

# Electric Railway Journal

Consolidation of STREET RAILWAY JOURNAL and ELECTRIC RAILWAY REVIEW

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## The Index An Important Feature of This Paper

THE ELECTRIC RAILWAY JOURNAL has always followed the practice of binding the index in with the last issue of each volume, so that it is included with the present number. We do this rather than to print the index separately and send it to those only who ask for it, the practice of some magazines, because we want every subscriber to be sure to have a copy. We consider the index an important part of each volume whether the copies are bound permanently or not. Great care is taken in its compilation to classify the articles by subjects treated, irrespective of the captions which they may happen to bear in the paper, as these captions may be selected at the time the article is printed because of some local or temporary condition or, if a contributed article, because of the whim of the author. For the same reason, we add a list of common key words and instructions for the use of the index. By their aid the indexes for successive volumes are compiled according to a continuous plan, making cross references from one year to another easy. By condensation we have been able this year to make the index somewhat smaller than for the last few volumes, but no other change has been made. We commend the use of the index to those of our readers who want to get the most benefit which they can out of the paper.

## Common Sense in Laying Out a Storage Yard

ON EVERY electric railway system there is a considerable mileage of track which is contained in car yards and in maintenance and construction stock yards. Some of the track is under cover, much of it is not. A great deal of this track was apparently put in without any very definite plan, or at any rate without a vision of future growth. Of late the yard trackage has been the subject of careful study and the yard areas are now laid out more nearly with a view to space economy, to convenience in handling cars into, in and out of the yard, to fire protection if needed, to general accessibility and even to appearance. In some localities the yard space is scattered and its use is ineffective, whereas a little co-operation on the part of transportation, shop and way departments particularly would conduce to economy in all directions.

Believing that even more progress in systematizing the design of storage yards is desirable the ELECTRIC RAILWAY JOURNAL has recently printed a number of articles to show what is being done in this direction. The mention of Detroit, Los Angeles, Cleveland and Denver will suggest some of those articles. This week

another, by A. E. Harvey, giving the details of an interesting yard layout in Kansas City, is printed. Its value consists partly in the details of construction and rearrangement which are given, but more important is the suggestion of general principles and the emphasis laid upon the savings in money and materials which resulted from careful planning. Every yard is a problem unto itself because it must occupy its own peculiar site, it must (in general) be adapted to existing structures, it must meet local transportation requirements and it must be laid out to fit the local pocketbook. All of these variable elements unite to make a most interesting proposition for the way department engineers, and we look forward to some fine work in yard rehabilitation during the next few years. A good question for the manager to put to his confrères these days is: "Are our storage and maintenance yards what they might be and ought to be?"

## Could This Have Happened in Your Plant?

TRAFFIC on a very important and an extensive electric railway system was seriously hampered for several hours recently by a cable blowout of unusual proportions. It is worth while to inquire whether a similar accident would be likely to occur elsewhere and if so what should be done to prevent its occurrence. The circumstances in the case cited were these: An old direct-current power plant located near a center of dense traffic serves as a relay power source and also as a substation for low-voltage distribution. Thirty-five paper-insulated, lead-covered cables, most of 1,000,000-circ. mil size, after leaving the switchboard pass through a pulling-in chamber about 10 ft. x 20 ft. in dimensions. From these the cables pass through duct lines to a 6-ft. x 16-ft. x 9-ft. manhole in the street, thence to their destination at various points in the system. Some of these cables had been in place for eighteen years. The first sign of trouble was the opening of a circuit breaker on the switchboard, which when replaced refused to stay in. The station almost immediately filled with smoke and it was only by cutting it off from all other sources of direct-current power that the trouble was stopped. On entering the first-named cable chamber the company's engineers found hardly a vestige of cable remaining. The burnout was, of course, due to one cable "letting loose" and, under the terrific heat developed by a low-voltage arc, transmitting short-circuits to the remaining cables, each of which augmented the disturbance in turn. By strenuous effort the engineers of the company got power back onto some lines almost at once, and considering the magnitude of the task all of the lines were put back into operation with re-

markable promptness. The cables were spliced in as before but arrangements are now being made to subdivide them between two manholes and further to subdivide them in the station among three runs.

This accident suggests the importance of safeguarding all points at which great concentration of cable capacity exists, and the desirability of avoiding such concentration as far as possible. This is especially true of low-voltage circuits which, on account of the enormous currents that can develop on short-circuit, are very destructive to themselves and their surroundings when they "let loose." Another lesson is that protective devices should be used to limit currents to reasonable values and, as far as possible, more than one source of supply for each trolley circuit should be available for instant use. There are practical limitations to immunity from accident in all cases, and especially is it difficult to keep the distribution system absolutely up to date with the recent and present shortage of men, money and materials. However, much can be done and there are danger points in almost any railway system that ought to be safeguarded. This accident should stimulate a general survey of distribution-cable conditions throughout the country. In this instance it should be noted there was no fire caused by the violent short-circuit and no one was injured in its vicinity. On the other hand the traffic tie-up was very serious and unfortunate from every point of view.

#### Does It Pay to Keep the Track Curves True?

**T**RACK curves are usually staked out with painstaking care by the construction engineer who also spends no little time and vocal energy in an endeavor to impress upon the construction gang the fact that his handiwork should be treated with due respect. It is safe to say that when a well constructed track is new its track curves are fairly true. As Father Time lays his heavy hand upon the work, however, the grade settles and traffic and other agencies act to skew the track out of alignment. Now a first-class section foreman is a good judge of surface alignment but only an engineer with proper instrument equipment can check up with accuracy the alignment of a long-radius curve. The questions, "How is operation affected by defective curve alignment?" and "What is it worth to keep the curves true?" are, therefore, pertinent ones.

An experiment by J. G. Sullivan in Bulletin 207 of the American Railway Engineering Association throws some interesting light on the subject. In an investigation of the causes of curve resistance a car was equipped with trucks on one side of which the wheels were larger than those of the other side in the ratio of the radius of curvature on the outer rail to that of the inner one. When this car ran at high speed it was found that at certain places the outer wheel flanges always came into contact with the rail head, giving a nosing movement to the truck and increasing the curve resistance and rail wear. Investigation showed that at these places the curve was a few inches out of true. Correction of the alignment eliminated the trouble. With ordinary trucks there is, of course, considerable wheel flange and rail-head wear on all high-speed curves except those of ex-

tremely long radius. Everyone is familiar with the damage caused by poor surface alignment on the rolling stock, the way structure, and the feelings of the passengers. The ill effects of defective curve alignment are possibly not as serious; certainly they are not as well known. Curve alignment involves more technical difficulties in its maintenance than does surface alignment, and maintenance of any kind costs real money in these days of imaginary net earnings. Just what the golden mean should be is a difficult economic problem which like many other way maintenance problems involves a lot of elusive variables. The problem is one which seems to merit serious thought, however.

#### Cheerfulness and Courage Needed—No Time for Despair

**"C**OMPANY does not own any street railways." When this fact is cited in a recent newspaper advertisement by a brokerage concern as one of the reasons why a new issue of bonds of a lighting and power corporation should be attractive for investors, a person may well stop to consider whether the electric railways in our country have reached a stage of disrepute. As a tonic for such pessimists we would suggest the reading of a statement from President P. J. Kealy of the Kansas City Railway company printed in the Dec. 7 issue of this paper.

We must frankly concede, of course, that our industry is in sore need of a restoration of confidence. This is reflected in the attitude of some of our leading operators, as may be judged from the discussion of the municipal ownership resolution presented at the recent annual meeting of the American Electric Railway Association. We believe with Colonel Kealy, however, that, having weathered the storms of the past few years and having overcome the public thought of connecting an electric railway ride with a nickel, the present is no time for raising the white flag of surrender.

The electric railway is now recognized as a national institution. It has not yet won all the support that will be necessary to pull it from the Slough of Despond, but it is being recognized more and more as an essential industry. Its representatives are to be criticised perhaps for having left the public ignorant so long of the value, cost and fair price of what it has to sell.

It has been said that a certain mental attitude will place a person in a condition susceptible to disease. We believe also that the lack of courage, the giving way to depression, on the part of electric railway representatives will do much harm to the industry. As President Kealy says: "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." This represents from six to seven billions of the people's money. It is a considerable sum, and the commissions that have been set up in the several states can do much to protect this investment.

We believe the electric railways can be set on a foundation so stable that it will be no recommendation for a corporation to advertise that its securities are strong because it does not own any utilities of this class. These railways have passed through a critical period. They are just beginning to get clear from the shackles

of a 5-cent fare, and while many companies have reported resulting traffic losses the net returns are encouraging. At least one company reports that it has not only suffered no loss of traffic through a higher rate of fare, but is collecting more than the theoretical increase in revenue, due to a friendly public attitude and to the additional safeguards that have been thrown around the collection of fares.

What the industry needs is cheerfulness and courage. We know perhaps better than ever wherein we have suffered in the past. It behooves our representatives to profit by experience and to keep up the fight for our rights. *Nil desperandum!*

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### More Electric Railway Service Is the Need of These Times

**I**N outlining the probable trend of economic development in the coming days of peace, the Guaranty Trust Company of New York in a current pamphlet remarks that the need for new transportation lines will be more urgent now than before the war. It justifies this belief by the statement that the demand for foodstuffs and raw materials of manufacture will give extraordinary stimulus to the settlement and development of the frontier regions, and the speedy prosecution of a transportation program will be possible because of the war increases in the steel-producing and shipbuilding capacity of the world.

While the comment mentioned referred particularly to steam railroads, we believe that electric railways must also share in this general development of transportation. Just as the outstanding progress of municipalities in the last four decades has been closely associated with the installation and the development of local transportation lines, so the continuance of urban growth will be intimately connected with the better utilization of electric railways.

But these words "better utilization" imply readjustment. We do not refer to the physical changes that must be made in property and equipment to enable full advantage to be taken of the growth of urban population, of the necessity for better intra-urban and inter-community freight service, and of the opportunities in the way of heavy electric traction. The technical genius of the industry will adequately care for these matters. We have in mind rather the necessary improvement of the economic and social relations between electric railways and the public served.

More electric railway service is needed, and it will be furnished if capital can be attracted to the industry.

But to accomplish this the public must be willing to pay for the service rendered and to co-operate with the railways in civic development. Individual electric railway operators have been accused of various wrongdoings; they have been guilty of many, but the intelligent public is beginning to realize that the whole industry should not be damned because of the faults of a few. Similarly the public has been blamed for many injustices, but farsighted operators agree that public supervision of utility operation cannot be destroyed.

The electric railway autocrat who has no regard for public welfare and no conception of his opportunities for social service is going; the representation of the public on boards of directors or on boards of control points to his ultimate elimination. Likewise the citizen who wants electric railway service for nothing is disappearing; the enforced abandonment of scores of lines has let a ray of light into his cerebral darkness. We have faith both in the full public recognition of the electric railway as the most efficient and generally desirable means of local transportation and in the complete exercise by railway officials of their public responsibilities. We therefore face the readjustment period with confidence.

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### Politics and Business Do not Mix Well

**T**WO striking examples are being furnished of the confusion caused when important business enterprises are linked up with politics. One is the condition of the steam railroads. The other is the Hog Island shipbuilding enterprise of the American International Corporation. The trouble lies in the fact that the ideals of the business man and the politician differ. The former aims constantly toward efficiency of production, whereas the training of the latter tends to make him sacrifice efficiency every time for his own political advancement. If, therefore, the politician thinks he can make political capital out of exploiting for its disadvantage any business enterprise he is pretty apt to do so, irrespective of the ultimate effect on the public. The steam railroad systems seem fated for some time to be a political football, and the experience of the shipbuilding company mentioned will act as a constant deterrent to capital to engage with government in business. These instances show what may be expected with municipal operation of electric railways, or even with municipal partnership unless the terms of the contract are drawn very carefully and the responsibilities and rights of company and municipality are very clearly defined.

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## Our Statistical Number

It will contain statistics of the cars ordered and miles of track built during 1918 as well as the receiverships, foreclosures and abandonments which have occurred during the year. In addition, there will be a number of important feature articles by prominent authorities in the electric railway field. They will describe recent developments in service-

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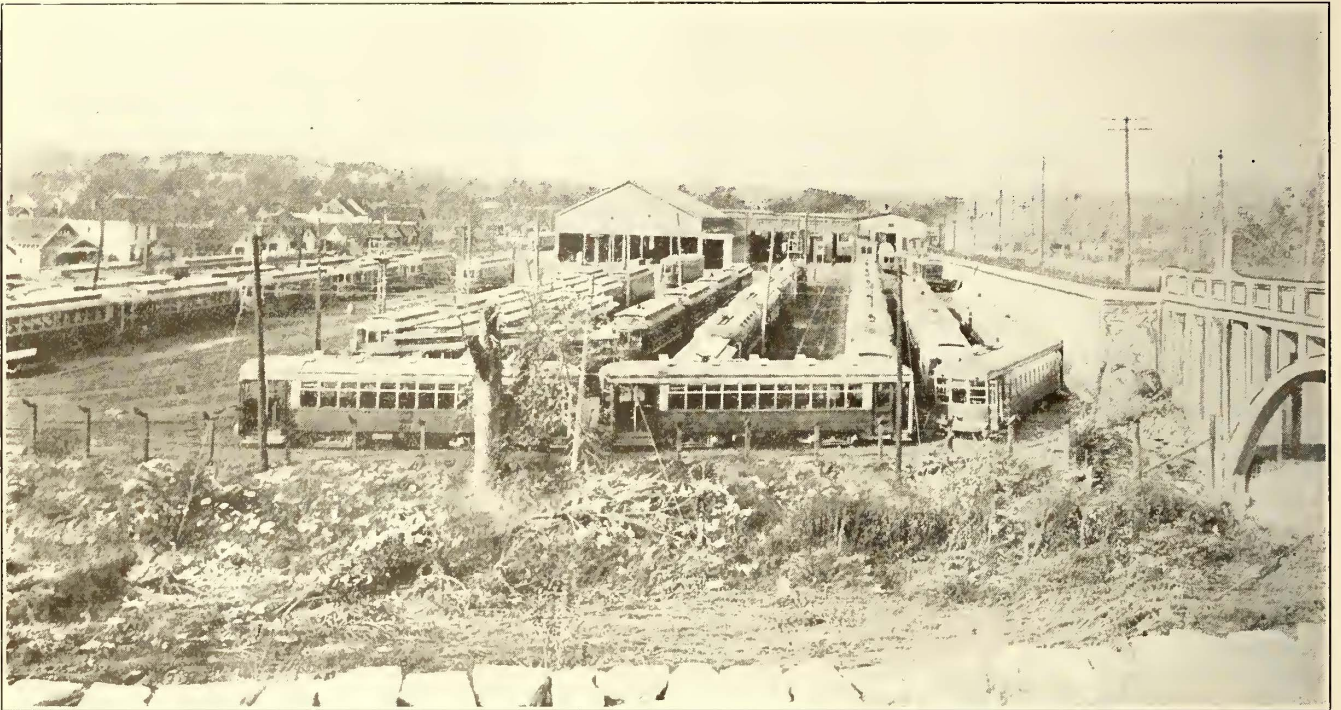
at-cost franchises, freight haulage, skip stops and the electric railway work of the Division of Housing and Transportation of the Emergency Fleet Corporation and that of the Transportation Division of the United States Housing Corporation. Mr. Gadsden will also discuss the future of the electric railway industry.

# Storage Yard Rearrangement at Kansas City\*

Indoor and Outdoor Car-Storage Capacity, Car-Handling Facilities and Fire Protection Have All Been Increased, Almost Entirely by the Use of Salvaged Material

BY A. E. HARVEY

Superintendent of Way and Structures, Kansas City, (Mo.) Railways



REAR VIEW OF RECONSTRUCTED KANSAS CITY YARD SHOWING NEW REPAIR SHED

THE exigencies of war have taxed the ingenuity of all to secure material and to reduce costs of improvement work that, in many cases, is essential to economical operation. It has forced the shifting and salvaging of material, and the overhauling of junk piles that would not have received consideration in other days. After all, many of these things that have been done should have been the practice in days of ease rather than forced by war conditions, and the lessons learned should be lasting and of value to all after normal conditions return.

These thoughts are suggested by a review of the work of increasing the capacity, improving the conditions and simplifying the operation of the yard of the Kansas City Railways located at Forty-eighth Street and Troost Avenue. This work has been done during the past year with a minimum amount of labor and new material by utilizing salvaged special work and buildings, and rearranging the existing material.

SALVAGE FOR NEW TRACK ARRANGEMENT REPRESENTS  
A SAVING OF \$16,000

The former layout at this place was designed for the use of double-end cars, and the old track layout was not adapted to the handling of single-end cars to advan-

tage. In other ways also the plant was not adapted to present requirements. The buildings were substantial, fireproof structures and represented a considerable investment which would have been practically without value if the plant had been abandoned and a new yard established elsewhere.

Referring to the old track layout shown in one of the accompanying figures, it will be noted that the arrangement was such that cars were dispatched from the carhouse both east and west on Forty-eighth Street, that a wye was provided for each line and that all single-end cars had to be backed into the yard. This resulted in endless confusion and delays when the cars were coming in, not only to those cars that were going into storage, but to those that were to be turned for the outbound trip. Extensive studies were made of arrangements to better conditions, but all of them called for a considerable expenditure of money for new special work and for the elimination of the pit house and trainmen's building, so that they were impracticable at present.

The first step in the rearrangement actually made was to connect up the tracks at the rear of the yard so they could be used from both ends. The special work and the crossovers used at the rear of the yard were all salvaged from other locations and from the scrap pile. The turnouts were taken from the entrance to the old

\*For another article on the subject of remodeling car-yard layouts see ELECTRIC RAILWAY JOURNAL, March 24, 1917, page 535.

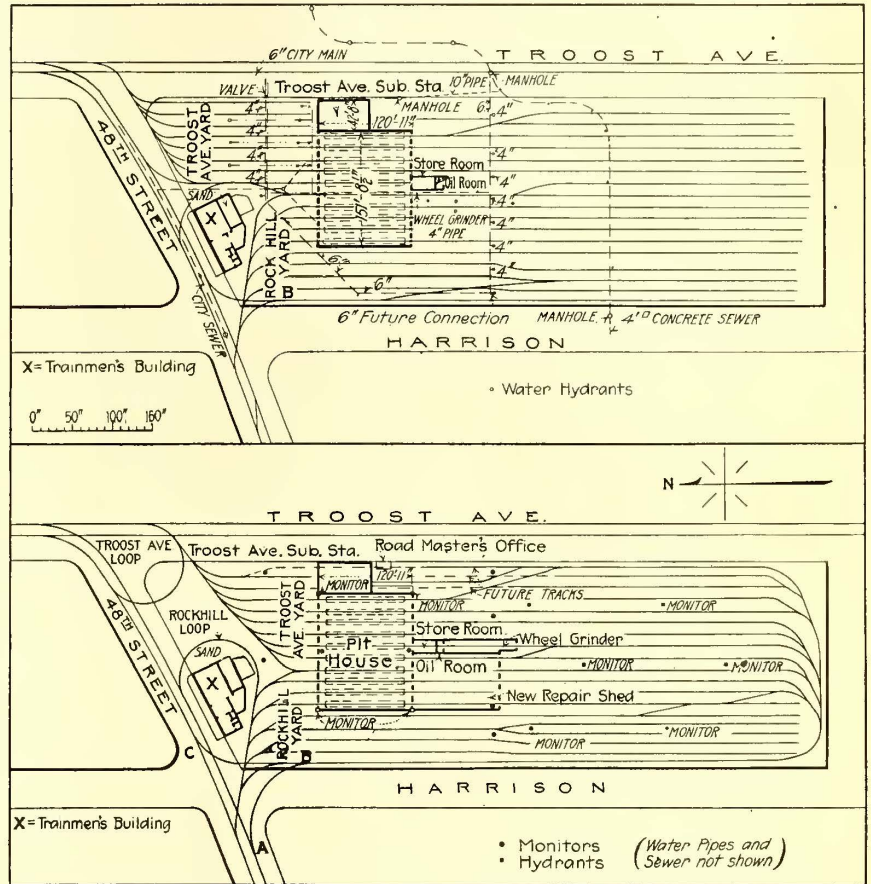
carhouse recently abandoned on Southwest Boulevard. They had been in use some twenty-five years, and certainly did look rough. With some repairs and the application of an arc welder they were put into such condition that they are now giving as good service as new work and will probably last for five to ten years in the new location. The same results, so far as car movement is concerned, are being obtained with this work as would have been obtained by the use of new work costing approximately \$5,500 for the steel alone.

In the rearrangement of the front of the yard the Troost Avenue ladder was moved back and a loop was installed. This required two additional switches and a diamond, practically new but salvaged from work changed in other parts of the system, and new turnouts into tracks Nos. 9 and 10. This change caused some reduction in car-storage space in front of the pit house, but this is more than compensated for by some additional tracks installed at the rear of the yard. The old plan provides storage for a total of 203 cars, the new one for 205 cars on tangent track plus the space on curves and special work. On the Rockhill division side of the yard the ladder has been left intact and becomes part of the loop. This loop is arranged to operate to the right in order that the cars may trail the switches. The wye (points A, B and C) at the intersection of Forty-eighth and Harrison Streets, which might be required occasionally, was reversed by changing the east turnout of the wye to the north track and adding a new curve at the southwest corner of Forty-eighth and Harrison Streets. The purpose of this is that in addition to forming a wye the track arrangement is such that the cars can be placed in the yard without reverse motion. Cars arriving at the yard for storage from the Rockhill side, instead of taking the loop head in on track No. 1 are stored from the rear without interference with cars using the loop. Exception to this applies to tracks Nos. 2, 3 and 4, which have to be filled from the front when the movements on the loop are at a minimum. Cars for storage from the Troost Avenue side move west on Forty-eighth Street past the loop and head in on track No. 1 for the storage from the rear, which will very materially facilitate the use of single-end cars and clean up the congestion that otherwise is bound to occur should they be backed in around the loop and over the ladders at the front of the carhouse. Only two additional switches and one diamond crossing were used in the rearrangement of the Rockhill wye, and these also were salvaged. The total cost of the track changes was \$25,274. If all new special work had been used it would have been \$16,000 additional.

The buildings at this yard are substantial, fireproof structures, but are not of sufficient size to meet modern

requirements. They are so placed as not to lend themselves readily to enlargement or development, and so have influenced the rearrangement of tracks, etc.

The pit house, with pit room for twenty cars, is all that could be desired, but in the past the full benefit of this has not been available, largely on account of lack of connection to the tracks from the rear. This feature is, of course, corrected by the new track arrangement. The wheel grinder was located on track No. 10, the only track connected to both the Rockhill and the Troost sides of the yard, consequently the use of this track was practically nil. A new grinder pit was therefore constructed on the dead-end track in the rear of the storeroom, and a shed that separated this work



OLD AND NEW ARRANGEMENTS OF TROOST AVENUE YARD  
Tracks Numbered from 1 to 18 from West to East at North End of Yard

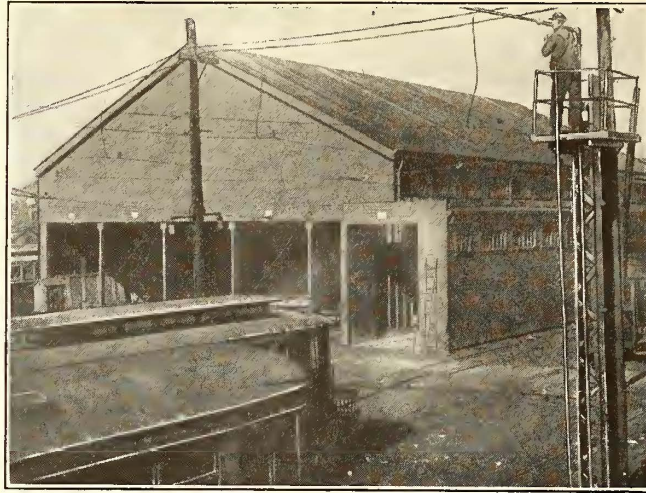
entirely from other work in the shop was constructed. Track repairs and the rewheeling of cars formerly had to be carried on in the open, the pit house being the only shelter in the original layout and this, of course, was not adapted to much of such work on account of the pits. As a result there was added to the pit house a shed, 115 ft. x 75 ft., for shop purposes. The steel frame for this shed was all salvaged, as it originally formed the shed covering the wye on the elevated road at the old Union Depot. As the trusses had a span of 75 ft. the only alteration required in the steel was to splice out the columns so that eventually a second floor could be added to the building. The building is floored with a granitoid concrete and is well lighted. The substation east of the pit house was erected many years ago, before the present-day requirements were foreseen. In its present location it is an obstruc-

tion to the full development of the space and will soon be removed, thus clearing the way for three more through tracks in the yard. In making this change, however, the destruction of the building is not contemplated. The ends will be removed to permit the extension of the tracks through the building, thus increasing the amount of covered trackage. The upper part of the building may, by the construction of a floor, be made available for office or storage purposes.

The office building is entirely inadequate for the present requirements, but under the old track arrangement it was not possible to make any extension. It is, however, so constructed that a second story can be added, and, with the rearrangement of the tracks, this second floor can be extended east along the Forty-eighth Street front over the loop. The way is now clear for extensions to the present building which will make it modern and adequate for the future as well as present demands.

#### FIRE PROTECTION INCREASED BY INSTALLATION OF TOWERS

Not the least important matter in a car yard of this capacity is that of fire protection. In the original plan such protection was provided by a line of hydrants in alternate spaces between the tracks across the middle of the yard, each hydrant being equipped with a hose house and a reel of hose. Protection of this kind is to a great extent uncertain. There is always the danger that hose long unused will have deteriorated and will break in an emergency. Then there is the further

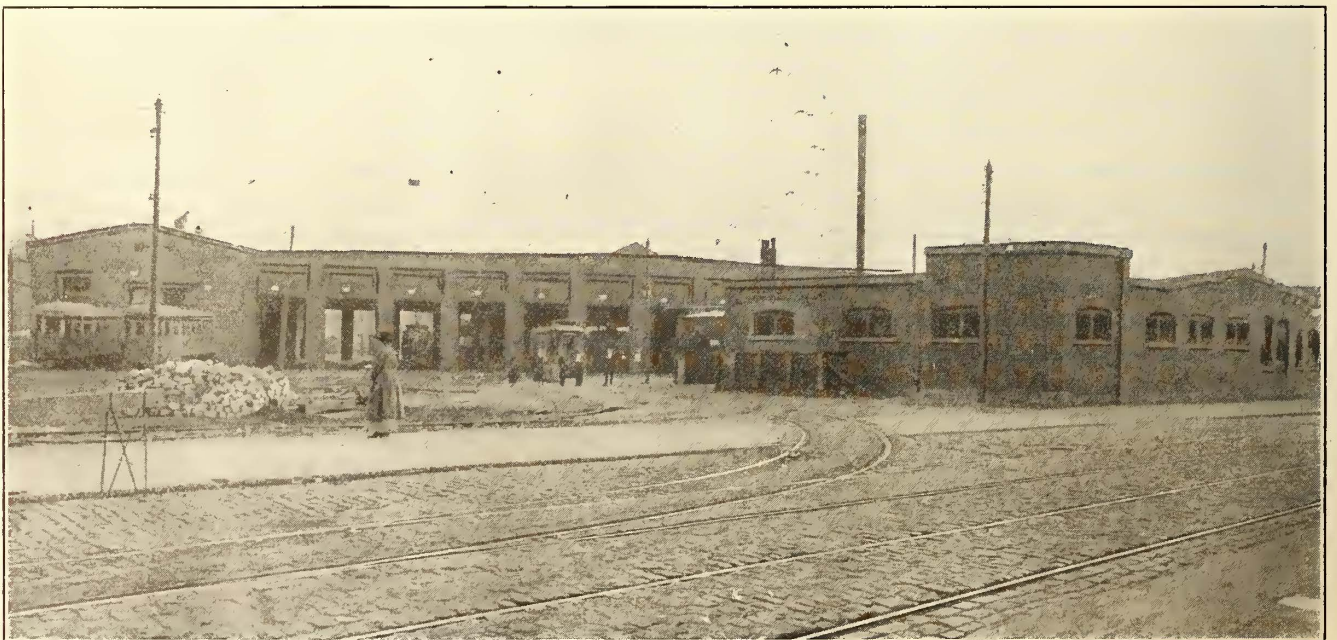


NEW REPAIR SHED AND GRINDER HOUSE WITH WATER TOWER IN THE FOREGROUND

difficulty and danger of attempting to string hose through a yard from which the cars are being moved away from a fire, thus making it practicable to string the hose only between tracks or else assume the liability of its being cut by the movement of cars. Such protection is not to be compared with that afforded by towers. In the new plan six towers topped with monitor nozzles have been erected in the rear of the yard and a nozzle has been mounted on each

corner of the pithouse. Every part of the yard can be reached by at least one, and generally more than one, of these streams. The towers are at such height that a car window can be broken and inside fires thus easily reached. Hose reels are also provided at the bases of some of the towers, and there are other hydrants and hose reels for use in fighting inside fires.

The same structure which furnished the frame for the carhouse addition furnished the steel towers upon which the nozzles are located. These were posts supporting the elevated tracks at the old Union Depot. They are very heavy and provided with heavy cast-iron bases. As scrap they are worth only \$56, but could be replaced in their present locations and use only for hundreds of dollars, and then only by lighter construction. They are, of course, heavier than necessary, but this is advantageous without extra cost. Towers of this kind take up less ground space than hose and reduce the number of poles required in the yard for use of overhead. The only work required to make these columns available for towers was to add a ladder and a platform.



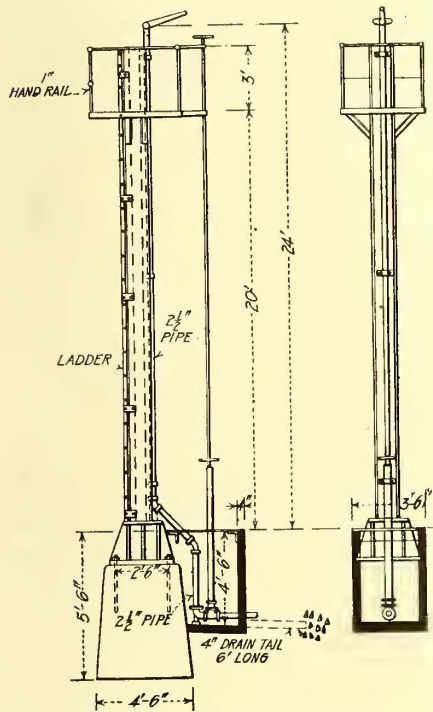
FRONT VIEW OF PIT HOUSE, SUBSTATION AND OFFICE BUILDING WITH OLD TRACK LAYOUT

The towers are 25 ft. high, and the monitor nozzles discharge 250 gal. per minute with an effective radius of 120 ft. at a water pressure of 110 lb. per square inch. Fires are, of course, attacked with chemicals and hose if inside of cars, the great value of the tower system being in its effectiveness in stopping the spread of fire and confining it to the point of origin.

Arrangements for handling sand at this yard have also been materially altered. In making the yard rearrangement the sand house interfered with the extension of the Rockhill loop and made some change necessary. The old facilities consisted of a pit in which were located a sand dryer, a screen and an elevator, a concrete bin above the ground in which wet sand was

stored, and a steel bin to which the dry sand was transferred. This arrangement was exceedingly expensive to operate as, even with all the machinery, the sand had to be shoveled and handled at a disadvantage. In the new arrangement the concrete bin has been converted

into a dry-sand bin and serves the Rockhill loop. The steel bin has been moved to one side and made to serve the Troost Avenue loop. All the sand is now dried at a central



TYPE OF MONITOR NOZZLE TOWER USED FOR FIRE PROTECTION

sand-drying plant at another location and delivered to this place in dump cars. The pit below the track level has been changed so that sand can be dumped directly from the cars into this bin, whence it runs by gravity to the foot of the elevator and is transferred to the dry-sand bins, making as a whole a very handy and economical arrangement.

The rearrangement of the yard has not been expensive as compared with the results obtained. The looping of the cars has very materially facilitated their movement and avoided congestion in the street, and cannot but have a tendency to reduce the time and labor required in sending out and storing cars. The yard capacity has not only been maintained, but increased.

The working conditions, on account of these arrangements, have been improved, and not the least advantage is that the layout adjusts itself to the present location of the trainmen's building which, under any other arrangement, was an obstruction to the development of the yard. This building can now be utilized in its present location and, as noted elsewhere, the space has been cleared of the tracks so that it may be extended to meet both the requirements of the present and any future needs.

## Eastern New York Power Companies Made Coal-Saving Record

COAL saving at the rate of 5000 tons a month has been effected by six power companies of eastern New York by a plan of joint operation and the use of water power heretofore wasted, undertaken at the suggestion of the Fuel Administration. This record in coal conservation was effected without a change in existing equipment or additional cost to the power companies, and the success which attended the operation of the plan has been so marked that the companies interested are anxious to continue it.

The companies which combined and carried out the plan through a joint committee made up of their regular organizations, serve what is known as the "Capital District," including the cities and towns of Albany, Troy, Schenectady, Amsterdam, Mechanicsville, Cohoes, Saratoga, Glens Falls and adjacent territory. In the hands of the joint operating committee and using the available resources of the six power companies a two weeks' test was begun on Oct. 23. In that period electric energy equal to that generated by the burning of 2450 tons of coal was developed from existing equipment and the natural river flow which otherwise would have gone to waste. The generating companies were thus able to market heretofore unused power, and the coal-burning companies were able to get power at a saving over their own costs.

Following are the companies co-operating in the joint operation plan: Adirondack Electric Power Corporation, Glens Falls; General Electric Company, Schenectady; Municipal Gas Company, Albany; Cohoes Power Company, Cohoes; Hudson Valley Railroad, Mechanicsville, and Schenectady Power Company, Schaghticoke.

Some time ago the Fuel Administration, with the co-operation of the power companies, made a thorough investigation of power conditions in eastern New York. As a result of this investigation the power companies were asked to combine in a program of joint operation, a plan made possible by connecting transmission lines already in existence, and the substitution of water for steam power. This was promptly agreed to, the available resources of the companies were placed in the hands of the joint committee and an operating department appointed to carry out the distribution of water power.

Using the existing equipment and organizations, and without additional labor cost, the two weeks' trial was commenced. At the end of that period "there was such unanimity of thought," says the report to the Fuel Administration, "that the question of continuing did not enter the discussion of the joint committee, but simply the endeavor to secure the success of the scheme by agreeing to the costs of power sold by the hydro-electric companies to the coal-burning companies in place of burning coal."

A fuel which is said to be finding favor consists of a mixture of 95 per cent of anthracite screenings with 5 per cent of water-gas tar. The calorific value is from 12,000 to 14,000 B.t.u. In a reported boiler test one-third more capacity was developed with the composite fuel than with ordinary coal.

## Union Station Loop Operation in Denver

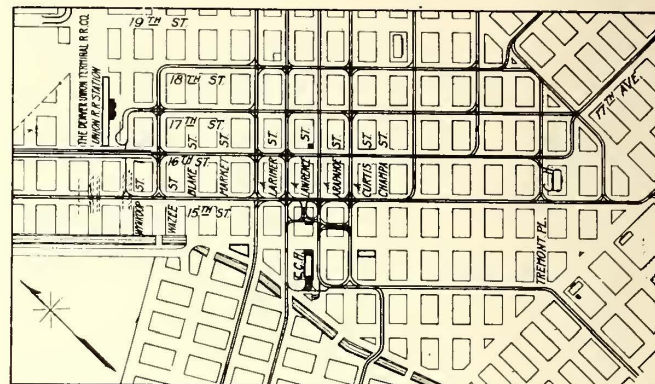
After Years of Controversy in Denver Tracks Are Laid on Depot Grounds and Company Now Gives Quick Service

FOR many years the Denver (Col.) Tramway has not been permitted to give through car service within a block of the Union Station. Small double-end cars have operated up and down Seventeenth Street as far as the east side of Wynkoop Street, but through cars from the residence district have at the nearest looped a block away on Wazee Street, and in most cases have turned many blocks away at the central loop. The Tramway and the citizens of Denver have wished better facilities to the depot, but the city and the railroads would not back any proposed plan. They considered a loop impossible because of the location of several steam railroad tracks on Wynkoop Street, which runs in front of the depot. These tracks served various industrial plants, and were also, to the annoyance of visitors, used for switching purposes and for the storage of freight cars.

In August, 1917, the State Public Utilities Commission issued an order calling for more satisfactory service to Union Station. The necessary surveys were completed about a year ago, and after long negotiations with the railroads permission was granted to install a loop on the station grounds.

Construction work began immediately and produced no serious problems. Part of the railroad tracks were removed from Wynkoop Street. One stub track, which does not cross Seventeenth Street, was left along the east curb to serve the industrial plants in that block, and a short section was made over for street car use. The Tramway's tracks in the paved section were laid on International steel ties with concrete foundation and with paving of various types, including plain concrete, concrete mixed to imitate brick, plain brick and stone block. The track entering the loop from the street is placed at the elevation of the sidewalk for the convenience of passengers boarding and alighting at the station entrance, while the exit track is at street

level. The loop is made by a 45-ft. curve among the trees of the station lawn and is built on wood ties ballasted with crushed stone. The new layout is shown in the accompanying panoramic view. Upon the completion of the construction work, full-

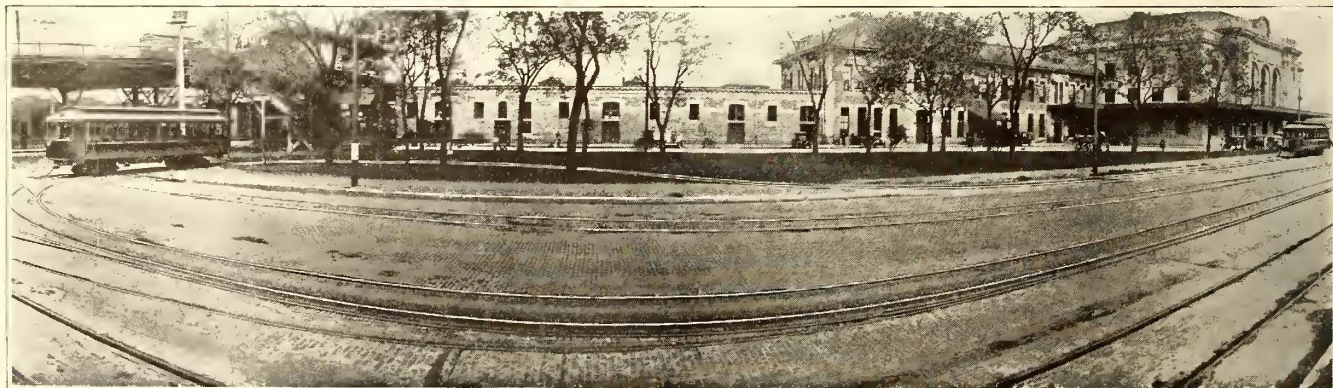


MAP OF MAIN BUSINESS DISTRICT OF DENVER SHOWING PRESENT ROUTING OF UNION STATION CARS

included a trip around the loop by the public utility commissioners and engineers, with General Manager Hild acting as motorman.

### REROUTING GREATLY INCREASES SERVICE

As a result of the opening of the loop there are now eight through routes from the residence districts giving service to within 50 ft. of Union Station entrance. These are indicated on the map, which shows the main business section of the city of Denver. Route 20 (Seventeenth Avenue), route 30 (Madison) and route 40 (Park Hill) operate from Seventeenth Avenue straight down Seventeenth Street around the loop and back the same way. These lines all run out to City Park, and the Capitol Hill and Park Hill residence sections, and on these service has been increased 25 per cent. As a result of this operation, route 47 (Seventeenth Street) has been discontinued and the double-end "dinkies" retired from service. Route 11 (Eleventh Avenue) and route 33 (Thirteenth Avenue) run from Broadway down Fifteenth Street to Tremont, cross



PANORAMA OF DENVER'S NEW UNION STATION LOOP

level. The loop is made by a 45-ft. curve among the trees of the station lawn and is built on wood ties ballasted with crushed stone. The new layout is shown in the accompanying panoramic view.

Upon the completion of the construction work, full-

Tremont to Sixteenth Street, operate down Sixteenth Street to Larimer, cross Larimer to Seventeenth Street, and run down Seventeenth to the loop, returning the same way. Route 2 (Broadway) and route 9 (Louisiana) operate from Broadway down Fifteenth Street



to Larimer, cross Larimer to Seventeenth Street and operate down Seventeenth to the loop, returning the same way. Service on route 2 has been increased considerably, and on route 9 it has been doubled. The small double-end cars have also been taken off route 58 (Eighteenth Street) and standard center-entrance cars now operate from Broadway down Eighteenth Street to Wazee, cross Wazee to Seventeenth and operate down Seventeenth to the loop, returning the same way.

Cars from these eight lines now make the loop with schedules of from five and one-half minutes to twenty minutes, which during the peak period, puts a car around the loop every forty-five seconds.

## Preparing For and Managing Strikes

### Ways and Means that Have Saved Money and Trouble When Men Were Imported During Labor Troubles

**E**LECTRIC railway systems in the past have had a generous share of labor troubles, and in the solution of these problems, ways and means have been developed that would have been almost invaluable had they been arranged beforehand. Experience of this sort does not appear in the records and files, except in an indirect way. Usually one or two men in each company which has had strikes are entrusted with matters of this sort because of experience gained during previous labor troubles. A representative of the *ELECTRIC RAILWAY JOURNAL* recently collected such constructive ideas as could be secured from several roads and prepared the following outline. Reference is made only to methods which have been approved after trial.

When there is advance warning of a strike, plans for bringing in outside men should be perfected as early as possible. An effective means of getting the men quickly is to arrange with a detective agency which maintains offices in several cities. Newspaper advertisements will bring the men to the offices, and an operative assigned to the work employs those found qualified. By drawing upon several cities it is believed that a better class of men is secured, and there is avoided the danger of inter-organization that might occur if all the men were taken from one town. Moreover, there is less cohesion among a group of men from several towns, and they are less inclined to organize after coming on the job than would be the case were all brought in together from a single source. Drawing from several cities, of course, costs more, but the expense is believed to be justified.

After the strike has actually been called and there is no longer any need for avoiding publicity, help-wanted "ads" can be run to advantage in the newspapers of small towns within 150 to 200 miles of the city. These advertisements should state the nature of the work and give the physical requirements, age and training necessary. This is a particularly productive source of recruits, and the class of men secured is highly desirable.

An all-important feature of the plan of employment is the contract with the prospective substitutes, which must be made at the time they are accepted by the employment agent in the distant city. The purpose of the contract is primarily to insure an understanding

about rates of pay, thereby avoiding arbitration or disagreement over this question while men are on the job. Five different rates of pay can be stipulated if desirable. The first rate is a nominal fee, say \$1 or more, which the prospective employee receives daily for reporting at the detective agency after he has been accepted by the employing agent and before it has been finally decided to ship the men. This is a guarantee of good faith on the part of the company and keeps the men available for call within twenty-four hours whenever the crisis comes. The second rate of pay is that which the men are to receive while traveling from the place of employment to the scene of action and vice versa. A third rate covers the rate of payment after the men have arrived at their destination but before they are actually at work on the cars. This rate may be the same as that agreed upon for the period of transportation. A fourth rate should be stipulated for the time that the men may be at work on the cars but before a strike is actually declared. Naturally this rate would be less than the fifth rate, which would apply when the men are actually working the cars under conditions of strike.

Traction companies without experience who have suddenly faced the emergent need for bringing in large numbers of new men have sometimes entirely overlooked the fact that such a contract can be made just as well as not. The oversight has increased costs enormously because full wage rates had to be paid while the men were being transported or waiting for the impending strike to reach the breaking point. Desirable men are not frightened away by the terms of a contract such as that outlined above, because it makes fair allowance for the degree of service which the employee renders. On the other hand, by the adoption of the contract plan at the outset, \$60,000 was saved on one strike in the West, in the course of which large numbers of men were brought in from Eastern points. Another feature of the contract which should not be omitted is the clause nullifying the contract and forfeiting the employee's claim to return fare in case of dishonesty or drunkenness. The company can be made the sole arbiter on these questions.

#### HOW THE MEN MAY BE HOUSED

Once the strike breakers arrive on the job it is highly important that they be isolated from outside communication. In one instance, the president of a carmen's union was employed, unsuspectingly, as a strike breaker and was quartered with others in the "stockade" provided by the company. The men were not of a class among whom this organizer could work to advantage and therefore, due to the company's policy of isolation, he was prevented from doing harm in the only remaining way, that is, by spreading false reports and arousing the public against the company. This latter means is usually effected by giving "stories" to newspaper reporters after the strike breaker has received permission to leave the stockade on some such pretext as the necessity of sending a telegram.

Careful planning will be required to keep the men contented or, in fact, even manageable after they have arrived at their isolated quarters, particularly if they are held there, inactive, for some time. It is highly essential that the immediate supervision of the quar-

ters be intrusted to one official and that he have absolute authority. He will find it wise, for example, to make his own inspections, give unfailing attention to the food served, and let it be known that complaints of individuals may be brought to him personally. Only in this way can the likelihood of dissatisfaction and riots be entirely prevented. Careful checking of conditions in the dining room should have to do not only with the quality of food, but they should be made in such a way as to prevent the commissary force from surreptitiously putting a tipping system into effect.

#### HOW TO ORGANIZE THE MEN

As soon as the quarters are established where the men are to be held awaiting service, a systematic plan of organization, work and recreation should be at once instituted. It is more than possible that there will be a sympathetic boycott which will prevent union plumbers, carpenters, etc., from doing any work in the premises. With this in mind, it is worth while to classify the new men at the earliest opportunity so that plumbers, carpenters and other craftsman among them can be readily found by name or number. These men, for slight increase in pay, may be able to save the company from difficulty with the city building inspector's department or other embarrassing situations arising from inability to get local craftsmen. All work for which special pay is given should be carefully recorded by a timekeeper. This is very important if the men are managed by a leader through whom they were employed. The timekeeper's record prevents the leaders from "knocking down" on the men when they are paid through him as an intermediary between company and individual.

Where small jobs are involved, such as cleaning out the quarters, or regular janitor service of some minor character, it is better to call for volunteers, offering to pay in tobacco rations. There will always be men in such a collection who will cheerfully perform minor tasks for a little additional tobacco, whereas there would be much grumbling over the rate of pay for this as extra work. Tobacco rations should be issued daily, each man being given the choice of a package of cigarettes, a plug of chewing tobacco or a corncob pipe and smoking tobacco.

The most economical method of providing medical attention, in case the company does not have its own doctor, is to arrange with a local physician to be in attendance for a short time once a day, making it known among the men that those who require medical attention should line up for sick call promptly at the specified hour. It is an economy to have the men who line up for sick call inspected first by one of the company officials who has some slight knowledge of medicine. About 50 per cent of the men who report for sick call will have some minor complaint which can as well be attended to by an assistant, thus effecting a considerable saving of the doctor's time. The doctor should be required to make a daily report of the names of men examined and prescriptions given so that a check may be made of the men who repeatedly appear for sick call.

One of the most essential problems is to provide athletic amusement for the men. Effort should be made to find some one among them who has some ability as a ball player, for example, and who can be appointed sport captain—for which he may be compensated, perhaps,

by an extra tobacco ration. If the weather is favorable it will be found advisable to provide sufficient baseball paraphernalia and to make the sport captain responsible for its return to the company. A good rule is to issue the separate pieces of equipment to anyone who applies, only requiring that the items be noted on the reverse of the applicant's identification card.

Where the men are listed and paid by the identification card system, it is a good plan to use the card for recording privileges which the strike breakers may desire. The men respect the use of the card absolutely when no other system would avail because they cannot get their pay without the card. For some of the more important concessions it may be advisable to take up the card in exchange, but where equipment is loaned to the men, such as shaving outfits, blankets, etc., a memorandum of these on the back of the identification card is sufficient insurance for their return. It is wise to check in supplies as they come and to check out the men as they go to prevent the disappearance of company property.

To prevent trouble over the loss or theft of personal property brought in by the men, a checking room should be maintained. It is also desirable to provide, if possible, barber shop, laundry facilities and shower baths. A good way to avoid confusion and dissension over sleeping quarters is to have the cots numbered to tally with the identification cards. In addition to the close watch and inspections maintained by the man personally in charge of the quarters, it is a good plan to have trusted company employees regularly quartered among the strike breakers for the purpose of reporting any internal dissension or moves toward inter-organization.

#### SERVICE ON THE CARS

As soon as feasible after the new men have begun work on the cars they should be provided with a new and distinctive badge. This prevents striking employees from coming on the platforms and being mistaken by strike breakers for some of their own number. Moreover, the psychological effect of the "emergency" badge is good and is particularly desirable in the days when prospective settlement of the strike is in sight. During the strike the traction company should not overlook the necessity of advance arrangement for guards. At least some of these must have local, county or state authority. They can be sworn in as special police or deputy sheriffs, thereby acquiring full police power. These men should be kept at central points and automobiles should be available for their speedy transportation to any scene of impending trouble. Orders should be issued to make sure that a record will be made of the exact time and nature of each report of disorder or disturbance which comes in. This is important because the question of whether the city has afforded proper police protection in strike and riot matters is frequently brought up in final adjustment of damage suits.

The National Council of Women of Great Britain is furthering a movement to facilitate the entry of women into engineering occupations, and to secure for them equal rights with men in colleges and commercial establishments. This is being done in the interests of the reconstruction work now being launched.

# New Philadelphia Co-operative Plan

Announced by President Mitten to Take Place of 1911 Plan—  
 Organization of Committees Described—Plan Has Been  
 Indorsed by Employees and National War Labor Board

**P**RESIDENT T. E. MITTEN, of the Philadelphia Rapid Transit Company, has just announced the details of a comprehensive plan for collective bargaining and co-operative welfare. The terms of this plan have been indorsed by the National War Labor Board, and it will constitute the future basis for co-operative effort between the management and all employees of the company.

The plan is, in effect, the original co-operative plan adopted by this company in August, 1911, amended to cover collective bargaining as a distinctive function and with the co-operative welfare features greatly enlarged and improved. Full details of the 1911 plan have been published in the *ELECTRIC RAILWAY JOURNAL*, notably in the issues of Sept. 14, 1918, page 459, and Nov. 4, 1916, page 968. The following description of the main features of the new plan are from a statement just issued in pamphlet form by the company for distribution to the men.

## CO-OPERATIVE EFFORT THE KEYSTONE

The principle of the co-operative plan of 1911, i.e., that employees may belong to any union or other organization without "let or hindrance" is ratified and confirmed; it being understood, however, that in the interest of service to the public, the rules of the company must be obeyed. Satisfactory service insures continuous employment with the company. In the event of there being such a decrease in the business of the company as makes it necessary to reduce the force, those giving the least satisfactory service shall be the first to be dropped from the payroll of the company. There shall be no discrimination against employees who, for any reason, do not become members of the Co-operative Welfare Association.

Co-operative effort is recognized as the keystone of all accomplishment in rendering proper service to the public and good service will be recognized by such advancement as opportunity offers.

The basis of wages is to be the average of the wage scales fixed by the National War Labor Board for the four cities of the first class under its jurisdiction, namely, Chicago, Cleveland, Detroit and Buffalo. By averaging the wage scales of these cities there is obtained a permanent basis upon which to adjust the wages of the employees in all departments from time to time as occasion may warrant and this new basis makes unnecessary the longer continuance of the 22 per cent fund.

## COLLECTIVE BARGAINING

The principles of the collective bargaining feature of the new plan are stated as follows:

(1) The workers shall have a free and independent vote for representatives for proper collective bargaining and (2) proper committee organization of such representatives so that class and group contact may be as-

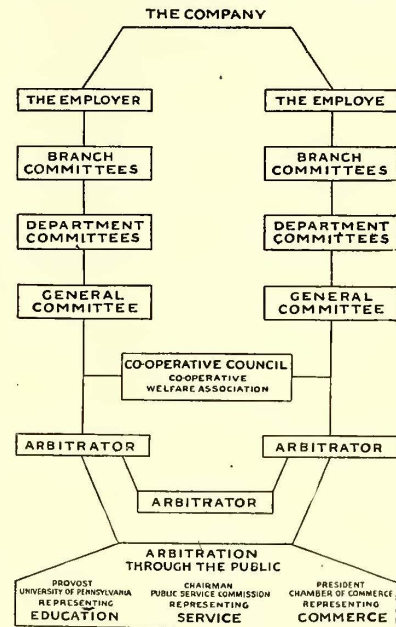
sured and the integrity of workers' committees be established and maintained as such.

The following procedure is outlined in the plan:

Differences are settled through the medium of (1) branch committees, (2) department committees, (3) general committees, and (4) board of arbitration. Any local point of difference must be taken up first by the branch committee at the local branch of origin, but there is the privilege of appeal to the other committees in the order named. All appeals must be in writing and filed with the secretary of the committee.

In the deliberations of these committees, the committee of employees has one vote and the committee of the company has one vote. Either committee may retire

to cast his own vote by secret ballot; then these ballots are returned unopened to the secretary of the committee who counts them under the observation of both committees and announces the result in an open meeting. Each branch committee is made up of two representatives of the workers at each depot, station or division and two representatives appointed by the company, and each committee member serves for one year.



ORGANIZATION CHART FOR P. R. T. CO-OPERATION PLAN

Elections for members are conducted by secret Australian ballot under the direction of an election committee of three members chosen by the department committee for employees. To qualify as a voter, an employee must have had six months in the company's service, be regularly assigned to duty and not occupy an official position with the company. Committee men must have been continuously in the employ of the company for not less than two years. Candidates elected from the transportation department must also be assigned to a regular run.

The department committees are five in number and represent respectively the transportation department, the rolling stock and buildings department, the electrical department, the way department and general office department. These committeemen are elected annually by the employees of each department mentioned and are equalled in number by the company appointment of its representatives. Each committeeman has one vote. The

department committee for the employees consists of all of the branch committee men elected by the workers of the several depots, stations or divisions in that department. The department committee for the employees and the department committee for the company each elects its own chairman. The secretary of the general committee or an authorized representative acts as secretary, but without vote.

#### ORGANIZATION OF GENERAL COMMITTEE

The members of each department committee for employees elect two of their number to constitute the general committee for employees on which there is an equal number of representatives of the company. The secretary for the general committees is appointed by the president of the company but has no vote.

It is the duty of the general committees to devise ways and means for furthering the efforts of the various department committees for the greatest possible good, to promote harmony and good fellowship among all employees of the company, to formulate plans for submission to the several department committees, and to render every assistance within their power toward advancement of the interests of the employees and the betterment of the service. The general committees also have the power to review, modify or reverse any findings or decision of the department committees, and may even change the general plan if in their judgment such a change is desirable. The general committee for employees and the general committee for employer each elects its respective chairman, and the secretary for the general committees is appointed by the president of the company, but has no vote.

Meetings of the general committee are held on the third Tuesday of each month.

#### BOARD OF ARBITRATION

If resort to arbitration becomes necessary, one arbitrator is chosen by the general committee for employees and one by the general committee for employers, these two arbitrators to select the third. If they are unable to agree upon a third arbitrator, then the provost of the University of Pennsylvania, the chairman of the Public Service Commission and the president of the Chamber of Commerce of Philadelphia are to be requested to serve as additional arbitrators or to appoint their own personal representatives to act as such additional arbitrators. Failing unanimous decision, the decision of any three of these five arbitrators shall be binding.

#### COMPENSATION

The pay of all members of the general committee and of the department committees for employees is paid from the funds of the Co-operative Welfare Association and while so employed they receive no pay from the company. The representatives of the company receive no compensation from the association for their services but receive their regular pay as company employees. Expenses incident to carrying on the work of the co-operative plan are paid out of the funds of the Co-operative Welfare Association made up from the dues paid in from time to time by the members of the association and the sum of \$10,000 a month paid in by the company. Membership is open to employees of one

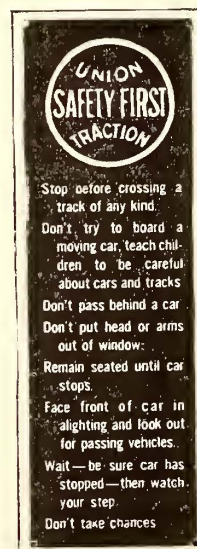
year or more service with fees of \$1 a month, which entitle the members to life insurance, sick benefits and pensions.

The affairs of the Co-operative Welfare Association are administered by the Co-operative Council, consisting of the combined membership of the two general committees for collective bargaining. The president of the Welfare Association is elected by the majority vote of all the members of the several department committees for employees. The company appoints the secretary-treasurer and assistant secretary-treasurer of the Co-operative Council and the chairman of the Board of Directors of the company and the president of the company are made honorary chairmen of the Co-operative Council.

#### CO-OPERATIVE PLAN INDORSED

Advance proofs of the proposed plan were submitted to the National War Labor Board, and under date of Nov. 9, 1918, the secretary of the board advised the company of its approval. The plan has also been indorsed by 8399, or more than 92 per cent of the employees, who have joined the association.

In announcing the amended plan, which will be known as the Co-operative Plan of 1918, President Mitten takes occasion to acknowledge the help he has received in developing these new principles in co-operative effort from many advanced thinkers upon the subject. He states that commencing in 1896, at Milwaukee, Wis., this particular expression of the great thought embodying co-operative effort, was advanced by C. B. Fairchild, Sr., and C. D. Wyman (both now deceased) and its development was greatly assisted by John I. Beggs, whose constructive criticism at that time served afterward to stabilize the effort in its formative period. Mr. Mitten, in conclusion, referring to the latest development of the co-operative plan, as worked out in Philadelphia, gives credit to the assistance of his co-workers and to the earnest, long continued and painstaking effort of the superintendents and their men in combating misstatements and overcoming prejudice by fair treatment and frank discussion.



### An Attractive Miniature Safety Sign

ON ITS interurban cars the Union Traction Company of Indiana, Anderson, Ind., uses tiny brass plates to direct attention to the need for care in order to reduce accidents. One of these is mounted on each side post, and the design is such that the plate harmonizes perfectly with the rich trim of the cars. The company had these plates made about two years ago and they cost at the rate of 10½ cents each when ordered in lots of 500. The accompanying reproduction is on a reduced scale, the actual size of the plate being 2 in. x 6 inches. The borders and the lettering show the bright brass color, the background within the circle is red and that elsewhere on the plate is black.

# Zone Fare Collection As Seen by a British Tramway Manager

The Methods Used on a Typical Road Are Described, Together With the Arrangement of the Stages and the Type of Tickets Issued to Passengers

THE parliamentary charge for transportation in England is a penny (2 cents) a mile, but most large tramways give on an average from 1½ to 1½ miles per penny. The different zones are divided into sections with overlaps. Three definite stages to the penny-zone is considered as the best practice, as passengers are thus enabled to board a car at any convenient point and still get the full parliamentary mile per penny. A route of 6 miles divided into four zones with three stages per zone is shown in Fig. 1. By referring to the diagram it will be seen that a passenger can travel the entire 6 miles for 4d. and between the corresponding points of the two outer zones for 3d.

Tickets are issued to the passengers as they pay their fares. These tickets can be provided with numerals to denote the different stage points or the names of these points can be given instead. Each ticket should be of a different color and have the value of the tickets printed in large letters as an overprint.

On the system taken as an illustration each ticket is numbered and lettered. The numbers are given in four figures from 0000 to 9999 and the letters run from AA to AZ. Each series thus has 260,000 tickets and by using all combinations of letters to ZZ nearly 7,000,000 tickets are available.

The tickets are issued to conductors in boxes. These

boxes are made of tinned or japanned iron and are divided into sections for receiving the various classes of tickets. Each box contains the ordinary full ticket requirements for the day, say 1500 1d., 100 2d., 500 3d. and 1500 4d. tickets, together with workmen's special rate tickets where such are used. A waybill of the form shown in Fig. 2 is attached to each box.

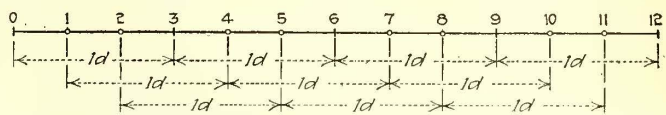


FIG. 1—A SIX-MILE LINE ARRANGED WITH FOUR STAGES

gives the opening and closing numbers in the series of tickets and the series letter of each bundle.

The conductor obtains his outfit of tickets and a punch from the depot inspector or regulator, and signs a check stating that the total number of tickets agrees with the waybill and that the punch is in proper working order. When starting a run the conductor enters the opening number of the series and the bell-punch dial numeral on the waybill. This entry is repeated throughout the day's work at the end of each run and on some lines at the beginning of each zone.

The bell punch has grown into its present form. In the minds of some managers it does everything to check

Route. Box No. 28 Date									
Summary of Tickets issued with this Way Bill and the value of those not returned									
Ticket	Quantity	Letter	Closing No.	No. Out	No. In	Check In	Difference	For office	VALUE
1d	1682	10	28	00	2117	2160	✓ 43		10. 3 9
1d	1279	20	30	00	1613	1866	✓ 253		10. 1 1 1
1d	913	10	00	00	1000				10. 1 10
2d	414	20	35	00	3686	3700	✓ 14	68	2d. 11 4
2d	629	10	100	00	4000	3273	✓ 727	28	2d. 4 8
2d	206	2	119	00	4604	4611	✓ 7		

Time Leaving	Time Arriving	Terminal	Time Leaving	Time Arriving	Terminal	Time Leaving	Time Arriving	Terminal
10 W	10							
10 W.R.	10							
10 W.R.	10							
10 W.R.	10							
10 W.R.	10							
10 W.R.	10							
10 W.R.	10							
10 W.R.	10							
10 W.R.	10							
10 W.R.	10							

Checked out by		TOTALS	PAID IN	Currency Notes	Gold	Silver	Copper	Tokens	Total	Over	Short
3-19-18		534	£ 3 19 6			3 17 6	2 0		3 19 6		
W.R.	2d. W.R.	28									
Numbers of Currency Notes	3d. W.P.	19									
	4d. W.R.	19									
	5d. W.R.										
Punch No.	Register out	Register in	Total Tickets Punched								
1574	6099	6704	605								
Total Registered 605											
Overs or Shorts in Punch or Cash must be explained below											
Motorman's Name <i>Penfold</i> Conductor's Signature <i>Morris</i>											

Punch	Time	Terminal	Punch	Time	Terminal	Punch	Time	Terminal
10 W	10							
10 W.R.	10							
10 W.R.	10							
10 W.R.	10							
10 W.R.	10							
10 W.R.	10							
10 W.R.	10							
10 W.R.	10							
10 W.R.	10							
10 W.R.	10							

FIG. 2—A SAMPLE WAYBILL

fares except bark at the fraudulent conductor. It will clip tickets only having the proper thickness of paper. As it clips it registers the number of the operations and rings a bell. The clippings fall into a receptacle in the punch so that their numbers and their various colors can be audited with the waybill. The punch cannot be opened, for it is sealed with a paper gadget that has to be broken to open the receptacle. The real value of the punch lies in the fact that it defaces the ticket at the time of issuing, and the ringing of the bell informs the passenger that a new ticket is being issued. For checking purposes along the road the dial numbers if visible are of use to the inspector.

Inspectors or spotters board cars at intervals and examine the waybill, the rack of tickets and the dial number of the punch. They also examine all passengers' tickets. Naturally only "pot-shots" are taken since the inspectors on an average can board but one car in every ten or twenty.

It is good practice to require the conductors to fill out the waybill every mile because then the inspector can see at once if any passengers are overriding their alighting zone. At the end of a day's work the ticket box and waybill are returned to the office and the money collected for fares is turned in. When tickets are issued in proper numerical order it is a simple matter to make out the waybill, but where breaks occur in the numbers it is more difficult to make up the bill properly and more work is caused for the bill clerk in checking.

The box is next sent to the traffic office and the depot cash clerk checks the cash paid in with the paying-in slip. Next the boxes are checked by the ticket clerks and the total number of each class of tickets is entered into a ledger. The totals for each value of tickets are transferred to the analysis book so that the aggregate of the various values can be retained for statistical purposes for each route.

A list containing the names of the different conductors together with the total ticket value issued is sent to the chief clerk. A similar list is also sent in by the cash clerk showing the amount of cash paid in by each conductor. When these amounts do not correspond it is the general practice to deduct any shortage from the wages of that conductor, but any excess is retained by the company as it is assumed that the conductor in question has taken fares without giving out tickets. Each conductor is supplied with 5s. in change at the beginning of a day's run. When the boxes have been checked it is the duty of the ticket clerk to fill up the boxes with tickets. This is done from the proper rack so that breaks in numbering are infrequent and occur

only when a new series is opened. The bell punch is reset and the dial is checked with the number of tickets sold. A fresh waybill is made out with the number of tickets sold, and the opening numbers are taken from the closing number of the old waybill. The box is then checked and goes out to its respective depot.

If any particular ticket has to be traced on account of accident, dispute or any other purpose, the ticket clerk can trace the number of the box from the rack and locate the waybill. If the ticket box is lost the opening and closing numbers can be traced from the racks and the waybill of the day previous when the box was in use. The actual numbers and letters on the tickets need never be transferred to any ledger.

The system may seem cumbersome to one unfamiliar with the details but in practice it is simple and the cost is small. Average conductors can grasp the system in a few days.

FRAUDS IN COLLECTION ARE INFREQUENT

The chief frauds that are perpetrated are comprehended under the term "hanging of fares." For example, a passenger boards a car for a 2d. ride. The conductor delays taking the fare until the car has traveled over most of the distance and then gives the passenger a 1d. ticket and takes the full fare. Again, the conductor waits until the passenger is about to alight, then collects the fare and pretends to throw a ticket on the floor when the passenger has alighted. Another method is to give the passenger a ticket properly punched but to enter up the previous number on the waybill at the stage point. The passengers invariably drop their tickets on the seats and the conductor can collect these and reissue a ticket not already entered on the waybill, fumbling with the bell punch at the same time, so as to give the impression that it has just been punched. Conductors seldom tamper with the bell punch or issue a used or dead ticket punched a second time for, in case the car is boarded by a spotter, the ticket with two holes in it is concrete evidence against them.

Workmen travel at cheap rates before 8 a. m., 2 miles for 1d. or ½d. per mile, by statute, and home again after 5 p. m. at the same rates. The usual practice is to issue a return ticket at a single or ordinary value made available for the return journey at any time of the same day.

Transfer tickets are common and they are handled like return tickets. Weekly tickets have been used by many tramways but discarded on account of fraudulent usages, as they become a season ticket for the whole family. Discount tokens are in use on some tramways at a rate of fifteen rides for 1s., but their use is discouraged because conductors purchase these tokens and fraudulently turn them in instead of fares collected, pocketing the discount.

There is no doubt that the ticket and punch system has the highest all-around cash efficiency of any fare-collection system and that this system is sufficiently quick for an average conductor to collect the fare from a full car loaded with sixty or more passengers during their rides.

The inspector's duties are too many to enumerate in detail, but the chief object is to see that each passenger has a ticket of the proper value, that he is not over-

**PUNCH & TICKET BOX RECEIPT.**

Route \_\_\_\_\_ Date 2/9-18

The Tickets entered on the Way Bill are to be compared with those in the box, and any discrepancy is to be certified by the Inspector before the next leaving the car. All tickets not returned will be charged for as if sold.  
Failure to sign this receipt will not exonerate the Conductor from responsibility for all the tickets in the box taken, as sent out from the office.

BOX No.	The Punch and Tickets in the box as entered on the Way Bill have been received by me to account for on behalf of the Company as per notice above.	CASH BAGS DEPOSITED
1 17	<i>Furdy</i>	<i>21</i>
2 18	<i>H. Steedman II</i>	<i>21</i>
3 19	<i>J. Brown</i>	<i>21</i>
4 20	<i>Edwards II</i>	<i>26</i>

14 20	<i>Allen</i>	<i>21</i>
15 31	<i>Jarvis</i>	<i>21</i>
16 32	<i>M. Perron</i>	<i>21</i>

Boxes used \_\_\_\_\_  
 Cash Bags received \_\_\_\_\_  
 Way Bills entered \_\_\_\_\_

FIG. 3—TYPE OF PUNCH AND TICKET BOX RECEIPTS



Each motorman's performance for a complete week is permanently entered on the loose-leaf ledger record described. Less than two hours is required to enter the records of 150 men from 950 envelopes. When hand transcription was used, two clerks were required to work one and a half days in entering the figures and another half day in checking for errors.

The cost of maintenance of the 142 recorders is about \$20 a month, or 0.46 cent a day for each recorder.

## Women Operate "One-Man" Cars in Keokuk

**Results Secured in This City Have Been Uniformly Satisfactory—Women Do Not Lose Their Heads in Emergencies**

EVER since the government began drafting men for the army the question of securing enough men to operate the street cars in Keokuk, Iowa, has been a serious one. About Sept. 1 a number of trainmen either resigned or were discharged, and although every effort was made to obtain others not enough of a satisfactory kind could be secured. The question then arose: Why not try women? Women were being used by the Keokuk Electric Company as substation operators and for testing electric meters, and as a number of women had applied for positions as street car operators it was decided to give them a chance.

The one-man cars that the women would have to operate are of the single-truck, semi-convertible type, weighing 24,000 lb. and have recently been equipped with air brakes, air-operated doors and steps and the 100 per cent, or type A, controller handle with emergency foot valve. The rear doors of the car are kept closed and all passengers board and leave the cars from the front platform. Fares are collected in a fare box placed on the front platform in view of the operator. These cars are therefore easily and safely operated by one man, or woman.

The question of using women instead of men to operate cars was first taken up with the Mayor and City Council of Keokuk, and as they realized the impossibility of getting enough satisfactory men for this purpose they agreed to allow the company to give the women a trial. It was decided to employ only women between the ages of twenty-five and thirty-five, who were physically robust, whose reputation and character were of the best, and who had tact and judgment enough to carry them through the many difficulties that were certain to arise, especially during the first few months and until the public was accustomed to the change. The women entered as students on exactly the same conditions as men and received exactly the same instructions and training. They learned just as quickly as men, and after an average of ten days' instruction were able to take a regular run alone.

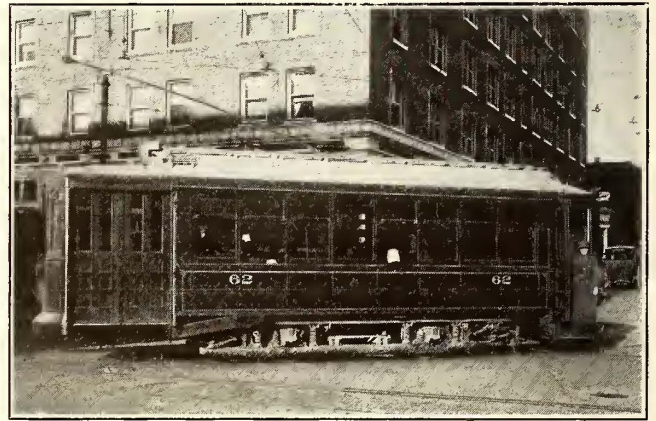
There have now been six women operating safety cars in Keokuk for several months, and during this time both the company and the public have had full opportunity to observe their work. The unanimous opinion of both the company officials and the public is that as safety-car operators the women are a great success.

The women report promptly for their work, they

handle their cars more carefully than the average man, they have no trouble with passengers and, contrary to all predictions, they do not lose their heads in an emergency. They attend strictly to their job of running cars and they do not gossip and "visit" with the passengers, either male or female.

As might be expected under the circumstances, a number of amusing things have happened that are new in the electric railway world. Once a trolley rope broke and the trolley pole got off the overhead trolley wire. When the "lady operator" got off the car she realized that she must climb on top of the car to replace the trolley pole. Just then a gallant man passenger offered to replace the trolley pole and tie the broken rope, and his offer was gratefully accepted by the "motoress."

At the end of the line instead of taking a minute to smoke a cigarette or indulge in a "chew," as is more or less common practice with men, it has been reported that the "motoress" will get out the inevitable pocket mirror and powder and "powder her nose," but what



ONE-WOMAN CAR IN KEOKUK

woman does not, and who on earth could object if the "motoress" wants to be as attractive as any other woman?

The women are paid the same scale of wages as the men and they take whatever run comes to them in accordance with their seniority on the list of trainmen. They have a separate rest room comfortably equipped for them at the carhouse.

The uniform the women wear consists of a khaki cap, coat and skirt cut along military lines. There are plenty of pockets in the suit to carry transfers, punch, change, trip sheets and other report forms. The accompanying illustration shows the type of car being operated by women and also gives an idea of the uniform worn by the women operators.

Under the caption "Think for Him" the Columbus Railway, Power & Light Company has issued to its employees a folder on automobile collisions. Calling attention to the increase of 46 per cent in the number of collisions between cars and automobiles on this property for the first half of 1918 as compared with the corresponding period of 1917, the text suggests that while in most cases the drivers of the machines are at fault it is necessary for the motormen to help to reduce accidents by assuming some of the drivers' responsibilities.



# Zone System Proposed for Boston

Two Zones With Fare in Central Zone 5, 6 or 7 Cents  
 Recommended by Professor Richey—Peter Witt  
 Prefers Short Zones With Lower Fares

IN AN exhaustive report to the trustees of the Boston (Mass.) Elevated Railway, Prof. Albert S. Richey recommends the establishment of a zone system of fares and suggests three plans for furnishing revenue equivalent to that corresponding to 7, 8 and 10-cent fare units applied as flat rates over the entire system. The company is making the report public in sections in order to secure the benefit of more local discussion than would be aroused if the report were released for publication at one time. The report was completed shortly before the present 8-cent fare unit went into effect.

The three plans suggested by Prof. Richey are based upon the establishment of a central zone with boundaries radiating 3, 4 or 5 miles from Boston City Hall, all outlying lines of the company falling within a second or outer zone. The fare unit requirements of these three zonal plans may be summarized in the following table, which shows the fares necessary in the inner and outer zones in each case which must be established in order to yield a total revenue equivalent to that to be or actually derived from a flat rate as listed in the last column.

Radius of Initial or Inner Zone, Miles	Fare Unit in Initial or Inner Zone, Cents	Fare Unit in Outer or Second Zone, Cents	Equivalent Flat Fare Unit in Cents
3	5	3.5	7
3	6	4	8
3	7	5	10
4	6	6	8
5	7	5	8

The present flat fare unit is 8 cents.

In his study of the Boston Elevated problem, Professor Richey based his work upon the inadequacy of the 5-cent flat fare to meet the cost of the service. He estimates from traffic studies that 51 per cent of the total annual passengers ride across the 3-mile radius; 35 per cent across the 4-mile radius and 18 per cent across the 5-mile radius. The approximate distribution of the population of the territory served by the company between concentric mile circles with the Boston City Hall as a center is shown in the following tabulation. More than one-half the total population resides within a 3-mile circle and more than 70 per cent within a 4-mile circle.

	Population	Per cent
Population inside 1-mile circle	115,800	10.0
Population inside 2-mile circle	333,200	28.8
Population inside 3-mile circle	607,200	52.4
Population inside 4-mile circle	832,200	71.8
Population inside 5-mile circle	1,006,000	86.8
Population inside 6-mile circle	1,101,600	95.1
Population inside 7-mile circle	1,146,200	98.9
Total population	1,158,800	100.0

### COMMENTS ON TWO-ZONE PLAN

In commenting upon the above zonal plan, Professor Richey says in part: "The proposed plan is most flexible, as changes may be made in either the initial or the zone line fare, or both, either with or without a shifting of

the zone boundary location, when it is necessary to increase or reduce the revenue.

"The compromise herein suggested in deference to fare collection requirements, and designated as the 'two-zone' plan, may be criticised justly as not being a zone system, but rather only a contraction of the central flat-fare area, with a second flat fare introduced outside. While this is true, except to the extent that it permits a ride through two zones at less than twice the price of a ride through one, nevertheless it is the first step toward the ideal system, and as the railway employees and the public become more familiar with the collection of varying fares, it may be followed by a three-zone or a four-zone system, each a step nearer to the ideal, which may be reached through the development of proper mechanical devices.

"From an operating standpoint, the only objections that may be raised to any zone system are those having to do with fare collection. Such objections may be based on lack of precedent, conservatism, timidity or prejudice. The collection of the old 5-cent fare had been reduced to a simplicity and safety which it will be difficult to reach with any other rate or system, except a flat 10-cent fare. The advantages largely disappear when a fractional flat fare, such as the present one of 7 cents, is adopted, your experience having shown that the expense of collection and loss of fares are very considerable as compared with the former 5-cent fare. The general method of fare collection herein proposed for the two-zone plan combines pay-enter and pay-leave collections. It is quite simple, it can be properly safeguarded, and with the proper co-operation of the company's officials and employees, it can be operated so as to cause the minimum of annoyance to the public. Some additional work and some additional intelligence may be required from conductors, but it is believed that the scale of wages now being paid will compensate for the required ability and energy.

### PLAN FOR SHORT ROUTES

"It is suggested that a detailed study be made as to the feasibility of establishing several short routes of special low fare cars in the downtown section. If it be possible to route and operate such cars so as to be a real convenience to the public, they should be the means of building up a short-haul traffic which, at a low fare, would pay for the cost of the service. It is possible that street congestion would slow down such service to the point that it would be unattractive and unprofitable. However, the lines of movement of people in the central district should be carefully studied in connection with street traffic as it now exists, and as it might possibly be diverted in co-operation with the city, and such an investigation might lead to a plan for a short-route low-fare service convenient to the public and profitable to the railway.

"Other recommendations made herein in connection with the two-zone fare plan are nearly if not quite as important with a flat-fare system. It is most essential that the present crude method of collecting the 7-cent fare be changed at the earliest possible time. All cars should be equipped with registering fare boxes. Fares should be collected in the form of money (preferably a single coin) or metal tokens. Metal tokens should be sold at all prepayment stations and at other points convenient to the public, but not by conductors. Conductors should not be required to make penny change if the fare is something under 5 cents, or between 5 and 10 cents, and the passenger has not the exact change or the metal token representing it, he should be required to pay the next larger amount represented by the nickel or the dime."

#### EXPERIENCE IN OTHER CITIES

The report contains various interesting suggestions relative to the establishment of a zone system on a modified distance basis. Among other things it says:

"Practically, the collection of a fare consisting of a flat initial charge plus an increment for each unit of distance traveled would be surrounded by as many difficulties as that of the strictly zone system as practiced in English cities. However, when it is considered that a very great proportion of the whole number of passengers either begin or end their journey in the central portion of the city, something of the same order may be attained by the introduction of a central flat fare area, with the lines radiating therefrom on a mileage fare basis. This system has sometimes been called the Milwaukee system on account of the great publicity which was given to the 1912 fare case of the Milwaukee company before the Wisconsin Railroad Commission. However, it had been in effect on numerous city and inter-urban railways in the Middle states for a number of years before that time, and the long experience of these companies with it demonstrates its entire practicability where conditions are such that the proper fare collection scheme may be devised.

"It is extremely doubtful, however, if it would be possible to apply such a scheme to the territory of the Boston Elevated Railway at the present time, even though it very closely approaches the ideal in the matter of equity of charge for the service rendered. Its application to Boston would involve the establishment of a central area of, say, 2 or 3 miles in radius, centering somewhere in the vicinity of City Hall. Within this area a flat unit fare would be charged, and to passengers including a portion of their ride within this area, a charge for the portion of the ride outside of it would be at the rate of either 1 or 2 cents per unit of distance traveled, these units being perhaps one-third to one mile in length; the units of fare and distance increments being determined after a careful study of the cost of service and distribution of traffic. For passengers riding wholly outside of the central area, a minimum charge would be made, probably the same as the unit charge for the interior area.

"Such a system has been in use on the lines of the Bay State Street Railway since June 24, 1918. It has there proven inadequate as a revenue producer for several reasons. One of these is the inadequacy of the unit rates; the second is a number of economic factors prac-

tically all of which have affected every street railway company in the country during the past several months, and the third is the difficulty of fare collection, due partly to the complexities of the system and very considerably enhanced by numerous reduced rate tickets.

"A similar system was in effect on the lines of the Rhode Island Company between May 1 and Oct. 23, 1918, the conditions in Providence much more nearly approaching those in Boston than do those of the smaller Bay State cities. In Providence the unit fare was 5 cents within an area in the city of Providence of about 2½ miles air line radius, the charge outside of that area being 2 cents per mile. The revenues were inadequate, and, effective Oct. 23, a reduction was made in the area of the 5-cent central zone in the city of Providence to approximately 2 miles air line radius, and an increase was made in the length of the exterior zones from approximately 1 mile to about 1½ to 1¾ miles in length, with an increase in rates in the outside zones from 2 cents to 5 cents.

"Relative to the system put into effect on May 1, President Potter of the Rhode Island Company states as follows, in letters dated Oct. 15 and 19, 1918:

"If it had not been for the rapid increase in operating expenses, together with a falling off in riding due to changed social conditions brought about by the war, I think our zone system would have been satisfactory. . . . had the Legislature adopted the recommendations of the Special Commission in regard to relief from franchise taxes and paving charges, we would have been much better off than we are at the present time.

"So far as the present zone system has been a failure, I should say it was due—

"First, to the tremendous increase in operating expenses, particularly wages, which made the zone system inadequate even if the expected benefits had been fully obtained.

"The second reason why this system might have been considered inadequate in my opinion was due to the disturbed social conditions resulting from the war, which have meant a tremendous falling off in patronage on lines running to the pleasure resorts, and at the same time we have been handicapped by a shortage of labor which has rendered it impossible for us to give adequate service to some of the pleasure resorts during hot weather when people were inclined to ride to these resorts.

"Third, to our inability to obtain all the money which the conductors collected, and

"Fourth, a falling off of traffic due to the increased rates, although this hardly can be considered as a feature of inadequacy of the zone system, as it apparently did not exceed the estimated and anticipated falling off which would occur if a zone system was put into effect.

"It will be noted that neither in the case of the Bay State nor the Rhode Island Company, after experience with their modified zone systems, have these companies receded from their belief in the relatively small central flat-fare area (compared with the area of the flat-fare zone previously existing in these cities). The second change in Providence further reduced the central area, and while the proposed change in the Bay State cities somewhat increases it, the resulting area is still smaller in nearly every case than was covered by the flat fare which existed in those cities in 1917. The principal change in both cases has been to increase the lengths of the outer zones and also the units of fare collected in each of the outer zones. In both cases, the rate per mile, while increased somewhat, is not substantially greater than under the mileage collection system, but both of these companies have experienced great difficulty in collecting fares based on zones as short as one mile in length in thickly settled territory. Neither in Provi-

dence nor in the Bay State cities is the territory nearly so thickly settled, nor is the traffic nearly so dense as it is in the territory served by the Boston Elevated Railway outside of what reasonably might be considered the central flat-fare area. Based on the experience of these companies, it is not considered advisable to recommend such a system as this for use in Boston, at least at present.

COMMENTS BY MR. WITT

Some comments on the report were made by Peter Witt of Cleveland at a meeting of the New England Street Railway Club on Dec. 19. Mr. Witt said that electric railway transportation should be conducted as a merchandising business. If a good service is given and satisfactory fares charged, people will ride. With poor cars and poor service, only those who have to ride will do so. He considered a unit fare an injustice and a failure and the zone system the only proper one but he thought that two zones, with a 6-cent fare for the inner zone and 4 cents for the outer zone would never work acceptably. His idea was many zones at a low rate, say one cent, per zone. He referred to the 1-cent line put in operation in the center of Cleveland which was profitable. Mr. Witt also advocated the use of fare boxes and public ownership of electric railways.

Increase in Steam Turbine Efficiency

ENGINEERS of the Westinghouse Electric & Manufacturing Company have plotted in the form shown in the accompanying graphs the speeds and efficiencies of 25-cycle and 60-cycle turbines for a period of nearly twenty years. The charts show how speeds have been changed with the progress of time, each change of speed having been more productive of improved results than improvements in what are essentially turbine principles. The comparisons have been made on the basis of efficiency ratio rather than steam consumption because to make a comparison with the latter the results would have to be reduced to a common operating

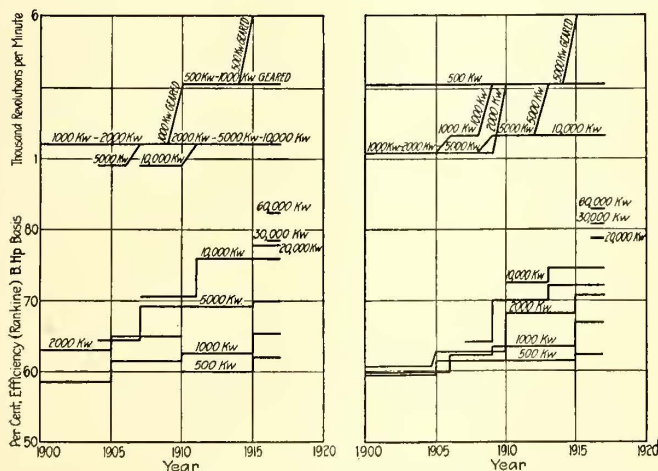


DIAGRAM SHOWING INCREASE IN TURBINE SPEED AND IN EFFICIENCY RATIO

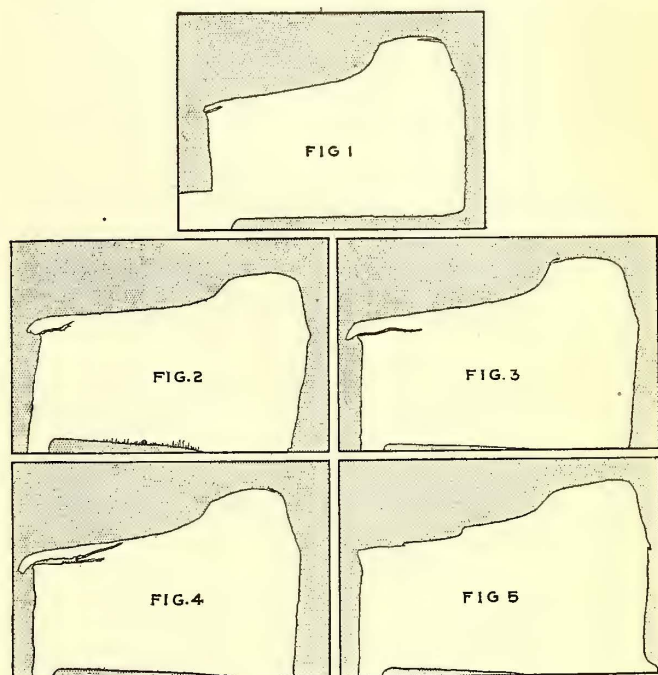
condition, which would not be fair to the older machines. Modern condensers, of course, contribute to favorable operating conditions and the progress of the condenser must be considered in connection with that of the tur-

bine because the latter has furnished the stimulus for the development of the former.

The efficiency ratio used as a basis of comparison for turbine performance is the ratio of the energy produced to that which would have been produced in a perfect turbine during adiabatic expansion of the steam within the range of temperature used.

Wear of Electric Car Wheel Rims

IN A RECENT issue of the *Engineer*, London, Arthur Norton discusses the defects found in car wheel rims and the conditions that lead to shelling of the tread. His investigations indicate that the formation of burrs in most cases is due to the rails becoming worn to a different angle than that of the wheel, so that with a

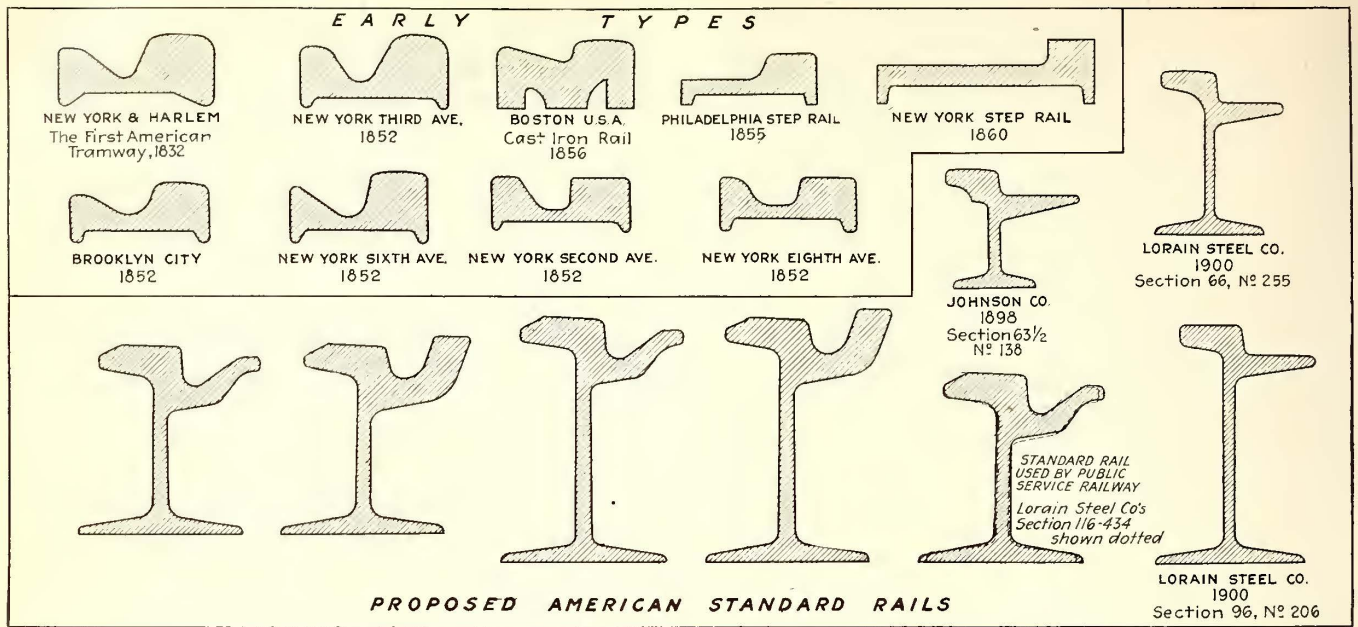


DEVELOPMENT OF A BURR ON THE RIM OF A CAR WHEEL

new tire the load must be borne either on the flanges or on the outer edge of the tread instead of being distributed over the entire width as was intended.

In examining some tires discarded by the Sheffield Tramways it was found possible to follow the development of the burr from its early stages outward. This development is shown in the accompanying illustrations. In Fig. 1 a small burr is seen at the edge and a very obvious crack has started. In Fig. 2 the burr is greater and the crack longer. In Fig. 3 the deformation and the crack are seen to have increased still farther. In Fig. 4 the crack has progressed so far that it threatens to break through the tread of the tire. In Fig. 5 the splintered surface of the tire from which the burred surface has cracked off is seen.

Mr. Norton concludes from his investigation of the large number of such cases that while tires do shell on the tread occasionally due to the steel used being defective, in quite 90 per cent of the cases the shelling arises from burrs on the outer edge of the tire which are caused by running on rails which do not permit the load to be evenly distributed over the tread of the tire.



GROUP OF RAIL SECTIONS, SHOWING THE PROGRESS OF ELECTRIC RAILWAY RAILS IN THE UNITED STATES

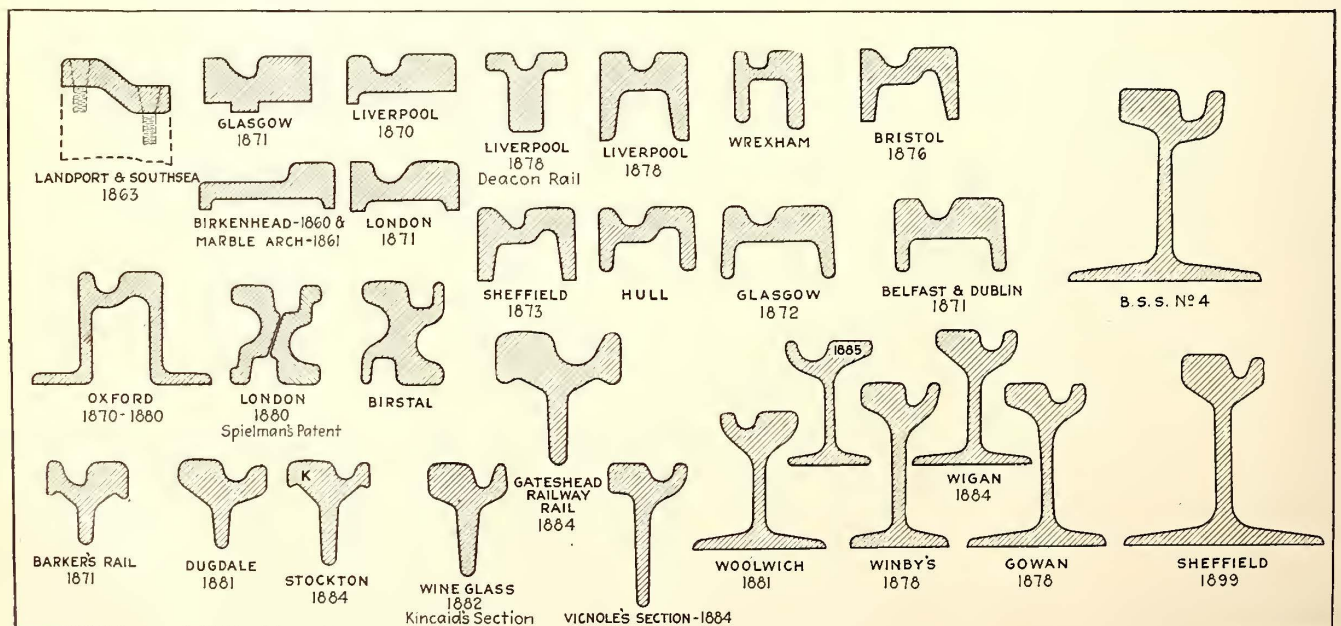
### The Evolution of the Tramway Rail

British Engineer Summarizes the Development of the Rail in Popular Lecture, Part of Which Is Abstracted

FRED BLAND of Edgar Allen & Company, Ltd., Sheffield, England, recently prepared a popular lecture on the development of the electric railway rail, using the drawings reproduced herewith. He began by stating that originally planks or timbers were laid down by some genius to help traffic through ruts and bad roads, the first record of a timber rail tramway being dated 1576. This consisted of a straight track from a colliery to a neighboring river. Later an extra timber was added to this to take the wear and to provide for renewal. Still later wrought-iron bars were laid on the incline, gradually being improved in form

and eventually developing into a railway or tramway built of flange rails and edge rails of cast iron and wrought iron.

According to Mr. Bland the first American tramway was opened in 1832 from New York to Harlem, but it was not popular. Twenty years later the tramway idea was revived by M. Lubat, a French engineer. He rolled the first grooved rail, which went by the name of the "gutter rail." The diagrams contain sections of the original rails used in New York and later in Boston. The step rail used in Philadelphia was followed by a rail 8 in. wide used in New York in 1886. The step rail has always been a favorite with American engineers and three sections up to 9 in. high are shown. The sections also include four new ones proposed by the American Electric Railway Engineering Association, but at the present time there is considerable discus-



THE DEVELOPMENT OF THE TRAMWAY RAIL IN GREAT BRITAIN AS SHOWN BY SECTIONS ARRANGED IN HISTORICAL ORDER

sion in the *ELECTRIC RAILWAY JOURNAL* upon the merits and demerits of the step rail, as against the Trilby rail already standardized.

In the group of sections of English rails there are shown the step rail originally used at Birkenhead in 1860 and a tram rail laid in the Marble Arch in London in 1861. Later than this no step rails were used in England. In 1863 a new form of rail, as shown, was used at Landport and Southsea, which after many years of service was replaced with the grooved rail.

Mr. Bland said that in 1870 Liverpool adopted the grooved rail, and Glasgow and London followed in 1871. The popular form of rail next in order was the box section, used in Liverpool, Sheffield, Hull, Glasgow and elsewhere. Some reversible rails were also tried in London and in Yorkshire but they were not satisfactory. Then began the use of the girder rail first in the form having a center web, fitting or being bolted into cast-iron or wrought-iron chairs. The webs of these rails were gradually made higher until a complete girder rail with a flat bottom was tried. After going through many alterations this type of rail became the standard British rail.

## Characteristics of the Two Types of Welding Arcs

**The Writer Concludes That the Direct-Current Arc Is Preferable to the Alternating-Current Arc and Gives Reasons for This Conclusion**

BY J. F. LINCOLN

Vice-President Lincoln Electric Company, Cleveland, Ohio

**T**HERE are two kinds of arc welding equipments, one using alternating current in the arc, the other using direct current. The characteristics of the several types of direct-current welders are so well known because of their years of use that there is no need to explain them except in a very general way. The direct-current apparatus is of two general classes, that which gets its regulating properties from resistance and that which has the regulating properties inherent in the generator. Both are successful when properly designed and both are in use in large numbers. The machine which eliminates resistance is somewhat simpler so far as control is concerned and uses considerably less power. It has the feature, however, that it is impossible to get more than one arc off each machine and where a number of operators are required the first cost of the apparatus is larger than with the resistance type. The suitability of one or the other for a given line of work depends entirely upon conditions and for that reason both are in very general use.

The alternating-current arc welder, however, is of more recent development in its practical application to welding, and the characteristics of this equipment are less well known. The comparative newness of this equipment in the field renders timely an examination of its characteristics as it is valuable in some ways but at the same time it has a number of defects. A consideration of the facts in the case as applied to each job will generally decide for the buyer which type should be used. The claims made for the alternating-current machine are the following: It has (1) no moving parts and (2) no commutator with its consequent

trouble. It is (3) possibly portable by hand. It has (4) high efficiency, and (5) it is of low first cost.

The first two claims are borne out by experience but it is necessary, in order to reduce the size of the welder, to use in conjunction with it a fan for cooling so that part of the claim of no moving parts and no commutator may be modified.

A machine suitable for delivering 150 amp. for welding weighs approximately 400 lb.; thus it is seen that it is possible for two men to lift this around to some extent at least, although if it is to be widely portable, as is necessary in most places where portability is required, a truck must be used either for this type of welder or for any of the previous types of direct-current apparatus.

Since there is no loss in resistance and since the transformation is accomplished in a transformer, the efficiency is very high compared to any direct-current apparatus. It is necessary, however, to have very large magnetic leakage in the transformer, which results in an efficiency of the entire machine much less than that of a transformer of standard type for constant voltage.

The cost also is low, as the 150-amp. size costs to manufacture, even in these times, probably less than \$150. It is, however, sold at a price very much higher than this, I understand, at the present time.

The comparative operating characteristics of the alternating-current welder which are cited in its favor are: (1) The arc which it is necessary to hold in order to operate the machine is shorter and the chance of burning of the weld is less; (2) if a weld is made at all by this apparatus it cannot but be made well.

In practice the writer has found that with a covered electrode arcs greater than  $\frac{1}{2}$  in. in length can be established, but with the bare electrode a short arc only can be maintained. The chances of getting a bad weld with this type of welder I have found to be greater than with any other standard type of welding apparatus.

The difficulties as seen by the users of these machines are the following: (1) The heat is equal at both electrodes. (2) The alternating-current welder cannot be used for carbon-electrode work. (3) The power factor is approximately 10 per cent. (4) Great skill is necessary to hold the arc at all with bare electrode and consequently the speed of operation is very low. (5) The weld is inclined to be poor in actual operation because of the frequent breaking of the arc. (6) The electrode tends to sputter much more than with the direct-current welder, hence more electrode is used. (7) The cost of doing the work, all things being considered, is from 25 per cent to 200 per cent greater with the alternating-current than with the direct-current apparatus.

In discussing these points, the first one, of course, is self-evident. The heat at each electrode must be the same. With the direct-current welder the heat at the point where the most heat is required can be obtained by making the electrode positive. This is very essential where heavy plate is being welded. In the second place the alternating-current arc is not suitable for carbon-electrode work because when the electrode is positive carbon is carried across the work, thus greatly changing its characteristics. Third, a power factor of approximately 10 per cent is necessary in order to maintain

the arc at all, and a power factor of 5 per cent gives considerably better operation. This means that for an outfit which would normally deliver 3 kw. to the arc transformer connection, power-house capacity and line capacity must be 30 kw. This results in great cost of generating equipment which will be discussed further.

As to the fourth point the speed of operation is lower because it is more difficult to hold the arc and it is practically impossible under normal operating conditions for any man to hold the alternating-current arc continuously during a ten-hour day. Fifth, any arc weld is good or bad, dependent upon the amount of oxide included in the metal. Each time the arc is broken there is very apt to be a little pocket of oxide formed, consequently, there is a possibility that each time the alternating-current arc breaks a defect will be made in the weld. Because of the difficulty of holding the arc the weld is less reliable.

Sixth, the sputtering of the electrode is something that cannot be explained positively. It probably comes from very wide variation in heat being liberated at the arc during different parts of the cycle. The fact still remains that the arc sputters much more with alternating-current than with direct-current apparatus.

Seventh, considering now the cost of operation, there are three items which enter into this: (1) Cost of equipment. (2) Cost of generating line and transformer equipment for supplying the power. (3) Cost of labor in doing the welding. All three of these can be determined with fair accuracy. The first cost of a 150-amp. size alternating-current equipment is \$150 and of a direct-current equipment \$1,000. The relative cost of generating equipment and line equipment for alternating current is \$5,100, and for direct current, \$680. Labor costs are from 25 per cent to 50 per cent higher for alternating current than for direct current.

The first item is self-evident. In explanation of the second item, it may be said that the cost per kilovolt-ampere of service is \$170. This includes boiler capacity, turbine capacity, generator capacity, primary transformer capacity, line capacity and step-down transformer capacity. It will, therefore, be seen that the equipment to produce a direct current of 150 amp. at 20 volts, with the consequent losses in the machine, will run approximately \$680, while the alternating-current equipment to produce 30 kva. at the same price is \$5,100. Comparative labor costs have been secured in one of the large shipbuilding plants. The best operator on alternating-current apparatus could do about two-thirds as much work as the best operator on direct current. With an operator of less skill the direct current could be operated fairly satisfactorily, but the alternating-current outfit could not be operated at all.

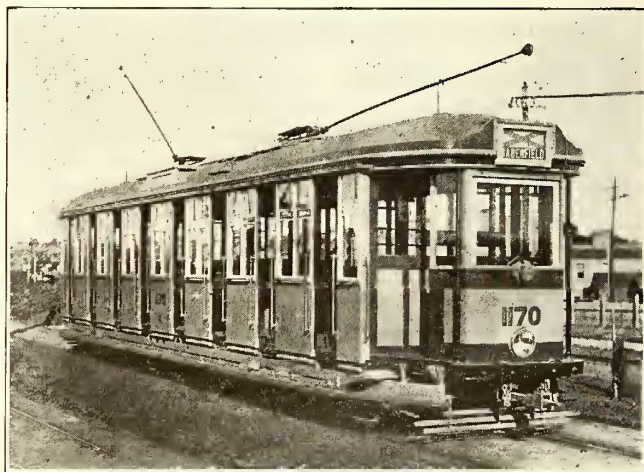
It, therefore, appears to the writer that the alternating-current welding apparatus as put on the market at the present time will have no very great application except where the first cost of the apparatus is the deciding factor. The added handicap of getting this on the lines of the power company without the knowledge of the power company also will militate against its use.

There are no doubt improvements which will be made over the present type of alternating-current welding apparatus both as regards operating characteristics and

cost, and these will improve both. For instance, one of these is to use a reactance with a variable magnetic circuit instead of a transformer. This will both improve the characteristics and reduce the cost, but still does not make it successful equipment in comparison with direct-current welders. In the majority of jobs which should be arc welded, the application of alternating-current welders to them would eliminate any saving which would be possible by electric welding.

## New Type of Car for the New South Wales Tramways

A NEW type of tram car has recently been put into service by the New South Wales Government Tramways on the Sydney city lines. This car was built at the tramway workshops at Randwick and embodies a number of new features. Three similar cars are under construction. The general dimensions of this new car are similar to those of the existing eighty-seat "Class O" car (illustrated on page 4 of the *ELECTRIC RAILWAY JOURNAL* of July 6, 1918.) Their general appearance is shown in the accompanying illustration.\* Frameless glass windows have been substituted for the

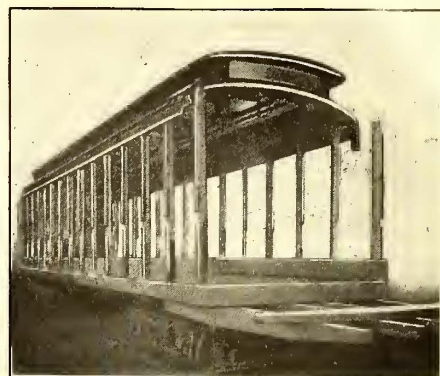
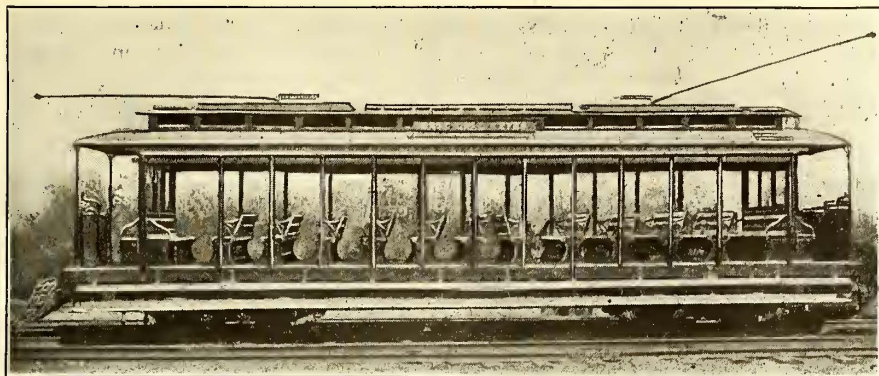


GENERAL ARRANGEMENT OF NEW CARS FOR NEW SOUTH WALES GOVERNMENT TRAMWAYS

wooden panels in the four central compartments, and narrow blinds have been substituted for the glazed wooden doors. This same construction is followed in the end compartments so that the appearance of the car is uniform from end to end. The wide weather blinds previously used and which in some cases were very troublesome have been dispensed with. The windows throughout the car are balanced on the "raizograph" or "lazy-tong" principle requiring a minimum effort on the part of the passenger in manipulating them.

The end destination boxes instead of being placed on the platform aprons are fitted into the roof where they can be more easily seen by the public and the signalmen. The side destination boxes are also built into the roof and at night are illuminated. All the destination boxes are operated from the inside of the car which is far more convenient for the staff than the old system of outside operation. Grab straps, thirty-two in number, inside the car have been replaced by eight wood

\*Reproduced with the permission of the New South Wales Government Tramways, per C. F. Dewey.



AT LEFT, ORIGINAL FIFTEEN-BENCH OPEN CAR. AT RIGHT, FRAMING OF CAR UNDER CONSTRUCTION IN SHOP

rails, one to each compartment, running horizontally across the car. This improves the interior appearance and at the same time affords more comfort to standing passengers. The car is designed to give a maximum seating accommodation and also affords rapid entrance and exit facilities.

The underframe is similar to that of the existing "Class O" car except for one or two minor alterations, including those made to the lifeguard fender. The bogie truckframes were built by the electric welding process, bolts and rivets being dispensed with wherever possible. These are believed to be the first electrically welded trucks made in Australia.

Due to the war just closed and to the consequent need for economy these cars are painted gray with dark green and white facings, with the numeral in gold. The arrangement of these colors is pleasing to the eye and their use effects a considerable saving in paint expense.

The advisory council of the Ministry of Reconstruction of Great Britain has issued a report upon standardization of railway equipment in which it is recommended that the standardization of wheels, axles, wheel centers, tires, running gear, door gear, bumping gear, trucks, brakes, and underframes be dealt with immediately. This work should be undertaken by the engineering standards committee, on which all interested, including private builders and makers of materials should be represented, and that when such essential parts have been standardized the adoption of the standards should be gradually enforced.

## Fifteen-Bench Open Cars Changed to Closed Type

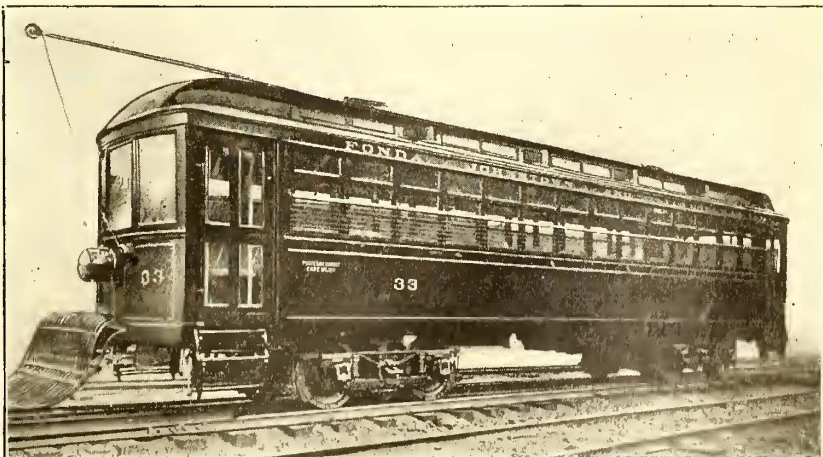
One Solution of the Problem of Making the Open Car Into a More Serviceable Piece of Rolling Stock

BY JUDSON ZIMMER

Master Mechanic Fonda, Johnstown & Gloversville, Railroad, Gloversville, N. Y.

IN THE SHOPS of this company at Gloversville we are rebuilding a number of fifteen-bench open cars for use in city service as prepayment cars and in interurban tripper service for rush hours. In rebuilding, the main underframe was left intact, the cross-seats were dismantled and the posts were replaced with new ash posts made straight with the necessary grooves to take the sash and curtains. The sills were furred out even with the straightened posts and a truss-plank was bolted on the inside of the posts and strapped through the sills. The platform sills were reinforced with steel, and the whole frame was thoroughly bolted and strapped to the body end-sills. The car was sided with hard pine ceiling covered with  $\frac{1}{2}$ -in. steel thoroughly bolted to the sills and fastened to the post with round-head steel screws. Brill angle-iron bumpers were used at the ends of the platform sills, and the inside and outside of the vestibule was lined with sheet steel. New flooring was laid in the car where necessary, and all steps and door openings were protected with safety treads.

All four corners were provided with double folding steps working in connection with the doors from the conductor's control stand. The steps were provided with



AT LEFT, GENERAL INTERIOR VIEW OF REMODELED CAR. AT RIGHT, REMODELED CAR AS COMPLETED

DETAILS OF COST FOR CONVERTING FIFTEEN-BENCH  
OPEN CAR INTO CLOSED-TYPE CAR

Carpenter labor .....	\$757.69	
Blacksmith labor .....	85.10	
Painter labor .....	232.31	
Electrician labor .....	73.87	
Machinist labor .....	71.45	
Total labor .....	\$1,220.42	
Material .....	2,592.65	
Total cost .....	\$3,813.17	

a counterbalance to facilitate easy working. The door mechanism was so designed that the doors can be locked in either the open or the closed position by the conductor from the control stand. Behind the motor-man is a curtain 36 in. wide.

The car is equipped with G.E.-203-A motors, with gear ratio of 17:67, Taylor swing-motion trucks, Providence fenders, Peter Smith hot-water heaters, Consolidated buzzers, Westinghouse air brakes, Automatic ventilators, Pantasote curtains with Rex-all metal rollers, "Walkover" reversible cane seats, Crouse-Hinds headlights, Earll retrievers and Rico sanitary hand straps.

The trucks were rebuilt, using larger journal boxes to take M.C.B. 3 $\frac{3}{4}$ -in. x 7-in. motor axles, rolled steel wheels, and new equalizer bars and ends. The car was rewired throughout and the motor control circuits were placed in Duraduct conduit. A single row of lamps was wired along the center of the car, with vestibule lamps to be used in accordance with direction of motion of the car. The car was also equipped with illuminated destination signs located at opposite right-hand corners. Brill vertical brake wheels and staffs were applied in connection with a Peacock brake gear providing a quick-acting hand-brake for emergency.

The exterior of the car was painted a standard Pullman color and striped with gold leaf. The interior was finished in cherry, stained and varnished, and the headlining in ivory, plain, with no borders or designs. The panels below the window sills were finished a light tan and those in the vestibules were painted in imitation cherry and varnished. Hand rails were painted with enamel corresponding in color to the headlining.

The general dimensions of the car are as follows:

Length over all .....	46 ft. 0 in.
Length over corner posts .....	36 ft. 0 in.
Length inside .....	36 ft. 0 in.
Width outside .....	7 ft. 11 in.
Width inside .....	7 ft. 2 in.
Width of aisle .....	20 in.
Seating capacity .....	52
Distance center to center of trucks .....	24 ft. 4 in.
Diameter of wheels .....	33 in.
Weight .....	45,200 lb.

The total cost of converting the first car was slightly more than \$3,800, the major part of which was for material. During normal times it is believed the work could be done for considerably less than \$3,000.

The activities of the Department of City Transit of Philadelphia, Pa., during 1917 were directed into three main channels: (1) Designing of the city's system; (2) work upon construction, and (3) lease negotiations with the Philadelphia Rapid Transit Company and support of necessary enabling legislation in connection therewith. According to the annual report of the department just issued, substantial progress was made in each branch of work, but the year's achievements were not so gratifying as had been expected, on account of the war and many local causes.

## AMERICAN ASSOCIATION NEWS

### The Foreman and His Men

THE Manila joint company section held its forty-fifth monthly meeting on Oct. 1 when A. Fainerman, general foreman power plant department, read a paper on "The Relation of the Foreman to the Men Under His Charge."

The keynote of Mr. Fainerman's paper was loyalty, with special reference to the duty of the foreman to inspire confidence, respect and affection in his men. The executive officer or foreman, said he, who knows human nature and takes a sympathetic interest in the welfare of his fellow employees will most likely get their confidence and faithful service. Some practical points which the speaker made were as follows: The foreman should be careful to give orders in clear language, and orders involving two or more operations should be given separately. One of the best ways in which a foreman can help his men and at the same time benefit the organization is by exercising care to see that men are assigned to work for which they are best fitted.

### Lively Christmas Meeting at Chicago

HOME talent furnished a very entertaining program for the Dec. 17 meeting of the Elevated Railroads company section, which was attended by 140 members and guests. Recitations, solo dances, etc., kept the audience going for two hours. The following resolution as tribute to the 656 men from the company who were in the army and navy service was passed:

"Whereas, the German Imperial Government, without justification, declared war on the Republic of France, and in so doing wantonly destroyed life and property, not only in France but in other European countries, to such an extent that the government of the United States deemed it right and just to assist France and her allies in freeing themselves of the oppression of one German Kaiser who was endeavoring to dominate and rule the world; and

"Whereas, the American people, with their love for right arose in a body and lent their assistance, some by giving their lives and others by giving time and money, thereby aiding in dethroning the brute of all brutes; and

"Whereas, we, the members of Chicago Section No. 6 of the A. E. R. A., fully appreciate the sacrifices made by the 656 employees of the Chicago Elevated Railroads who entered the service of the government to fight the Hun and make the world safe for democracy, and were instrumental in bringing the war to a speedy conclusion; therefore, be it

"Resolved, that this body in meeting assembled extend to our fellow employees who are in the government service our heartiest appreciation and thanks for a work well done, and extend to them our best wishes for a Merry Christmas and a Happy New Year; and be it further

"Resolved, that a copy of these resolutions be incorporated in the minutes of this meeting, and that a copy also be published in the *Safety Bulletin*."



# News of the Electric Railways

FINANCIAL AND CORPORATE • TRAFFIC AND TRANSPORTATION

PERSONAL MENTION

## Engineers Object

**Barclay Parsons & Klapp Oppose  
Cleveland's Union Passenger  
Station as Planned**

In a preliminary report to the Rapid Transit Commission of Cleveland, Ohio, on Dec. 16 Barclay Parsons & Klapp, engineers and traffic experts, object to the proposed union passenger station ordinance in its present form, and declare that, if put to a vote, it should be defeated. The firm has been making an investigation to ascertain what bearing, if any, the depot ordinance would have on the development of a municipal rapid transit system, such as is contemplated by the commission. Four of the principal objections are summarized as follows:

### COMPLETE SYSTEM PROPOSED

1. It allows and sanctions a complete competitive rapid transit system, perpetual, privately owned and outside city control.

2. The system of tracks proposed does not meet the city's needs as to delivery of passengers at a convenient number of points over a wide enough area in the central business district.

3. It will make the development of a properly co-ordinated city system, street, rapid transit, suburban and interurban costly and of doubtful self-supporting character.

4. It gives to a private corporation city streets without in return receiving a corresponding return in kind, which the city will some day require.

O. P. Van Sweringen, president of the Cleveland Union Terminals Company, said the union station ordinance was submitted not to gain rapid transit rights within the city, but to obtain authority to build a station and provide entrances for the steam railways and interurban roads. The provisions regarding electric rapid transit were written into the ordinance at the request of the city, he said, and the company was willing that they should be taken out.

### RAPID TRANSIT LINES INDEPENDENT

His company, he insisted, does not intend to build a rapid transit system that will compete with any system developed or owned by the city, and the public should understand that a station with steam and interurbans entering it is entirely independent of the rapid transit within the city.

H. M. Brinckerhoff, of the engineering firm, explained that plans will be submitted later for rapid transit developments for needs of a city of 2,000,000 population to be carried out as traffic needs arise. He declared that the

proposed ordinance does not provide for the compensation of the city for vacation of streets and he objected to the plans of the terminal company for handling the traffic at the approaches of the proposed Huron high-level bridge.

### MR. SANDERS SPEAKS FOR CITY

Fielder Sanders, Street Railway Commissioner, stated that, while the terminal project is one primarily for railroads and interurbans, certain rapid transit rights are to be reserved to the company. Rights that will retard the development of a paying subway system in the city must not be given away.

Charles A. Otis, chairman of the Rapid Transit Commission, said that it would probably be impossible to secure an ideal condition, but he urged that steps be taken to adjust the differences. It was decided that amendments to the ordinance, embodying the suggestions of the engineers, will be presented to Mr. Van Sweringen for consideration.

## Drafting New Chicago Ordinance

A new ordinance draft is now being prepared by Walter L. Fisher, special counsel for the city, for settlement of Chicago's traction difficulties. Mr. Fisher was instructed by the sub-committee of the City Council on Dec. 18 to go ahead with framing a tentative form of franchise to be used as the basis of discussion with the companies. This involves the principle of a lease of the surface and elevated lines to the city, with a guaranteed rate of return and control by trustees of whom the railway companies would name only one-third.

The subway issue has been revived by the president of the board of local improvements, who proposes a system of lower-level streets. He suggests that the cost is to be defrayed by use of the city's traction fund—now nearly \$25,000,000—and by assessment of property owners within a certain district. Aldermen who have been most active in trying to settle the transportation problem do not take the proposition seriously, and they call it an attempt to divert the traction fund and to throw the whole question into politics.

The commissioner of public service also took a hand in the traction situation by reviving a plan for having cars looped back outside of the business district and requiring people to walk from the turn-back point. No action was taken on this plan.

## Men Ahead of Rental

**Board Says Owners of Underlying  
Companies Should Recognize That  
Wages Due Affect Investment**

The Rhode Island Company, Providence, R. I., planned to place in the pay envelopes of its 2700 employees on Dec. 24 their proportionate share of \$72,066, representing one-third of the back wages due the employees from July 19 to Oct. 12, according to a decree issued by the War Labor Board.

In July the employees appealed to the War Labor Board for an increase in wages. In October, the board granted the men a substantial increase to begin Oct. 12 and ordered the company to pay by Dec. 1 the accumulated increase from July 19 to Oct. 12.

On Nov. 27 the company notified the union that owing to its financial condition, it would be unable to pay the back wages as ordered by the War Labor Board. The union then laid the matter before the War Labor Board. The latter notified the company that owing to the difficulty of financing at the present time, it would amend its decision by permitting the company to pay 50 per cent of the amount at once and the remainder by Feb. 1.

The company officials on the other hand suggested the payment of 25 per cent at once and the remaining three installments at monthly intervals. This proposition was rejected by the employees, who insisted on carrying out the board's amended decree.

The Rhode Island Company appealed for a rehearing. This was held in New York on Dec. 16. The federal trustees of the company pleaded that it be allowed to make the quarterly payments as proposed. Chairman Taft proposed payments by thirds, but both the railway and union officers rejected the plan.

At the conclusion of the hearing in Providence, the chairmen ordered the company to pay its employees 33½ per cent of the total amount on or before Dec. 24, the remaining two installments to be paid Feb. 1 and March 1, or to pay 50 per cent at once, 25 per cent on Feb. 15 and 25 per cent on March 15. The company notified the board and the union of its decision to accept the former proposition.

Mr. Taft said: "If the facts stated here regarding the value of the Rhode Island Company property are true, the owners of the company will be slow to let it go back to the underlying owners. In their turn, the underlying owners ought to regard the wages due the men as affecting the value of their investments. Without men and without service, their investments would not have the value they have now."

## Purchase Discussions

### Seattle Railway Purchase Ordinance Redrawn After Conferences of City and Railway Officials

At a recent informal discussion by the City Council of Seattle, Wash., of the proposed \$15,000,000 railway purchase from the Puget Sound Traction, Light & Power Company, City Councilman R. H. Thomson suggested that if the present negotiations fall through, the city might obtain the property by condemnation.

#### WANTS LIEN ON EARNINGS

The discussion followed the renewal by Attorney J. B. Howe, representing the company, of the proposition to so word the purchase bonds that they would be a lien on the gross revenues of the municipal railway system, thus pledging the city to pay the principal and interest whether or not the revenues from operation were sufficient. This proposition has been rejected by the City Council.

Mr. Howe and A. W. Leonard, president of the company, said they are only asking for a guarantee that they will get value received for what they will deliver to the city. Mr. Leonard states that the company proposes turning over to the city property worth at least \$18,000,000, and that the company should have a guarantee that the city would pay the principal and interest no matter what the future might be.

The conference of city officials and officers of the company has terminated in a deadlock over the meeting of the term "gross revenues." Considerable argument has also developed over the bond ordinance. As amended, the ordinance provides that the "city of Seattle irrevocably binds itself to establish and maintain rates for transportation" sufficient to meet the bonds and interest until payment is made in full. Attorney Howe also asked that the city bind itself to operate the railway until the bonds were paid in full. Councilman Lane asserted that this raised the old question of operating the system whether or not the income was sufficient and making up the deficit by taxation. The traction company officials state that the ordinance as prepared by them was for the purpose of making the Supreme Court rule on the question of whether or not utility bonds would be a first lien on the earnings.

#### WILL REDRAW MEASURE

After further conferences the Council directed Corporation Counsel Walter F. Meier to rewrite the ordinance and contracts as amended by the committee and prepare them for introduction in the Council.

Amendments made by the committee during the three days' conference provide that \$100,000 in utility bonds on the present municipal street railway, and \$500,000 to be issued to complete and equip the elevated line shall be a lien on the revenues of the system superior to the \$15,000,000 in bonds

which will be issued in favor of the traction company; and that when a more feasible route is provided the Tacoma interurban trains will be required to operate over that route instead of on First Avenue and that the Puget Sound Traction, Light & Power Company be required to furnish the city with power to operate the street railway system eight years or longer, if the city desires to purchase current.

Mr. Meier has since transmitted the redrafted ordinances to the Council, recommending that before the ordinances are passed the inventory of the property involved be carefully checked, and the property description in the ordinances be made to conform.

## B. R. T. Takes Canvass

### Company Asks Patrons to Express Views on Action of Mayor in Indicting Officials

Shortly after the indictment of officials of the Brooklyn (N. Y.) Rapid Transit Company by the Grand Jury of Kings County in connection with the wreck of Nov. 1 the company began to ask its patrons whether they approved Mayor Hylan's holding certain officials for the wreck. The canvass was started on Dec. 23. It was conducted by trainmen and other employees who distributed among patrons of the company a card as follows:

Name .....

Address .....

Mayor Hylan as committing magistrate has held certain employees and officials of the undersigned companies in proceedings seeking to fix criminal responsibility upon them for the wreck which occurred November 1st in the Malbone Street tunnel.

Q. Do you approve of his action? A.....  
Remarks (Here a space of 2 in. was left.)

We invite the freest expression of your views. Please fill out and hand to any conductor.

NEW YORK CONSOLIDATED RAILROAD  
COMPANY  
BROOKLYN RAPID TRANSIT COMPANY

Mayor Hylan has criticised the canvass as an effort to secure a change of venue in connection with the trial of the officials. The assistant district attorney of Kings County is quoted as regarding the matter as an attempt to "force an expression of hostility" to the company.

The only expression of opinion coming from company sources was made by the lawyers engaged to defend the accused officials. They are reported to have said that "it was the unanimous opinion of counsel representing the various defendants that this should be done. Accordingly the counsel had it done."

## Subsidize Road to Retain Service

The towns of Great Barrington, Sheffield and Egremont, Mass., have taken advantage of the legislative act of 1918, which permits municipalities to give aid from their treasuries to electric railways and have made appropriations for the assistance of the Berkshire Street Railway. Their action is unprecedented in Massachusetts.

By paying the railway \$8,600, the three towns will make it possible for it to continue the operation of its lines running to those communities. Great Barrington will contribute \$6,900, Sheffield \$1,100 and Egremont \$600.

The company had petitioned the Public Service Commission for permission to discontinue the service to the three towns and at a hearing in November represented that it was unable to obtain enough revenue to pay for their operation. At that time the Public Service Commission continued the hearing until Dec. 12.

Counsel for the town told the commissioners on Dec. 12 that the assistance promised by the three towns will be sufficient to keep the lines running. If the service had ceased, Egremont would have been isolated and Sheffield left to depend upon a very meager steam railroad service. The company proposed to abandon in all 44 miles of electric railway. Its affairs were reviewed briefly in the ELECTRIC RAILWAY JOURNAL for Oct. 19, page 718, and Nov. 16, page 904.

## Kansas City Operating

### Business Men Required to Serve as Guards on Lines of Kansas City Railways

The Kansas City (Mo.) Railways secured an injunction from the Federal Court in Kansas City, Mo., restraining members of the union of employees from interfering with the operation of cars, and from persuading employees not to work. A similar injunction request was refused by the Federal Judge in Kansas City, Kan. The latter court, however, ordered the city to provide guards for cars, the lack of police protection being the chief bar to service.

The company had more than enough men on hand to run the cars for which the city was providing protection. Mayor Mendenhall caused business men to be subpoenaed to serve as guards, using a list of members of the Chamber of Commerce. More than half those summoned refused to serve. The result was a general committee of citizens, which selected a list of employers and employees, who acted as guards. Objectors complained that their compulsory service was putting them in the position of opposing the strikers.

Violence by strikers and sympathizers became more pronounced on the evening of Dec. 21. The company had been operating cars only until 5.30 p.m. That night, to accommodate Christmas shopping crowds, it extended the service until 7 p.m. After dusk, strikers began throwing stones, and even shooting at cars. Monday there were similar demonstrations.

Rumors of a sympathetic strike are multiplying.

The interurbans are again operating, both those which get current from the Kansas City Railways and those which have had labor troubles of their own. The Leavenworth line secured an injunction from the Federal Court against the strikers.

## News Notes

**Omaha Strike to Be Arbitrated.**—The lines of the Omaha & Council Bluffs Street Railway, Omaha, Neb., were closed for eight days recently by a strike which was brought to a conclusion by the men agreeing to submit their differences to the War Labor Board at a hearing to be held in Omaha on Jan. 2. The men have been insisting upon union recognition.

**Carhouse Destroyed by Fire.**—A fire burned the carhouse of the Illinois Traction System at Danville, Ill., and destroyed six summer cars of the Danville Street Railway & Light Company and three interurban cars, one of them an express car, the property of the Illinois Traction System proper. The total loss is estimated at \$50,000. The company proposes to erect a new building on the site.

**Ottumwa Employees Strike.**—The employees of the Ottumwa Railway & Light Company, Ottumwa, Iowa, went on strike on Dec. 21. Five lines of the city are tied up and about sixty-five men are idle. Employees at the power plant, which furnishes steam heat to business houses and some residences, say they will walk out in a sympathetic strike if the demands of the men are not met.

**Hearing in Regard to Women Postponed.**—The continuation of the hearing before the War Labor Board in regard to the retention of women conductors on the lines of the Detroit (Mich.) United Railway, arranged to be held in Washington on Dec. 21, has been postponed by the Board to Jan. 4 at Chicago. The opening of the case in Detroit before the board was reviewed in the *ELECTRIC RAILWAY JOURNAL* for Dec. 21, page 1111.

**Wants Inquiry Into Spokane Lines.**—In a communication to the City Council of Spokane, Wash., Commissioner Leonard Funk, recommends an investigation of the railway situation in Spokane, and possible public ownership of the two local railways. The Council requested Mayor C. M. Fassett and Corporation Counsel Geraghty to conduct the investigation. Seventy-cent fares, immediate betterment of service, and consolidation of the two lines are suggested by Mr. Funk, and other commissioners, as matters that should be investigated and placed before the people.

**Doherty Executives Meet.**—The largest convention of Doherty executives that has ever been held, with 200 in attendance, met in New York Dec. 9-12. At the final meeting Mr. Doherty said that he viewed the future with the greatest optimism and that during war

times it had been shown that even public utilities finally received fair play, even though the blessings were somewhat delayed. Public utilities, he thought, were coming back into their own.

**Municipal Ownership Conference in Omaha.**—The City Council of Omaha, Neb., has appointed a committee which comprises Mayor Smith and two City Commissioners, to confer with G. W. Wattles, president of the Omaha & Council Bluffs Street Railway relative to municipal ownership. It is doubted whether the existing city charter provisions permit acquirement of a railway. If that doubt is not removed by the city legal department, a bill will be offered to the State Legislature on this subject.

**Fight on Illinois Commission.**—City officials representing sixty-one Illinois cities that are interested in forming a home-rule municipal league for the State met at Peoria recently. Some of those present attacked the State Utilities Commission and resolutions were adopted favoring the appointment of a legislative committee to present a demand to the General Assembly for the repeal of the public utilities act. A committee will report this action at the next meeting of the Illinois Municipal League, to be held in Chicago.

**Interurban Legislation Proposed.**—Considerable interest is manifested in probable electric railway legislation by the Legislature of Ohio this winter. So far the only proposed legislation that has come to light is in the hands of C. G. Taylor, State representative from Huron County. Mr. Taylor has been identified with traction lines for twenty-five years. He is advocating a bill for a valuation of the interurban lines and for centralized State control with boards having territories, with Cleveland, Toledo, Columbus, Dayton and Cincinnati as operating centers.

**New Paducah Franchise Discussed.**—The City Commissioners of Paducah, Ky., recently met to consider a proposed new franchise for the Paducah Traction Company. A. S. Nichols, general manager of the company, went over the provisions of the new franchise, which eliminates some unprofitable lines, and materially changes the present regulations. Cecil Reed, receiver of the company, looks upon the proposed franchise favorably. The grant confers on the city the privilege of purchasing and operating the lines at any time.

**Wants M. O. Bill Passed.**—By a vote of fifteen to eleven the City Council of Minneapolis, Minn., recently favored passage by the Minnesota Legislature of a bill to give the city the right to buy the Minneapolis Street Railway, included in the system of the Twin City Rapid Transit Company and operate it. The city attorney is instructed to prepare such a bill. The resolution was said by its proponents to be for a weapon in negotiations with the com-

pany rather than as a direct bid for municipal ownership. Those voting against the resolution opposed it as a start toward municipal ownership.

**Savannah Wages Fixed.**—The War Labor Board has approved the wage scale of employees of the Savannah (Ga.) Electric Company. In declining to order any increase in the present rate it was announced that the present wage scale is as much as the board could allow. The board found that the maximum now being paid by the company is 2 cents more than the maximum granted in other Southern cities such as Memphis, Charleston and Atlanta. The Savannah scale provides for a minimum rate of 38 cents an hour and a maximum of 42 cents after five years' service. A schedule of working conditions submitted by the company was approved by representatives of the employees and the board directed that it be put into effect.

**Drive for Emergency Relief Fund.**—On Dec. 1 a drive was begun among the employees of the Pacific Electric Railway, Los Angeles, Cal., for money firmly to establish the Emergency Relief Fund that since March, 1917, has been maintained by the Pacific Electric Club for the benefit of our fellow workers and their dependents who from any cause might become in need of immediate financial assistance. Assistance has been rendered in the past in as great a measure as was possible with the limited finances available, to employees of every department and of every class without regard to nationality or race, or whether members of the club. More than \$1,600 having been expended for this purpose, the funds for which were derived from the sale of waste paper, small contributions of cash from interested individuals, and by entertainments given by the club and its friends for the benefit of this fund.

**Public Utilities Must Be Servants.**—The Governors and Governors-elect of the states of the union from Maine to Washington, from Michigan to Louisiana and even from far-away Alaska met in Annapolis, Md., on Dec. 16 to discuss problems of reconstruction and readjustment. Governor Harrington and Mayor Strange of Annapolis welcomed the visitors. Secretary of War Baker made a short address. He said that the principal function of states hereafter must be "to rescue men from the situation shown during the recent mobilization, when one-third of the drafted men were found to be physically undeveloped and defective." Governor Harrington said that the old conditions could never return. The surest way to avoid unrest was to see that legislation gave equal and just right and equal and just opportunity to every citizen. Referring more specifically to the public utility companies, he said: "Public corporations and big business must now understand that they can only exist when they recognize that their existence is permitted only for service and not self and that they are the servants and not the masters."

# Financial and Corporate

## International Faces Foreclosure

### Protective Committee Outlines to Security Holders Problems Before Railway and Traction Companies

The International Railway, Buffalo, N. Y., faces foreclosure. The holders of the \$18,000,000 of collateral trust 4 per cent gold bonds of the International Traction Company were notified on Dec. 24 by the protective committee that, "in order to preserve the security for your bonds, it is essential that you make provisions to protect the stock of the International Railway and the equity in its properties represented thereby, against the foreclosure of the mortgage of the railway, and it will probably be necessary for you to foreclose the indenture securing your bonds. The emergency is acute."

#### BONDS SECURED BY RAILWAY STOCK

By such a foreclosure the holders of the traction company's bonds would possess themselves of the common stock of the International Railway, leaving as sole charges on the earnings \$17,119,000 in refunding and improvement bonds and \$11,982,500 in underlying bonds of companies that were consolidated with what finally has become the International Railway.

The letter to the holders of the collateral trust 4 per cent gold bonds of the traction company says that the net earnings of the railway during the current calendar year are less by more than \$700,000 than the amount required to meet taxes and interest charges and that the protective committee has been advised that it cannot expect for the present to receive any interest or dividends upon the bonds or stock of the railway and that it will not be able to pay interest upon bonds which fall due Jan. 1, 1919. Continuing the letter says:

#### DEFAULT CLAIMED

"These failures of the railway company to pay taxes and interest upon its bonds constitute defaults under the mortgage securing said bonds, and unless the defaults are secured within the time prescribed by the said mortgage, the holders of said bonds will have the right to compel the foreclosure of the mortgage and thus bring about a sale of the properties of the railway company."

The protective committee that is acting for the bondholders of the traction company consists of Elljcott C. McDougal, president of the Bank of Buffalo; Jacob Gould Schurman, president of Cornell University; Thomas De Witt Cuyler, New York, and Thomas E. Mitten, Philadelphia, president of the

Philadelphia Rapid Transit Company and former president of the International Railway.

A resolution will probably be enacted by the City Council at a meeting soon after the first of the year directing someone to make a survey of the property and equipment of the company, routes, headway of cars and general operating conditions. E. G. Connette, president of the International Railway and vice-president of the International Traction Company, has promised to cooperate with the municipal authorities in making the survey. It is generally believed that the City Council is withholding any action on solving the railway difficulty until after foreclosure proceedings are brought against the company by security holders.

## Pittsburgh Riding Decreased 12½ Per Cent

In the opinion of the Public Service Commission of Pennsylvania, accompanying its order to the Pittsburgh (Pa.) Railways to prepare all its closed cars for winter service, referred to briefly elsewhere in this issue, the commission comments on the financial results of the company. It says in part:

"Testimony was taken from which the following facts appear: The revenue of the company for the first seven months of the fiscal year, April 1, 1918, to Nov. 1, 1918, yielded \$8,565,000. The operating expenses for the same period were \$6,427,000. The increase of revenue was only 3 per cent over the same period of the preceding year, while the increase of operating expenses was 15 per cent. There was a falling off in the number of riders of 12½ per cent.

"All of this is disappointing, but it is impossible, in view of the abnormal conditions existing during the war, to fix the responsibility for this loss of traffic during the period mentioned. The fare of approximately 5½ cents was in vogue until June 23, 1918, and from the last-mentioned date, for a period of more than four months included in the calculation, the fare was 5 cents for persons riding exclusively within an inner district with a radius of about 2 miles, and 7 cents for all others."

## New Republic Company Director

Albert E. Turner has been elected a director of the Republic Railway & Light Company, New York, N. Y. It is understood that a large interest in this company has developed in Philadelphia, the stock being widely distributed in Pennsylvania. The company owns the Mahoning & Shenango Railway & Light Company operating in Youngstown and vicinity.

## Make Haste Slowly

### Warning That Other Elements Than Figures Enter Into Recent Boston Elevated Statement of Earnings

There have been a number of warnings from unofficial sources about drawing conclusions too hastily from the statement of earnings of the Boston (Mass.) Elevated Railway for the four months from July 1 to Oct. 1. This statement was published in the ELECTRIC RAILWAY JOURNAL for Dec. 7, page 1023. Now comes a public trustee of the company who also voices the fear it is not fair or conclusive to judge the results entirely by figures. This official is quoted in part as follows:

#### FIGURES NOT CONCLUSIVE

"To judge the results of public operation of the Boston Elevated Railway entirely by figures is not fair or conclusive. Other factors should be taken into consideration. When the trustees began to study the needs of the property, they estimated that \$6,000,000 additional revenue would be required. This estimate included an allowance of \$2,000,000 additional for wages. At the time, this was the very best estimate obtainable on the probable award by the National War Labor Board. The award actually amounted to \$3,000,000, so that this single item threw out the trustees' calculations by \$1,000,000.

"The increase in the fare from 5 cents to 7 cents, or 40 per cent, would have produced about \$7,500,000 additional revenue, provided there was no curtailment of riding. Some curtailment, however, was naturally expected, but it seemed reasonable to suppose that an increase in fare, which, theoretically, should produce a gain in revenue of \$7,500,000 would in actual practice yield the \$6,000,000 estimated requirements. The epidemic of influenza cut down riding, and the 7-cent fare made an unsatisfactory showing.

"I am convinced, however, that the 7-cent charge was not given a fair trial. The immediate effect of an advance in the rate of fare is that the traffic curve takes a dip, then the former patrons begin gradually to come back. In other words, there is action followed by reaction. It is the trustees' intention to continue the 8-cent fare long enough to determine its revenue possibilities accurately.

#### PRICES MUST BE CONSIDERED

"Another element for which allowance cannot be made in a purely arithmetical study of past months' results is the question of prices. Nobody seriously anticipates an early cut in electric railway wage rates; on the other hand commodity prices might very reasonably be expected to come down. A fare which might be inadequate on the peak of commodity prices might yield more than enough revenue when prices have undergone some readjustment. The matter is not one which responds to purely arithmetical treatment."

### Dominion Company Breaks Even

The comparative income statement of the Dominion Power & Transmission Company, Ltd., Hamilton, Ont., for the years ended Dec. 31, 1916 and 1917, follows:

	1917		1916	
	Amount	Per Cent	Amount	Per Cent
Gross earnings .....	\$2,967,273	100.0	\$2,693,211	100.0
Operating expenses .....	1,733,759	58.4	1,459,601	52.2
Net earnings .....	\$1,233,514	41.6	\$1,233,610	45.8
*Transfer to maintenance and renewal account .....	111,709	3.8	157,689	5.9
Balance .....	\$1,121,805	37.8	\$1,075,921	39.9
Bond and other interest .....	395,585	13.3	365,573	13.5
Surplus earnings .....	\$726,220	24.5	\$710,348	26.4

\*Unexpended portion of company's allowance of 20 per cent of gross earnings for maintenance and renewals.

The steady rise in operating costs for this company during 1917 was almost exactly offset by the increase in earnings. A smaller amount was transferred to the maintenance and renewal account but the bond and other interest rose, so that the surplus earnings for the last year did not show any substantial change.

After paying dividends of \$535,153 and making other adjustments, the company had on Dec. 31, 1917, a surplus of \$723,963. On this date there was \$1,750,000 in the "reserve" account and \$500,012 in the maintenance and renewal account. The increase in all these accounts for 1917 was \$284,864. No new issues of securities were made, but the company retired \$134,000 of bonds.

### A. E. & C. Prospects Brighter

H. C. Lang, secretary and treasurer of the company, in a circular dated Dec. 18 to the holders of the \$3,079,000 of first and refunding mortgage 5 per cent gold bonds of 1906 of the Aurora, Elgin & Chicago Railroad, Wheaton, Ill., says that earnings above operating expenses and taxes are insufficient to cover the interest charges and that the payment of the interest on the bonds of that issue due on Jan. 1, 1919, must be deferred, the past due coupons to run at interest as before.

Mr. Lang referred to the continuation of the increasing costs of operation referred to in the notice sent to the first and refunding mortgage bondholders last June. He says that the payment last October of the interest due on July 1 was made possible only by the loan secured from the War Finance Corporation. The proceedings for increases of rates mentioned in the June notice have resulted in advances to 6 cents in the fares on the Aurora and the Elgin city lines and in substantial increases of light and power rates. These have offset to some extent the higher operating costs.

The increase of suburban rates is still the subject of negotiation. If these are consummated before the turn of the year, the company will adopt higher rates for single and round trips on its interurban lines and bring suit to enjoin the enforcement of the Illinois

statute limiting passenger rates to 2 cents per mile. Mr. Lang says other Illinois interurban lines outside of the Chicago district have successfully followed this course. Until the confiscatory suburban steam rates now in effect are corrected he thinks it would

be futile for the Aurora, Elgin & Chicago Company further to increase its rates because they are now higher than the less-than-cost rates of competing steam railroads.

He says that this contemplated revision in fares and the increased travel which will result from a return to normal conditions should make a decided change in operating results and restore the company to its pre-war condition of financial strength and stability.

### \$3,241,966 Loss in Five Months

The Boston (Mass.) Elevated Railway has issued a statement showing that from the time the public trustees took control on July 1 to Dec. 1, a period of five months, there has been a net loss of \$3,241,966. The report follows:

RECEIPTS	
Passenger receipts .....	\$8,771,946
Express cars, etc. ....	56,878
Advertising, etc. ....	122,082
Use of tracks, etc. ....	21,340
Rents of buildings, etc. ....	27,922
Power .....	43,041
Interest, etc. ....	43,552
Total receipts .....	\$9,086,761
COST OF SERVICE	
Wages .....	\$5,460,319
Contracts, material, etc. ....	3,714,559
Taxes .....	368,355
Subway rentals .....	539,800
Rent for leased roads .....	1,149,048
Interest .....	548,207
Sundry items .....	7,210
Dividend (proposed) .....	541,238
Total cost of service .....	\$12,328,727

Compared with the five months ended Dec. 1, 1917, there has been an increase in the total receipts of \$919,600, while the cost of service has increased \$3,742,000.

The increase in wages for this period over the corresponding months of last year, due to the decree of the War Labor Board, the increase made on May 1 in accordance with the agreement with the carmen's union, and the 2 cents allowed by Mr. Endicott of the public safety committee, totalled \$1,665,525.40. There was an increase in other operating expenses for the same period of \$1,598,124, including \$446,000, largely coal. An increase in rentals, due principally to the new Dorchester tunnel, was \$202,661.

Comment by one of the trustees appears on page 1152 of this issue.

### Long Dividend Record Broken

The directors of the Chicago (Ill.) City Railway announced on Dec. 21 that the regular quarterly dividend had been passed. The announcement followed the cutting of the regular disbursement for the last quarter from 2 to 1 per cent. It was stated that the directors found earnings insufficient for the declaration of any dividend. The company has been paying dividends regularly for the past sixty years.

One of the main reasons for the reduction in earnings was given by Leonard A. Busby, president of the company, as the recent award of the War Labor Board which went into effect last August. This award adds approximately \$3,700,000 annually to the payroll, besides which the increased cost of materials and supplies is estimated at \$500,000, making a total advance in operating charges of \$4,200,000. At the same time traffic is said to have decreased considerably, the report for the first ten months of the present fiscal year showing a decrease in income from that source of more than \$800,000. Mr. Busby made the following statement:

This is the first time in the history of the Chicago City Railway that it has been obliged to pass its regular quarterly dividend. This is due to the wage increase ordered by the National War Labor Board, the increased cost of operating material and supplies, and the falling off of gross receipts due to a decrease in traffic.

The wage increase on the surface lines became effective on Aug. 1, last, and is approximately \$3,700,000 a year. The increased cost of operating material and supplies is about \$500,000 a year, making a direct increase in operating charges of \$4,200,000 per annum. Owing to decreased traffic our gross receipts have fallen off more than \$800,000 during the first ten months of the present fiscal year.

During the first four months of actual operation under the new wage scale fixed by the National War Labor Board the net earnings of the Chicago Surface Lines have decreased \$1,726,684. Of this amount \$1,422,014 represents increased operating cost, and \$304,670, represents decrease in earnings. This is only for the months of August, September, October and November, and indicates a decrease in net earnings at the rate of \$5,000,000 a year below the earnings of the company for the year prior to the time the wage award became effective, and even during that year the company suffered a heavy decrease in its net earnings due to the greatly increased cost of operating material and supplies.

### RAILWAYS LOSING \$12,000 A DAY

The companies are now operating at a loss of more than \$12,000 a day, and since Aug. 1 have not even earned 5 per cent on the city purchase price. There is, therefore, no longer any 5 per cent earned for the city. This company has been conservatively financed, every dollar of its outstanding securities is within the valuation fixed by the city for the purchase of the property, and the management has devoted itself to building and operating a railway system in Chicago, admittedly one of the best in the country.

The companies (Chicago City Railway and Chicago Railways) are still operating under war conditions with respect to wages and cost of material, and it is certain that this condition will continue for many months to come—how long, the future alone can say.

The continuance of the present situation without some relief is bound to destroy the companies' credit and impair their ability to serve the community. This situation does not apply to Chicago alone, but is the same throughout the country.

In the end, any attempt to furnish service at less than cost will prove alike disastrous to the public as well as to the investor. The future of Chicago is absolutely dependent upon adequate transportation facilities, and anything which will retard their usefulness is bound to affect injuriously every industry and interest of the city.

# Financial News Notes

**Dividend Action Put Off.**—At a meeting on Dec. 20 of the Chicago City & Connecting Railway, Chicago, Ill., at which the semi-annual preferred dividend would ordinarily have been declared, no action was taken.

**New Receiver for Pittsburgh Railways.**—W. D. George, Federal Food Administrator for western Pennsylvania, has been appointed a receiver of the Pittsburgh (Pa.) Railways, vice H. S. A. Stewart, resigned. The appointment was made by Judge Charles P. Orr in the Federal District Court.

**Threatens to Discontinue.**—The Hamilton (Ont.) Radial Electric Railway, controlled by the Dominion Power & Transmission Company, Ltd., is reported to have given notice that it will discontinue operation, having found it impossible to continue, in view of the losses now being sustained.

**Dividend in Scrip.**—The directors of the American Public Utilities Company, Grand Rapids, Mich., have declared the regular quarterly dividend of 1½ per cent, payable in scrip on Jan. 1 to holders of record of Dec. 20. In April, July and October the preferred dividend was also paid in scrip owing to war conditions.

**Foreclosure Expected Soon.**—Financial troubles of the Hartford & Springfield Street Railway, Warehouse Point, Conn., were explained by H. B. Freeman, receiver, to the Superior Court at Hartford on Dec. 20. The interest on three mortgages has been defaulted. The receiver expects that the mortgages will be foreclosed shortly. They aggregate \$1,000,000. In October the expenditures of the road were \$2,640 greater than the receipts.

**Abandonment Disapproved.**—The Public Service Commission for the Second District of New York on Dec. 10 denied the petition of George Bullock, as receiver of the Buffalo & Lake Erie Traction Company, Buffalo, N. Y., for leave to abandon that part of the road from Main and Temple Streets, Fre-

donia, to the State line between New York and Pennsylvania. The commission holds that in the interest of the public the road should not be abandoned. No evidence of a declaration of abandonment by the directors and stockholders of the road was presented to the commission. The section which it was proposed to abandon runs through Fredonia, Brocton, Portland, Westfield and Ripley.

**Municipal Railway Bond Issue Approved.**—The City Council of Seattle, Wash., has been advised that the proposed \$550,000 Seattle Municipal Railway bond issue has been approved by the Capital Issues Committee. The approval was transmitted to the Federal reserve district on Nov. 25, but announcement was received by the Council only a few days ago. Arrangements will be made at once for selling the bonds and the work on municipal street railway extensions will be rushed.

**Abandonment Hearing on Jan. 9.**—The Public Service Commission for the Second District of New York on Jan. 9, will hear petitions by three Westchester County electric railways for approval of the proposed abandonment of certain parts of the lines. The Yonkers Railroad seeks to abandon its lines in the outskirts of Yonkers and in Hastings, the Westchester Electric Railroad in Bronxville and the New York, Westchester & Connecticut Traction Company in the town of Eastchester between Mount Vernon to and in Tuckahoe.

**Public Service Corporation Dividend Again 1 Per Cent.**—The Public Service Corporation of New Jersey, Newark, N. J., has declared a quarterly dividend of 1 per cent on the \$29,999,600 of capital stock, payable on Dec. 31, to holders of record of Dec. 27. In September the quarterly dividend payment was reduced from 2 per cent to 1 per cent. This makes the total of payments for the present year 6 per cent as compared with 8 per cent paid in 1917.

**Dividend in Liberty Bonds.**—The Washington, Baltimore & Annapolis Electric Railroad, Baltimore, Md., the report of which for the year ended Dec. 31, 1917, was abstracted in the ELECTRIC RAILWAY JOURNAL for Sept. 7, page 432, has declared a dividend of 7½ per cent on the common stock, payable in Liberty Bonds on Jan. 1 to

holders of record of Dec. 31. In January, 1918, the company paid 3 per cent cash on the common stock and in April, July and September paid 2 per cent cash. Since 1909 the revenues of the company have increased 154.8 per cent.

**Would Abandon Some Belt Lines.**—The Public Service Commission for the First District of New York has directed that a hearing be held in reference to an application of the Belt Line Railway, one of the associated companies of the Third Avenue System, for permission to abandon certain of its tracks on various streets in lower Manhattan. The company makes the point that practically all of these lines have outlived their usefulness; that they are of no use or value to the company nor to the traveling public, and that the removal of the old tracks will in effect be a benefit to vehicular traffic. The company, however, desires to permit the old rails to remain in certain of the streets until such time as the city shall decide to repave the streets, or until such time as the city may wish the tracks removed.

**Results With Six Cents in Connecticut.**—The Connecticut Company, New Haven, Conn., in a recent statement to the public, reviewed the results under the 6-cent fare in part as follows: "There seems to be an impression because the company's earnings for the first ten months of 1918 showed a net decrease of \$506,000, that the 6-cent fare has not produced as much revenue as had been produced under 5-cent fares. This is not a fact. The increase in cost in 1917 was \$810,000 greater than the increase in revenue. The payroll of the Connecticut Company for 1918 is \$740,000 more than it was in 1917. It will be seen that the increase in wages alone is more than the \$506,000 decrease. When one considers that in addition to this wage increase, the company has had its burdens of paving costs, bridge construction, repairs and innumerable other items to meet, it will be seen that the 6-cent fare actually has produced more revenue than was produced under the 5-cent fare. The fact is that the increased cost of maintaining and operating the property has been so much greater than the increase in revenue, ends do not meet. If the company had had a 5-cent fare during the last year the loss would have been much greater than it is."

## Electric Railway Monthly Earnings

CUMBERLAND COUNTY POWER & LIGHT COMPANY,  
PORTLAND, ME.

Period	Operating Revenues	Operating Expenses	Operating Income	Fixed Charges	Net Income
1m., Oct., '18	\$247,729	*\$192,925	\$54,804	\$71,126	†\$16,322
1m., Oct., '17	267,632	*174,451	93,181	70,003	23,178
12m., Oct., '18	3,156,639	*2,244,688	911,951	854,407	57,544
12m., Oct., '17	3,065,173	*2,020,705	1,044,468	815,675	228,793

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

Period	Operating Revenues	Operating Expenses	Operating Income	Fixed Charges	Net Income
1m., Oct., '18	\$67,900	*\$67,129	\$771	\$19,722	†\$18,951
1m., Oct., '17	78,606	*60,625	17,981	15,512	2,469
12m., Oct., '18	872,091	*773,882	98,209	219,173	†120,964
12m., Oct., '17	889,877	*662,903	226,974	186,216	40,758

PHILADELPHIA (PA.) RAPID TRANSIT COMPANY

EAST ST. LOUIS & SUBURBAN COMPANY, EAST ST. LOUIS, ILL.

Period	Operating Revenues	Operating Expenses	Operating Income	Fixed Charges	Net Income
1m., Oct., '18	\$391,548	*\$317,213	\$74,335	\$66,590	\$7,745
1m., Oct., '17	307,827	*223,571	84,256	66,020	18,236
12m., Oct., '18	4,129,734	*3,158,967	970,767	808,618	162,149
12m., Oct., '17	3,579,998	*2,366,903	1,213,095	775,714	437,381

Period	Operating Revenues	Operating Expenses	Operating Income	Fixed Charges	Net Income
1m., Nov., '18	\$2,764,922	\$1,771,163	\$993,759	\$822,893	\$170,866
1m., Nov., '17	2,512,229	1,496,010	1,016,219	810,757	205,462
5m., Nov., '18	13,407,452	8,748,045	4,659,407	4,094,824	564,583
5m., Nov., '17	12,408,029	7,234,599	5,173,430	4,056,582	1,116,848

\*Includes taxes. †Deficit.

# Traffic and Transportation

## St. Louis Fare Upheld

Missouri Supreme Court Decides Public Service Commission Has Authority Over City Rates

The Supreme Court of the State of Missouri on Dec. 19 handed down a decision in the 6-cent fare case of the United Railways, St. Louis, upholding the raise in rate awarded by the Public Service Commission.

In an opinion written by Judge A. M. Woodson the court reversed and remanded the decision of Circuit Judge J. G. Slate of the Cole County Circuit Court, who, on Sept. 7, held that the commission was without jurisdiction to grant the increased fare.

Judge Woodson's opinion was concurred in by Judges W. W. Graves, R. F. Walker and C. B. Faris. Chief Justice Henry W. Bond wrote a separate concurring opinion, which was concurred in by Judges Blair and Williams. Judge Faris also concurred in this opinion.

Judge Woodson held that Sec. 20 of Art. XII of the State Constitution, of which City Counselor Daues relied chiefly in his opposition to the fare increase, did not apply. Mr. Daues contended that under this section the State could not take away the power from the city to regulate the rates of a railway fixed by franchise ordinance.

The 6-cent fare became effective last June, after the United Railways had asked permission to increase rates to meet the demands of employees who had walked out on strike in February.

Chairman W. G. Busby of the commission wrote the opinion granting the fare increase, and it was concurred in by Commissioners Noah Simpson and Edward Flad. Commissioners David W. Blair and E. J. Bean dissented on the question of jurisdiction.

Proceedings were started in the Cole County Circuit Court by Counselor Daues for the city of St. Louis to upset the fare increase. When Circuit Judge Slate held the commission was without jurisdiction, the railway appealed to the Supreme Court. Chief Justice Bond then granted an order permitting the company to continue to collect the extra 1-cent fare, which he directed to be impounded until the final determination of the case.

## Six Cents in Johnstown and Groversville

The Public Service Commission for the Second District of New York has passed an order authorizing the Fonda, Johnstown & Groversville Railroad, Groversville, N. Y., to charge a 6-cent fare in the cities of Johnstown and Groversville, with existing

transfer privileges, and a 6-cent fare from Harrowers to Hagaman. If Amsterdam waives the existing franchise restriction limiting the railroad to a 5-cent fare "to or from West Main Street within the corporate limits of the city of Amsterdam" the commission in its order authorizes the railroad to charge 6 cents in Amsterdam, with existing transfer privileges.

The order also provides "that if the city of Amsterdam does not waive the franchise restriction the railroad company may file a schedule under a short notice, if desired, adjusting its rates in Amsterdam in accordance with the increase granted and the franchise restrictions." The fares authorized may continue in effect "during the present period of high prices and are subject to change when the facts shown warrant same."

The proposed tariff fixing the fare at 6 cents in Groversville and Johnstown was filed with the commission effective from Dec. 7. On Dec. 20 the railroad filed with the commission a new passenger tariff effective on Dec. 24, under which the local fare between points within the corporate limits of the city of Amsterdam will be 6 cents except that a 5-cent fare will apply between West Main Street, Amsterdam, and any point within the corporate limits of the city of Amsterdam; also a 6-cent fare between Amsterdam and Harrowers, between Harrowers and Hagaman and between Amsterdam and Hagaman.

## Three Cents a Mile Becoming General

Seven electric railways in Illinois are charging 3 cents a mile and two others are making plans to do so. All the increases have been brought about with the sanction of the courts. The roads charging 3 cents have obtained injunctions in court against all the State authorities to restrain them from enforcing the maximum 2-cent fare law of the State. Through the Attorney-General the Public Service Commission determined that the increase in rates was necessary and it has accordingly interposed no objection although itself powerless to grant relief.

The electric lines charging 3 cents a mile for passengers follow: Alton, Granite & St. Louis Traction Company, Galesburg & Kewanee Electric Railway, Murphysboro & Southern Illinois Traction Company, Illinois Traction System (except its interstate connections with St. Louis, Mo.), Rockford & Interurban Railway, Aurora, Plainfield & Joliet Railway and the East St. Louis, Columbia & Waterloo Railway. Two other roads which have suits for injunction proceedings pending are the Joliet &

Eastern Traction Company and the Kankakee & Urbana Traction Company.

The points involved in some of the cases were reviewed in the *ELECTRIC RAILWAY JOURNAL* for Dec. 7, page 1026.

## Trenton-Princeton Increase

Seven Cents Authorized by New Jersey Commission in Each of Four Interurban Zones

The Board of Public Utility Commissioners of New Jersey on Dec. 7 issued an order authorizing the New Jersey & Pennsylvania Traction Company to increase the fares from 6 cents to 7 cents in each of its four fare zones between Trenton and Princeton. The single trip to Princeton now costs 28 cents, an increase of 13 cents over the rate of a few years ago. The new rate is effective forthwith. The local fare in Trenton will continue unchanged. The company is also allowed to put into effect immediately a new schedule of freight rates, increasing the present freight charges.

## SECOND INCREASE IN YEAR

The increase in passenger rates is the second in a year. With the 7-cent fare the company will gain additional revenue of about \$18,000 a year, which sum will provide the money that the company is required to spend in the payment of additional wages under the award of the National War Labor Board.

In commenting on the wage increases to the employees of the company the commission says:

"It is for the interest of the public that street and interurban railway service shall be maintained. The employees of the company cannot be forced to continue to operate cars against their will and the company either had to pay the wages awarded by the National War Labor Board or cease operating, or at least curtail the service in a very marked degree.

"The problem is a very serious one. We repeat here for the company's benefit what was set forth in the board's report of the application of Northampton, Easton & Washington Traction Company to increase rates of fares, bearing date of Dec. 3, 1918.

## LINE HAS COMPETITION

"Attention is directed to the fact that the line under consideration is operating in competition with the Trenton & Mercer County Traction Corporation between Trenton and Princeton. Both lines are practically the same length.

"We doubt if the increase in fare from 6 cents to 7 cents in each zone is the best solution of the company's troubles, but we will permit a trial of it."

The company is purely a railway. Its line is 13.25 miles with an equipment of five passenger cars, three freight and two work cars. Energy for operating the line is purchased.

## Fare Increase on Holyoke Street Railway

### New Scheme Retains in Part the Zone System, but Approaches More Nearly Previous Uniform Fares

The establishment of a 7-cent fare unit for the "inner zone" and a unit fare of 5 cents for other zones, with various changes in zone arrangement outside the city of Holyoke, is recommended by the Public Service Commission of Massachusetts, in an order dated Dec. 21 applying to the Holyoke Street Railway.

#### FIRST INCREASE A YEAR AGO

On Dec. 31, 1917, the commission authorized the company to increase its rates of fare, and an inner and an outer zone were created having average distances from the City Hall of 2.41 and 5.06 miles, respectively, and ranges of distance on the through lines as follows: Inner zone, 1.90 to 3.71 miles; outer zone, 3.37 to 7.48 miles. The fares then established were, briefly:

(1) Five cents for any ride within the limits of one zone; (2) 10 cents cash or 6½ cents by tickets for any ride from a point in one zone to a point in the other; (3) special tickets at 7½ cents each, good for local rides between any point in the inner zone and Smiths Ferry (5.62 miles from City Hall) or intermediate points on the Northampton line; (4) workmen's tickets, 7½ cents each, good during certain morning and evening hours between any point in the inner zone and the city boundary (6.7 miles from City Hall) on the Westfield line; (5) lap-overs, permitting passengers to ride between South Hadley Falls and South Hadley Center and between Willimansett and other parts of Chicopee for a 5-cent fare; (6) special tickets at 10 cents each, good between points on the Fairview line in Chicopee and points on the other Chicopee lines; (7) free transfers at City Hall, available on tickets as well as cash fares; (8) a 7-cent fare unit on the Amherst and Sunderland line.

It was estimated that this scheme of fares might yield \$110,000 additional revenue yearly. The new rates became effective on Feb. 17. The revenue from February to October, inclusive, was \$537,080, or a decrease of \$2,412, compared with the same period in 1917.

#### NEW PLAN SUGGESTED

The company recently applied to the commission for authority to secure additional revenue by a further development of the zone system. Under this new plan the central area and the adjacent outer zone would be somewhat contracted, the average through limits on the inner zone being cut to 1.98 miles with a range of 1.63 to 2.43 miles and on the outer zone the average was cut to 4.11 miles, with a range of 3.37 to 5 miles. The fares proposed, briefly, by the company, were as follows:

(1) A 5-cent fare for a ride within any one zone, except the central area, where this fare would carry only to and from City Hall; (2) a cash fare for a ride covering all or parts of two zones, equal to 5 cents multiplied by the number of zones, the central area being regarded as two zones with the City Hall as the dividing point; (3) tickets sold at the rate of twelve for \$1, good for any ride between City Hall and any point in an adjacent outer zone, or for any ride in the central area passing beyond City Hall; (4) all other tickets, except the half-fare tickets for school children and all lapovers to be abolished. The general intent of this schedule was to base fares on distance traveled, making the rate about 2½ cents per mile when cash is paid and about 2 cents per mile with tickets.

At the hearings the company's plan for revision met with considerable opposition, and particular disapproval was expressed in regard to the provision for an extra charge at City Hall. Roughly speaking, the factory district is on one side of City Hall and the residential district on the other. This would often make the charge under the company's plan, for even comparatively short rides to and from work, 10 cents cash or 8½ cents with tickets. This practically amounts to charging from 3½ to 5 cents for transfers hitherto free. While the company's need for additional revenue was admitted, there seemed to be a general preference for a unit fare higher than 5 cents, covering a larger district than the present inner zone, without any transfer or other charge at City Hall.

The existing zone system in Holyoke and vicinity was approved by the commission for trial, but it does not appear that the results have been more satisfactory than in cases where a horizontal increase in fare has been authorized. The commission points out that in the present case it is difficult to retain a minimum fare of 5 cents without creating conditions to which objection may justly be made.

#### COMPLAINT SEEMS WELL FOUNDED

The complaint in regard to the extra charge at City Hall appears well founded. It is also true, the opinion states, that a system of fares which is theoretically open to objection may, in actual practice, produce good results if it is sustained by public opinion.

The company recognized the value of public opinion and at the hearings expressed its willingness to adopt an alternative plan of increased fares which provided for a minimum cash rate as high as 8 cents.

It has seemed to the commission just and reasonable to approve the adoption of a new scheme of fares, retaining in part the zone system, but approaching more nearly to the original uniform fare than the system now in force. The plan provides for the enlargement of both inner and outer zones; the provision of an additional zone beyond the outer zone on both the Northampton and Westfield lines; adoption of the zones on the South Hadley Center-Amherst-Sunderland line as proposed by the company; the provision of a unit fare of 7 cents for the inner zone, with free transfer privileges, and a unit fare of 5 cents for all other zones; the provision of a 10-cent fare for any ride between the inner and the outer zone; and certain lapover provisions in the Willimansett-Chicopee and South Hadley districts.

This plan, the commission points out, will make the zones reasonably symmetrical, the radius of the inner zone averaging about 2.76 miles. In com-

parison with the company's plan, the fares to City Hall from outlying points like Chicopee and South Hadley Center will be increased from 8½ to 10 cents, but this will be offset by the fact that the 10 cents will carry a passenger to any point in the inner zone beyond the City Hall; whereas the charge under the company's proposed schedule would have been 13½ cents.

The minimum charge in the inner zone will be raised from 5 to 7 cents, but the maximum will be reduced from 8½ to 7 cents, and certain small settlements comparatively near the city center which have always felt harshly treated under the present schedule will be brought within the limits of the 7-cent fare.

The commission has not attempted to fix with precision the exact limits of the inner zone, but has left the company some leeway in the selection of convenient points. In closing, the decision says in part:

We also feel that the plan should not be regarded in any way as permanent, but should be subject to reconsideration after a fair trial. The country is now in a transition period. The war is over, the extraordinary demands for labor, fuel and materials, which have disturbed economic conditions are gradually ceasing, and the return of many of the soldiers to New England is promised in the not remote future. What the course of prices and traffic may be no one can confidently predict. In the event of any substantial change of conditions, the whole question of fares should be open to reconsideration.

In conclusion, the commission desires to impress as strongly as it can upon the city of Holyoke and the other communities involved the fact that the electric railway situation in Massachusetts is critical, and that this is true of the company by which they have served. The Holyoke Street Railway has never, indeed, been more in need of hearty public co-operation than it is at the present time. Encouragement of jitney transportation is short-sighted in the extreme, and anything that communities can do by proper traffic regulations to facilitate the movement of cars, or any steps which they may take to limit unreasonable claims for injuries or damages are in their own interest quite as much as in the company's interest.

The proposed schedule of the company is canceled and a new one, revised as recommended by the commission, will be approved by the board.

#### Review of New York Plea

Edward Swann, district attorney of New York County and a member of the New York City administration, has issued a statement in regard to the applications that are now pending with the city for increases in fares on the local electric railways. He says that in order to pass upon the matter intelligently it is necessary to "ascertain the facts in the transit situation, past and present, for the best prophet of the future is the history of the past."

After calling attention to the quasi-public character of the railway business Mr. Swann says that the privileges which the companies enjoy are conveyed in trust, first, for the public benefit, and, second, for earning a reasonable profit on the investment. He has included as part of his statement a table of "net earnings for three years of the 'subway syndicate,'" in which he has grouped the Interborough Rapid Transit Company (rapid transit lines) and the New York Railways (surface



lines), operated separately but controlled by the Interborough Consolidated Corporation. Taken as a whole he considers the lines to be profitable.

Mr. Swann calls attention to the disapproval of the plan of reorganization of the old Metropolitan Street Railway and the Third Avenue Railway by the Public Service Commission on the ground that the proposed issue of securities in the reorganization was not justified and to the subsequent overruling of the commission by the courts as a legal question arising upon the construction of statutes. Later the law was amended giving the commission power over reorganizations.

Mr. Swann says that the surface railway companies just mentioned were warned at the time by the commission of the practical certainty that dividends could not be earned, and that default in payment of bond interest might result. It is his opinion that "if, in disregard of these considerations, the plans (reorganization) were adopted, the companies cannot now, with any justification, appeal to the public for an increase of fares to relieve them from the effects of their own improvidence." Mr. Swann has not dealt separately with the cases of the Third Avenue Railway or of the Brooklyn Rapid Transit Company.

### Inter-Company Transfers

The Beeler transfer report reached the Public Service Commission of the District of Columbia on Dec. 23. The report is a fifty-page typewritten document covering the transfer conferences held recently between officers of the Washington Railway & Electric Company and the Capital Traction Company and John A. Beeler, traffic expert for the commission.

These conferences grew out of public hearings on the transfer matter on Nov. 7 and Nov. 14. On the latter date the companies agreed to the establishment of inter-company transfer points at Eighth and East Capitol, Eighth and C, Eighth and D and Eighth and H Streets northeast.

It was decided then to take the whole question up in conference. If the voluntary action of the companies has not met sufficiently the needs of the situation, the commission, it is expected, will announce further hearings.

The rate increase order of the commission, permitting the companies to charge a straight 5-cent fare, was issued on Oct. 26. The first transfer hearing was on Nov. 7. The first transfer points were established on Nov. 20.

The matter of free inter-company transfers was discussed first during the fare hearings, the officers of the companies admitting at that time that such an exchange at certain points would probably benefit the public, although perhaps not tending to increase the revenues of the companies. It was not expected that the concessions the companies are willing to make would be announced until after a meeting of the commission on Dec. 23.

## Columbus Figures Presented

### First of the Bemis Study Results Made Public Substantiate Fare Claims of the Railway

President Westlake of the City Council of Columbus, Ohio, expressed the opinion on Dec. 20 that very little will be done toward straightening out the fare trouble until after the United States Supreme Court has rendered a decision on the two suits before it to determine whether or not the terms of the present franchise of the Columbus Railway, Power & Light Company shall be enforced.

#### STOCKHOLDERS ORGANIZE

This attitude on the part of the city is due largely to recent events, among them the formation of a stockholders' protective committee on Dec. 19, representing stock with a par value of \$1,200,000.

Emil Keiswetter, president of the Ohio National Bank, is chairman of the committee. Its purpose is to take such measures as will restore the company to the good will of the public. The committee hopes to have matters in shape to act at the annual meeting of stockholders on Jan. 28.

Edward W. Bemis, employed some time ago by the Council to audit the books of the company and make an investigation of its ability to operate at the present rate of fare, filed a partial report on Dec. 19. The report showed that the E. W. Clark Management Company receives 1½ per cent of the gross revenue for its service in managing the company. Formerly members of this organization were heavy stockholders, but it is stated that they now own less than 16 per cent of the total stock of the company. The management company pays the salaries of President S. G. McMeen, Vice-Presidents Crawford and C. M. Clark, as well as half the salary of General Superintendent Harold Clapp.

The figures bear out the statement made by company officials that the company has been losing about \$50,000 a month because passengers refuse to pay their fares. During September and October of this year 3,073,021 passengers did not pay fares, which means a loss of \$48,016. During these months it was shown that 9,685,588 passengers were hauled as compared with 13,984,875 for the same months in 1917. This loss of 4,984,875 resulted from the refusal of people to use the cars, it is stated.

#### WAGE INCREASE OF \$585,000

Mr. Bemis stated that the increase awarded the employees by the War Labor Board will amount to \$585,000 a year. Several heads of departments were also allowed an increase in order that their services might be retained. Fare rebate slips given out when a cash fare of 5 cents was imposed have created a contingent liability of \$72,000 up to Oct. 31, which the company has promised to return if the courts decide the fare question against it.

Revenues derived from the railway department for September and October showed a decrease of more than \$60,000 over the same period last year and the net decrease for both railway and power departments was \$8,400. Operating expenses for the same time showed an increase of \$46,246 for the railway department, while the power department of the company decreased its expenses \$998, leaving a net increase of \$36,929.

Net funds available for dividends and depreciation at the end of the two-month period were \$7,229, as compared with \$94,774 for the same period of last year.

Schedule 7 of the report by Mr. Bemis shows the following comparative statement of gross revenues, operating expenses and net earnings for the months of September and October, 1917 and 1918:

	Railway Revenues	Light, Heat and Power	Total
1917	\$387,644	\$284,773	\$672,419
1918	323,602	342,406	664,009
Net decrease.....			\$8,409
Operating Expenses			
1917	\$262,780	\$203,866	\$466,646
1918	309,026	194,548	503,575
Net increase.....			\$36,929
Taxes			
1917	\$27,356	\$24,569	\$51,926
1918	25,584	23,219	48,803
Decrease.....			\$3,123
Operating Expenses and Taxes			
1917.....			\$518,573
1918.....			552,379
Net increase.....			\$33,805
Net Earnings from Operation			
1917.....			\$153,845
1918.....			111,630
Net decrease.....			\$42,214
Non-operating Revenue			
1917	\$10,241	\$22,115	\$32,357
1918	2,868	14,907	17,776
Decrease.....			\$14,581
Net Available for Depreciation and Return on Investment			
1917.....			\$186,202
1918.....			129,406
Decrease.....			\$56,796
Deductions for Interest and Miscellaneous			
1917.....			\$91,428
1918.....			122,178
Increase in Deductions.....			\$30,749
Net Available for Depreciation and Dividends After All Deductions and Expenditures			
1917.....			\$94,774
1918.....			7,228
Decrease.....			\$87,545
The effect of the temporary 5-cent fare, used when it seemed that the City Council would give absolutely no heed to the company's plea for a higher rate of fare to meet increasing expenses, is shown in the following unofficial statement:			
Pay Passengers, September and October, 1917			
Cash fares.....		752,182	
Tickets.....		10,545,757	
Total paying.....		11,382,433	
Pay Passengers, September and October, 1918			
Cash fares.....		5,529,962	
Tickets.....		3,506,907	
Total paying.....		6,613,567	

Non-paying Passengers, September and October, 1917	
Free transfers.....	2,602,442
Non-paying Passengers, September and October, 1918	
Free transfers.....	240,611
Refusing to pay.....	2,832,410
Total non-paying.....	3,073,021
Total passengers carried	
September and October, 1917.....	13,984,875
September and October, 1918.....	9,686,588

These figures for the two months show clearly the company's operating condition. They comprise only a portion of Mr. Bemis' report.

## Transportation News Notes

**No More Skip Stops in Galveston.**—The Galveston (Tex.) Electric Company has revoked the skip-stop system of operation.

**Six Cents in Kankakee.**—The Public Utilities Commission of Illinois has made effective on one day's notice a 6-cent fare on the lines of the Kankakee Electric Railway. Nineteen tickets will be sold for \$1.

**Jury Inquiry in Brooklyn.**—The November Grand Jury in Kings County is to continue in session indefinitely for a general examination of transit conditions on the lines of the Brooklyn (N. Y.) Rapid Transit Company.

**Increase for Youngstown.**—The Council of Youngstown, Ohio, has passed a service-at-cost franchise ordinance, providing for a fare of 5 cents immediately, and a 1-cent charge for a transfer. The old rate was twenty-five tickets for \$1, with no transfer charge.

**Rates Made Uniform.**—The Public Utilities Commission of Illinois made effective as of Dec. 10 the proposed advances in freight and express rates of the Sterling, Dixon & Eastern Electric Company to coincide with like rates on steam roads under federal control.

**Millville Line Wants Increase.**—The Millville (N. J.) Traction Company has applied to the Board of Public Utility Commissioners of New Jersey for permission to increase its fares from 5 cents to 6 cents, and the fare between Millville and Vineland from 10 cents to 12 cents.

**Council Adopts Service Order.**—The Common Council of New Orleans, La., has adopted a resolution by which the New Orleans Railway & Light Company must restore all cars taken out of service and abolish the skip-stop system, thereby resuming the schedule in effect last summer.

**Pittsburgh Ordered to Prepare.**—In an opinion handed down by the Public Service Commission of Pennsylvania, the Pittsburgh Railway is ordered to prepare immediately all its cars, except summer cars, for use, so that the

company "will be prepared to perform its duty to the maximum of its present capacity."

**Waco Skip Stops Go.**—The City Commissioners of Waco, Tex., recently adopted an order revoking a previous order providing for skip stops on the lines of the Waco Traction Company. As a result cars in Waco are again stopping at every corner and at other regular stops to take on or discharge passengers.

**Increase in Milk Rates to Continue.**—The Public Service Commission of Indiana has issued an order continuing in effect for ninety days beyond Dec. 31 its order of one year ago authorizing interurban electric railways in Indiana to charge increased rates for the transportation of milk and cream and their products.

**Fare Complaint Not Pressed.**—The Public Service Commission for the Second District of New York has ordered closed upon its records the complaint of patrons of the Syracuse Northern Electric Railway, Inc., over increased fares put in effect on Sept. 23. Commissioner Cheney gave a hearing in Syracuse in November, but the complainants failed to appear.

**Increase in Speed Allowed.**—The City Commission of Dallas, Tex., has passed an ordinance permitting cars of the Dallas Railway to increase their speed, the limit in the business district being raised from 8 to 12 m.p.h. and the speed in the residence district to 20 m.p.h. in accord with the recommendations of John A. Beeler, traffic expert.

**Omaha-Lincoln Line Wants More.**—T. A. Browne, secretary of the State Railway Commission of Nebraska, has notified Mayor Smith that the Omaha, Lincoln & Beatrice Railway has applied for permission to raise its fare from 5 cents to 7 cents. The company has had a deficit every year since the war started, ranging from \$1,900 in 1914 to \$4,524 in 1918.

**Increase for Interurban Line.**—The Public Utility Commission of Pennsylvania has granted authority to the Trenton, Bristol & Philadelphia Street Railway, Bristol, Pa., to increase its fares from 5 cents to 6 cents in each of its zones between Trenton and Torresdale. The company also sells strips of thirty-five tickets for \$2, a saving of a quarter of a cent on each fare.

**Tulsa Rules Against Jitneys.**—The City Commission of Tulsa, Okla., has enacted an ordinance to regulate jitneys. The ordinance limits the number of passengers to be carried by a jitney to its seating capacity. The jitney drivers say they will be compelled to cease operation unless the ordinance is repealed. The city authorities say they will enforce the ordinance to the letter.

**Boston Prohibits Smoking.**—The trustees of the Boston (Mass.) Elevated Railway have ordered the discontinuance of smoking at all times on the cars of the system. Smoking has here-

before been permitted between 1 and 6 a.m. on night cars on inclosed platforms only. C. D. Emmons, general manager of the company, says he feels that this order is necessary for sanitary reasons and for the general convenience of the patrons of the road.

**Chicago Elevated Fare Case Closed.**—There will be no ruling until after the holidays on the injunction proceedings brought by State's Attorney Hoyne to enjoin the Chicago (Ill.) Elevated Railways from charging 6-cent fares. Oral arguments in the case have been closed before Circuit Court Judge Baldwin. The State's Attorney, counsel for the elevated lines and attorneys for the city will now submit briefs.

**Zone Fare Statement of Jersey Company.**—At a meeting of the Board of Public Utility Commissioners of New Jersey, to be held at Newark on Dec. 30, President T. N. McCarter of the Public Service Railway will present a statement on the establishment of a zone system of fare collection on that property. This is in accordance with the board ruling permitting an increase in fare, in connection with which it was specified that the railway company should present a plan for a zone system by Jan. 1, 1919.

**Asks Court to Modify Commission Ruling.**—Wallace B. Donham, receiver for the Bay State Street Railway, Boston, Mass., asked the Supreme Court on Dec. 24 to annul, modify, or amend the recent order of the Public Service Commission setting the rate of fare on the Bay State system at 7 cents in cities and 2½ cents a mile in smaller communities. In his petition the receiver declared the decision of the commission declining to approve a 10-cent fare schedule and setting the lower rate had in effect denied him, as receiver, a reasonable return for the service rendered, and deprived him of his property without due process of law. The decision of the commission denying a flat 10-cent fare was reviewed in the ELECTRIC RAILWAY JOURNAL for Dec. 21, page 1103.

**More Time Allowed in Chicago Case.**—The 7-cent fare case of the Chicago (Ill.) Surface Lines was heard before the Illinois Public Utilities Commission on Dec. 23 and 24. Most of the time was devoted to arguments on the status of the contract with the city. The commissioners did not decide this point, but allowed the companies to present all their evidence. Questions of some of the commissioners would indicate that they had in mind the possibility of commuting the city's 55 per cent of the net receipts toward a reduction in fare. L. A. Busby, president of the railway, explained that such a plan would not help under the present circumstances because there is no net which can be divided with the city. The city was allowed further time to prepare its evidence and to cross-examine on the exhibits filed by the companies.

## Legal Notes

### KENTUCKY—*Separate Coaches Required for Races on Interurban Line.*

Kentucky Statute Sec. 795 requiring railroads operated within the State to provide separate coaches for different races applies to interurban lines but not to street railways, the former being distinguished from the latter by deriving their franchise and power of eminent domain from the State instead of the municipality. Hence, an interurban company which had turned its road over to another company and authorized its operation without separate coaches and the operating company were both liable for the penalty where the statute was not followed. (*South Covington & Cincinnati St. Ry. Co. vs. Commonwealth*, 205 Southwest. Rep., 603.)

### KENTUCKY—*Overcrowded Cars Do Not Constitute a "Nuisance."*

In the absence of any ordinance or statute limiting the number of passengers on the cars, a street railway company cannot be prosecuted for maintaining a nuisance because it failed to prevent crowding on its cars. If the passengers become injuriously affected by such overcrowding, the remedy is in action for damages. (*Commonwealth vs. South Covington & Cincinnati Street Ry. Co.*, 205 Southwestern Rep., 581.)

### LOUISIANA—*Had Chance to Avoid Accident from Over-Speeded Car.*

A car was run too fast when approaching a street, but the danger could have been seen by a pedestrian whose subsequent negligence was the direct cause of his fatal injury. Hence, he had the last clear chance to avoid the accident, and his children could not recover. (*Sammons vs. New Orleans Ry. & Light Co.*, 79 Southern Rep., 320.)

### NEW YORK—*Strike Breakers Are Employees.*

Where a street railway had a strike and a detective bureau furnished strike breakers, the railway paying the bureau, which in turn paid the men, the men acting as motorman and conductor on a car were servants of the street railway, whose exclusive remedy for negligent injuries is under the workmen's compensation law (Consol. Laws, chap. 67). Public policy requires that a public carrier shall be regarded as a responsible employer. (*Murray vs. Union Ry. Co. of New York City*, 170 New York Sup., 601.)

### NEW YORK—*Rails in Street Should Not Be Piled So as to Appeal to Playful Instincts of Children.*

Some children found rails piled on the street during reconstruction work

and one of the rails lay in a nearly balanced condition across a block. The children proceeded to use it as a seesaw and were injured. The court held that the company should have known that such seesaw would appeal to the playful instincts of children and that the question of its negligence in leaving the rails in such a position should be referred to the jury. (*Murnane vs. Third Avenue R.R.*, 172 New York Sup., 188.)

### NEW YORK—*Injuries to Pedestrian While Crossing Street—Elements Essential to Recovery.*

To sustain recovery by a pedestrian, struck by a street car, he must show that before starting across the street, he looked in both directions, that no car was approaching within such distance or at such speed as to cause reasonable apprehension of collision, and that the motorman by exercise of reasonable care could have avoided a collision. (*Fortunato vs. Union Ry. Co. of New York City*, 172 New York Sup., 119.)

### NEW YORK—*Consent to Construction of Elevated Railway Must Be Recorded.*

Written consent by an abutting owner to the construction of an elevated railway in a street is a "conveyance," within Real Property Law, Sec. 290, and must be recorded to be valid as against bona fide purchasers. Hence, a person who purchased after the consent was given and before it was recorded, and without notice, could recover damages for the construction of the road. (*Maybeck vs. New York Municipal Ry. Corp.*, et al., 171 New York Sup., 848.)

### PENNSYLVANIA — *While Passenger in Automobile Is Not Chargeable with Negligence of Driver, He Must Exercise Reasonable Care to Avoid Danger.*

The court affirmed the judgment of the lower court which quoted *Dunlap vs. Philadelphia Rapid Transit Company*, 248 Pa. 130, 93 Atl. 873 as a parallel case. Here the law was held to be that while, as a rule, a passenger is not chargeable with the negligence of his carrier, that rule does not relieve the passenger of the duty of exercising reasonable care to avoid danger. He must not sit quietly by and fail to see danger that is plainly imminent and then fail to warn the driver. (*Laudenberger vs. Easton Transit Co.*, 104 Atl. Rep., 588.)

### SOUTH CAROLINA—*Not a Trespasser or Licensee, When Having Access to Ground on Each Side of Track.*

Where a landlord had the right to use of the land on either side of the defendant's interurban line, the tenant's son, in going from a cow lot on the landlord's premises to his father's dwelling across defendant's tracks, was not a "trespasser" or a "licensee." (*Phillips vs. Piedmont & Northern Ry.*, 96 Southeastern Rep., 960.)

## New Publications

### Power Pressure

No. 18 in the series of Safe Practices pamphlets issued by National Safety Council, Chicago, Ill. Price, 10 cents.

### Safe Practices

Bulletin No. 17 in the series of Safe Practices Pamphlets issued by the National Safety Council, Chicago, Ill.

While this pamphlet relates more particularly to steam railroad yards and yards of manufacturers, it contains suggestions which would be applicable in electric railway yards also.

### Labor Legislation of 1917

Bulletin No. 244 of the United States Bureau of Labor Statistics, Government Printing Office, Washington, D. C. 430 pages.

This bulletin, which has just been issued, is the latest supplement to preceding bulletins presenting the labor legislation of each year. Laws on the subject of workmen's compensation are not included, since these are published in a separate group.

### The Safety Movement in the Iron and Steel Industry

By L. W. Chaney and H. S. Hanna, United States Department of Labor, Bureau of Labor Statistics, Washington, D. C.

This is a 300-page report giving a graphic picture of the accident situation in the special field mentioned. While not of direct application in electric railway work it should be suggestive to transportation men who are viewing the accident-reduction movement in a broad way.

### Accident Report

Report on Long Island Railroad Accident near Central Islip, N. Y., on April 15, 1918. Interstate Commerce Commission, Washington, D. C.

This is the report of the chief of the Bureau of Safety covering the investigation of an accident which occurred on the Long Island Railroad near Central Islip, N. Y., on April 15, 1918, and it contains many valuable data of a technical character on T-rails. The report is well illustrated with rail cross-sections, both photographic and in outline.

### Lectures on Engineering Practice

The 1918 "J. E. Aldred Lectures," delivered at the Johns Hopkins University, Baltimore, Md. Published by the university. One dollar per copy.

These lectures on engineering published under the Aldred foundation contain much of interest to electric railway men; for example, the lectures on development of concrete road construction, by A. N. Johnson; the manufacture of structural steel, by Bradley Stoughton; steam-electric power-plant design, by A. M. Loizeaux; the coal problem, by E. G. Bailey, and the growth of electric systems, by J. C. Smith.

## Personal Mention

### Mr. Hamilton Succeeds Mr. Andrews

Executive Offices of New York State  
Railways Moved to Rochester,  
Where Mr. Hamilton Is

James F. Hamilton, vice-president of the entire system of the New York State Railways, including the properties at Rochester, Syracuse and Utica since last February and resident manager for the company in Rochester, has been elected president of the company to succeed the late Horace E. Andrews. Walter N. Kernan succeeds Mr. Andrews as president of the Mohawk Valley Company, which controls the New York State Railways. As the Ontario Light & Traction Company is being merged with the New York State Railways no successor to Mr. Andrews



J. F. HAMILTON

with that company will be elected. As yet no successor has been selected to Mr. Andrews as president of the Schenectady Railway. James T. Hutchins, also of Rochester, has been elected president of the Rochester Railway & Light Company, doing a light and power business exclusively, to succeed Mr. Andrews. The executive offices of the New York State Railways will be removed to Rochester and Mr. Hamilton will continue in charge of the New York State Railways, Rochester Lines, as general manager. Since his election as vice-president of the company the local managers of the New York State Railways have reported to Mr. Hamilton in Rochester.

Mr. Hamilton is well known throughout New York State, having been connected with the local railway properties in Buffalo, Albany, Schenectady and Rochester. His wide experience in operation, his knowledge of the local problems in the cities in which the New York State Railways operates, and his acquaintance with the needs of the va-

rious communities, should help materially in the handling of the many problems that will come before him for solution as operator and executive. Mr. Hamilton began his railroad career in 1897 as a conductor on the lines of the International Railway at Buffalo, and after various promotions with that company, he resigned in 1902 to accept a position as assistant superintendent of the Schenectady Railway and was promoted to the position of superintendent in 1909. In 1911 Mr. Hamilton was appointed general superintendent of the United Traction Company, Albany, and was retained by the Schenectady Railway in an advisory capacity. In 1912 he was promoted to the office of general manager in charge of both the Schenectady and United Traction properties. He resigned these positions to assume the duties of general manager of the New York State Railways, Rochester Lines. He was president of the New York Electric Railway Association in 1914-1915.

### Another Boston Trustee Resigns

For the second time since the trustees were appointed by Governor McCall of Massachusetts on June 26 to conduct the Boston Elevated Railway on the service-at-cost plan, under State control, the chairman has resigned. Louis A. Frothingham, the first chairman, elected to that office by his fellow trustees at their first meeting, resigned in October upon receiving a major's commission in the United States army. On Dec. 17 William M. Butler, who has since been chairman, sent his letter of resignation to Governor McCall.

Mr. Butler's resignation was caused by the growing and urgent demands of his private business interests, it is said. He is a member of the law firm of Butler, Cox, Murray & Bacon. Mr. Butler is president of the Boston & Worcester Street Railway and the Boston & Worcester Electric Companies. He is also president of several cotton mills companies and of a storage warehouse company in New Bedford.

The remaining members of the Elevated trustees are Galen L. Stone, John F. Stevens and Stanley R. Miller of the original board, and former Congressman Samuel L. Powers, who was appointed to succeed Mr. Frothingham after the latter resigned.

L. H. Mountney has been appointed treasurer of the Center & Clearfield Railway, Philipsburg, Pa., to succeed F. P. Bagley, who has been appointed assistant secretary of the company. Mr. Mountney was formerly general manager of the Slate Belt Electric Street Railway, Pen Argyl, Pa. Previous to that he was superintendent of

the Carbon Transit Company, Mauch Chunk, Pa.

J. M. Daley has been appointed acting manager of the Ogdensburg (N. Y.) Street Railway to succeed W. B. Voth, general manager, who resigned to become manager of the properties at Eau Claire, Wis., operated by the Wisconsin-Minnesota Light & Power Company.

C. A. Hoag, formerly assistant treasurer of the United Traction Company, Albany, N. Y., has been appointed treasurer of the company to succeed Henry F. Atherton, who is now assistant general manager of the Hudson Valley Railway. Mr. Hoag was appointed assistant treasurer of the United Traction Company in the spring of 1916, and previous to that time was connected with the bureau of departmental accounts of the company.

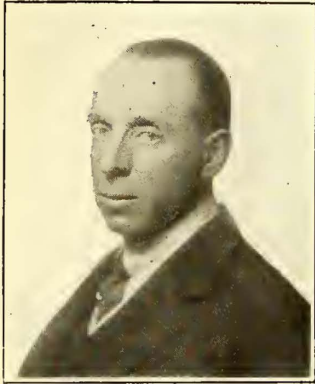
C. Sims Bailey has been appointed general manager of the Schuylkill Railway and the Schuylkill Electric Company, Girardville, Pa., to succeed the late R. Harold Smith. Mr. Bailey is an alumnus of Cambridge University, England. He has had a wide experience in the public utility field; first in the development of the Durban Tramways, South Africa, later in the construction and operation of the Richmond & Henrico Railway, Richmond, Va.; the Petersburg & Appomattox Railway of Petersburg, Va., and in the operative departments of the Morgantown & Wheeling Railway Company; Ha Ha Bay Railway; Hull Electric and other enterprises.

John W. Colton has been appointed executive assistant to L. S. Storrs, president of the Connecticut Company, New Haven, Conn., reporting to the president. His jurisdiction will cover information and advertising, among other things. Mr. Colton's appointment comes as a result of the Connecticut Company's decision to acquaint the public more fully with the problems that confront it. Recently a campaign of advertising in the daily and weekly newspapers in the cities and towns served by the company was begun, the purpose being to inform the public how changed conditions within the last few years had brought about increases in expenditures in excess of the increase in revenue, which eventually will make necessary a readjustment of fares. Mr. Colton was formerly city editor and news editor of the Springfield (Mass.) Union for the last twelve years, and prior to that had had reportorial and editorial experience on other Massachusetts newspapers. In September of this year he was called by the Bridgeport District Ordnance Office of the War Department to take charge of the publicity of the Bridgeport district, which, at that time, had very important plans under way for the dilution of labor in munition factories and the increasing of production by various other means. Mr. Colton specialized in electric railway matters during his newspaper career.

## Messrs. Clapp and Campbell Move Up

Columbus Company Recognizes Executive Talent in Officials Whose Early Work Was Along Engineering Lines

A recent personal note in these columns directed attention to the election of two engineer-executives to vice-presidencies in the American Electric Railway Association. A similar coincidence occurred when H. W. Clapp was promoted to be general manager of the



H. W. CLAPP

Columbus Railway, Power & Light Company, and W. C. Campbell was promoted to the general superintendency previously occupied by Mr. Clapp. Both of these men are electrical engineers by profession, the larger part of their business careers having been spent in engineering work.

Mr. Clapp is an American citizen by birth although he was born in Australia. He came by his interest in electric railway matters naturally because his father was managing director of the Melbourne Tramway & Omnibus Company. For four years before coming to America Mr. Clapp was superintendent of motive power of the Brisbane Tramways. With the operating experience thus gained, he entered the manufacturing field in 1902 as an engineer with the General Electric Company, his work being in the New York territory. During five and one-half years spent thus he had much to do with the electrification of the New York Central Railroad, with the rolling stock for the Interborough Rapid Transit Company and with the car equipment for the West Jersey & Seashore Railroad.

He left the General Electric Company in the fall of 1907 to enter the electrical engineering department of the Southern Pacific Railroad and about four years later became assistant electrical engineer to A. H. Babcock, being assigned to be engineer in charge of construction of the trans-bay electric lines of the Southern Pacific Company. He shortly thereafter resigned to become general superintendent of the Columbus Railway, Power & Light Company, continuing as such until his promotion to his present position. In connection with the work at Columbus he has also considerable to do with the

physical operation of the East St. Louis & Suburban Railway and other properties affiliated therewith, and in 1915 became vice-president of these.

Mr. Clapp is the personification of enthusiasm, and he has put a tremendous amount of energy into every activity into which his interests have led him. He has made a special study of franchises, and has great hopes of the success of the service-at-cost plan of operation as it has been in use in Westerville, a suburb of Columbus. He is also vitally concerned in the accident-reduction movement, and has backed the National Safety Council through its electric railway section.

Mr. Campbell became acquainted with Mr. Clapp soon after the latter made his General Electric connection. Young Campbell had graduated from Union College, Schenectady, in 1900; and had spent one year in the General Electric shops, another in special work at Purdue University and a third on the General Electric testing floor. He was then assigned to the New York territory of the company, but left its service about the same time as did Mr. Clapp, to become general car-house foreman for the New York Railways. Another year saw him back with the General Electric Company in the New York territory, but he was soon transferred to the San Francisco and Portland (Ore.) districts for construction engineering and sales work. In 1914 he joined Mr. Clapp at Columbus with the title of assistant general su-



W. C. CAMPBELL

perintendent. As previously stated, he has just succeeded Mr. Clapp as general superintendent.

Both Mr. Clapp and Mr. Campbell retain their interest in electrical engineering matters, the former being a member and the latter an associate of the A. I. E. E. They are both active also in local civic affairs and together form a strong team in the management of the Columbus property. Their experience demonstrates the fact that

engineering training need not prove a bar to entrance into general administrative work if a man has a talent for such.

## Obituary

Eugene E. West, president of the Valdosta (Ga.) Street Railway, is dead. Mr. West had been in business in Valdosta for many years, but for some time he had lived in Jacksonville, Fla.

Edward Day Page died on Dec. 26 in Oakland, N. J. In addition to other extensive business interests, Mr. Page was president of the South Orange & Maplewood Traction Company and a director of the Yale & Towne Manufacturing Company and the Colorado Power Company. He was sixty-three years old.

Private John W. Highams, U. S. Marines and former cashier of the Memphis (Tenn.) Street Railway, has been killed in action in France. He gave up the position which he held with the railway for fifteen years to enlist during the past summer. Private Highams was twenty-nine years of age. He had been in France less than two months.

Harrison Harwood, Natick, Mass., is dead. He was born in Natick seventy-six years ago. His business interests were mostly in his home town. Until two years ago he was president of the Natick National Bank. He promoted both the Natick & Cochituate Horse Railroad and the electric railway from Natick to Newton Lower Falls and Needham, now included in the system of the Middlesex & Boston Street Railway. He was a large stockholder of the Natick Gaslight Company, of which he was an officer for many years.

Harry L. Bleecker, vice-president and general manager of the Washington Water Power Company, Spokane, Wash., died recently of pneumonia. Mr. Bleecker was one of the most widely known public service corporation officials in Washington and had an extensive acquaintance in Idaho, California and the East. He was forty-five years old and had been with the Washington Water Power Company sixteen years. He was born in Belleville, Ont., and went with his father to California, where, after studying law, he entered the legal department of the San Diego Street Railway. In 1900 Mr. Bleecker became private secretary to Jay P. Graves, at Grand Forks, B. C., who was then building the Granby smelter. Two years later he went to Spokane and became private secretary to the late Henry M. Richards, then president of the Washington Water Power Company, and to D. L. Huntington, now president of the Washington Water Power Company. In 1903 he was elected secretary of the company and later was chosen vice-president.

# Manufactures and the Markets

DISCUSSIONS OF MARKET AND TRADE CONDITIONS FOR THE MANUFACTURER,

SALESMAN AND PURCHASING AGENT

ROLLING STOCK PURCHASES

BUSINESS ANNOUNCEMENTS

## Difference of Opinion Over the Trend of Prices

**Some Hold to Stiff Prices, Others Desire Quick, Sharp Break—Gradual Decline Expected**

There is a considerable difference of opinion among members of the trade regarding the future trend of prices of electrical goods. That prices will eventually go to lower levels none deny.

Some are firmly of the conviction that it will be some time before lower prices can reasonably be expected. Labor is still high. There are stocks on hand of raw materials that were laid in at the high prices. Besides, more were ordered which are either on the way or will be shipped within the next few months. Until these conditions are changed this group believe that prices must stay up.

Contrary to this view is the hope expressed by many prominent men in the industry that prices will at once drop as far as they are going. These people, as a prominent insulated-wire manufacturer expressed it a few days ago, "want to take their loss all at once, get it over with and make it attractive to do business."

Those who hold this position, while they do not believe that it will come, say that the buyers will not be enticed into the market by a small decrease. Rather will a decrease lead them to expect still lower prices. To do things this way, these people state, is simply to postpone buying and in the meantime go through a long-drawn-out period of business agony and hesitancy.

The view, however, that is coming to be held most generally is that prices from now on can be expected to fall not fast but surely. In some lines this has already happened. Insulated-wire base, for instance, has dropped slightly in the last few days. When the price of copper drops after the first of the year, as copper authorities say it will, and as is predicated by the announced price of 23 cents for export, other commodities where copper or brass plays a large part may be expected to follow the lead of wire.

Except for certain lines, few orders are now being received for electrical goods, and while the factories may have large quantities of unfilled orders, still incoming orders must be stimulated. Competitive conditions, therefore, may arise shortly.

A case came to light a few days ago in which an order for \$25,000 worth of motors and substation equipment was about to be placed. The concern that received the order cut its price

first 8 and finally 10 per cent in order to get the business. Moreover, it was said at the time this was the first instance in several years that the salesmen had been allowed to meet competition in that way.

While it is probably true that much business is going to be delayed waiting for further decreases, still this must be expected. So long as prices are to come down slowly, new business will be placed slowly.

## Apportionment of B. R. T. Cars

The Brooklyn (N. Y.) Rapid Transit Company on Dec. 19 got another extension from Justice Benedict in Supreme Court so that it will not have to put into operation before Nov. 1, 1919, the 250 cars which the Public Service Commission in February, 1917, ordered the company to add to its surface rolling stock.

Formal orders which were signed on Dec. 19 by Justice Benedict supersede the decision given several weeks ago, when, on the application of the Public Service Commission for a writ of mandamus to compel the company to obey the order for more cars, the mandamus was made effective as of June 1, 1919.

The extension was granted as the result of a conference between Justice Benedict, former Judge Ransom, counsel for the commission, and Luke D. Stapleton and Charles L. Woody for the railway.

The formal orders state that of the 250 cars the Brooklyn Heights Railroad is to supply 135, fifty-four to be of the low-level center-entrance trailers, twenty-seven of which have already been ordered from the Jewett Company, and twenty-seven to be ordered by Feb. 1, and that plans and specifications for the other eighty-one are to be in the hands of the Public Service Commission for approval not later than Feb. 1, 1919. The Brooklyn, Queens County & Suburban Railroad is to supply ten, two of which have been ordered, two to be ordered by Feb. 1 and six to be planned by the latter date. The Coney Island & Brooklyn Railroad must furnish five, two of which are ordered and three to be ordered by Feb. 1, and the Nassau Electric Railroad will supply ninety-two, of which thirty-seven are to be low-level center-entrance. Of the thirty-seven, nineteen have been ordered, eighteen are to be ordered by Feb. 1 and on that date the Public Service Commission is to be given specifications for the other fifty-five, showing their type and design, all to be in operation by Nov. 1.

## Year's Air Brake Sales Have Been Good

**Electric Railway Companies Are Reported Again to Be Actively in the Market for Supplies**

Manufacturers of air brakes have just completed one of the best years in the history of the industry. Previous to the entry of the United States into the war large quantities of air-brake parts were exported for electric railways in France and England. Materials on hand up to two years ago were plentiful, but on the entry of this country into the war supplies began to be depleted rapidly with a consequent rise in price of brakes which, roughly, amounted to 80 per cent in the past two years.

Large orders for air brakes have been placed for electric railway cars through the Emergency Fleet Corporation and Housing Corporation and now the electric railways themselves, having postponed the purchase of new equipment as long as possible, are reported to be actively in the market. Purchases of equipment by roads which have not been granted increases in fare have been exceedingly light during the past three years, but as one producer put it, "their equipment is falling apart" and air brakes they must have, repair work having been carried on to the limit.

## Gears and Pinions Coming on the Market

**Traction Buying Good but Supplies on Hand Limited and Deliveries Run Six to Eight Weeks**

Gears and pinions, the production of which has been much curtailed during the war, are coming back into the market again but in very limited quantities. Owing to government requirements iron and steel mills stopped the manufacture of gear cases entirely and some of the gear and pinion plants themselves were taken over by the government for the production of shell cases.

The demand from electric railways has been brisk, but owing to the scarcity of supplies in the market deliveries cannot be made in better than six to eight weeks. Peak prices, it is believed by the distributors, have been reached. One concern that intended several weeks ago to advance prices on Jan. 1 has now abandoned the idea. Manufacturers show a disinclination to stock up at this time pending expected price changes in iron and steel.

## Sympathetic Strike of General Electric Men

### Action Follows Reduction of Forces Because of Canceled Orders—Statement on Company's Attitude

A sympathetic strike began at most of the plants of the General Electric Company on Dec. 19. Some of the men who went out had returned on Dec. 24, but it was estimated on Tuesday of this week that 20,000 men were out, including 15,600 at Schenectady. At Erie, Pa., where the cause of the strike originated, it was stated that 800 out of 5200 men were out, 400 of the 1200 who went out originally having returned. Substantially half the employees at Pittsfield remained loyal, and at the Lynn (Mass.) works of the company all the employees remained at work and were at their posts on Monday of this week.

The strike followed the action of the company in laying off 200 men at the Erie works, of whom ten were union members, as a result of the cancellation of orders following the signing of the armistice. The union demands the reinstatement of the men, and other matters have also been raised, such as the recognition of the union.

#### STATEMENT BY PRESIDENT RICE

Replying to a communication from John I. Wickham, secretary-treasurer Electrical Manufacturing Industry Labor Federation, E. W. Rice, Jr., president of the General Electric Company, says that the committee plan of employee representation adopted in Erie "is the same kind of a plan as that adopted in Pittsfield and in Lynn, pursuant to the award of the National War Labor Board and there is no reason for the elimination of the plan at Erie, unless similar plans are also eliminated at Lynn and Pittsfield, where they have been established under governmental direction. The elimination of such plans the company would decline."

On the question of lay-off the answer of Mr. Rice is: "That the managers of the several plants are taking up with their employees' committees the question of so handling the work as to reduce to a minimum either inconvenience or hardship from loss of work resulting from the cancellation of orders due to the cessation of the war and the diminished volume of orders received. This is a problem which involves different conditions in the different plants and in the several departments of each plant, and it must be worked out with the management of each individual plant because no general rules can be made applicable to all.

Regarding the re-employment of men in the service Mr. Rice wrote: "On Dec. 11, 1918, a letter was issued to all departments of the company stating that it was a matter of great pride to the company that 8000 of its employees had entered the military or

naval service and that we would welcome them home with pleasure and reinstate them in our employ."

Some figures as to the present volume of business and orders of the General Electric Company have been made public in connection with the strike situation. The 1917 orders aggregated \$247,000,000. Orders received during the seven weeks prior to Dec. 14 were at the rate of \$157,000,000 a year. In the last two weeks of this period they were at the rate of \$125,000,000.

## Metals Going Lower

### Large Stocks Have Been Accumulated by Allied Governments as Well as Producers

As the year closes the metals again come into a free market. Iron and steel, copper and lead are released from government control at the close of business on Tuesday next. The iron and steel people a couple of weeks ago put through an arbitrary reduction of a few dollars a ton on certain items including rails. Copper producers announced this week an asking price of 23 cents for export. This is three cents below the government maximum price. Lead producers have cut their price until it is almost as low as it will probably go, namely 5½ cents per pound.

That lower prices of practically all of the metals will come shortly is the confident opinion of the recognized authorities. Asking prices are felt to be largely market feelers. The belief that copper will go to 20 cents or perhaps 19 cents before the market is stimulated sufficiently to buy in tonnage is gaining supporters. This week electrolytic copper was offered for resale at 21 cents and London intimated that buying might take place at about 19 cents. Lead is expected to fall to 5 cents a lb. Copper wire (base) has fallen to 28 cents f.o.b. mill in carload lots. Tremendous quantities of metal are now known to be held by the United States and other governments. This is in addition to the stocks that have accumulated in the hands of producers. In its current issue the *Engineering and Mining Journal* says regarding metal stocks:

#### LARGE SUPPLIES ON HAND

"In copper, American producers were estimated about a month ago to have approximately 800,000,000 lb. of crude copper in stock and in transit, and the quantity must have been increased during December. Australia has about 50,000,000 lb., and Japan must have a large supply. It has become known within a few days that the British government has 62,000,000 lb. of refined and the American government between 75,000,000 and 100,000,000 lb.

"The surplus of copper has not resulted from any great increase in production in 1918. On the contrary, the indications are rather strong that the statistics of the world's production in 1918, for which preliminary figures

will be available in a few days, will show a considerable decrease from 1917.

"In lead we find a similar situation. Large stocks exist in America and Great Britain, the British government reporting 49,000 long tons of its own, while supplies have backed up in Australia.

"The British government has reported holding 18,769 long tons of common spelter and 6544 tons of high grade. Stocks in the hands of American producers are about 35,000 tons, a decrease from the figure of Oct. 1, but there is reason to surmise that the invisible supply in this country is large.

"With this situation there is no reason for surprise respecting the failure of buyers to appear in want of metals at recent prices."

## Electrical Sales for 1918 Around \$750,000,000

### Indications Are That 1917 Record Has Not Been Far Surpassed This Year

As the current year comes to a close it becomes apparent that sales of electrical equipment billed in 1918 are not much greater, if greater at all, than those billed during the record year of 1917. In fact, in not a few instances, it will be found that gross sales for 1918 were below those for 1917.

If the above is true, then the sales of electrical goods billed in 1918 will probably be found to run around \$750,000,000.

A good many reasons can be found for sales not running higher. First, there was not the quantity of added factory space in 1918 that there was for 1917 production. Second, there was less commercial and more government purchasing. Third, the shortage of raw materials and labor reduced production in many lines. Fourth, conservation measures required curtailment in the output of a number of electrical products. Sixth, the signing of the armistice early in November caused a very large reduction in output. Seventh, government prices on raw materials brought lower average prices on certain lines, particularly wire, which has the largest output in dollars and cents of all electrical manufactures.

At the close of 1917 the unfilled orders on hand were very large. Some of these orders have not yet been filled. Unfilled orders now on hand are probably much smaller than they were a year ago. The close of the war brought many cancellations. All government contracts, however, were not canceled. The big government contract for outpost wire, for instance, is still in the process of fulfillment.

When the new year opens the electrical manufacturing industry will find itself in a better condition to attract business than it has been in for the past two years. Once more it will be able to give service to buyers.

## Track and Roadway

**Fairfield (Ala.) Utilities Company.**—It is reported that the Fairfield Utilities Company will soon begin the construction of public utilities for the newly incorporated city of Fairfield, this line of improvements to include light, heat, water, power, gas and street car service, besides street improvements and other urban needs. The company was recently organized with a capital stock of \$50,000. The officers of the company are George Gordon Crawford, president of the Tennessee Coal, Iron & Railroad Company, president; H. C. Ryding, vice-president; L. T. Beecher, secretary-treasurer, and C. R. Sexton, assistant secretary.

**Columbus (Ga.) Railroad.**—It is reported that the Columbus Railroad is considering the construction of an extension to Camp Benning.

**Illinois Central Railroad, Chicago, Ill.**—Plans are being made to begin work next spring on the electrification of the entire right-of-way of the Illinois Central Railroad in Chicago, in connection with the construction of a large passenger terminal at Twelfth Street and the lake front, Chicago. It is planned to convert the Randolph Street suburban station into a subway station linking the electrically-operated suburban system of the Illinois Central running under Grant Park to the proposed city-built local transportation subways. The conversion of the Illinois Central Railroad to electrical operation within the city limits will be accomplished in three steps, according to the program agreed to. The suburban service will be electrified as soon as the necessary installation can be made, after which work will be started on the electrification of the through train service within the city. The final step will be the electrification of the freight service.

**Louisville (Ky.) Street Railway.**—In the event that Camp Taylor is abandoned, as it has been rumored, the Louisville Street Railway will have many thousands of dollars tied up in useless equipment. This line has been a fairly good one while the camp was busy, and from present indications demobilization from this camp will result in several thousand men being on hand for six months or more, as returning men from military service in France will be demobilized here, for a radius of more than 300 miles.

**Manchester, Ky.**—The Columbia-Panama Coal Company of Chicago, Ill., is constructing an electric line from Manchester to a large boundary of coal land which it has secured 2 miles north of Manchester, on Main Goose Creek. Grading will be completed about the first of the year. The company has secured a tract of ground adjacent to Manchester for the purpose of erecting a power plant, machine shop and repair shops. H. H. Hardinge, Chicago, Ill., president.

**Trenton & Mercer County Traction Corporation, Trenton, N. J.**—Announcement has been made by the Trenton & Mercer County Traction Corporation that it will extend its line through Trenton Junction, a distance of about three-quarters of a mile. The material for the improvement is on the ground and the work will be begun as soon as the Philadelphia & Reading Railway completes the tunnel at that place. The trolley tracks will pass through the tunnel, doing away with the old grade crossing. The traction company is now laying tracks in the Sullivan Way tunnel under the Pennsylvania Railroad and the Delaware and Raritan Canal near the State Hospital for the Insane. When the work is completed the Stuyvesant Avenue division to Trenton Junction will be abandoned. The City Commission of Trenton has adopted a resolution requesting the Trenton & Mercer County Traction Corporation to build a line along Fair Street to connect with the South Trenton branch, so as to provide transportation to the new municipal dock which is being built along the Delaware River.

**International Railway, Buffalo, N. Y.**—The Public Service Commission for the Second District of New York has ordered the International Railway to install an interlocking plant in Union Road, Cheektowaga, to control and regulate the crossing of its tracks over tracks of the Lehigh Valley and Erie Railroads.

**Interborough Rapid Transit Company, New York, N. Y.**—Plans made by the Public Service Commission for the First District of New York in reference to the extension of operation of the Pelham Bay Park subway line from the present terminus of operation, Third Avenue and 138th Street to Hunts Point Road, call for the extended

service to begin on Jan. 7. It was originally planned to have this extension of service take place on Dec. 21, but it was found impossible to get signals, power cables and other equipment in readiness at an earlier date. The Interborough Company, however, will have all work completed by Jan. 7.

**Muskogee, Okla.**—R. D. Long and Edgar Graham, both of Muskogee, Okla., have announced that plans have been completed for the construction of an electric interurban line to connect Muskogee, Oklahoma City and Tulsa. All surveys have been made and the project financed, it is announced, and the promoters are only waiting more normal conditions before starting actual construction. The proposed route is from Muskogee through Boynton, Morris and Okmulgee into Tulsa, passing through the oil fields, and from Tulsa south through Creek County oil fields into Okmulgee and through the Okmulgee coal fields, and from Henryetta to Shawnee, thence to Oklahoma City. The estimated cost of the line is \$10,000,000.

**Pittsburgh, Pa.**—Work will be begun soon on the construction of two new steel bridges to take the place of the old Sixteenth and Forty-third Street spans over the Allegheny River. The approaches will be extended to eliminate grade railway crossings. One bridge will be built at Fortieth Street at an approximate cost of \$1,250,000 and the other at Sixteenth Street at an approximate cost of \$1,000,000. Railway service may be resumed by the Pittsburgh Railway over the latter bridge.

**Southern Pennsylvania Traction Company, Chester, Pa.**—Work has been completed and operation begun on the double-track line of the Southern Pennsylvania Traction Company from Chester to Darby. The track was built by order of the government to furnish better traveling facilities for men employed in the munition plants and shipyards. The cost of building the double track was borne by the national government.

**Dallas (Tex.) Railway.**—Citizens of Mount Auburn, Parkview Place and East-We-Go have petitioned the City Commissioners of Dallas to require that the Dallas Railway extend its street car service through these communities.

**Virginia Railway & Power Company, Norfolk, Va.**—Officials of the Virginia Railway & Power Company have submitted to the city officials a recouting plan for its cars throughout the city which eliminates, it is understood, about 50 per cent of the present trackage.

## Power Houses, Shops and Buildings

**Little Rock Railway & Electric Company, Little Rock, Ark.**—A 5000-kv. turbine will be erected by the Little Rock Railway & Electric Company in its power house.

**Pacific Gas & Electric Company, Sacramento, Cal.**—The Pacific Gas & Electric Company will construct a new forge and blacksmith shop at its gas works at Fresno. The shop will be equipped with machinery for the repair and manufacture of tools, pipe, etc. A new pump house will also be built.

**Public Service Company of Northern Illinois, Chicago, Ill.**—The power house of the Public Service Company of Northern Illinois at Joliet, which supplies power to the local railways, was recently destroyed by fire. The loss is estimated at \$500,000.

**Illinois Traction System, Peoria, Ill.**—The carhouse of the Illinois Traction System at Danville, containing nine cars, was recently destroyed by fire, causing a loss of about \$50,000. The company proposes to erect a new and modern carhouse on the site of the burned building.

**Virginia Railway & Power Company, Richmond, Va.**—It is reported that the Virginia Railway & Power Company will construct a great dam at the falls of the Appomattox for the purpose of developing the water power in the vicinity of Petersburg and supplying electric light and power to the city of Tidewater, Virginia. It is estimated that the cost of the work will approximate \$2,000,000 and it is intended to secure Federal government aid in the construction of the dam. The scheme to build this dam has been under consideration for years. Richmond is already being supplied with electricity from Petersburg and a high power transmission line is being erected to Norfolk to supply that city and Suffolk with electricity for all purposes. About 15 miles of this line has already been completed.

## Rolling Stock

**Danville Street Railway & Light Company, Danville, Ill.**, is reported to have lost nine cars through a fire in the carhouse. Six of the cars were summer cars and three interurban cars. One of the latter was an express car belonging to the Illinois Traction System proper.

## Trade Notes

**Railway Audit & Inspection Company, Inc., Philadelphia, Pa.**, has opened a St. Louis office. It will be in charge of F. W. Stockmar.

**Charles L. V. Frank**, former president of Charles L. V. Frank & Company, Inc., handlers of mill and electric railway supplies, has filed notice to the effect that he has severed all connection with the concern.

**Milliken Brothers Manufacturing Company, Inc., New York**, is now stocking up at its new plant, 136th Street and the East River, preparatory to the installation of machinery and equipment to provide for the production of its various specialties, including electric transmission towers, steel poles, etc. The galvanizing plant will be erected on an adjoining plot.

**Perley A. Thomas, High Point, N. C.**, has purchased 30 acres of land upon which he has erected several new buildings which, in addition to the mill and cabinet shop which he already had, puts him in position to take care of construction of steel or wooden cars or to repair cars. He has now several orders for steel cars going through the shop and is repairing quite a number of others.

**Western Electric Company** announces that George E. Cullinan, who since 1909 has been manager of the St. Louis house, has been appointed manager of the Chicago house, succeeding Frank A. Ketcham, who was recently promoted to the position of sales manager of the company. Harry N. Goodell has been advanced from manager of the Omaha house to succeed Mr. Cullinan at St. Louis. M. A. Curran is advanced from assistant manager at Philadelphia to take charge of the Omaha house.

**Yarnall-Waring Company**, manufacturer of power-plant devices, Philadelphia, has acquired a 3-acre tract at Mermaid Lane and Devon Street, Chestnut Hill, Philadelphia, adjacent to the Mermaid Lane station, Chestnut Hill division of the Philadelphia & Reading Railway. The tract contains a three-story stone mansion which is being converted into general offices, and a one-story modern machine shop has been erected in which manufacturing is now being carried on.

**Southern Electric Supply Company, 31 Peters Street, Atlanta, Ga.**, has been incorporated to conduct an electrical supply business and is an outgrowth of the National Telephone Supply & Development Company of Atlanta. R. L. Stewart is president of the company and Carl D. Boyd sales manager. Traveling salesmen will cover the states of Georgia, Florida, Alabama, North and South Carolina and portions of Mississippi and Tennessee. A catalog is being compiled which, it is understood, will be ready for distribution about Feb. 1, 1919.

**H. W. Clarke**, who until Dec. 15 had been connected with the advertising service department of the McGraw-Hill Company at Chicago, has been appointed manager of advertising for the Chicago (Ill.) Pneumatic Tool Company. Mr. Clarke has been identified with the engineering advertising field for several years. Prior to his connection with the McGraw-Hill publications he spent eight years with the Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., part of the time as a member of the sales and publicity departments and later as Western publicity representative with headquarters at Chicago.

## New Advertising Literature

**Ajax Metal Company, Philadelphia, Pa.**: A thirty-six-page booklet descriptive of the company's ingot metals.

**Trans-Com Lighting Products Corporation, New York City**: An eighteen-page booklet descriptive of electrical boxes and conduit fittings, railway and other electrical appliances and water-tight fittings.



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