cars on Dec. 1, and disposed of a request that the cars be heated by telling the men that it was a question of heating cars now or later on.

### GENERAL MANAGER EXPLAINS

George L. Radcliffe, general manager of the railway, said that the company was acting under orders of the National War Labor Board in refusing to discharge the women. The board instructed the company on Nov. 30 to retain the women, pending a decision to be rendered by it later on. The board also fixed working conditions and a wage scale and asked the union not to insist upon action until a further ruling could be made. Mr. Radcliffe said that the company would comply with the ruling of the board, when it is received.

From his office in Detroit, W. D. Mahon, president of the Amalgamated, issued a statement saying the company had not complied with its agreement in regard to the employment of women.

There was nothing left for the men but to strike, he said.

Mr. Rea insisted that the union does not recognize the jurisdiction of the National War Labor Board in this case. He contends that there is no need of employing women and insists that the company's purpose in doing so is to disrupt the men's organization. The union men argue that both the company and its employees agreed to leave the matter to the Secretary of Labor, who sent two agents to Cleveland to make an investigation. These investigators reported against the use of the women and recommended that they be replaced by Nov. 1. Subsequently the time was extended until Dec. 1. During the interval the matter came before the War Labor Board.

Mayor Harry L. Davis, after endeavoring to bring the company and the men together on some kind of agreement to delay the strike, went to Washington, where he will ask the War Labor Board to render a decision as to the employment of women at the earliest possible moment.

After he had gone Director of Public Utilities Farrell made a proposition of mediation to Secretary Rea, but this was refused. Both Mr. Farrell and A. L. Faulkner, representative of the Secretary of Labor in the Cleveland district, advised the men to go slow in precipitating a strike over this question at the present time.

### WOMEN PROTEST TO WASHINGTON

Mrs. Laura Prince, chairman of the Association of Women Street Railway Employees, sent a communication to the War Labor Board on the morning of Dec. 3, in which she said that the members of the union are in contempt because of disobedience of the injunction which had been issued.

All the men were asked to take their cars out when they arrived at the stations Tuesday morning. When it was found that almost all of them refused, schools of instruction were established at the stations and advertisements were inserted in the papers for men and women to act as drivers and conductors. It was announced that until persons who may apply for positions are properly drilled, no cars will be operated.

The employees of the Cleveland Railway were to start voting at 1 p.m. on Dec. 5 on ending the strike. Two resolutions were to be presented to the men. Under one of these, adopted by the Council, that body understands that the women conductors now in the employ of the company will be released from their positions on Jan. 3. The other is about the same tenor, except that the date is fixed at March 1. The latter was adopted at a meeting in the Mayor's office on Dec. 4 with President Stanley of the railway, representatives

of the union and Mayor Davis and his cabinet present. The women conductors withdrew from the meeting and will rest their case with the War Labor Board. The strike was settled late on Dec. 5 when the men accepted the plan for dismissing the women by March 1.

## Buffalo Problem Unsolved

A Myriad of Counselors Again Makes for Confusion by Advancing Conflicting Plans

After months of wrangling the railway problems of Buffalo, N. Y., are still unsolved. Dozens of plans have been suggested by members of the City Council, and agreements on some of the plans have been reached between the municipal authorities and the International Railway, but very little real progress has been made. Referendum petitions signed by more than 12,000 voters have been filed with the City Council asking for the repeal of the Council's resolution which waives certain franchise restrictions and allows the Public Service Commission to fix a reasonable rate of fare.

### COUNCIL INACTIVE

Although an agreement was reached on Nov. 13 between the municipal authorities and the company whereby all pending litigation would be dropped and the so-called Massachusetts plan of electric railway operation and control would be put in effect, no action has been taken by the Council to repeal its former resolution and adopt the Massachusetts plan. Unless the Council does repeal its former resolution, a referendum must be held early in February on the question of whether or not it shall be repealed.

Some members of the City Council have recently suggested as a solution of the problem a plan for the city to acquire the railway properties. Before municipal ownership could become a fact, action would have to be taken by the State Legislature at its session this winter. The talk so far has been of purchase by the city through the exchange of city bonds for railway securities as a basis of payment.

Edward G. Connette, president of the railway, has assured members of the City Council that directors of the corporation are ready to accept any sort of a plan that will insure them a return on their investment. Mayor Buck favors the so-called Massachusetts plan.

Other members of the Council are fostering a bill which they aim to have introduced into the Legislature this winter which would amend the State constitution so as to exempt from debt limits of cities, the money raised by bond issues the proceeds of which are invested in a public utility that is a direct revenue producing agent. A measure of this kind would permit the city to buy the company's properties without regard to the matter of exceeding the city's debt-making limits.



The City Council has been told that the Buffalo lines of the International Railway are now being operated at a daily loss because of the payment to the company's platform employees of the wage award of the War Labor Board. In a public announcement the company urges the Council to adopt some plan whereby the railway can continue operation at a fair return.

Representatives of some of the foremost industries of Buffalo, N. Y., have organized a permanent committee known as the All-for-Buffalo committee to launch an educational publicity campaign showing the need of the company for additional revenue through higher fares. Counsel has been retained.

### P. F. Sullivan on War Labor Board

P. F. Sullivan, president of the Bay State Street Railway, Boston, Mass., has been chosen for membership on the National War Labor Board as the alternate to L. A. Osborne, vice-president Westinghouse Electric & Manufacturing Company. Mr. Sullivan is now sitting as the representative of the electric railway industry in pending cases.

## News Notes

**Engineering Societies Establish Employment Bureau.**—The Engineering Council has decided to establish at once an employment bureau to aid engineers who have been in military service to find suitable positions. The four secretaries of the founder societies are the board of managers. Walter V. Brown is secretary. The war committee of the technical societies has been abolished.

**New Franchise Settlement Ordinance Committee in Chicago.**—Plans have been revived for a new ordinance for the surface and elevated lines in Chicago. Objectors to the franchise which was defeated at the recent election have expressed a willingness to discuss the situation with a view to compromise. A new sub-committee of the local transportation committee of the Council will begin hearings at once.

**167 Wage Increases for Union Men.**—During the first half of 1918 divisions of the Amalgamated Association of Street & Electric Railway Employees of America to the number of 167 received increases in wages. Thirty-two of these received two increases. The increases do not include those secured through submission of cases to the National War Labor Board. These statements are contained in the proceedings of the recent semi-annual meeting of the general executive board of the Amalgamated Association.

**Utilities Bill Proposed for Texas.**—A public utilities bill will be urged during the forthcoming session of the Legislature of Texas, which will convene on the first Monday in January. The bill proposes to place all utilities, including city railways and interurbans under jurisdiction of the State Railroad Commission, its jurisdiction to extend to the matter of fixing rates, determining valuations, the issuance of securities and the building of new lines. Such a bill was offered in the last regular session, but failed to pass.

**Increase for Kentucky Employees.**—The South Covington & Cincinnati Street Railway, Covington, Ky., has announced that employees will receive the same proportionate wage increase as that specified by the War Labor Board in the case of the employees of the Cincinnati Traction Company. The action of the company was voluntary, as the War Board did not include the Covington company in its decision, which provided that Cincinnati men should receive from 42½ to 48 cents an hour, instead of 31 to 37 cents.

**Industrial Insurance Ruling.**—In a recent test suit brought by the Spokane & Inland Empire Railroad and the Washington Water Power Company, Spokane, and the Yakima Valley Transportation Company, the Supreme Court ruled that electric railways doing interstate business in conjunction with a city railway system under a form of organization that does not permit a segregation of employees engaged on intrastate and on interstate business are not liable for the payment of premiums for state industrial insurance and their employees cannot claim benefits of the latter.

**Purchase Ordinance to Be Drawn.**—The City Council of Seattle, Wash., has instructed Corporation Counsel Walter F. Meier to prepare an ordinance authorizing the city to close the purchase of the railway property of the Puget Sound Traction, Light & Power Company. The last obstacles in the way of clearing title to the property are being cleared up. The company has submitted to the Council a tentative agreement to turn over the property and place the \$15,000,000 of utility bonds in escrow to be withdrawn as the liens upon the property are reduced. This proposal will be incorporated in the ordinance authorizing the city to complete the deal.

**Minneapolis Seeks M. O. Advice.**—The city attorney of Minneapolis, Minn., has been instructed by the Aldermen to ascertain what steps are necessary to take over the property of the Minneapolis Street Railway, included in the system of the Twin City Rapid Transit Company. It is generally believed by the members of the sub-committee of the City Council committee on street railway matters and extensions that enabling legislation will be required to carry out any plan of municipal ownership if such a course is decided upon as advantageous to the

city. It was expected that C. B. Gould, the city attorney, would present his report to the committee members on Dec. 3.

**Buffalo to Pay Back Wages.**—The War Labor Board announced on Nov. 26 that the settlement regarding wages arrived at some time ago with regard to wages and terms of service for the employees of the International Railway, Buffalo, N. Y., is retroactive to June 1, 1918. The board is asked to determine the date upon which the company is to pay the back wages due the employees under the agreement. The amount of this back pay is considerable, amounting, according to the agreed-upon testimony, to about \$250,000. The board finds that the company should be allowed until April 1, 1919, to make the payments, unless it is enabled to charge an increased fare prior to that date. In this event the company should be allowed sixty days in which to make its payments after the increased fare goes into effect.

**Directed to Hasten Improvements.**—The Board of Public Utility Commissioners of New Jersey has directed the Trenton & Mercer County Traction Corporation, Trenton, N. J., to carry out by Dec. 20 certain improvements recommended in a decision rendered by the board on Sept. 24. The commission wants better discipline of the platform men; says that much of the unsatisfactory service still exists; that some of the cars are not in proper condition; that suitable fire protection has not been installed at the carhouses, and that the company does not maintain schedules. Repairs already made by the company include rear markers on suburban cars, the improvement of carhouses, work on new signal system and repair work to tracks. The company is also succeeding in its effort to prevent passengers riding on platforms. The present order was made because of dissatisfaction expressed by the Trenton City Commission with progress made by the railway.

## Programs of Meetings

### Investment Bankers' Association

The Investment Bankers' Association of America announces that on account of a fresh outbreak of influenza in St. Louis the seventh annual convention, which was to have been held on Dec. 9, 10 and 11 in St. Louis, has been transferred to the Hotel Marlborough-Blenheim, at Atlantic City, on the same days.

### Central Electric Railway Accountants' Association

A. C. Van Driesen, president of the Central Electric Railway Accountants' Association, has found it necessary to postpone the meeting which was to have been held in Fort Wayne, Ind., on Dec. 13 and 14, 1918, to Feb. 14 and 15, 1919, at Fort Wayne. The program for the postponed meeting will be issued later.



# Financial and Corporate

## Set Adrift Again

Utilities Must Arrange to Finance Themselves, Probably by Short Term Bond Issues

At a meeting of the board of directors of the Essential Industries Finance Corporation in New York on Dec. 1 it was decided to dissolve that company immediately. The action of the board was brought about by the decision of the War Finance Corporation in Washington that there is no longer necessity of the Washington organization financing public utilities because of the signing of the armistice.

### NEW COMPANY SHORT-LIVED

The Essential Industries Finance Corporation was brought into existence during the latter part of the month of September to act in emergencies in financing public utility corporations during the period of the war. The first financial transaction undertaken by the corporation was that of the Portland Railway, Light & Power Company, Portland, Ore. The arrangement made with that corporation was to purchase \$4,750,000 of notes to be rediscounted by the War Finance Corporation at 6 per cent.

The negotiations were about to be consummated when the armistice between the Allies and Germany was signed and officials of the War Finance Corporation decided that as the corporation was formed purely as a war financing agency, it would not be warranted in going ahead with further financial transactions with corporations. The Portland negotiations were thereupon terminated.

### ORGANIZATION OF COMPANY

Prior to the formation of this company Governor Harding of the Federal Reserve Board appointed a committee of Wall Street bankers to work out a plan for the purpose of affording financial relief to public utility companies. This committee consisted of James W. Wallace, chairman; Charles H. Sabin, Albert H. Wiggin, Thomas W. Lamont and Frederick Strauss. This committee after discussing the matter at considerable length tentatively decided upon the formation of a company with a capital of \$100,000,000 which in turn could borrow \$300,000,000, making a total of \$400,000,000 which would have been available for the purpose.

These plans, however, were not consummated and it was finally decided to organize the Essential Industries Finance Corporation to begin in a comparatively small way and then with increased business to increase the capital from time to time until the limit feasible under the war finance act had been reached. The company was incor-

porated under the laws of New York State with E. V. R. Thayer, president of the Chase National Bank, as its president and Frederick Strauss of J. & W. Seligman & Company and Gehard M. Dahl, vice-president of the Chase National Bank, as vice-presidents.

According to the *Wall Street Journal* it is expected that Congress will be asked to extend the life of the War Finance Corporation and clothe it with authority to aid companies in the reconstruction period. Bankers do not look for the War Finance Corporation, in view of its policy followed heretofore, to extend further aid to public utility companies. Of the many requests made to the corporation for financial aid by public utility companies few were granted, and in most cases the corporation extended part of the advance requested, making the loan contingent upon the company's security holders or bankers raising the balance.

In regard to the future financing of utilities the *Wall Street Journal* says: "Bankers who handle the fiscal affairs of utility companies believe that their requirements will be met with issues of short-term notes and ten-year 6 per cent bonds. Notwithstanding all of the elaborate machinery created to aid the public utility companies to secure accommodations they must now as before look to the investing public for funds. The credit machinery has failed to achieve the purposes for which it was created."

## Another Christchurch Record

The Christchurch (New Zealand) Tramway in the year ended March 31, 1918, again established a record in the matter of earnings. These amounted to £160,682, an increase of £10,186 over those of the preceding year. As compared with 1913-1914, the last pre-war year, the earnings in 1917-1918 increased £19,503.

The gain in revenues, however, was nearly all swallowed up in increasing operating expenses, which at £94,813 were £8,571 more than in 1916-1917. The traffic expenses, owing to the increased mileage run and to wage increases, were £5,267 more than in the previous year, and the maintenance expenses were £4,334 higher, principally on account of the increased cost of materials.

The surplus for the last year amounted to £5,685 as compared to £5,191 for the year preceding. On a capital expenditure of £721,186, the last year's surplus, after adequate provision for depreciation, represented a profit of less than 1 per cent.

The revenue per passenger was 1.782d. in the last year as compared to 1.821d. for the year before, while the

working expenses were 1.101d. and 1.077d. respectively. The average revenue per car-mile in the two years was 13.968d. and 14.280d., and the operating expenses per car-mile 8.242d. and 8.163d. respectively.

## War Traffic Helps Liverpool Corporation Tramways in 1917 Carried 40,000,000 More Passengers Than in Pre-War Days

The Liverpool (England) Corporation Tramways has been having heavy war traffic to handle. In the calendar year 1917 the increase in passengers as compared to pre-war days was 40,000,000, due to the 50 per cent advance in steam railway rates, the reduction or elimination of certain steam railroad service, and the increase in local shipping and munitions work in the district served.

As compared to 1916, the passenger traffic rose from 15,205,899 to a total of 172,842,494, and the receipts £80,435 or 9.8 per cent to £818,756. The average earnings per car-mile for 1917 amounted to 15.56d. as compared to 13.97d. for 1916, a gain of 1.59d. for the year.

The operating costs in 1917 amounted to £575,267, an increase of \$57,231 or 11\* per cent. This left a gross profit of £270,378, a gain of £21,838 or 8.8 per cent. This profit was apportioned as follows: Interest, £50,401; sinking fund and repayment of loans, £52,734; renewal and depreciation reserves, £42,243, and contribution in aid of general taxes, £125,000. The net profit for the year was £167,243, a gain of £21,272 or 14.5 per cent.

The following statement shows the classes of traffic from which the company's revenues are obtained:

Value of Ticket	Number Sold	Per Cent of Total
1d	147,593,889	85.4
2d	22,665,083	13.1
3d	2,411,966	1.4
4d	163,993	0.1
5d	7,563	....

A summary of the principal figures applicable to the Liverpool tramway system for 1916 and 1917 is given in the accompanying statement:

COMPARATIVE RETURNS OF LIVERPOOL CORPORATION TRAMWAYS FOR CALENDAR YEARS 1916 AND 1917		
	1917	1916
Total revenue.....	£845,645	£766,576
Operating cost (including rentals).....	575,267	518,036
Gross profits.....	£270,378	£248,540
Interest and sinking fund.....	103,135	102,569
Net profit.....	£167,243	£145,971
Reserve for renewals and depreciation.....	£42,243	£20,971
Contribution in relief of taxes.....	125,000	125,000
Earnings per car-mile.....	15.56d	13.97d
Operating cost per car-mile.....	10.88d	9.79d
Interest and sinking fund per car-mile.....	1.96d	1.94d
Total charges per car-mile.....	12.89d	11.73d
Average fare per passenger.....	1.137d	1.124d
Length of track operated (miles).....	124	124
Operating ratio (per cent).....	68.02	67.50
Percentage of gross profits to capital expenditure.....	13.1	12.0



## Boston Trustees Report

Show Results for Four Months Under Five-Cent Fare for First Month and Seven Cents for Rest

The 8-cent fare for the Boston (Mass.) Elevated Railway, referred to in the ELECTRIC RAILWAY JOURNAL for Nov. 30, went into effect on Dec. 1. The board of trustees operating the company under the public control act issued a statement pointing out that the company fell short of its required revenue by \$2,741,000 for the period from July 1 to Nov. 1. A 5-cent fare prevailed during July and a 7-cent fare was in effect during August, September and October.

The cost of the service as defined by statute includes operating expenses, maintenance, fixed charges, a provision for depreciation and obsolescence and dividends on the invested capital. War conditions have enormously increased the cost of operation, and by reason of the shortage of labor the service has been necessarily impaired and provided on an unpreventable increase in cost.

The increase in the cost of labor decreed by the War Labor Board has advanced the operating cost more than \$3,000,000 yearly. The trustees believe that \$2,000,000 annually should be allowed for depreciation, and the law requires the payment of \$1,360,220 in dividends.

The 7-cent fare produced an increase of only 23 per cent in gross earnings during August. During the period of the influenza epidemic the revenue fell off so that an average of only 9 per cent increase was obtained. The trustees considered fixing a fare above 8 cents, but deferred putting it into effect.

A study of the zone system of fares with reference to Boston conditions is being made by Prof. Albert S. Richey, Peter Witt and the Boston company itself, and the results of this investigation will be considered by the trustees of the company as soon as the reports are available.

The trustees are keenly alive to the necessity of providing for adequate and satisfactory service and have already ordered new cars and equipment, which, when received and installed, will materially improve conditions. More dependable and satisfactory service is also anticipated with the return of more normal industrial conditions.

The income of the system for the four months from July 1 to Oct. 1, during which it has been under public control, is concretely expressed in the following table:

From 5-cent fares in July.....	\$1,525,548
From 7-cent fares in August, September and October.....	5,326,483
<b>Total from fares.....</b>	<b>\$6,852,031</b>
From special cars, etc.....	45,859
From advertising privileges at stations, etc.....	97,619
From other companies for use of tracks, etc.....	16,627
From rent of buildings, etc.....	23,243
From sale of power, etc.....	12,209
From interest.....	32,255
<b>Total income.....</b>	<b>\$7,079,847</b>

The total income from all sources for the corresponding four months of 1917 was \$6,520,576.

The total cost of service, exclusive of dividends for the four months of control under public management, has been \$9,397,239 as against \$6,559,335 for a similar period in 1917. A factor in this extra cost is the increased labor payments which were brought about through the decree of the National War Labor Board.

Another important factor in the cost of service has been the payment for rent of the Dorchester Tunnel. The payment of dividends provided for under the act totaled \$424,240 during this time, making the total cost of the service in accordance with the legislative act \$9,821,479, as against \$6,977,225 last year, an increase of \$2,844,254. The deficiency, therefore, between the income and cost of service for these four months from July 1 to Oct. 1 amounts to \$2,741,631.

The trustees also submit the following comparative table of income from fares:

	1918	1917
July.....	\$1,525,538	\$1,570,856
August.....	1,915,260	1,544,354
September.....	1,722,738	1,533,629
October.....	1,688,495	1,639,196
<b>Four months.....</b>	<b>\$6,852,031</b>	<b>\$6,288,035</b>

## New South Wales Makes Better Showing

The year ended June 30, 1918, was one of improvement for the New South Wales (Australia) Government Railways & Tramways. Instead of the deficit of £412,253 for 1917 there was a surplus of £11,919 for the last fiscal year. In 1917 the steam railways showed a deficit of £394,064 and the tramways one of £18,189, but in 1918 the steam deficit was reduced to £28,916 and the tramway deficit was turned into a surplus of £40,835.

The tramway earnings in the last fiscal year were £1,992,641, a falling off of £15,898 or 0.80 per cent from those of the year before. It is estimated that a strike cost £150,000 in revenue. The operating expenses at £1,603,260, however, showed the greater decrease of £88,107 or 5.2 per cent. The result, therefore, was an increase in the balance from £317,172 in 1917 to £389,381 in 1918, and this gain was only to a limited extent cut into by the rise in interest payments from £335,361 to £348,546.

Increased fares on the city and suburban lines from Aug. 8, 1917, produced £90,000 of added revenue, and £3,700 was secured from other fare increases. It is estimated that the fares now in force will yield an increase of £100,000 for the year ended June 30, 1919, but this sum will be exceeded by the rise in wages, interest and other expenses of the system.

The number of passengers carried was 255,740,808 in 1918 as compared to 295,303,714 in the preceding fiscal year. The car mileage in the two years was 21,762,244 and 25,361,992 respectively.

## Abandonment Discussed

Brockton & Plymouth Street Railway Puts Its Affairs Up to Local Communities

Owing to adverse financial conditions the directors of the Brockton & Plymouth Street Railway, Plymouth, Mass., recently voted to authorize the officers of the company to cease operation. Nov. 23 was set as the last day on which cars would be run.

The company operates 24.3 miles of equivalent single track and on Jan. 1, 1918, served an estimated population of 26,600. The road was opened for traffic in 1900 and up to 1917 had a yearly balance for reserves, replacements and dividends varying from a maximum of \$19,026 in 1906 to \$215 in 1916.

In 1917 the company failed to earn its operating expenses and taxes by \$463, its gross earnings being \$124,316. The deficit for the year was \$15,217, and the road is about \$1,000 behind its operating expenses and taxes so far in 1918. A 6-cent fare is in effect and two one-man cars are operated in addition to other types.

The 1917 interest charges were \$14,754. There are \$295,000 issued in bonds and \$405,000 in preferred and common stock authorized and outstanding. The franchise term is unlimited.

Letters were recently sent to the Selectmen of the various towns in which the company operates and to other interested parties, notifying them of the situation. Finally a meeting was held to see what could be done to keep the road in operation.

The local authorities present appeared desirous of doing everything possible to assist the road. After extended discussion it was decided that town meetings should be called to see if citizens would vote favorably under the provisions of Chapter 288, Acts of 1918, which authorize towns to contribute to the cost of operating and fixed charges of street railways a sum not greater than \$1 per \$1,000 of the preceding year's assessed valuation.

It was also proposed at these town meetings that Chapter 293, Acts of 1916, authorizing the licensing of motor vehicles for carrying passengers for hire be accepted (an act regulating jitneys).

It was understood in a general way that the town authorities should support any application for an increase in fare which the company might decide upon. A 10-cent fare in place of the present 6-cent fare was spoken of as the most likely increase sought. It was also suggested that a representative from each town, probably one of the Selectmen or someone nominated by them, should go on the company's board of directors, the board being enlarged for that purpose. In order to give the townspeople time to investigate and act it was agreed to attempt to run the road thirty days longer.

Notices have been posted stating that cars will run through to Dec. 28.



# Financial News Notes

**Toronto Two-Year Notes Sold.**—William A. Read & Company, New York, N. Y., are advertising as already having been sold an issue of \$1,000,000 of Toronto (Ont.) Railway two-year 6 per cent gold notes due on Dec. 1, 1920.

**Yazoo Municipal Line Discontinued.**—The Yazoo (Miss.) Municipal Railway is no longer being operated. The equipment was sold for salvage. A 100-kw. a.c. machine has been removed from the municipal light plant and a 500-kw. G. E. turbo-generator is being installed instead.

**Owners Enjoined from Dismantling Road.**—The Supreme Court of Ohio recently issued an injunction restraining R. Barman and others who own the street railroad at Mount Vernon, formerly operated by the Mount Vernon Railway, from taking up the tracks. They purchased the property at court sale and then announced that the tracks would be removed.

**Mr. Warner in St. Louis.**—Notice was given on Dec. 2 of the dissolution that day of the firm of Warner, Tucker & Company, Boston, Mass., by mutual consent. The members were Robert L. Warner, Randolph F. Tucker and Thomas B. Sweeney. Mr. Warner was recently elected vice-president of the United Railways, St. Louis, Mo., to succeed Murray Carleton. Mr. Warner is now located in St. Louis.

**Receiver for Evansville Railways.**—The Evansville (Ind.) Railways, which operates 60 miles of electric railway between Evansville, Mount Vernon, Rockport and Grandview, Ind., has

been placed in the hands of a receiver on petition of the Pittsburgh Trust Company. The company is said to owe interest aggregating \$1,330,000 on its bonded indebtedness since January, 1917. The line from Evansville, Ind., to Henderson, Ky., is not involved in the proceedings. W. A. Carson, vice-president, has been named receiver.

**Authorized to Issue \$300,000 of Bonds.**—The Public Service Commission for the Second District of New York has authorized the Black River Traction Company, Watertown, N. Y., to execute to William A. Waddingham of Watertown, as trustee, a mortgage on its property to secure \$500,000 of first mortgage thirty-year bonds. The company is also authorized to issue \$300,000 of bonds under the mortgage and to issue \$180,000 in common stock. The proceeds of the securities authorized, \$480,000, are to be used to pay outstanding accounts which were payable on Dec. 31, 1917.

**Wants to Suspend for Winter.**—The Great South Bay Ferry Company, Freeport, N. Y., which operates the Sea Shore Municipal Railroad, has requested permission from the Freeport Village Board to adopt its "winter's schedule," which means the suspension of the road until next Decoration Day. In the written communication to the village, Elven Edwards, receiver of the company, stated that the road had passed the most successful period in its history. Since Oct. 1 the line has been running week-ends only and is patronized mostly by the fishermen. The road is about 2 miles long. It serves a Long Island "summer colony."

**Wants to Suspend Goshen Lines.**—The Common Council of Goshen, Ind., referred to a committee for investigation and report a petition filed by the Chicago, South Bend & Northern Indiana Railway asking permission to discontinue city service in Goshen and to remove its track on Lincoln Ave-

nue from Fifth Street east to Eighth Street and on Eighth Street from Lincoln Avenue south to Douglas Street. Representatives of the company intimated that they would be willing to give daily service on the Main Street line from Goshen College to a point west of the Chicago-Detroit Bag Company plant, a distance of about 3 miles, on which route is Oak Ridge Cemetery. The track over this route is used by the Chicago, South Bend & Northern Indiana Railway and the Winona Interurban Railway.

**International Railway Defaults Interest.**—In view of the non-payment of interest due on Nov. 1, 1918, on the refunding and improvement 5 per cent gold bonds of the International Railway, Buffalo, N. Y., Charles W. Beall, of Harris, Forbes Company, New York; Francis E. Frothingham, of Coffin & Burr, Boston, Mass.; Arthur Perry, of Arthur Perry & Company, Boston, Mass., and Richard B. Young of E. H. Rollins & Sons, New York, at the request of the representatives of a large amount of the bonds, have consented to act as a committee under a protective agreement dated Nov. 18. That the company would be unable to meet the Nov. 1 interest payment was announced in the ELECTRIC RAILWAY JOURNAL for Nov. 9, page 853. Labor troubles and wage increases were the principle contributing factors to the default. The Bankers' Trust Company, New York, N. Y., is the depository. Holders of the 4 per cent bonds of the International Traction Company, which owns the entire stock of the International Railway, and is in turn controlled by the United Gas & Electric Corporation through ownership by that company of 60 per cent of its common stock, have also appointed a committee for the protection of their interests. On this committee is T. E. Mitten, president of the Philadelphia (Pa.) Rapid Transit Company and formerly president of the International Railway.

## Electric Railway Monthly Earnings

### BATON ROUGE (LA.) ELECTRIC COMPANY

Period	Operating Revenue	Operating Expenses	Operating Income	Fixed Charges	Net Income
1m., Sept., '18	\$21,909	*\$12,466	\$9,443	\$3,899	\$5,544
1m., Sept., '17	19,710	*9,919	9,791	3,601	6,190
12m., Sept., '18	254,584	*132,758	121,826	45,383	76,443
12m., Sept., '17	227,917	*112,537	115,380	42,507	72,873

### BROCKTON & PLYMOUTH STREET RAILWAY, PLYMOUTH, MASS.

1m., Sept., '18	\$9,506	*\$8,824	\$682	\$1,424	†\$742
1m., Sept., '17	11,699	*11,032	667	1,259	†592
12m., Sept., '18	109,543	*119,534	†9,989	16,423	†26,412
12m., Sept., '17	124,645	*122,916	1,729	14,231	†12,502

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

1m., Sept., '18	\$46,026	*\$35,161	\$10,865	\$6,535	\$4,330
1m., Sept., '17	39,805	*25,628	14,177	6,551	7,626
12m., Sept., '18	501,334	*365,570	135,764	78,368	57,396
12m., Sept., '17	443,606	*274,101	169,505	78,701	90,804

### CLEVELAND, PAINESVILLE & EASTERN RAILROAD, WILLOUGHBY, OHIO.

1m., Sept., '18	\$50,941	*\$30,564	\$20,377	\$11,785	\$8,592
1m., Sept., '17	52,596	*33,253	19,343	11,564	7,778
9m., Sept., '18	416,826	*276,227	140,599	104,273	36,326
9m., Sept., '17	409,407	*250,536	158,871	105,146	53,725

### COLUMBUS (GA.) ELECTRIC COMPANY

1m., Sept., '18	\$95,027	*\$60,939	\$34,088	\$33,018	\$1,070
1m., Sept., '17	91,872	*59,153	32,719	31,101	21,618
12m., Sept., '18	1,190,906	*\$723,334	678,572	389,197	289,375
12m., Sept., '17	1,037,936	*\$396,824	641,112	349,619	291,493

### LAKE SHORE ELECTRIC RAILWAY, CLEVELAND, OHIO

Period	Operating Revenue	Operating Expenses	Operating Income	Fixed Charges	Net Income
1m., Sept., '18	\$216,052	*\$150,571	\$65,481	\$35,888	\$29,593
1m., Sept., '17	167,622	*105,687	61,935	35,187	26,748
9m., Sept., '18	1,633,750	*1,162,523	471,227	325,290	145,937
9m., Sept., '17	1,332,785	*891,423	441,362	311,527	129,835

### NORTHERN TEXAS ELECTRIC COMPANY, FORT WORTH, TEX.

1m., Sept., '18	\$226,617	*\$156,595	\$70,022	\$9,584	\$60,438
1m., Sept., '17	252,877	*130,137	122,740	29,126	93,614
12m., Sept., '18	3,127,135	*1,849,825	1,277,310	340,722	†1,051,588
12m., Sept., '17	2,270,221	*1,307,559	962,662	349,647	613,015

### PENSACOLA (FLA.) ELECTRIC COMPANY

1m., Sept., '18	\$47,385	*\$33,319	\$14,066	\$8,453	\$5,613
1m., Sept., '17	31,397	*17,491	13,906	7,803	6,103
12m., Sept., '18	459,326	*301,834	157,492	97,014	60,478
12m., Sept., '17	326,874	*189,832	137,042	93,312	43,730

### SAVANNAH (GA.) ELECTRIC COMPANY

1m., Sept., '18	\$101,467	*\$73,741	\$27,726	\$25,163	\$2,563
1m., Sept., '17	82,258	*57,223	25,035	24,207	828
12m., Sept., '18	1,127,456	*765,577	361,879	299,133	62,746
12m., Sept., '17	926,005	*614,589	311,416	288,264	23,152

### TAMPA (FLA.) ELECTRIC COMPANY

1m., Sept., '18	\$91,614	*\$53,086	\$38,528	\$5,149	\$33,379
1m., Sept., '17	79,666	*46,236	33,430	5,067	28,363
12m., Sept., '18	1,034,038	*602,326	431,712	61,942	369,770
12m., Sept., '17	1,007,242	*554,845	452,397	53,294	399,103

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



# Traffic and Transportation

## Thirty-one Fare Increases

Association List Shows This Gain in Period Approximately from Oct. 15 to Nov. 15

According to a compilation made by the information bureau of the American Electric Railway Association, thirty-one additional fare increases have been made since the preparation of the preceding list, which brought the changes up to about Oct. 15. This was published in the *ELECTRIC RAILWAY JOURNAL* of Nov. 9. The present supplementary list extends the time for about a month. It is as follows:

City	Population	Nature of Increase
Buffalo, N. Y. <sup>1</sup>	468,558	Five to 6 cents.
Washington, D. C. <sup>1</sup>	363,980	Reduced rate tickets abolished.
Indianapolis, Ind. <sup>1</sup>	271,708	Reduced rate tickets abolished; 1-cent charge for transfer, 1-cent rebate.
Providence, R. I. <sup>1</sup>	254,960	Central 2-mile zone, 5 cents; outer zone, 1 1/2-miles, 5 cents; 1 1/2 cents for each 1/2 miles thereafter; 1 cent for transfer.
Winnipeg, Can. <sup>2</sup>	136,035	Reduced rate tickets abolished; workmen's tickets, six for 25 cents, instead of eight for 25 cents; children's tickets, seven for 25 cents, instead of ten for 25 cents.
Houston, Tex. <sup>3</sup>	112,307	Five to 6 cents.
Terre Haute, Ind. <sup>1</sup>	66,083	Reduced rate tickets abolished.
Holyoke, Mass. <sup>1</sup>	65,286	Zones shortened.
Mobile, Ala. <sup>1</sup>	58,221	Five to 6 cents.
Atlantic City, N. J. <sup>1</sup>	57,660	Zone unit increased from 5 to 6 cents.
Montgomery, Ala. <sup>1</sup>	43,285	Five to 6 cents.
Galveston, Tex. <sup>1</sup>	41,863	Five to 6 cents.
Pittsfield, Mass. <sup>1</sup>	38,629	Zones shortened. Two cents charged for transfers at certain hours.
Austin, Tex. <sup>3</sup>	34,814	Five to 6 cents.
Beaumont, Tex. <sup>3</sup>	27,711	Five to 6 cents.
Oak Park, Ill. <sup>1</sup>	26,654	Five to 7 cents.
Muskegon, Mich. <sup>1</sup>	26,100	Cash fare 5 to 6 cents.
Vicksburg, Miss. <sup>1</sup>	22,816	Five to 7 cents.
North Adams, Mass. <sup>1</sup>	22,019	Zones shortened. Two cents charged for transfers at certain hours.
Cicero, Ill. <sup>1</sup>	19,974	Five to 7 cents.
Winona, Minn. <sup>1</sup>	19,714	Five to 6 cents.
Owensboro, Ky. <sup>1</sup>	17,784	Five to 7 cents.
Eureka, Cal. <sup>1</sup>	14,684	
Lake Charles, La. <sup>1</sup>	14,447	
Adams, Mass. <sup>1</sup>	14,214	Zones shortened. Two cents charged for transfers at certain hours.
Anniston, Ala. <sup>1</sup>	14,112	Five to 6 cents.
Ishpeming, Mich. <sup>1</sup>	12,448	Five to 7 cents.
Ashland, Wis. <sup>1</sup>	11,594	Five to 7 cents; six tickets, 40 cents; children, 3 1/2 cents.
Maywood, Ill. <sup>1</sup>	10,529	Five to 7 cents.
Tuscaloosa, Ala. <sup>1</sup>	10,488	Five to 7 cents.
Red Bank, N. J. <sup>1</sup>	7,398	Five to 6 cents.

<sup>1</sup> Subject to referendum.

<sup>2</sup> Application of company for 6-cent fare under consideration.

<sup>3</sup> Agreed to by city authorities, but not yet in effect.

Up to the closing of the list ninety cities or more than half of the 158 cities in the United States with a population of 40,000 or more, were paying higher electric railway rates in one form or another. In fifty-one of the remainder, applications are now pending for relief. Of the entire number, there are only seventeen in

which no fare increase applications are pending.

Of the cities having a population of more than 100,000, forty are paying increased fares. In twenty-three cities applications are pending, and in only four, all of less than 130,000 population, is there no present movement toward a higher fare.

## Portland Suburban Rates Increased

A reduction of service and an increase in fares, are remedies provided by the Public Service Commission of Oregon for the Portland Railway, Light & Power Company on its interurban lines out of Portland for meeting losses due to the period of depression before the war and advancing costs of labor and material since the war. The order covers the Bull Run, Oregon City, Cazadero, Montavilla and Troutdale lines.

The commission refuses to make such an increase in fares as would give to the company a 6 per cent return on its investment, stating that such would lay an undue burden upon the patrons of the company, but states that "we have therefore prescribed rates which it is believed will produce only sufficient revenue to meet the increased cost of labor and material used in the operation of the interurban lines as compared with costs of two years ago."

Fares from Portland to the terminals of each line will be as follows: Cazadero, 90 cents; Canemah Park, on the Oregon City line, 25 cents; and Oregon City, 25 cents; Troutdale, 30 cents; Bull Run, 70 cents. Fares for short distances, such as from Canemah Park to Oregon City, from Faraday to Cazadero or from Troutdale to Multnomah Farm, will be 6 cents, the same fare as prevails on the Portland end, on such lines as from Portland to Golf Junction.

The commission, in its order, deprecates the issuance of transfers between interurban and city lines.

New schedules are imposed for commutation, ten-ride and other similar classes of low-rate fares.

The commission does not specifically point out wherein the company should reduce its service.

The commission, in arriving at a decision to increase the rates, finds, after examination of the financial condition of the various lines, that if the interurban lines had been owned by a separate corporation the carrier would have been unable to meet fixed charges after paying operating expenses.

The decision of the commission was rendered on Nov. 22. The order to the company was made effective from Dec. 1.

## Kansas City Case Lost

Federal Court Refuses Injunction to Prevent City Interfering With Eight-Cent Fare

At Kansas City, Mo., on Nov. 25 three federal judges heard the presentation of the request of the Kansas City (Mo.) Railways for an injunction to restrain State and municipal bodies from interfering with the company in complying with the War Labor Board's findings with reference to wages and fares. The company sought to put into effect an 8-cent fare with two tickets for 15 cents. Its contention was that on the strength of the award of the War Labor Board in the wage case, in which higher fares were recommended for the company, it ought to be permitted to put an increase in fares in effect without local interference. To prevent legal interference from public authorities the company sought, before installing the new fare schedules, to obtain an injunction from the Federal Court.

On Dec. 3 the court handed down its decision. It refused the injunction and said in part:

But what is the meaning and effect of the award of the National War Labor Board? Does it threaten the immediate confiscation, or any confiscation, of the property or revenues of the railways company? That award does not order the payment of wages it prescribes, either now or at any specific time in the future. Not only this, but it clearly shows that it was not the intention of the board that the railways company should be required or expected to pay them, or any of them, until, first, a lawful increase of the rate of fare it might charge had been granted by the proper tribunals, and until, second, the financial ability of the company, which it expressly found was not then such as to permit it to pay them, should become such as to permit it, in the words of the board, "to meet the requirements of the award."

These were and are conditions precedent to the taking effect of the award, and until these conditions are fulfilled, the award does not make, but expressly negatives, any requirement of the increase of wages specified therein. If these conditions should at some future time, during the continuance of the war, be complied with, then, but not until then, will any requirement of payment of the increase of wages specified in the award arise. As the precedent conditions, on a compliance with which, only, the award can take effect, have not been complied with, and the railways company is not and will not be required to pay the increased wages until they are fulfilled, there is no immediate threat of confiscation by such payment or requirement of payment, and this court is not now required to issue its injunction to prevent such confiscation.

But it is contended that the power is granted and the duty is imposed upon this court to compel the fulfillment of the conditions of the effectiveness of the award, to enjoin any interference with the increase of the rates of fare and the improvement of the financial ability of the railways company, although no confiscation is imminent. But the primary jurisdiction to increase and regulate the intrastate rates of fare of this company (and most of its passengers are intrastate passengers) is conferred and the duty to exercise this power is imposed upon the State boards, and proceedings are pending therein to effect a compliance with the conditions precedent to the effectiveness of the award. In this state of the case, and in the absence of any violation or threat of a violation of any provision of the Constitution or laws of the United States, it is not the province or duty of this court to increase the rates of fare requisite to put the award of the War Labor Board into effect, and the application for temporary injunction must be denied.

The issues involved were reviewed in this paper on Nov. 9, page 858.

The order of the War Labor Board was to take effect on Dec. 1.



## Courts Protect Illinois Property

### In Three More Cases United States Courts Hold That Two-Cent Fare Law Confiscates Interurban Property

The tendency of Federal and State courts in Illinois to recognize that public utilities are affected by increased wages and operating expenses has been further manifested by three recent decisions giving relief to interurban electric railways from the operation of the maximum 2-cent fare law in that State.

On Nov. 29 Judge Landis of the United States District Court for the Northern District of Illinois entered a decree in the suit of the Aurora, Plainfield & Joliet Railway against the Attorney General of the State of Illinois and the members of the Public Utilities Commission of Illinois, holding that the maximum 2-cent fare law if applied to the company is confiscatory and in violation of the provisions of the Fourteenth Amendment to the Constitution of the United States.

While the commission had recognized that the company could not at the 2-cent rate earn a fair return on the fair value of its property, it was powerless to give relief because of the maximum-fare law. Hence the suit of the company under the doctrine of *Smyth vs. Ames* (169 U. S. 466) and the *Minnesota Rate Cases* (230 U. S. 352) which hold:

1. A railroad corporation is a person within the meaning of the Fourteenth Amendment declaring that no state shall deprive any person of property without due process of law.

2. A state enactment or regulation establishing rates for the transportation of persons or property by railroad that will not admit of the carrier earning such compensation as under all the circumstances is just to it and to the public would deprive such carrier of its property without due process of law and would therefore be repugnant to the Fourteenth Amendment.

3. While rates for the transportation of persons and property within the limits of a State are primarily for its determination, the question whether they are so unreasonably low as to deprive the carrier of its property without such compensation as the constitution secures and therefore without due process of law cannot be so conclusively determined by the legislature of the State that the matter may not become the subject of judicial inquiry.

The Attorney General and the Public Utilities Commission admitted that if the application of the statute fixing a maximum 2-cent fare does not result in a reasonable return upon the fair value of the company's property, then such application would operate to take the property of the company without just compensation and without due process of law. They called, however, for strict proof as to the result of operations in this particular case.

The decree of the court permits the company to put into effect a rate not exceeding 3 cents a mile and enjoins all State authorities from interfering with the company in operating under such rate.

#### MURPHYSBORO INJUNCTION MADE ABSOLUTE

The United States District Court for the Eastern District of Illinois recently granted an injunction to the Murphysboro & Southern Illinois Railway, restraining the officials of the State of

Illinois from interfering with rates in excess of 2 cents a mile. At the request of the officials representing the various interests of the State, a similar paragraph to the one in the St. Clair County Circuit Court decree in the case of the Alton, Granite & St. Louis Traction Company (*ELECTRIC RAILWAY JOURNAL*, Nov. 16, page 903), was inserted in the Murphysboro decision directing that the company file an application with the Public Utilities Commission for authority to increase its rates not to exceed 3 cents a mile.

On Nov. 18 attorneys for the company appeared before the commission in support of their application in compliance with the decree of the court. The commission held that before it would take any action in the matter, it would request an opinion from the attorney general as to its jurisdiction in the matter. The attorneys for the railroad, therefore, appeared on Nov. 19 before the United States District Court (Judge English in chambers) and requested a modification of the decree to eliminate all reference to the commission. The court so modified the decree, making the injunction absolute and effective at once.

After the St. Clair County decision, it will be recalled, the commission entered an order authorizing the Alton, Granite & St. Louis Traction Company to put into effect fares predicated upon a basis of 3 cents a mile.

The Galesburg & Kewanee Electric Railway, Kewanee, Ill., has secured from Judge Fitz Henry of the United States District Court at Peoria, Ill., a decree authorizing an increase in the interurban rate to a basis of 3 cents per mile, and enjoining the State authorities from prosecuting the company for violation of the Illinois 2-cent fare law. This decree was rendered after a hearing at which the need of the company for increased revenue was fully set forth.

#### Metal Tokens in Milwaukee

On Dec. 1 metal tokens were substituted for the paper tickets previously in use on the city and suburban lines of the Milwaukee Electric Railway & Light Company, Milwaukee, Wis. City fare tokens are sold at the company's office and suburban or zone tokens are sold on all suburban cars as heretofore.

The paper city and zone tickets outstanding are still being accepted for rides, but no more will be sold.

The substitution of metal tokens for paper tickets does not change the price. City fare tokens are 5 cents each—zone tokens 2 cents each, in packages twenty-five for 50 cents.

In announcing the change the company said:

"Metal tokens are adopted to replace paper tickets because the tokens are

cleaner, less liable to loss, more easily handled—which means quicker loading of cars and less delay for passengers; and because of being indestructible, they can be frequently cleansed and sterilized. The tokens are made of aluminum, small and very light, and of distinctive design, so as to not be mistaken for metal money.

"We believe our patrons will like the change which is made in the interest of quicker, cleaner and cheaper service."

## Rochester Plea Rejected

### Company Denied Right to Charge Six-Cent Fare by Council Following Report of Law Committee

On recommendation of its law committee, the Common Council of Rochester, N. Y., on Nov. 26 by unanimous vote denied the application of the New York State Railways for permission to increase the fare on the Rochester lines from 5 cents to 6 cents. The ordinance adopted after the reading of the report of the law committee is as follows:

"The application of the New York State Railways for permission to increase its rate of fare in the city of Rochester having been considered by the Common Council and it having been found that the company is making a fair and adequate return upon the value of its property used in the city of Rochester, such application is hereby denied. This ordinance shall take effect immediately."

On motion of Alderman Bradley Carroll, chairman of the law committee, the following resolution also was adopted:

"Resolved, That the law committee be and it hereby is directed to inquire into the threatened decrease of service on the railway in Rochester and to take such action with reference thereto as it deems proper."

In its report to the Common Council recommending denial of the fare increase application the law committee declares itself to be convinced that "the company undoubtedly is making money in the city of Rochester."

On the subject of the company's revenue the committee says, further:

"The returns in this city have been so large for a number of years that they can be greatly reduced and still leave a fair return upon the investment."

In regard to the outside electric lines the committee has this to say:

"In these abnormal times it seems hardly fair to us for the people of the city to be called upon to assist the New York Central Railroad in financing the operation of the interurban lines."

The application of the company for financial relief was referred by the Council to its law committee some months ago. That committee proceeded to its work promptly. Under its direction M. & L. W. Scudder were engaged to examine the books of the company and to report as to the earnings of the company in the city of Rochester. Milo R. Maltbie was also employed to assist the committee. The accountants



were instructed to report as to the amount received by the company from operations in the city of Rochester and as to the amount actually expended by it for such operations within the city.

Meanwhile, however, a committee of business men retained Price, Waterhouse & Company, public accountants, to inquire into the Rochester situation. This investigation was made because these men believed that the inquiry by the city officials was unfair to the company interests.

As noted briefly in the *ELECTRIC RAILWAY JOURNAL* for Sept. 28, page 594, the Price, Waterhouse & Company report indicated bankruptcy ahead for the company. The Scudder report, referred to in this paper for Aug. 31, held that the annual return on the capital invested was sufficient to make a 6-cent fare unwarranted. It is said that the reports differed in that one considered the Rochester lines as a whole while the other had to do only with the local Rochester city lines.

### God Save the Commonwealth!

At the conclusion of a column review of the Boston (Mass.) Elevated Railway fare situation headed "God Save the Commonwealth!" in its issue of Dec. 3, the *Boston News Bureau* says that the only honest thing for the public managers of that property to do is to put a 10-cent fare into immediate operation. Then the managers may work out a more equitable zone system at their leisure. Nothing short of a 100 per cent fare increase, says that paper, is likely to produce the necessary 50 per cent increase in revenue. Some pertinent paragraphs from the *News Bureau* article follow:

In four months, July to October inclusive, the State of Massachusetts is already out of pocket \$2,741,631. This deficit is at the rate of \$8,224,895 for the year.

In 1917 and again in 1918, because of war necessities, the entire State tax reached the record figures of \$11,000,000. In 1916 the State tax was \$8,000,000.

Unless radical action is immediately taken, this venture into the railway business is going to cost the people of Massachusetts in taxes as much as the normal cost of all other State activities combined. The city of Pittsfield, for example, is likely to have the opportunity to pay into the State treasury twice as much as it did in 1916.

The public management has now raised fares to 8 cents. That extra cent will be no more effective than a pea-shooter against the onrush of a dreadnought.

The cost of service for the entire year 1917, including operating expenses, fixed charges and taxes, was in round figures \$19,100,000. Based on the first four months, the cost of service for the first year under public management will be \$28,200,000, an increase of \$9,100,000.

If no shrinkage in riding results from the 8-cent fare, now instituted, cost of service for the current eight months will exceed revenue by more than \$1,000,000 without considering the \$900,000 guaranteed in dividends.

Everyone knows, however, that the increase in fare will reduce riding. If an increased fare of 40 per cent increased revenue but 20 per cent, an increase of 60 per cent is not likely to increase revenue more than 30 per cent. On this basis, cost of service for the current eight months will exceed revenues by nearly \$2,000,000, and total deficit for the eight months will be nearly \$2,900,000.

Adding to this the \$2,741,000 lost in the first four months the total indicated deficit for the year to be made up from the State treasury will be at least \$5,600,000 on the basis of an 8-cent fare.

## New Orleans Increase Sustained

### Court Refuses Injunction to Labor to Prevent Fare Advance— City and Finance and War Boards Involved

Wilbert Black, president of the Central Trades & Labor Council, and other labor leaders have lost their fight to compel the New Orleans Railway & Light Company, New Orleans, La., to discontinue charging 6-cent fares.

The injunction suit of the labor leaders against the company was argued on Nov. 14, before Judge Cage in the Civil District Court of Louisiana, in New Orleans. Ex-Governor Hall appeared and argued upon the franchise which was presented by the attorneys for the company. Judge Cage announced that the arguments would be taken under advisement.

On Nov. 25 Judge Cage declared the 6-cent fare ordinance enacted by the Commission Council and put into effect by the company was legal, and refused the injunction to prevent collection of the increased fare.

The court, in its opinion, went into the matter at considerable length. Judge Cage held there is no violation of the provisions of either the Louisiana or the United States constitutions with reference to impairment of contracts. The action of the Commission Council in passing the ordinance increasing the fare from 5 to 6 cents was "a legitimate exercise of the governmental authority vested in the city of New Orleans, and is not prohibited by any provision of law or any constitutional provision, and that under it the company has the right to collect the 6-cent fare until further action by the Council."

In rendering his decision Judge Cage said in part:

This suit is brought for the purpose of having Ordinance 5257 C. C. S., authorizing the New Orleans Railway & Light Company to charge a 6-cent fare, declared null and to obtain an injunction *pendente lite*, and in due course a perpetual injunction preventing that corporation from charging more than 5 cents.

The plea in effect is that the fixing of the maximum fare of 5 cents in the franchise contracts between the city and the corporation are stipulations *pour autrui*, in favor of the individual inhabitants of the city.

#### LEGISLATURE SUPREME

This contention I consider absolutely unfounded. The sovereign legislative power of the State of Louisiana is vested in its Legislature. It is the duty of the sovereign to govern each and every portion of the State. It can retain all these powers, or it can create municipal corporations to which it can delegate its governmental functions to whatever extent it sees fit within certain localities.

The city of New Orleans was incorporated by the Legislature for the purpose of exercising certain governmental functions which would otherwise have been exercised by the Legislature of the State, and every act performed by the municipal government is one performed in the interest of the whole city and for the whole State, and not for any individual.

In the making of municipal administrative contracts for the creation and operation of a public utility, it is the duty of the municipal government to fix a rate of fare for the passengers, which, in its opinion, will be sufficient to produce revenue to an extent that induce private capital to be invested in the enterprise, and sufficient to pay a fair return thereon, and to keep up and maintain the utility, by the necessary repairs and renewals.

At the time that these contracts were let, in the opinion of the municipal authorities a 5-cent fare was sufficient for that purpose, and for many years, and up to

very recent times the 5-cent fare was sufficient to accomplish the municipal object—the maintenance of railway transportation.

It was in no sense a stipulation in favor of the citizen, as against the public utility corporation, that it should transport him for 5 cents. If, now, it appears to the municipal authorities that the tax of 5 cents per passage, which it imposed upon the inhabitants of the city of New Orleans, is not sufficient to maintain the utility which it is the duty of the municipal government to maintain, then it has a right to increase the tax to 6 cents per passage unless there be some constitutional inhibition.

It is plain that the plaintiffs in this case are not parties to the contract; that there was no stipulation in their favor which gives them the right to invoke the provisions of the State and federal constitutions forbidding the passage of laws impairing obligations of contracts.

It is plain, under the showing made by the record before me, that a 5-cent fare, is inadequate to furnish the public transportation demanded by this community. Indeed, this condition is not peculiar to this city, nor to the defendant corporation.

The action of the Commission Council was legitimate exercise of the police and administrative powers delegated to it by the State of Louisiana. The purpose of the ordinance is to raise that revenue which is required to support the public service of public transportation. It is a municipal necessity. It was not intended to be, nor was it such a releasing or extinguishment of an indebtedness, liability or obligation as is contemplated in Article 59.

I conclude, therefore, that the action of the Commission Council in passing ordinance No. 5257 was a legitimate exercise of the governmental authority vested in the city of New Orleans, was *intra vires* and is not prohibited by any provision of law or any constitutional provision, and that under it the company has the right to collect the 6-cent fare, until further action by the Commission Council.

The rule *nisi* will be recalled, and preliminary injunction prayed for be refused at plaintiff's cost.

The history of the New Orleans case is very interesting. The company applied to the War Finance Corporation some months ago for a loan. In its appeal it was backed up by the Mayor and other city officials, who said that such an advance as the company had requested was necessary to prevent interruption of railway service. The War Finance Corporation refused, however, to make the loan unless the city agreed to put a fare increase into effect at once. To this the city assented and in the belief that the city would carry out its promise the corporation advanced \$1,000,000 to the railway.

After two months had elapsed the War Finance Corporation called upon the city to act in the matter. Labor started to protest against the fare advance. Thereupon the National War Labor Board, which had passed upon wages in New Orleans, announced that where organized labor opposed advanced fares recommended by the board in connection with increased wage awards to employees of public utility companies, the entire award would be suspended. Meanwhile the city passed the ordinance advancing fares. Labor then carried its case to Judge Cage and sought an injunction. He ordered the officers of the company to appear in court on Oct. 16 and show cause why the plea of labor to restrain the advance should not be granted. After several postponements the case finally came up for trial on Nov. 14.



## Relief for New York State Railways

### Company's Syracuse and Utica Lines Authorized to Charge Six Cents—Other Recent Increases

The New York State Railways was authorized on Nov. 26 by the Public Service Commission for the Second District to charge a 6-cent fare in Utica and Syracuse. As explained very briefly in the *ELECTRIC RAILWAY JOURNAL* for Nov. 30, page 989, the relief granted the railroad is to meet the emergency caused by abnormal conditions arising out of the present war. The new rates are to continue only during the war and while war conditions continue to exist. Application to reopen the proceeding may be made at any time after the signing of the treaty of peace.

#### SIX CITIES ASKED FOR INCREASES

The New York State Railways asked for an increased rate of fare in Rochester, Syracuse, Utica, Rome, Oneida and Little Falls. Rochester procured a writ of prohibition under which the commission, in the Quinby case, was forbidden to consider the question of fare rates in Rochester. Syracuse withdrew its objections, claiming that the question of the effect of franchises was not before the commission and no proof as to franchises was given. Utica, by formal resolution of its Common Council, waived franchise restrictions during the continuance of the war. No evidence was given as to rates in Rome, Oneida or Little Falls. The commission retains jurisdiction of the company's petition for further investigation and determination of such questions as may arise in those cities should such action be desired.

#### OPINION BY COMMISSIONER CHENEY

Commissioner Cheney wrote the memorandum which accompanied the commission's order. He said:

While the method of the presentation of the case has been unusual on account of the emergency existing because of the immediate necessity of large increases of wages ordered by the War Labor Board, the commission believes that it has been put in possession of all the facts relating to the operation of the company necessary for the determination of the application, and that the rights of the communities affected have been carefully looked after by the authorities of those communities.

The New York State Railways operates four divisions—Rochester, Syracuse, Utica and Oneida—absolutely necessary for the successful prosecution of the business and social activities of the various communities. Many large manufacturing plants engaged in essential war work are located in the territory and it is held that the deprivation of transportation facilities is absolutely unthinkable. The commission holds that it is its duty to furnish any relief in its power when it appears that there is danger of such a result. In its memorandum the commission said:

It is axiomatic that these facilities cannot be provided unless the income produced by their operation is sufficient to pay the cost thereof. The cost includes not only the operating expenses, but also the in-

terest which must be paid upon the money which was borrowed to produce the plant with which the service is rendered; and in that statement we do not take into consideration the right to an adequate rate of return on the invested capital, which has been so often stated by the courts. Our consideration of this case has led us to the conclusion that we are not concerned here with the fixing of a rate which will give any real return on invested capital, but merely to fix such rates as will permit this company to tide itself along and meet the extra demands made upon it through the abnormal increase in the cost of labor and material; which rates should be continued in effect until with the coming of peace and the return to normal operating conditions, the matter can be investigated and rates fixed which will be just, not only to the public but also to the company.

The memorandum says there cannot be any just claim made that the value of the property used in the public service by the company does not equal the amount of the interest-bearing debt. In fact, it exceeds it by a large margin. There is no probability that the increased revenue necessary will be realized from increased traffic. The gross revenue for 1917 was less than in 1916, and for the first four months in 1918 there was a considerable falling off in travel from the corresponding months in 1917. The increase in revenue necessary to enable the road to continue in operation must come from an increase in fares. In this connection the commission says:

Although this will cause annoyance and displeasure to the great body of people who will have to pay the increased fares, we have sufficient confidence in the fair-mindedness of the American people to believe that they are willing to pay the legitimate cost of the service which they require.

If one line in a city system should be shown to be operated at a profit and another line at a loss, that does not necessarily mean that the rate should be increased on one line and not on another. The unit fare for electric railway riding in cities has become so firmly fixed in practice that it would cause too violent a disruption to adjust rates in that manner, even though it should be considered theoretically just. The most workable plan will probably be to treat each municipal system as a whole and let the lines located in the more populous sections help to carry those which for the time may prove to be unprofitable. Neither is it feasible to fix the limits by the geographical boundaries of the different municipalities. It is common knowledge that the actual limits of a community are not bounded by its geographical lines and that in the case of all our cities there is adjacent territory, peopled for the most part by those doing business in the city and all forming a part of the one community. In such cases it may be fairly said that it is an impossibility in practical operation to separate the accounts to show accurately the revenues, expenses of operation or even the investment in property used in the service.

The commission on Nov. 27 authorized the Albany Southern Railroad to file a new tariff of passenger fares and rules effective on Dec. 1, under which one-way fares will be at the rate of 2½ cents a mile and round-trip fares double the one-way rate. The single-trip rate between Albany and Hudson is to be 77 cents. This is to be the maximum single-trip rate charged in the new rate schedule. Commutation books for twenty-five, forty-six and fifty rides are also provided. The new rates, in some instances, are in excess of present rates and in others there is

a decreased rate. The new tariff will result in a standardization of rates, based on a mileage rate.

The commission has also authorized the Peekskill Lighting & Railroad Company to charge a 6-cent fare in Peekskill and the Putnam & Westchester Traction Company to charge 7 cents. The increases were permitted under amended franchises by the local authorities. The companies were also authorized to charge 2 cents for transfers in Peekskill. Prior orders authorizing fare increases are abrogated and the present orders are to remain in effect for a period of five years from Nov. 1, 1918, unless upon complaint made or investigation by the commission on its own motion it should be determined that conditions shall have so changed as to warrant a reduction or change in the fares.

## City Protests Fare Raise

### Petition of Chicago Surface Lines to Be Heard by Commission on Dec. 10

The hearing on the application of the Chicago Surface Lines to charge a 7-cent fare is scheduled before the State Public Utilities Commission on Dec. 10. The city law department filed its answer to the petition on Nov. 30, claiming that the commission is without jurisdiction to change or modify the rates of fare specified in the ordinances of the various companies. In its answer the city, through those in charge of its case, says:

We deny that the lines are entitled to an increase. Each of the companies making up the lines has paid to its stockholders dividends based on grossly excessive valuations of the capital invested in the companies, so that during the expired portions of the present ordinances the stockholders have received very much larger returns than they would have been entitled to upon a fair and reasonable valuation of the capital invested. If it be true that during the period of the late war and for some time thereafter the profits made by the stockholders have been reduced, or even obliterated for the time being, it is only fair and just that the stockholders, in view of their previous excessive profits, should bear such temporary loss, and that the burden thereof should not be imposed on the traveling public.

The city also charged the railway companies with gross extravagance in the management of their affairs.

The attempt of radicals to stir up trouble over the fare situation was frustrated on Nov. 29 when the police arrested William Bross Lloyd, Socialist candidate for United States Senator at the recent election, and others, for causing a disturbance. These men rode through the downtown district in an automobile on which were displayed an American and a red flag. They were distributing circulars urging car riders to pay no more than 5 cents. The bills said: "Give this to a conductor and walk by him." "Strike for a 5-cent fare." "Let every automobile owner carry free all the passengers his car will hold. Make a 6-cent fare less profitable than a 5-cent fare. Demand the city establish municipal motor bus lines. Demand the city encourage the operation of jitneys."



## Transportation News Notes

**New Fare Collection Method.**—The Burlington (Vt.) Traction Company installed the Rooke automatic register on its line on Nov. 13.

**Seven Cents in Enid.**—The Corporation Commission of Oklahoma has authorized the Enid Street Railway to charge a 7-cent fare, with four tickets for 25 cents.

**Six Cents for Helena.**—The State Board of Railroad & Public Service Commissioners of Montana on Nov. 13 granted the petition of the Helena Light & Railway Company for an increase in rates to 6 cents. The advance became effective on Dec. 1.

**Yonkers Plans Fare Inquiry.**—The Common Council of Yonkers, N. Y., appointed a committee of five of its members to make an investigation of the books of the Yonkers Railroad so as to determine whether the company is entitled to the increase in fare which it has sought to obtain.

**Worcester May Ask More.**—The Worcester (Mass.) Consolidated Street Railway has announced that the 6-cent fare which has been in effect on its lines since Aug. 1 has proved inadequate. No official announcement has been made that the company will seek a 7-cent fare, but it is reported that appeal will be made to the Public Service Commission for further relief.

**Bangor Wants Six Cents.**—The Bangor Railway & Electric Company, Bangor, Me., has asked the Public Utilities Commission to approve an increase of fares on its local and interurban lines. At present the local fare is 5 cents on all routes, while the interurban lines are divided into zones on each of which the fare is 5 cents. It is asked that each of these fares be increased to 6 cents.

**Skip Stops to Go.**—The City Council of St. Paul, Minn., has adopted as to form an ordinance repealing skip stops in that city on the lines of the Twin City Rapid Transit Company. The ordinance must still go before the Council for a formal vote. Final passage of the St. Paul ordinance cannot occur before Dec. 7. It is expected that skip stops will be abolished by Jan. 13.

**List of Illinois Fare Increases.**—The Illinois Electric Railways Association in Bulletin No. 8 has compiled a list of the fare cases decided and still pending during the period from Jan. 1 to Nov. 1. At the end of this period relief had been granted in most of the thirty-five cases which had been put before the commission. In only nine cases were the fare decisions still pending.

**Fare Increases Suspended.**—The Public Service Commission of Massachusetts has suspended until Dec. 15 the operation of increased fare tariffs scheduled to go into effect on Dec. 1, of the Holyoke Street Railway, the Norfolk & Bristol Street Railway and the Blue Hill Street Railway. The proposed increase in fare of the Taunton Street Railway has also been suspended until Jan. 1.

**Six Cents Not Enough.**—The Harrisburg (Pa.) Railways is said to contemplate increasing its fares from 6 cents to 7 cents. A director of the company is quoted as follows: "If the increase is opposed, there is only one other avenue left open to the company. This is the removal of the Linglestown, Oberlin, Rockville and other suburban lines. These lines are hauling fewer people than they did several years ago."

**Fares at Massillon to Be Discussed.**—A public meeting has been called for Dec. 10 at Massillon, Ohio, to discuss the request of the Northern Ohio Traction & Light Company for an increase in the rate of fare within the city limits. The rate is now 5 cents, but the company has asked for a rate based on the increased wages paid carmen and the higher cost of materials of all kinds. All citizens will be asked to take part in the discussion.

**War Labor Board Advises Fare Increase.**—Commissioners of Newport, Ky., have received a letter from the National War Labor Board, advising that an increase in the rate of fare be granted the South Covington & Cincinnati Street Railway. Wages have recently been advanced by the board and the latter states this and the heavy bridge tolls put the company in a position where it will be necessary to secure a higher rate of fare.

**Vancouver Interurban Fares Increased.**—The Public Service Commission of Washington has granted the application of the North Coast Power Company, Vancouver, Wash., for an increase in passenger fares between Vancouver and Sifton, and intermediate points. The fare between Vancouver and Sifton has been increased from 15 cents to 25 cents, with intermediate points raised proportionately. The local fare in Vancouver is unchanged.

**Scranton Would Compromise Fares.**—The Scranton (Pa.) Railway on Nov. 22 agreed to reduce its minimum fare to 7 cents if the city agreed to withdraw its complaint on the 8-cent tariff before the Public Service Commission. The city tried to effect a compromise on 6 cents. This was refused by the company. In March the company went to a 6-cent fare. On Sept. 15 it increased the fare to 8 cents. Vigorous opposition followed from the city.

**St. Joe's Petition Includes Suburban Lines.**—Brief mention was made in the ELECTRIC RAILWAY JOURNAL of Nov. 30, page 989, of the application of the St. Joseph Railway, Light, Heat & Power Company, St. Joseph, Mo., to

the State Public Service Commission for permission to increase fares in St. Joseph to 8 cents. In addition the company also asks for permission to advance the fare to Lake Contrary to 20 cents for the round trip. This is double the present round-trip fare. For a one-fare rate to or from Lake Contrary the proposed rate is 13 cents. The company further asks for 2 cents for transfers to the bus line at the end of the Frederick line.

**Rochester Service Curtailed.**—Electric railway service in Rochester, N. Y., was curtailed 20 per cent on Dec. 2. James F. Hamilton, vice-president and general manager of the Rochester (N. Y.) lines of the New York State Railways, says the action is necessary through the refusal of the Mayor and City Council to grant a 6-cent fare, as noted elsewhere in this issue. Mr. Hamilton says the company must cut its expenses so as to keep up its payments to bondholders. Besides the 25 per cent curtailment in service on all city lines, some routes will be turned into stub lines, cars operating only from suburban points to a given point and not running direct to the heart of the city.

**Six Cents in Asbury Park.**—A 6-cent fare on the lines of the Atlantic Coast Electric Railway, serving five zones in the shore section, including Long Branch, Asbury Park, Deal, Allenhurst, Ocean Township, Bradley Beach, Avon, Delmar, Spring Lake and Sea Girt, was authorized on Dec. 3 by the State Board of Public Utility Commissioners, acting on the petition of the company for an increase from a 5-cent to a 7-cent fare. The increase to 6 cents was conditioned by the company's acceptance of a stipulation that abrogation or modification of the rates permitted may be made if conditions indicated by operating results may warrant. Another condition of the increase is that the 6-cent fare shall include certain transfer privileges.

**Inquiry Into Threatened Service Cut.**—Proposed curtailment of service by the New York State Railways in Rochester, referred to elsewhere on this page, was a subject of an investigation which was begun on Nov. 29 by the Public Service Commission for the Second District at Rochester. The railroad advertised that on Dec. 2 it would reduce its service on all lines approximately 25 per cent, but it was immediately served with an order by the commission, on its own initiative, directing the railroad to show cause why the commission should not start a Supreme Court action for the purpose of having the threatened violation of the public service commissions law stopped. Under the law the railroad is required to furnish "such service and facilities as shall be adequate and in all respects just and reasonable." It was under this provision that the commission acted.

**Carefully Drawn Service Order Recommended.**—Milo R. Maltbie, New York City, formerly a member of the



Public Service Commission for the First District of New York, retained to advise the city of Minneapolis, Minn., on railway matters has recommended the establishment of a standard of service for all lines of the Twin City Rapid Transit Company. He says that such an order properly drawn could probably be enforced. It has been Mr. Maltbie's experience that service orders were the most difficult orders to enforce and that the tendency of the courts was to favor the public service corporations unless the intent of the order was absolutely clear. It was imperative that the city should have a schedule of operation before the issuance of any order. Simply to prescribe "adequate service" for the company would not get the city anywhere.

**Defends Fare Increase.**—The Warren & Jamestown Street Railway, Warren, Pa., on Nov. 29 filed with the Public Service Commission for the Second District of the State of New York its answer to the complaint against fare rates. The fares complained of, it is claimed, were approved by the Interstate Commerce Commission. It raises the question of jurisdiction of the State Commission where the Interstate Commerce Commission is concerned. The company says its fare schedule is based upon a mileage rate of 2½ cents a mile and fares are determined by zones, eleven in number, each 2 miles and constituting a 5-cent zone. The company denies that rates are not based upon distance traveled. It is claimed the 10-cent fare from Jamestown to Stillwater is not unjust or discriminatory and that the increased rate was due to increased cost of operation.

**Lincoln's Third Appeal.**—The third application of the Lincoln (Neb.) Traction Company for an increase in rates has been filed with the State Railway Commission. It asks for an additional 1-cent increase in fares either in or outside of the city limits, and a charge of 1 cent for transfers. This request, if granted, will increase the fare from 5 cents straight to 6 cents and an additional cent for transfer, making 7 cents for a trip that includes the use of a transfer. Transfers are now free. The first appeal of the company to the commission for relief through an increase in fare was made on April 3, 1917. Later the company filed a supplemental petition asking for an emergency rate. On Feb. 16, 1918, the commission denied the emergency rate. On June 17, 1918, the commission denied an increase in rates. This last decision was appealed to the Supreme Court of Nebraska. On Aug. 19, 1918, the company asked for an emergency rate as being necessary to avoid bankruptcy. On Aug. 31, the commission issued an order, effective Sept. 1, for a 5-cent fare on the entire system, and 6 cents between Lincoln and suburbs and between suburban points. From this order the company likewise appealed on the ground that the increase was too small. Both appeals will be argued soon before the Supreme Court

## Personal Mention

### Mr. Jackson Sails for England

He Will Study Particularly the Operation of the Zone System in the United Kingdom

Walter Jackson of the ELECTRIC RAILWAY JOURNAL sailed for England on the *Balmoral Castle* on Dec. 2 for an extended, detail study of electric railway operating conditions in the United Kingdom, more particularly on the relation of the zone fare to community development, the use of buses and trackless trolleys, methods of freight and package goods handling, etc. His



WALTER JACKSON

studies of the zone fare will appear in a series of articles covering the widest possible variety and size of cities, so that American operators can better judge what the zone fare really is and does. He will also write on other phases of operation.

During the last sixteen years Mr. Jackson has made several trips to Europe in addition to his wide travels in America, for both the editorial and business activities of the paper. He has been commissioned to visit England again at this time because of the imperative need of American electric railways for exact information on the workings of the zone fare system. Thus his trip is another expression of the world-wide service which the ELECTRIC RAILWAY JOURNAL has always been glad to render to the industry.

Mr. Jackson has for some time had the title of business manager of the JOURNAL and performed the duties of that office. He has, however, continued to give a part of his time to editorial work. At present the needs of the paper and of the field are such that he will largely give up his work in the business department, devoting more of his time to the editorial department.

L. B. West has been appointed auditor of the Pine Bluff (Ark.) Company, to succeed H. R. Harden.

N. Thomson has been elected president of the Bristol & Norfolk Street Railway, Randolph, Mass., to succeed C. D. Rogers.

R. H. May, formerly a member of the editorial staff of the *Washington Post*, has joined the Washington staff of this paper.

S. E. Huff has been appointed secretary of the Kankakee & Urbana Traction Company, Urbana, Ill., to succeed C. N. Clark.

George H. Jones has been appointed claim agent of the Scioto Valley Traction Company, Columbus, Ohio, to succeed N. E. Rees.

J. E. Lane has been appointed roadmaster of the Visalia Electric Railroad, Exeter, Cal., to succeed Murray Parsons.

E. G. Snider has been appointed master mechanic of the Fresno (Cal.) Traction Company to succeed A. P. Granger.

George J. Chaffee, secretary of the Evanston (Ill.) Railway, has also been appointed treasurer of the company to succeed J. J. Lewis.

Frank B. Fish has been appointed auditor of the Androscoggin Electric Company, Portland, Maine, to succeed E. J. Thompson.

Frank A. Lester has been appointed president of the Black River Traction Company, Watertown, N. Y., to succeed George Kremmentz.

McCabe Moore has been appointed treasurer of the Kansas City-Western Railway, Kansas City, Mo., to succeed S. D. Hutchings.

L. B. Hodgin has been appointed secretary of the Indiana Railways & Light Company, Kokomo, Ind., to succeed T. C. McReynolds.

T. D. McCarthy has been appointed roadmaster of the Waterbury Division of the Connecticut Company, to succeed H. F. Purrington.

E. C. Carpenter has been appointed claim agent of the Northern Ohio Traction & Light Company, Akron, Ohio, to succeed H. L. Ehler.

C. Lass has been appointed chief engineer of the Birmingham Railway, Light & Power Company, Birmingham, Ala., to succeed H. F. Cox.

F. R. Fowler has been appointed chief engineer of the power station of the Bridgeport Division of the Connecticut Company to succeed N. L. Chase.

P. L. Saltonstall, formerly treasurer of the Hartford & Springfield Street Railway, Warehouse Point, Conn., has



been elected president of the company to succeed Nathan Anthony.

E. H. Rechberger has resigned as auditor and assistant treasurer of the Northwestern Ohio Railway & Power Company, Toledo, Ohio, and C. C. Cash has been elected to succeed him.

Robert L. Norton, for many years political editor of the *Boston Post*, has been appointed director of publicity of the Boston (Mass.) Elevated Railway, succeeding J. Harvey White, who retired from the company on Nov. 29.

## Obituary

Major John Trumbull, formerly chief engineer of the Connecticut Public Utilities Commission, died recently in France following a surgical operation.

Martin W. Kern, for the past ten years mechanical engineer of the Narragansett Electric Lighting Company, Providence, R. I., died recently. Mr. Kern's former professional connections were with the Rhode Island Company at Providence and with Stone & Webster at Boston.

William Henry Hotchkiss, a director of the Niagara Gorge Railway, Niagara Falls, N. Y., died on Nov. 30. Mr. Hotchkiss was born in Bristol, Conn., in 1851. He was one of the largest stockholders in a Buffalo department store and was president of the Ellicott Square Company, owners of the city's largest office building. Mr. Hotchkiss is survived by his widow and two daughters.

Lewis W. Henry, superintendent and chief clerk of the Indianapolis & Cincinnati Traction Company, died at his home at Rushville, Ind., on Dec. 3, after an illness of about one week. Mr. Henry was born at Anderson, Ind., in 1880. He was educated in the schools at Anderson, at Howe Military Academy, DePauw University and at Swarthmore College. After leaving Swarthmore he spent some time in Washington during the term of his father, Charles L. Henry, the president of the Indianapolis & Cincinnati Traction Company, as Congressman. Mr. Henry then went to Germany to complete his studies. He was connected with the Chicago Telephone Company for some time. From January, 1912, to November, 1914, he acted as right-of-way agent for the Indianapolis & Cincinnati Traction Company, and from November, 1914, to May, 1917, was chief clerk to the president of that road. On May 10, 1917, he was appointed superintendent of the Indianapolis & Cincinnati Traction Company, which position he held up to the time of his death. Mr. Henry was interested in the work of the Central Electric Railway Association, and was an active member of the Central Electric Traffic Association.

## Horace E. Andrews, New York, Dead

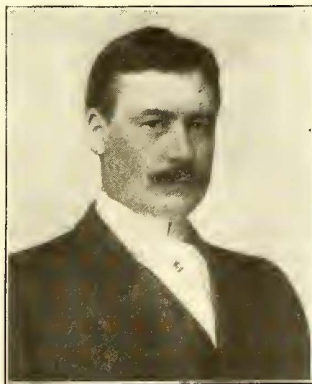
Was Head of New York State Railways and Former Head of Cleveland Railway—Had Many Business and Philanthropic Interests

Horace E. Andrews, president New York State Railways, Rochester Railway & Light Company, Mohawk Valley Railway and Schenectady Railway, died of pneumonia at his home in New York City on Dec. 1. He was ill but five days.

Mr. Andrews was born in 1863 in Cleveland, Ohio, where he laid the foundation of his career with the street railways of the city. As a preparation for engineering work he also attended the Sheffield Scientific School, Yale University, graduating at the age of nineteen. He then went to Germany for advanced study at the Freiberg School of Mines. Returning to his home city he became interested in traction work and in due course became

dent Loan Society and the Charity Organization Society in New York. From the beginning of the war he had been associated with the Red Cross and War Camp Community work. When the War Relief clearing house for France and the allies was organized he became chairman of the finance committee. All of this work he carried on in addition to the duties of the directorship in the New York Central, Michigan Central, "Big Four," Pittsburgh & Lake Erie and West Shore Railroads, the Missouri, Kansas & Texas Railway, and the Havana Electric Railway. His club affiliations also were varied and extensive.

Mr. Andrews' career speaks for itself. It remains only to add that his personality was inspiring to his associates and he was ever on the lookout for opportunities to develop them. It is probably only a coincidence, but it is a fact that, an engineer himself, he chose engineers in a considerable number of cases to discharge executive responsibility.



HORACE E. ANDREWS

president of the consolidated railways. During a period of nine years he waged a strenuous warfare on behalf of the local railways for franchise rights. This culminated in the formation of a syndicate, in which John J. Stanley was also interested, which bought out the conflicting financial interests and formed the present Cleveland Railway system. Of this Mr. Andrews was president until 1910, when he was succeeded by Mr. Stanley. The syndicate also became interested in properties in New York State where city railways in Utica, Syracuse and Rochester, together with interurban lines, were consolidated with the New York State Railways. An alliance was formed with the New York Central Railroad. Mr. Andrews became active head of the New York State Railways and of the Schenectady Railway, retaining until the time of his death an active participation in the technical as well as the administrative work of these properties.

As would be expected of a man of his broad interests, Mr. Andrews' activities were not bounded by the companies of his special field. He was a trustee of Teachers' College, the Provi-

William T. Van Dorn, inventor, and founder of the Van Dorn Coupler Company, died at his home in Chicago, on Nov. 29, at the age of seventy-five years. It is believed that an automobile accident on Nov. 17 in which Mr. Van Dorn was injured was directly responsible for his death. Mr. Van Dorn was very well known in the electric railway field. Early in life he became a student of mechanics and while employed in the mechanical department of the earlier steam railroads gave a great deal of attention to the design of car couplers, and it is a matter of record that he was one of the originators of the coupler head which since has been made the M. C. B. standard. When the electric railways were first talked of Mr. Van Dorn had a vision of the future in store for the electric railway car. In 1885 he moved to Chicago, organized the Van Dorn Coupler Company and started manufacturing the Van Dorn coupler. Up to the time of his death Mr. Van Dorn was in active charge of the coupler business. During his life he was granted many patents on new car coupler ideas, and only recently he announced the perfection of a coupler which not only automatically connects cars mechanically but also connects the air and electric lines by the same operation. He also was the inventor of a steel end for freight cars and of a sub-floor for refrigerator cars which are in great demand. Herbert E. Van Dorn, oldest son, who in recent years has been closely associated with the business of the Van Dorn Coupler Company, will succeed his father as active head of the company.



# Manufactures and the Markets

DISCUSSIONS OF MARKET AND TRADE CONDITIONS FOR THE MANUFACTURER,  
SALESMAN AND PURCHASING AGENT

ROLLING STOCK PURCHASES

BUSINESS ANNOUNCEMENTS

## Effect of Deliveries on Service

### Example of How Poor Deliveries Made Operating Difficulties Acute on Prominent Eastern Road

The war has played havoc with deliveries to electric railways and service has been handicapped accordingly on many properties. By maintaining a larger reserve stock of supplies than usual, it has been possible to minimize the adverse effect of delayed shipments of material upon rolling stock maintenance; but in the power plant the situation has been more difficult. Where breakdowns of equipment have occurred, the inability of the operating company to secure spare parts has at times been very trying; and where plant improvements and reconstruction have been delayed by the failure of manufacturers to make their promised deliveries, the service has sometimes been very hard hit. Even the advantages of a high priority order have not always been realized in time to maintain good service.

With the coming of peace, deliveries are bound to improve greatly. None the less, an example of how poor deliveries made the operating difficulties of a large electric railway plant in New England acute are of interest. In August, 1917, the company was authorized to expend over \$375,000 for replacements and additions to its power plant. Although 80 per cent of the load of the station was traction service, war industries entering the community demanded power from the plant, necessitating its thorough reconstruction and modernization. Orders were promptly placed and deliveries promised on a basis providing for the completion of the work by May, 1918. Old boilers, engines and various auxiliary apparatus had to be moved out, creating much confusion and temporarily depriving the plant of relay or breakdown capacity ordinarily available in case of trouble. One thousand horsepower in boilers was removed during the winter to provide space for a new battery of 1200-hp. rating but capable of carrying 300 per cent overload. The new boilers were due to be in on May 1, but were not actually on the line until Aug. 16. This delay was due to war conditions beyond the control of the company, including a scarcity of competent labor for erecting the boilers and stokers; delayed shipments of flues, piping, stoker parts, etc., and it was finally necessary to appeal to the government to release the steam piping for the main con-

nections that had been built at a plant commandeered for war work.

A second 2500-kw. turbine scheduled for delivery by July 1 was received on Sept. 6, and its installation was seriously delayed during the fall by the non-arrival of condensing equipment purchased in May under a priority order. The first turbine of this size added was received in February and was expected to be in commission by April 1, but it was July 2 when the machine went into service. This was due chiefly to construction difficulties. In March a 3600-kw. turbine but four years old developed trouble, and repair parts were ordered on a high priority certificate. Delivery was expected by July 1. The material was actually received early in October. Meanwhile the unit was kept in operation only by great care, and was able to deliver but half its rated output, and with double its normal steam consumption.

Besides the loss of revenue and adverse effect on plant economy of many operating troubles, aggravated as they were by failure of manufacturers to make promised deliveries, the interruptions caused much unfriendly criticism of the company. Because of protracted deliveries the plant finally reached a point where only the day load could be satisfactorily handled, and in the peak hours it became necessary for a time to pull switches when the steam pressure got below normal, restoring connections after the normal pressure returned. The plant and the patrons of the railway were bearing burdens imposed by war conditions; but it would be hard to find a clearer case illustrating the close relationship between deliveries and service, or of the influence supplies of equipment can have on the operation of a road.

## Brooklyn Must Purchase New Cars

Justice Benedict of the Supreme Court of Brooklyn on Dec. 5 handed down a decision granting a writ of peremptory mandamus ordering the Brooklyn Rapid Transit Company to purchase 250 new steel cars forthwith for its surface lines. Justice Benedict said that he would make the writ returnable on the first Monday in June. The decision involves an expenditure estimated at more than \$2,000,000. It sustains an order made by the Public Service Commission for the First District to the company on Feb. 8, 1917. Following our entrance into the war the company insisted that it was impossible to secure the cars, as steel was needed for war work.

## Supply Market Still in Unsettled Condition

### While Present Buying Is Scarce, a Feeling of Quiet Optimism Prevails in the Industry

Since the signing of the armistice there seems to be a disposition all along the line among buyers to defer new commitments as far as possible. The general tendency is to strike a waiting attitude pending clearer views of future supplies and prices of materials. Lower prices seem plainly foreshadowed and uncertainty regarding the present unsettled state of the railways is not an insignificant element in the present hesitation.

In the electric railway trade, however, an underlying feeling of hope and optimism prevails. Quiet buying, though not in large quantity, has been steadily going on here and export business both for Europe and South America shows improvement. Mexico has also recently come into the market for trolley rails.

Equipment men all seem to be of the opinion that after three or four very lean years the electric railway situation is about due to get enough increases in fare to take care of financing new and absolutely necessary equipment and that by the spring new business along equipment lines will be brisk.

## Special Rail Work Shows Little Activity

### Present Market Conditions Quiet and Supplies Very Limited—Back to Normal in Four Months

The market for special rail work is at the present time almost at a standstill, although this is the season of the year when it is customary for the roads to place their orders for delivery in the spring. No work of this kind is attempted in the winter except in case of absolute necessity. Special rail producers report that as yet no orders have come into the market, but they are confidently looking forward to a greatly increased demand in April and May of next year.

The supplies of rail suitable for special work on hand are extremely limited, and in some cases where it was necessary substitute rail has been used. The producers state that stocks will be in normal condition as to volume in about four months. Prices on special rail work have shown advances of from 100 to 150 per cent during the past three years.



## Market for Snow-Fighting Equipment Dull

Railways Apparently Waiting for First Storm—Sales of Car-Heating Equipment Improving

On account of the lateness of the season and almost daily predicted snow storms one might expect to find some active buying in the snow and sleet-fighting equipment market, but it is very quiet.

Railways seem to adopt the policy of waiting until the last minute before buying snow-fighting equipment, and then when the storm does come to telegraph the manufacturer to send on instantly so many hundred of this or that, and very often it is found the producer has not much in stock. Much better results and service would be forthcoming if these orders could be placed in advance of the season and to avoid emergency orders later.

Trolley car sleet wheel cutters and scrapers are in no demand, and one manufacturer stated that he had none in stock, another stated that he was carrying a limited supply against emergency which he would issue pro rata if the occasion demanded it.

Track brooms have, where made of rattan, advanced slightly in price; the demand is steady and supplies on hand normal. Switch cleaners, track scrapers and sanders are in normal demand and the supplies on hand are plentiful.

Electric car-heating apparatus is at this time in active demand and business is good, according to one of the largest

manufacturers. Supplies on hand of most of the raw materials essential to the manufacture of heaters are good and deliveries can be made in three to six weeks. Here again the manufacturer states that if the railways would only place their orders in advance it would give the producer a chance to lay in the necessary supply of raw materials and he would gladly carry the product in stock until the specified date of delivery.

Prices of one line of heaters have advanced in the past eighteen months 110 per cent, 30 per cent of which has taken place in the last six months.

## Coal Output Again on the Increase

Bituminous Production However Is Considerably Under Peak Reached in September

The record-breaking steady decline in the production of bituminous coal, from the high point of more than 13,000,000 tons a week, the last of September, to less than 10,000,000 tons, seven weeks later, came to an end the middle of November and in the week ended Nov. 23 production rose to nearly 11,000,000 tons, a gain of 12.5 per cent according to the regular report of the Geological Survey. The estimated production in the week of Nov. 23, 1918, was 10,931,000 tons, compared with 9,703,000 tons in the week of Nov. 14, and 11,187,000 tons, or 2.3 per cent less than in the corresponding week of 1917. The average

daily output rose from 1,617,000 tons to 1,832,000 tons, but below the figure of 1,865,000 tons for the corresponding week of 1917.

The total production of bituminous coal and lignite, including coal coked, April 1 to Nov. 23, is estimated at nearly 400,000 net tons, a gain over the corresponding period of 1917 of 40,000,000 tons, or 10 per cent.

Reports of production and working time for the week of Nov. 16 show, for the first time this year, loss of production because of no market comparable to the loss because of transportation disability.

The transition in the comparatively short period of a few weeks, from a condition of car shortage to one of car surplus, is significant because indicative of the possibility of a reversal later, with a return of unfavorable conditions. This condition has been brought about by the accumulation of stocks, made possible by the heavy shipments during the past four months, the possession of which has taken the keen edge off the industrial demand, and by the fair weather for this time of the year that, while favoring transportation, decreases the consumption of coal.

The production of anthracite in the week ended Nov. 23 is estimated at 1,778,000 net tons, an increase compared with the week of Nov. 16 of 373,000 tons, or nearly 27 per cent, but 263,000 tons, or 13 per cent, below the corresponding period in 1917. The total production of anthracite, April 1 to date, is estimated at 65,358,000 net tons.

### NEW YORK METAL MARKET PRICES

	Nov. 14	Dec. 5
Copper, ingots, cents per lb.	26	26
Coppr wire base, cents per lb.	28.75	28.75
Lead, cents per lb.	8.05	7.05
Nickel, cents per lb.	40	40
Spelter, cents per lb.	8.65	8.75
Tin, cents per lb.	74.50	72.50
Aluminum, 98 to 99 per cent., cents per lb.	†33.10	†33.10

\* No Straits offering. † Government price in 50-ton lots or more, f. o. b. plant.

### OLD METAL PRICES—NEW YORK

	Nov. 14	Dec. 5
Heavy copper, cents per lb.	22.50 to 23.00	21.00 to 21.50
Light copper, cents per lb.	18.00 to 18.50	17.00 to 17.25
Red brass, cents per lb.	22.00 to 23.00	21.00 to 21.50
Zinc, cents per lb.	6.25 to 6.50	7.00 to 7.50
Yellow brass, cents per lb.	14.00 to 15.00	13.00 to 13.50
Lead, heavy, cents per lb.	7.25 to 7.50	5.75 to 6.00
Steel car axles, Chicago, per net ton	\$41.52	\$41.52
Old carwheels, Chicago, per gross ton	\$29.00	\$29.00
Steel rails (scrap), Chicago, per gross ton	\$34.00	\$34.00
Steel rails (relaying), Chicago, gross ton	\$60.00	\$60.00
Machine shop turnings, Chicago, net ton	\$16.00 to \$16.50	\$16.00 to \$16.50

### ELECTRIC RAILWAY MATERIAL PRICES

	Nov. 14	Dec. 5		Nov. 14	Dec. 5
Rubber-covered wire base, New York, cents per lb.	34	34	Galvanized wire, ordinary, Pittsburgh, cents per lb.	*3.95	*3.95
Weatherproof wire (100 lb. lots), cents per lb., New York	38.75 to 40.00	38.75 to 40.00	Car window glass (single strength), first three brackets, A quality, New York, discount †	77%	77%
Weatherproof wire (100 lb. lots), cents per lb., Chicago	38.75 to 39.76	38.75 to 39.76	Car window glass (single strength, first three brackets, B quality), New York, discount	77%	77%
T rails (A. S. C. E. standard), per gross ton	\$70.00 to \$80.00	\$70.00 to \$80.00	Car window glass (double strength, all sizes AA quality), New York discount	79%	79%
T rails (A. S. C. E. standard), 100 to 500 ton lots, per gross ton	\$67.50	\$67.50	Waste, wool (according to grade), cents per lb.	13 to 15	13 to 15
T rails (A. S. C. E. standard), 500 ton lots, per gross ton	\$62.50	\$62.50	Waste cotton (100 lb. bale), cents per lb.	12½ to 13	12½ to 13
T rail, high (Shanghai), cents per lb.	4½	4½	Asphalt, hot (150 tons minimum) per ton delivered	\$38.50	\$38.50
Rails, girder (grooved), cents per lb.	4½	4½	Asphalt, cold (150 tons minimum, pkgs. weighed in, F. O. B. plant, Maurer N. J.), per ton	\$42.50	\$42.50
Wire nails, Pittsburgh, cents per lb.	3½	3½	Asphalt filler, per ton	\$45.00	\$45.00
Railroad spikes, drive, Pittsburgh base, cents per lb.	4½	4½	Cement (carload lots), New York, per bbl.	\$3.20	\$3.20
Railroad spikes, screw, Pittsburgh base, cents per lb.	8	8	Cement (carload lots), Chicago, per bbl.	\$3.34	\$3.34
Tie plates (flat type), cents per lb.	*3½	*3½	Cement (carload lots), Seattle, per bbl.	\$3.68	\$3.68
Tie plates (brace type), cents per lb.	*3½	*3½	Linseed oil (raw, 5 bbl. lots), New York, per gal.	\$1.52	\$1.63
Tie rods, Pittsburgh base, cents per lb.	7	7	Linseed oil (boiled, 5 bbl. lots), New York, per gal.	†\$1.54	†\$1.65
Fish plates, cents per lb.	*3½	*3½	White lead (100 lb. keg), New York, cents per lb.	14	14
Angle plates, cents per lb.	*3½	*3½	Turpentine (bbl. lots), New York, cents per gal.	64	64
Angle bars, cents per lb.	*3½	*3½			
Rail bolts and nuts, Pittsburgh base, cents per lb.	4.90	4.90			
Steel bars, Pittsburgh, cents per lb.	*2.90	*2.90			
Sheet iron, black (24 gage), Pittsburgh, cents per lb.	*5.00	*5.00			
Sheet iron, galvanized (24 gage), Pittsburgh, cents per lb.	*6.25	*6.25			
Galvanized barbed wire, Pittsburgh, cents per lb.	\$4.35	*4.35			

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



## Franchises

**Springfield, Mass.**—The Springfield Street Railway has been granted an extension of time by the City Council of Springfield until Dec. 1, 1919, in which to construct its extension on upper Carew Street.

**Columbus, Ohio**—The East Linden Electric Railway has asked the City Council of Columbus for an extension of its franchise to Nov. 30, 1921. The company states that war conditions prevented construction work which would otherwise have been undertaken.

**Hannibal, Mo.**—Harry T. Lynch, Independence, Iowa, has asked the City Council of Hannibal for a franchise to construct a line to connect with the present tracks of the Hannibal Railway & Electric Company on Main Street near Lyon Street and to use the tracks of that company to Hueston Street, thence to construct its own line out West Broadway to Lefering Avenue, where it will again connect with the tracks of the Hannibal Railway & Electric Company and use the tracks of that road to its terminus, thence to construct a line to the city limits at a point known as the Captain Chamberlain place. Mr. Lynch is represented by M. R. Robinson, attorney, Lewiston, Ill.

## Track and Roadway

**Los Angeles (Cal.) Railway.**—Work will be begun at once by the Los Angeles Railway on the construction of an extension on Eleventh Street to the Los Angeles High School.

**San Diego (Cal.) Electric Railway.**—Work has recently been begun by the San Diego Electric Railway on the construction of an extension to the local shipbuilding plant. It is understood that the government will finance the work, which is estimated to cost \$50,000.

**Ocean Shore Railroad, San Francisco, Cal.**—New track will be built by the Ocean Shore Railroad on Howard Street.

**Shore Line Electric Railway, Norwich, Conn.**—Permission has been received by the Shore Line Electric Railway from the Public Utilities Commission of Connecticut for the construction of a short section of track in New London between Jefferson Avenue and Bank Street.

**Washington, D. C.**—The Public Utility Commission of the District of Columbia has authorized the Washington Railway & Electric Company to construct a double-track connection on Seventeenth Street, Northwest, between its tracks at Seventeenth and H Streets and those of the Capital Traction Company at Seventeenth Street and Pennsylvania Avenue, and in this connection has further authorized the company to issue \$150,000 of bonds and to pledge the bonds as collateral for a loan of \$125,000 from the United States Housing Corporation, the latter sum being the estimated present cost of the track extension.

**Kansas City (Mo.) Railways.**—The Kansas City Railways is considering repairs to the Inter-City Viaduct estimated to cost \$18,000.

**Somerville, N. J.**—A new trolley line is proposed to extend from Somerville to Bernardsville, to develop the extensive holdings of the Schwartz-Hermann Steel Works north of Somerville and to open up the country further north. Louis Schwartz, president of the steel company, it is said, is interested in the construction of the line and is willing to capitalize the enterprise if a charter can be secured. Senator Clarence E. Case is representing the Schwartz interests and Joshua Doughty, Jr., has been consulted as an engineer.

**Interborough Rapid Transit Company, New York, N. Y.**—The Lexington Avenue subway line of the Interborough Rapid Transit Company from 138th Street and Third Avenue along 138th Street and northward on the Southern Boulevard to Hunts Point Road will be opened about the first of the year.

**New York (N. Y.) Municipal Railway.**—A contract has been awarded by the New York Municipal Railway to the General Railway Signal Company, Rochester, N. Y., for the installation of alternating-current block signals and interlocking on its line under ground; to be built in Sixtieth Street, New York City. This line extends under the East River to the Queensboro Plaza, Long Island City.

**Sandusky, Ohio.**—It is reported that a bridge across Sandusky Bay is to be one of the improvements for early construction. Such a bridge would be used for a public roadway and to carry electric cars. The Lake Shore Electric line between Cleveland and Toledo would thus be shortened 14 miles.

**Ardmore, Okla.**—It is reported that plans for the construction of an interurban electric railway from Ardmore to Oklahoma City, via Healdton, Fox Kilgore oil fields and Lindsay, about 110 miles, are under consideration by I. M. Putnam, general manager of the Ardmore Street Railway, and associates. A branch to Duncan is also proposed and it is contemplated to build an eastern extension to either Sherman or Denison, Tex.

**Peterboro (Ont.) Street Railway.**—An extension will be built by the Peterboro Street Railway from Charlotte to Patterson Street.

**Seattle, Wash.**—Thomas F. Murphine, superintendent of Public Utilities, has suggested the use of the city's Lake Burien street car line from Spokane Street to the Seattle North Pacific Shipbuilding Company's yard, as a means of solving the transportation question raised by the shipyard in a petition to the City Council. The company complains that transportation facilities to and from the plant are intolerable, and has asked for special service during the rush hour.

## Power Houses, Shops and Buildings

**Alabama Power Company, Anniston, Ala.**—The administration building of the Alabama Power Company at Attalla was recently destroyed by fire, causing a loss of about \$30,000.

**Pacific Electric Railway, Los Angeles, Cal.**—Plans have been prepared by the Pacific Electric Railway for the construction of a one-story brick and concrete substation, about 35 ft. x 50 ft., to be located at Seventh Street and Maple Avenue.

**Southern Pacific Company, Los Angeles, Cal.**—It is reported that extensive car and locomotive shops will be maintained at Sacramento by the Southern Pacific Company. The foundry will be the first building erected, and work will be begun as soon as the low land by the river is filled in.

**Union Street Railway, New Bedford, Mass.**—The new power plant of the Union Street Railway at Parker's Wharf, located directly south of the present station, is nearing completion. The new plant will eventually stand alone, although the old station will remain in use until such time as the new plant can take over the whole load. The equipment of the new station includes one 2000-kw. turbo-generator, one 1500-kw. turbo-generator and one 500-kw. turbo-generator, condensers, four 500-hp. boilers and other auxiliary apparatus.

**Adirondack Electric Power Corporation, Glens Falls, N. Y.**—A petition has been filed with the Public Service Commission for the Second District of New York by the Adirondack Electric Power Corporation asking for its approval of the operation of a high-tension line between its substation at Amsterdam and one between Little Falls and Herkimer. Franchises have been received from the towns of Amsterdam, Johnstown, Ephratah, Oppenheim, Manheim and Little Falls. The line is necessary to supply additional power to the Utica lines of the New York State Railways.

**Mahoning & Shenango Railway & Light Company, Youngstown, Ohio.**—A new power transmission line from the Lowellville generating station of the Mahoning & Shenango Railway & Light Company to the mills of the Brier Hill Steel Company has recently been placed in operation by the company. It is built on private right-of-way and constitutes one of the most important industrial developments of the Mahoning Valley during the war period. The line will be of permanent industrial value to the district and will immediately afford improvement of electrical transmission in the Youngstown-Girard-Niles territory.

**Washington Water Power Company, Spokane, Wash.**—The expenditure of \$3,000,000 for the construction of a Niagara power plant to place in service all the water of the Spokane River is being considered by the Washington Water Power Company. The plant will have a capacity of 40,000 hp., to be utilized for manufacturing purposes.

## Rolling Stock

**Toronto, (Ont.) Railway,** it is understood, is extensively remodeling and repairing some of its older cars. It is also reported that the company is in the market for new cars.

**Richmond Light & Railroad Company, New Brighton, S. I., N. Y.,** as reported in the ELECTRIC RAILWAY JOURNAL of Aug. 3, 1918, has not yet received the twenty new cars due Oct. 15, from the Cincinnati Car Company. This order was placed through the United States Shipping Board Emergency Fleet Corporation but has been held up for some reason and the company now states it does not know when delivery will be made.

## Trade Notes

**Chicago Pneumatic Tool Company** announces the appointment of L. C. Sprague as assistant secretary of the company, with headquarters at 52 Vanderbilt Avenue, New York City.

**Quasi-Arc Weldtrode Company,** formerly of 107-109 Lafayette Street, New York, announces that owing to the necessity for largely increased space it has moved to its new offices, factory and laboratories at Atlantic Avenue and Warwick Street, Brooklyn, N. Y.

**Metal & Thermit Corporation** has announced that in order to take care of its rapidly growing business in Canada larger shop and storage facilities than were available at 103 Richman Street, West Toronto, are necessary. The new location is 15 Emily Street, Toronto.

**L. E. Schumacher,** who for the past eight years has been chief inspector of the Westinghouse Electric & Manufacturing Company at East Pittsburgh, Pa., has been promoted to the position of works manager of the Krantz Manufacturing Company of Brooklyn, N. Y., the latest subsidiary of the former company.

**H. W. Johns-Manville Company,** New York, announces the death of Charles F. Simms, for many years manager of its Omaha office. He is succeeded by S. E. Cole, who has been active in various fields of Johns-Manville endeavor, and lately has been acting as the company's "architects' representative" throughout the Middle West.

**C. B. Hughes,** who has been connected with the Minerallac Electric Company, Chicago, for six and one-half years, has been placed in charge of the sales of the insulating varnishes and wood-preservative oils of the Sherwin-Williams Company in the Middle Western district, with headquarters at Chicago. Mr. Hughes was sales manager of the Minerallac Electric Company.

## New Advertising Literature

**Electrical Engineers' Equipment Company, Chicago, Ill.:** Leaflet on sphere-gap lightning arresters.

**Copper Engineering & Equipment Company, Worcester, Mass.:** New catalog containing figures and tables on forced-draft apparatus.

**Chaplin Fulton Manufacturing Company, Pittsburgh, Pa.:** Catalog describing the company's combined line of Vigilant feed-water regulators and steam specialties.

**Dolph Manufacturing Corporation, New York City:** A pamphlet containing a rather compact statement on insulation maintenance, showing how proper attention to insulation will keep motors out of the repair shop.

**Hess-Bright Manufacturing Company, Philadelphia, Pa.:** A 103-page board-bound book entitled "Hess-Bright Ball Bearings." The uses of these bearings are well illustrated, and a number of valuable tables are given on the proper bearings for different loads and speeds.

**Lagonda Manufacturing Company, Springfield, Ohio:** A twelve page folder describing multiple-filtration feed-water filter and grease extractor, with photos of various power-plant installations. A general catalog, X-4, giving full descriptions of the company's tube cleaners, accessories and other boiler room specialties, will be furnished upon request.