Electric Railway Journal

Consolidation of Street Railway Journal and Electric Railway Review

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Does Commission Control Remove the Hazard of Investment?

THIS pertinent question is raised this week in the editorial columns of the *Engineering News-Record*. The paper points out that for years the public service commissions have stood on the principle that commission control removed the hazard of investment and that the public service corporations thus protected must therefore be content with a smaller rate of return; but it inquires whether the commissions are living up to their pronouncements at present. It admits that conditions are abnormal and that some measure of relief has been accorded in many cases, but thinks that the general question can be answered only in the negative. The most that can be claimed is that the regulatory authorities are trying to maintain credit of the companies, or perhaps their effort could more fairly be characterized as one to prevent bankruptcy. It then says that if the commissions, from considerations of policy or lack of power, have abandoned their intent to remove the hazard of investment in public utilities, the public is entitled to a frank admission of the facts. The corporations should not now be denied full relief from their extraordinary burdens and later on, in normal times, be limited again to a return restricted by the doctrine that commission control removes the hazard element.

The Fire Stop Is Obsolete

ONCE upon a time, as Hans Christian Andersen used to say, the electric car was the only horseless vehicle upon the street. Indeed, at one time in its history its speed appeared so terrific that every newspaper reader missed something in his daily life if he did not come across some headline like: "Modern Moloch Murders More." It was in those quiet days, vehicularly speaking, that a number of municipalities ordained that the untamed trolley car must come to a full stop at every street on which a fire station was housed near by.

In the fullness of time have come the automobile and motor truck which are at liberty to career and careen hither, thither and yon. For them there is neither a fixed track nor a fixed stop. They come and go as they list except for such regulation as may be imposed by a traffic officer. Then, too, the fire department vehicles have also changed in character. As most are motor-driven instead of horse-drawn, it is possible to steer them around corners and elsewhere with far greater ease than before. Why then should the street cars of this country have to continue to make thousands upon thousands of utterly useless fuel and time-wasting stops every day when the street car is actually the most sober vehicle on the city streets—the only one that literally stays in its tracks. Surely no survey of needless stops is complete without listing these fire stops and requesting permission to abolish them in the cause of better service.

Is the One-Cent Fare Zone the Answer to the Fare Question?

IN A STATEMENT published elsewhere in this issue, Peter Witt, former street railway commissioner of Cleveland, sets forth his belief in the 1-cent fare zone as a solution to that most perplexing problem—the fare question. Briefly, his argument is that the low zone fare will encourage short-haul and off-peak riding and effectively combat jitney competition.

There is no question that zone systems in one form or other are receiving serious study these days from both railway managers and governmental regulative bodies. Statements by prominent railway men and recent decisions by public service commissions attest this. Likewise there can be no question, when it is viewed from the standpoint of the cost of service, that the old flat fare is not logical in that it does not proportion the charge for the transportation furnished to the cost of supplying it. But the same is true of the flat zone fare. It costs more per mile to carry a passenger 1 mile than to carry him 2 miles, so that even under the zone system a fairly large minimum charge can be justified on the basis of cost. In a way the problem is analogous to that of passenger interchange time. Just as the loading time per passenger is greater for one passenger than for a ten-passenger group, so is the cost per zone of transport for one zone greater than that for ten zones. In each case there is a certain fixed or constant quantity involved. In the fare problem, for example, platform time during the stop, increased energy consumption caused by the stop, fixed charges on equipment, etc., each item small in itself in the aggregate, forms an appreciable part of the cost of carrying a passenger for one zone. Where the passenger travels through a number of zones the subdivisions of the fixed charge become less and less as the number of zones increases, and the total zone cost approaches the actual carrying cost. As we understand it, Mr. Witt agrees in principle to this thought but favors a low initial fare and many zones with a reduction to the long-haul rider rather than fewer zones and a higher initial fare.

Will the 1-cent fare zones increase traffic? Undoubtedly, but to what extent it is hard to say. In fact, unfortunately, our knowledge as to the relation between traffic volume and fare variations, to say the least, is incomplete. While in a number of cases fares have been increased within the last year, either definite data relative to the effect of the increases on traffic volume are not yet available or local conditions have been so

changed by war-time exigencies as to render present conditions incomparable with those of previous years. If we may judge from such reports as are available, an increase in fares is followed by a greater or less decrease in the traffic. Conversely, it might be expected that a decrease in fare would increase the traffic, thus supporting, in a measure, Mr. Witt's contention that a low-rate zone fare would increase short-haul traffic, particularly in downtown sections. Such increases while highly desirable during off-peak periods would be just as highly undesirable during the peak periods.

The physical difficulties and cost involved in the collection of, and accounting for, zone fares has always been one of the strongest objections to them from the standpoint of the operating man. Mr. Witt presents a method in which all passengers make their exit past the conductor. Whether it could be applied to types of cars from which passengers leave the car from either end and could be conducted speedily, is hard to say.

The ideal fare should be just in a financial way to both the average rider and the railway. It should also be easily collected and accounted. These requirements seriously conflict. We have worried along with the old flat trip fare for years. Many of us are pretty well agreed that a change is necessary. The advocacy of short low-fare zones by Mr. Witt which prompted this discussion emphasizes the necessity of further study and experimentation in methods of fare collection with the zone system.

Why the Seven-Cent Fare Produced No Riots in Boston

IN VIEW of the long and acrimonious battle in Boston over fares, the calm way in which it was accepted on Aug. 1 points a moral. Thomas Dreier, of Boston, who has had a great deal of experience in electric railway matters, writes of the installation of the 7-cent fare as follows:

"A year ago there would have been riots in Boston if the management of the Elevated had suggested that 6-cent fares would be charged beginning on a certain definite day of the month. There was no excitement at all this year when it was announced that 7-cent fares would be charged. The people have just stepped up and paid their little 7 cents for tickets in strips of five, and there has been no excitement and apparently no kicking whatever.

"All this, mind you, in a congested community like Boston. The Boston Pipps are pretty well advanced."

How can one account for this phenomenon? It is simply because the public believes in the State officials. It believes that the service is going to get the benefit of the increased fare. It does not believe that the increase is going to be used for any peculiar or subterranean purposes.

This is the attitude of mind which must exist in any community before the electric railway company of that community can be successful. The case of the company must be laid before the public with such complete frankness and convincing sincerity that the people will have the same faith in the company and its purposes which they now have in their public officials.

This takes courage, and, truth to tell, courage is the quality which, in its dealings with the public, street railway companies have shown the least of. It also takes faith and confidence; but the expression, on the part of the company, of these qualities—courage, faith and confidence—inevitably produces a reaction of the same qualities. Each then comes to a state of mind in which it can believe in the other.

"I Did Not Realize"—or "The Education of Mr. Pipp"

"THE education of Mr. Pipp" goes merrily on. Certain of the public officials are really beginning to appreciate that there are things in relation to the finances and operation of electric railway companies of which they have never dreamed in their philosophy.

For instance: The Cumberland County Power & Light Company of Portland, Maine, applied last February for an increase in its fare. A campaign for the governorship was about to begin. Instantly the political bees began to buzz. By direction of the Governor, who was a candidate for re-election, Attorney General Sturgis intervened "on behalf of the people."

Other politicians intervened "on behalf of the people." The weary weeks of obstruction dragged along. Spring passed by and summer came. But finally the Public Service Commission found for the street railway company.

Attorney General Sturgis in connection with this finding made a statement to the public. In it he said, in part:

"*I did not realize* that there should be taken into consideration a normal depreciation reserve charge.

"Other things, too, made me look at this matter from a different point of view. As, for example, I have learned that the company has had to pay an increase of $65,000 in wages.

"We have found that it costs the company $122,000 more now than it did to meet actual expenses. *They have a right to pay expenses.*"

Attorney General Sturgis has both honesty and courage. Many have one or the other, but the combination is rare.

In fact, some of the public officials are really beginning to realize that electric railway companies have a right to pay their expenses. The public had begun to suspect that even before the public officials did.

But the educational progress is by no means complete. In Buffalo, for instance, the Common Council recently passed a resolution in favor of a temporary 6-cent fare for the International Railway. It is to bridge over the emergency until the Public Service Commission can determine the rate for the full war period and six months thereafter. A referendum election is to be held on Aug. 20 to determine whether the commission shall be empowered by the city to establish the fare.

But, meanwhile, the councilors, quite aware of popular prejudices, inserted the following paragraph in the resolution which is to be voted upon:

> Provided that no part of this fund (the added fare) shall be applied to the payment of any interest or dividend on any stock or obligations of either the International Railway Company or the International Traction Company.

In Massachusetts better headway is being made. On the first day of August, the Board of Trustees, appointed by the State, announced a 7-cent fare on the Boston Elevated (which includes all of the surface, subway and elevated lines). The trustees are operating this road under a law which provides for a return upon

the investment. The education of Mr. Pipp, in short, in Massachusetts has proceeded to a quite satisfactory point.

It might be a good idea if all the public officials could be assembled in one school so that numerous Mr. Pipps could be educated all at once. Better yet, perhaps, would be to put the various Mr. Pipps in charge of a street railway company.

What the Wage Award Means

"YOU can't get blood out of a turnip," said President Mahon of the Amalgamated Association in a recent statement on the critical situation brought about by the appeal of union trainmen for a living wage. And promptly came the pronouncement of the War Labor Board that the employees of twenty-three companies must have their pound of flesh even though in giving it the employers may be bled to the last drop.

The award of the federal board which has had these cases under advisement for several weeks was referred to in last week's issue of this paper. It brings to the verge of bankruptcy more than one of the companies which will be required to comply with its terms. While the wage increases are retroactive in most cases and immediately effective in the others, there is no provision for prompt financial assistance with which to meet the added expenses. True, the chairmen of the board have recommended to the President that Congressional action be taken or that local authorities give relief with a view to saving these companies from disaster. The President has, however, already expressed his disinclination to interfere, and the companies are not at all cheered at the prospect of waiting on local bodies for aid.

Not alone in the fixing of minimum and maximum wages does the War Labor Board add to the financial burden of the companies. Perhaps the hardest blow aside from this—at least for many of the companies—is the shortening of the period required for the men to reach the maximum pay. Heretofore, this has been at least five years for the average company and ten or fifteen years in other cases. The Board has declared in all the cases before it that maximum pay is to be reached after one year's apprenticeship.

Time and again arbitrators in various parts of the country have held that a training period of five years or more was necessary to bring a conductor or motorman to the point of highest efficiency warranting the maximum pay. Accident records of large railway companies have frequently been introduced to prove that new men are most costly to the management, and that there is justification in withholding the highest rate of pay until the fifth year or even later. Companies which have a considerable number of men in the intermediate classes of seniority will find this section of the award a costly one to comply with.

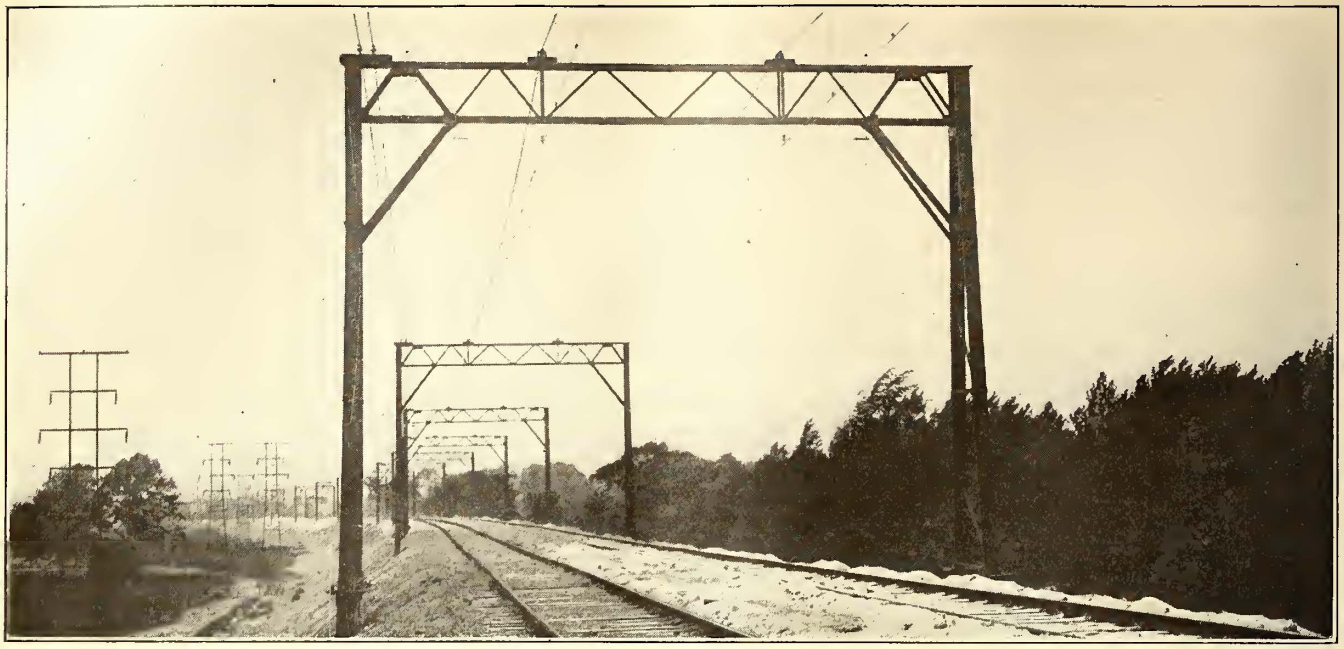
The unavoidable "spread of hours," which is peculiar to the street railway business, is also to prove a costly necessity for the companies under the ruling of the board. Under the operation of the nine-in-eleven-hours law, certain Massachusetts companies have been penalized for several years past for working the trainmen more than a spread of eleven hours. This has been a hardship because of the difficulty of preparing timetables to meet the traveling needs of the public without having the "outside time" exceed the legal limit.

Few other companies have had to contend with such restrictions, although all operating officials with the welfare of employees at heart have insisted that their comfort be considered in every possible way when arranging schedules. The War Labor Board decision penalizes all runs with a spread of more than thirteen hours. Most companies have a large proportion of their runs within this limit at present, but to the extent that it is necessary to provide service by swing runs with a greater spread the service will be burdened with the extra cost.

Labor wins three other points of more or less value. Individual contracts are declared to be contrary to the principles of the board as constituting an interference with the free right of men to organize. The decision also protects "workers in the exercise of their right to join trade unions without fear of molestation by the employer." In the Columbus case the board also sustains the right of the men to wear the union button. While this last concession may appear trivial, it is a forceful weapon in the hands of organizers during the early days of unionizing a property, when intimidation is frequently attempted on men not wearing the union insignia. Individual contracts are in effect on various properties where the employees have rejected the attempts of Amalgamated organizers to alienate them. It has been contended in behalf of these employees that in signing such contracts they have exercised their own free right to prove their loyalty to the management rather than submit to the dictation of outside business agents.

While the board has evidently thought it necessary to appease labor so that disturbances shall be minimized during the war period, there appears to be an injustice in fixing of standard wages without due regard to other compensating features of certain contracts. In some cities the working conditions already call for payments of bonus for meal relief, reporting and settling up time and similar items. To the extent that these concessions are continued those employees will have an annual income higher than that prevailing in cities classed by the board as being in the same grade.

After all, the whole proposition turns on the ability of the companies to meet the situation before disaster overtakes them. There is no disputing the right of the men to a wage which will provide for health and comfort. The companies will pay that wage cheerfully if they have the means with which to do so. The railways must be kept in operation and must give good service, and one means for securing this is a contented group of employees. But still another essential is the financial integrity of the properties. Unless this is promptly assured, the award will be disastrous to the nation which needs good service. State bodies move slowly and the logical solution of the difficulty is federal action, such as the appointment of an electric railway administrator, which indeed has been asked by the National Association of Railway & Utility Commissioners. The men who have been benefited by the award should approve the plan of enabling the companies financially to pay the wages granted. We believe the public also is ready to sanction the plan of higher fares. It is a time for prompt and united action.



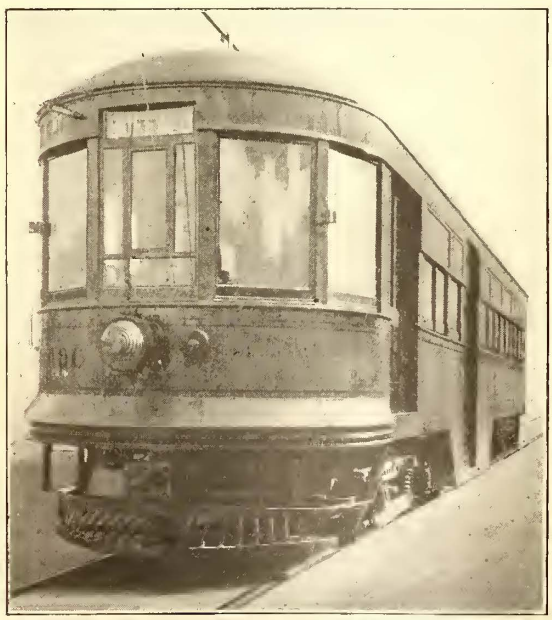
TYPICAL OVERHEAD CONSTRUCTION ON FILL—POWER COMPANY'S TRANSMISSION LINE AT LEFT

Quick Service Between Buffalo and Niagara Falls

High-Speed Line Is Now in Full Operation—Salient Features Are Catenary Construction with Heavy Overhead Bridges, a Long, High Fill to Obviate the Necessity for Numerous Grade Crossings and a Type of Car Especially Well Adapted to the Conditions

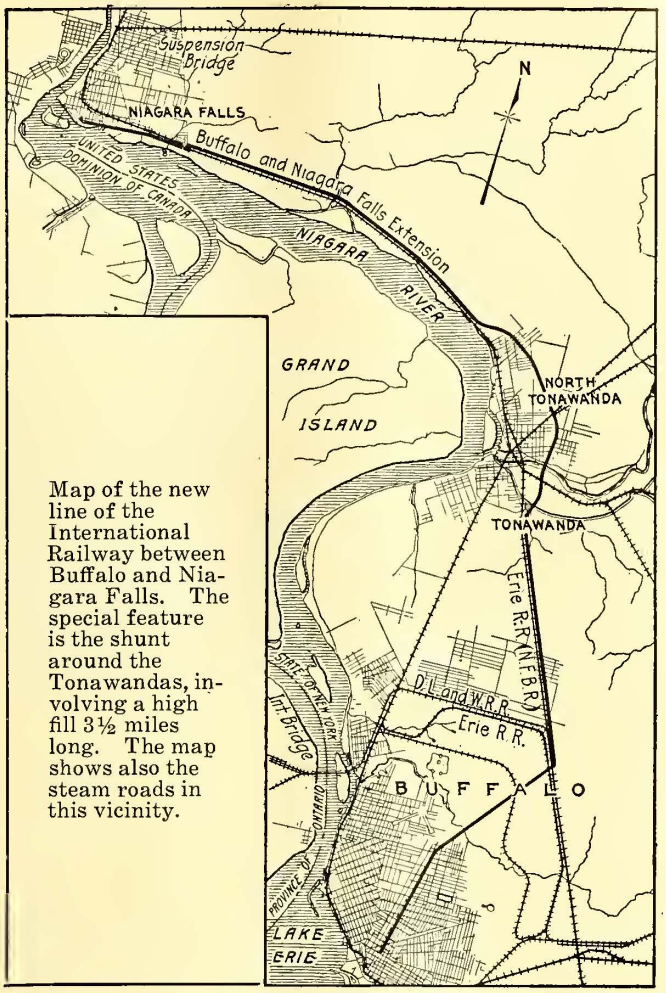
FOR several weeks full hourly service has been given over the high-speed line of the International Railway between Buffalo and Niagara Falls, N. Y. Many of the structural features of the line were covered in advance in the issue of the ELECTRIC RAILWAY JOURNAL for March 3, 1917, page 378. The completion of the job has permitted the taking of some pictures showing the construction better than could be done at that time. It was intended officially to open the line on Memorial Day of this year but this proved to be impracticable and it was actually opened some weeks later. The photographs of the completed construction were taken on May 31.

While most of the details of the design were taken

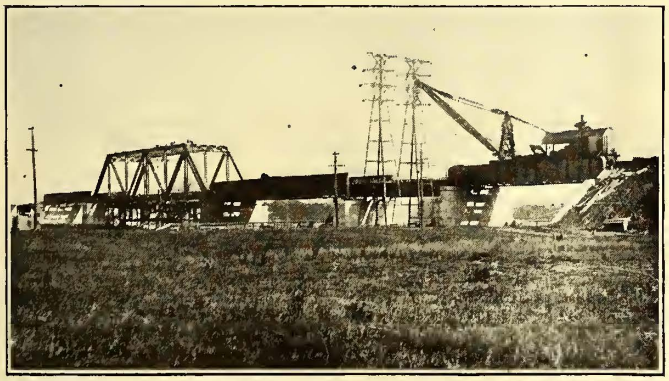


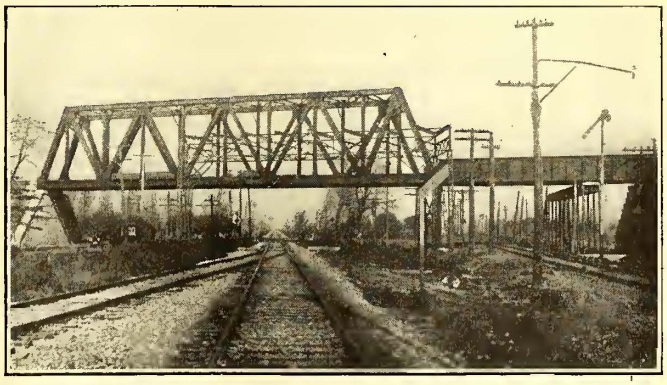
EXTERIOR AND INTERIOR OF CENTER ENTRANCE AND EXIT HIGH-SPEED-LINE CAR

up in the preceding article, some additional facts are now available and a brief general survey of the project seems appropriate. That this new line was needed is evident from the fact that the earlier line between the two cities, constructed in 1896, has become so congested with traffic that in the busy season a five-minute headway is necessary upon it. The time required for the through trip, also, is excessive. On the new line but one hour is required. The high-speed line follows the right-of-way of the Frontier Electric Railway, which is owned jointly and will be developed by the Pennsylvania Railroad and the Delaware, Lackawanna & Western Railroad. The route is shown on the accompanying map. The line is about 22¾ miles long, three-quarters of it being upon private right-of-way. It connects Main Street, Buffalo, and Portage Road, Niagara Falls, passing en route through Tonawanda, North Tonawanda and La Salle. One of the outstanding features of the high-speed line is the big Tonawanda fill. East of that city the line crosses two railroads, about 7000 ft. apart, and nine streets. It was out of the question, if safety and speed were to be secured, to cross the steam lines at grade and it was undesirable to cross the streets at grade for the same reason. To cross the steam lines overhead with the remainder of the line at the natural level would have involved several steep grades. It was finally decided to construct a fill 3½ miles long with a maximum depth of 26 ft. and containing 600,000 cu.yd. of material. Several of the illustrations for this article were taken on or near this fill. The necessary material was secured from a near-by hill involving but a short haul. The only incident marring this part of the job was a sudden settling at one point due to the presence of a quicksand which absorbed the fill and raised the ground surface correspondingly. The track was laid on a sub-grade 29½ ft. wide with sides sloping 1½ to 1. On this 85-lb. rail was placed on standard-size white oak ties,



Map of the new line of the International Railway between Buffalo and Niagara Falls. The special feature is the shunt around the Tonawandas, involving a high fill 3½ miles long. The map shows also the steam roads in this vicinity.





TYPICAL VIEWS OF TRACK BRIDGE CONSTRUCTION ON BUFFALO-NIAGARA FALLS HIGH-SPEED LINE

on 2-ft. centers. These were joined with Abbott plates, the joints being bonded with Ohio Brass No. 0000 compressed terminal bonds, with ⅞-in. terminals. When the fill thoroughly settles the track will be ballasted with crushed stone, but slag is being used temporarily. This fact accounts for the rather unfinished appearance of the ballast, noticeable in the pictures.

Nearly 3000 Tons of Steel in the Track Bridges

The use of the fill increased the number of bridges necessary, a total of 2850 tons of steel being used in their construction. The largest single span is 184 ft. A group of pictures on page 227 shows the structural features of these bridges. At Tonawanda the through plate girder type was used, and over the Tonawanda Creek the bridge has five spans. Three of these are through girders, one is a truss and the fifth is a deck girder. This bridge may at some time be changed to a bascule drawbridge, and the plate and deck girders have been designed to provide for such a change with little difficulty.

It is interesting to note that in putting in the piers for the Tonawanda Creek bridge the deepest single-wall sheet piling used up to that time was a feature of the construction. The coffer-dam made of the Lackawanna Steel Company piling is shown in an accompanying illustration.

Standard Bent Foundation Units on the Big Fill

The overhead construction throughout involves the use of heavy bents and trusses, which were furnished and erected by the American Bridge Company. The design shown in the illustrations was standard as far as form is concerned but the weights of the members were varied to suit conditions. There were four of these weights, the lightest for use on tangent track, the heaviest for dead-end towers, and intermediate weights for curves and strain towers. All were built much heavier than necessary for the immediate purpose as it is possible that transmission line bonnets will be added later.

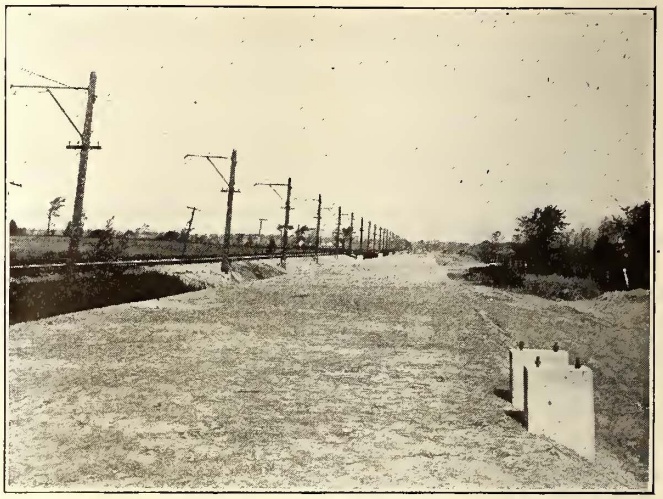
On level ground the usual concrete footings, four to a bent, were employed, but on the fill it was considered desirable to support the bents from solid ground. Hence, before the fill was made, concrete footings were molded in the ground and a structural-steel framework was carried up above the track level. To permit the use of standard units in the frames the concrete footings were varied in height. Two pictures are reproduced to show the footing construction, and in other pictures the method of attaching the bents to the foundation can be discerned.

In all 420 of the overhead bridge structures were installed, their total weight being 800 tons, or an average of 3800 lb. each. The standard spacing is 200 ft. with a minimum of 90 ft. on sharp curves.

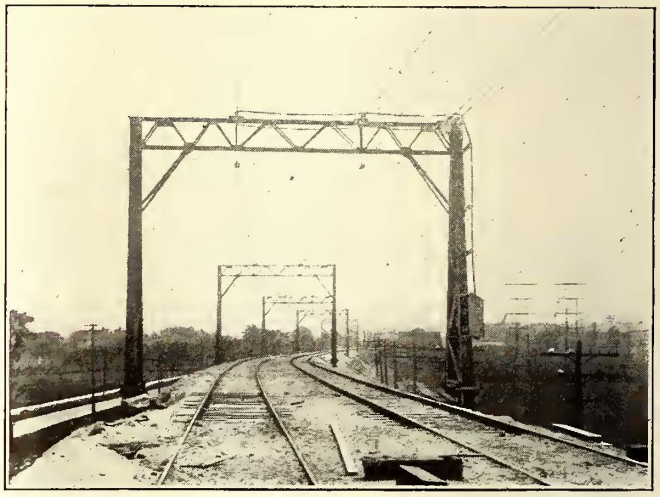
Two Sources of Power Supply

The No. 0000 hard-drawn grooved contact wire is hung from a 500,000-circ.mil hard-drawn copper cable by loop hangers placed 10 ft. apart. The messenger is supported on most of the trusses on porcelain spools mounted on rolled steel shafts resting in iron socket bearings. This mounting provides for expansion and contraction in the messenger and insures uniformity in tension. Pin-type insulators here and there act as messenger anchors.

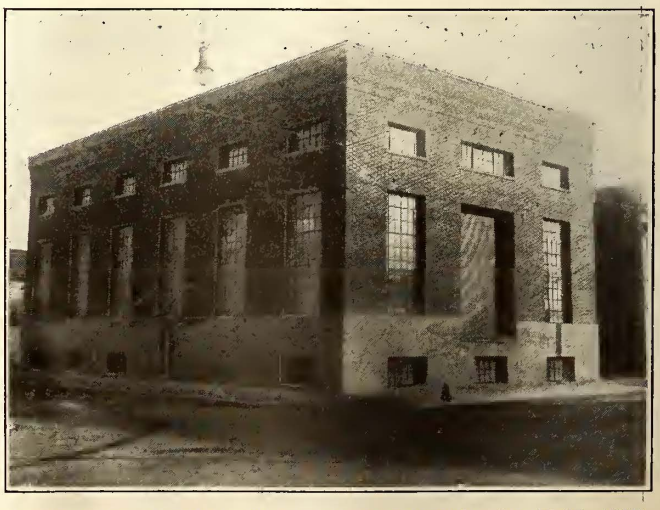
The main source of power is the Niagara Falls Power Company which furnishes it, under a "firm power" contract, at 25 cycles and 11,000 volts. Supplementing



SUB-GRADE WITH TOWER FOOTINGS READY FOR TRACK AND OVERHEAD

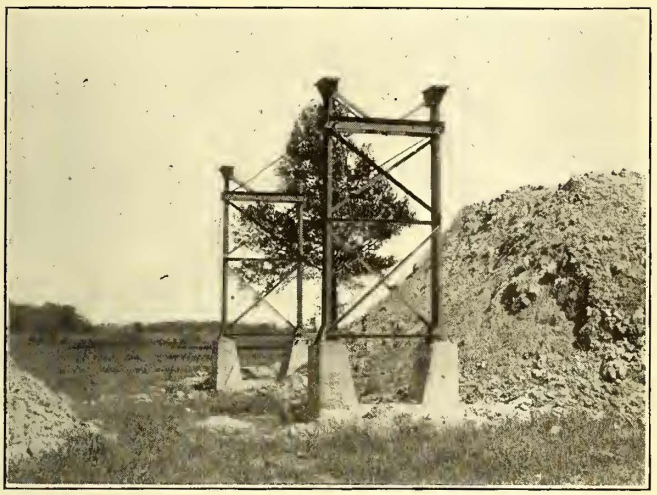


OVERHEAD CURVE CONSTRUCTION, SHOWING PULL-OFFS —FEEDER SWITCH ON BENT IN FOREGROUND

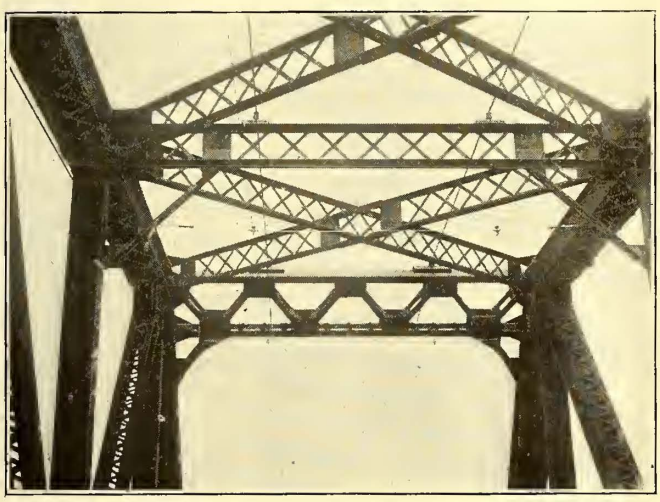


NEW SUBSTATION AT TWENTY-FOURTH STREET AND ALLAN AVENUE, NIAGARA FALLS

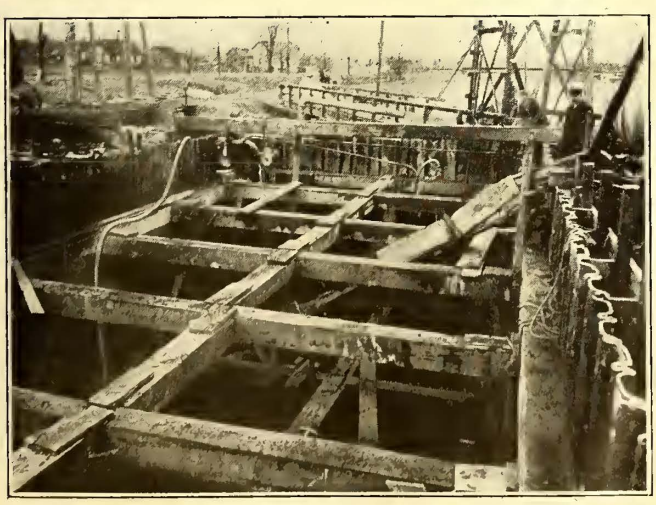
this source is the famous old Niagara Street plant in Buffalo which has been remodeled for the purpose. A 5000-kw. steam turbine has been put in (see ELECTRIC RAILWAY JOURNAL for July 13, 1918, page 44), together with the necessary accessories. This turbine has now been in operation for several weeks.



FOUNDATIONS FOR STEEL BENTS, TONAWANDA FILL



CLOSE-UP VIEW OF OVERHEAD SUSPENSION AND STEADY SPAN ON BRIDGE



SHEET PILING COFFER-DAM FOR BRIDGE PIER, TONAWANDA CREEK

The substation layout has also been considerably modified, including the addition of a new substation at Niagara Falls. The exterior of this is shown on page 228. The details of its design, together with those of the changes in the other substation, will be made the basis of a later article. Suffice it to say that the whole equipment has been selected to permit an increase at any time to 22,000 volts. Thirty-three thousand-volt GE-H-3 switches have been used throughout with this idea in view.

At Niagara Falls there are two new 1000-kw. G.E. rotary units and three old 400-kw. units removed from the former local substation. At Payne Avenue, Tonawanda, three 1000-kw. machines have replaced the same number of 400-kw. units, and at Fillmore Avenue, Buffalo, one 200-kw. machine has been put in, in place of a 400-kw. unit.

At Niagara Falls, by the way, oil-cooled transformers have been used in place of air-cooled ones, to obviate possible evil effects on insulation due to the fumes from the neighboring chemical factories.

The rolling stock for the high-speed line, most of which has been in operation on other parts of the system for some months, was fully described in the previous article referred to and in the issue of this paper for Jan. 6, 1917, page 61. The cars were furnished by the G. C. Kuhlman Car Company.

What Vehicular Obstruction Does at Seattle

AS OF JUNE 14, 1916, G. A. Richardson, general superintendent of railways Puget Sound Traction, Light & Power Company, prepared the following estimate of time lost on downtown streets due to vehicles obstructing street cars on week-days between 7 a.m. and 7 p.m. The average time lost during these hours is from two to three minutes per one-way trip.

	Round Trip 7 a.m. 7 p.m.	Time Lost at Six Minutes per Round Trip, Minutes	Time Lost at Four Minutes per Round Trip, Minutes	Time Lost at Two Minutes per Round Trip, Minutes
Western Avenue	234	1,404	936	468
First Avenue	1,392	8,352	5,568	2,784
Second Avenue	1,268	7,608	5,072	2,536
Third Avenue	1,297	7,782	5,188	2,594
Total	4,191	25,146	16,764	8,382
Car time lost in hours		419	280	140
Passenger time lost in hours at twenty passengers per car		8,382	5,600	2,800
Trainmen's time lost at two men per car, in hours		838	560	280
Cost of trainmen's time lost at 40 cents per hour		$335	$224	$112
Eliminating these delays will improve service on these streets with same number of cars in service, approximately		10%	7%	3½%

The asphalt plant of the San Francisco-Oakland Terminal Railways enabled that company during 1917 to make asphalt at a price considerably below that quoted to the Oakland municipality. Thus the cost of binder on the job was 34 cents per cubic foot to the railway and 45 cents per cubic foot to the municipality.

A three-car train, the first ever operated on the division, ran between Detroit and Camp Custer on the Detroit, Jackson & Chicago Railway division of the Detroit (Mich.) United Railway on June 16 and proved immensely popular with a large number of Detroiters who visited the big military camp.

Automatic Rate System Is Fair to All

A Year's Experience with a Service-at-Cost Franchise in Westerville, Ohio, Shows Desirability of Flexible Fares Automatically Adjusted

By HAROLD W. CLAPP
General Superintendent, Columbus Railway, Power & Light Company, Columbus, Ohio

THE franchise of the Columbus Railway, Power & Light Company suburban line to Westerville, 13 miles from Columbus, is based upon the premises, first, that a community should say what it wants in the way of service, and second that it should pay for such service. An abstract of this franchise, which has been in operation about a year, was published in the ELECTRIC RAILWAY JOURNAL, of July 21, 1917, page 102. Briefly, the company is allowed under this franchise to earn 6 per cent upon the value of the investment fixed by arbitration, and 8 per cent upon new capital. The County Commissioners, acting through a street railway commissioner, have the right to prescribe conditions of service, and the company is in duty bound to provide the prescribed service.

FLEXIBLE FARE AUTOMATICALLY ADJUSTED

A sliding scale of rates of fare is provided, automatically adjusted with the fluctuations in the working capital, as was provided in the Tayler ordinance in Cleveland. In fact, the Westerville franchise is in general based upon the Tayler ordinance, which provides a most logical and workable mechanism for insuring a fair return upon the investment in electric railway properties with the exception that it imposes a fixed maximum fare. The recent law enacted by the Massachusetts Legislature, by the way, eliminates this weakness by always insuring four steps in the fare scale above or below the step established at any time.

In the case of Westerville, the sliding scale of fares is as follows:

(a)	Four	tickets for	10	cents, or	2½ cents fare.
(b)	Five	tickets for	15	cents, or	3 cents fare.
(c)	Ten	tickets for	35	cents, or	3½ cents fare.
(d)	Five	tickets for	20	cents, or	4 cents fare.
(e)	Ten	tickets for	45	cents, or	4½ cents fare.
(f)	Five	tickets for	25	cents, or	5 cents fare.
(g)	Ten	tickets for	55	cents, or	5½ cents fare.
(h)	Five	tickets for	30	cents, or	6 cents fare.

The cash fare is 5 cents a zone except under (f), (g) and (h), when it is 6 cents a zone.

Operation under the franchise began on Aug. 1, 1917, under schedule (d) with a ticket fare of 4 cents or five tickets for 20 cents. Soon afterward a commutation book was provided for six and seven-day regular riders, giving them two rides each week day or every day, as the case might be, at 3¼ cents a zone. The only limitation on the use of this book was set by the dated tickets, each coupon bearing the date upon which it might be used.

The public control of the service on the Westerville line lies in a street railway commissioner, appointed by the body that originally granted the franchise, the County Commissioners. His salary is paid by the car riders of the Westerville line, as it is charged against them in the operating costs.

The control of the service includes the right on the part of the street railway commissioner, acting for the public, to fix and alter car schedules, increase or diminish the service, propose extensions, betterments and permanent improvements, and approve or disapprove the same when proposed by the company. In short, he represents the car riders in all things affecting service and the cost thereof.

Operations under the Westerville franchise have been carried for more than a year. At the end of the eleventh month, which was June 30, 1918, the working capital had shrunk from $25,000 to $15,087.69. This would indicate that the rate of fare maintained was too low. It is altogether likely that by Sept. 1, at the very latest, with all accrued accounts adjusted, the working capital will have shrunk below the $15,000 mark. At that time or thereafter as that fact can be officially determined from the reports of operation, the fare will automatically increase to the next higher rate, which in this case is 4½ cents per zone. Commutation rates will follow the upward trend and instead of being at the rate of 3¼ cents per zone the tickets will be sold at the rate of 3¾ cents per zone.

LOCAL STREET COMMISSIONER IS DOING HIS PART

During the past year John Scott, the street railway commissioner, has been constantly "on the job" of watching the service and making inquiries and suggestions. It must be remembered that this road is a small operation, as electric railways go, and that Mr. Scott as commissioner took hold of it at a time when it had been a going concern for twenty-five years. The possibilities for suggested changes are not so numerous as they would be on a more extensive transportation system. Nevertheless, Mr. Scott has found opportunity to serve the public most efficiently. He has taken particular pains on many occasions to go to Westerville, which is 13 miles from Columbus, and hold meetings and conferences with the city commission and with the Chamber of Commerce and with them go over the reports rendered him monthly by the company. These reports, by the way, show the financial results for the previous month; they are made in great detail to the commissioner by the 15th of the following month and follow the official classification as to form. A condensed statement from this report is printed on a bulletin and hung in a neat frame in the Westerville cars each month and also sent to the Columbus newspapers and to *Public Opinion*, the Westerville local newspaper. Publicity is the real watchword of such a plan of operation.

In the early part of the year the commissioner made special efforts to see how the newly-arranged zone

worked out so far as accommodation of car riders was concerned. He called for only one change during the year and that was in the case of a church located 600 ft. from the end of one zone, and he ordered the cars to change this zone limit on Sundays for the church goers only. The use of the line as a freight line by the merchants of Westerville would be greatly increased if a better located terminal for receiving freight could be had at the Columbus end. The company had been for a long time trying to find such a terminal but in vain. Mr. Scott has been striving to the same end. In many other minor ways Mr. Scott has made suggestions and inquiries. He is just at this time commencing the most important move for his car riders, in attempting to get the taxes assessed against the Westerville line reduced to a more equitable basis. The Westerville car riders are paying about $9,000 a year taxes when in all fairness they ought to be paying about $3,000. Mr. Scott has the county commissioners and the county attorney behind him in the fight that he is planning on this point.

Railway managers might as well face the fact that the time is here when the public ought to, and is going to, dictate electric railway service. The public is going to insist, in fact is insisting, upon saying when, how and where cars shall be run. I say, let the public do so if only it pays for the service.

There would be no trouble about this phase of it except for franchise restrictions on rates of fare. There's the rub! No progress is possible until the old contracts are voluntarily abrogated or rendered null and void by the rulings of commissions, when such bodies have rights superior to those of municipalities in this matter. Where municipalities alone have the right, they must act.

Zone System Only Just Plan for Large Cities

Zone operation is necessary on a line like the Westerville line, but whether it is advisable in city operation must depend upon many local conditions. The shape of a city and the springing up of sub-business centers have more to do with this question than mere population. Real estate developments, usually allowed to locate without regard to anything except the profits of their promoters, often produce abnormal situations where the installation of the zone system is necessary. I have observed that when an American city gets above say 500,000 in population, the zone system is the only just one for both public and company. It is likely, in my judgment, to make headway in this country in the years immediately after the war, when it may be found that a much higher price level will exist than is popularly predicted now. The zone system will make it possible to place upon the shoulders of those getting the benefits the cost of operating lines that would be unprofitable as part of a flat-rate system.

But whether a flat rate or a zone is used, the fare ought to be flexible or follow a sliding scale. The time has gone by when cities or companies are going to get each other by the throat with a fixed fare. Any community is interested in service first—what it shall be and how it shall be rendered. The public is also learning that it is interested, for selfish reasons, in the ability of its electric railway to provide that service, and to grow not only with the town itself but also with changing methods of conducting transportation. It begins to be apparent to both sides that the price of service cannot be, safely for either side, fixed for a term of years.

The provision for a sliding scale in Westerville takes care of fluctuating costs, downward as well as upward. It is done in this way: A total of $25,000 of the capital of the line was in cash and was termed the "working capital fund." All the surplus at the end of each month, after paying operating costs, maintenance, taxes and interest at 6 per cent on the capital invested ($300,000 in this case) is paid into this fund. When the working capital fund increases to $35,000, the next lower rate on the schedule may be ordered into effect by the street railway commissioner; when it shrinks to $15,000, the next higher fare may be installed by the company.

Get an Automatic System Now

The whole matter of fares is complicated at present by the fact that many of the electric railways do not appear to know what they want in the way of a permanent settlement. One company asks for an increase of 1 cent, and another for 2 cents. A third wants a charge for transfers, and a fourth prefers the zone system. It is understood in all cases of appeal for emergency relief that any relief given now will be temporary if operating conditions continue to become more and more strenuous. Obviously as wage increases are constantly demanded, as material prices mount skyward, as interest rates go up, there must come a time when another increase of fare will be asked for. On the other hand, it is conceivable that prices might go down, leaving the rate of fare too high. Then the public must go through a process the reverse of that instituted by the companies when they appealed for higher fares.

In other words, under the present general plan there will be a seesawing up and down, with somebody always appealing for something. Why not take the bull by the horns and throw him—that is, make now the effort necessary to institute an automatic system, fair to everybody, and dispense with all this appealing, which is a constant source of irritation?

If this plan is followed it may, in many cases, be necessary for holders of stock to consent to a considerable reduction in its volume. It is better, however, to have less stock of a marketable and dividend-earning character than the greatly depreciated, sluggish stock which characterize so many properties and which a man would be called a fool for buying. In Cleveland, where the stock total was cut, the stock is now owned by many times as many stockholders as formerly, and it is a gilt-edged investment.

The only way out, in my opinion, is a service-at-cost system. This plan removes the veil of mystery from the finance and the operation of a public utility. The community immediately realizes that the utility stock is a safe investment because the community has in effect guaranteed the security. Being aroused to an interest in its public utility, the community thereafter invests its savings in it, and the final step is a long move toward co-operative ownership and a boosting instead of a knocking community.

Is this not what the management of public utilities should be trying to secure?

Meeting the Nation's Transportation Needs

Some Details of the Ways in Which the Extra Transportation Burdens of War Days Are Being Carried by Florida, Georgia, Texas and Washington Railways

THE past year has been a strenuous one for electric railways situated in the vicinity of cantonments, war manufacturing plants, shipyards and other seats of abnormal activity and greatly augmented concentration of population. Nevertheless, in spite of money and man shortage the demands of the hour have been met, partly with federal aid. The situation in a number of centers has been taken up in recent issues of the ELECTRIC RAILWAY JOURNAL. This week the series of articles is continued with accounts of electric railway expansion and adaptation at cities as widely separated as Jacksonville, Fla., and Tacoma, Wash., and at some points between.

Serving Soldiers and Shipyards at Jacksonville

Company Has Built 3-Mile Extension to Camp Johnston and May Add 1½ Miles—Man Shortage Is a Problem

AS THE result of war activities, the population of Jacksonville, Fla., and vicinity has increased from 80,000 to 100,000 or more. This has not made it necessary, however, for the Jacksonville Traction Company to purchase new cars, for the business to-day has simply gone back to where it was before the depression of 1914. Except in the case of Camp Joseph E. Johnston, the company has not needed to build new track and give special service.

$160,000 TO PROVIDE TRANSPORTATION FOR 20,000 AT THE GREAT QUARTERMASTERS' CAMP

The big problem of the company to date has been to take care of Camp Joseph E. Johnston, the great Quartermasters' camp of the country where thousands of men are trained for work from shoeing horses to writing shorthand. This camp is 10 miles from the heart of Jacksonville. Its personnel runs as high as 20,000. As in the case of other cantonments, the travel is spasmodic and variable in amount.

The nearest line which the company had for serving the camp was the Ortega line. This was extended 3 miles and opened for service on April 15. To do this, any rail that came to hand had to be used, from 56 lb. T to 122 lb. girder. The latter, of course, will be replaced with T-rail and used in the city when times have changed for the better.

Even with this extension, the railway does not go through the camp. It merely reaches the entrance, at which point government-controlled autobuses carry people through the grounds. The fare on the street cars is 15 cents; on the buses, 10 cents. The government is now urging the company to extend its line another 1½ miles in order to serve the entire camp for the same 15-cent fare.

This fare is charged any passenger who boards the camp cars. These are distinctly marked as giving through express service to Camp Johnston for a 15-cent fare. The condition is a peculiar one, because up to the end of the old Ortega line the fare is only 5 cents. The restriction is necessary, however, to separate effectively the local rider from the through passenger.

FACILITIES FOR TEN-MINUTE SERVICE

Although the extension is single track for unit-car operation, every curve is double-tracked and there are six passing tracks within the 3-mile distance. If necessary, therefore, a ten-minute service could be given. At present a thirty-minute service is run between 5 a.m. and 12 o'clock midnight, except that four outbound cars to camp are added between 5 a.m. and 6 a.m., and four inbound cars between 5 p.m. and 6 p.m. To avoid dead mileage, these four cars stay at the camp all day while the crews are at work elsewhere or on leave.

The camp has no prepayment area, but from 4 p.m. to 7 p.m. a man is stationed at the terminal to sell tickets in advance at 15 cents straight. In this way, the loading is greatly facilitated, as making change for a 15-cent fare is painfully slow. To assist the company in the safe and orderly loading of cars, the government also furnishes a platform guard who is relieved by a second soldier about 3.30 p.m.

Owing to the low voltage, the 10-mile trip now requires an hour instead of forty-five minutes. Soon there will be in operation, however, a 500-kw. Westinghouse motor-generator placed in a corrugated shed, 1 mile from the terminal. This will raise the voltage sufficiently to permit the run to be made in forty-five minutes, or in one hour if the 1½-mile extension through the camp is built. The total cost of the substation and of the 3-mile extension already built will be about $160,000.

While the company has not had to buy any cars, it is changing some open cars for one-way operation by the simple expedient of cutting off one running board and screening the side so that it will be impossible for passengers to jump off.

MUCH SHIPBUILDING UNDER WAY

Most of the shipyard work at Jacksonville is on the opposite shore of the St. John's River. The employees from the yards go *via* ferry to Jacksonville, where they board cars for various lines. The largest single shipbuilding enterprise is that of the Merrill-Stevens Company, which has six 6000-ton and four 10,000-ton steel vessels on the ways. Another of the five Jacksonville plants has twelve ways for wooden ships, and it is building three 5000-ton vessels. Still another plant is building submarine chasers. A big project on the Jacksonville side of the river is that of the Marine Railway & Drydock Company, to be operated

by the Emergency Fleet Corporation in connection with a private shipbuilding plant.

In all from 6000 to 8000 men are employed in shipbuilding at present, although the Marine Railway & Drydock Company alone expects to employ at least 5000 men eventually. Its site, if thus built up, would call for a ¾-mile extension. Housing has not yet presented any problem. One reason is that from 5000 to 6000 negro laborers were taken out of Jacksonville last year.

Trying to Meet the Man Shortage

Like so many other electric railways, the Jacksonville Traction Company finds it hard to compete with the tremendous wages paid by the shipyards and other war industries. Matters actually reached the point where the employment agent of the shipbuilders promised to take no more railway men, for he realized that this would simply hurt shipbuilding interests more than it would aid them.

Since America's participation in the war, the company has raised wages three times. It is also saving large sums of money for its men by selling groceries to them at cost. The business amounts to $3,000 a month for 350 men. This policy is carried to the point of competing with the credit grocer, for if the railway man lacks the cash he can get a $5 coupon book, provided he has an equivalent amount of cash coming to him.

The salesroom adjoins the carhouse. It has no running charges of importance except $50 a month for the boy in charge. The service originally included delivery, but this was found too costly. All business is now done over the counter, either with the men themselves or with their families.

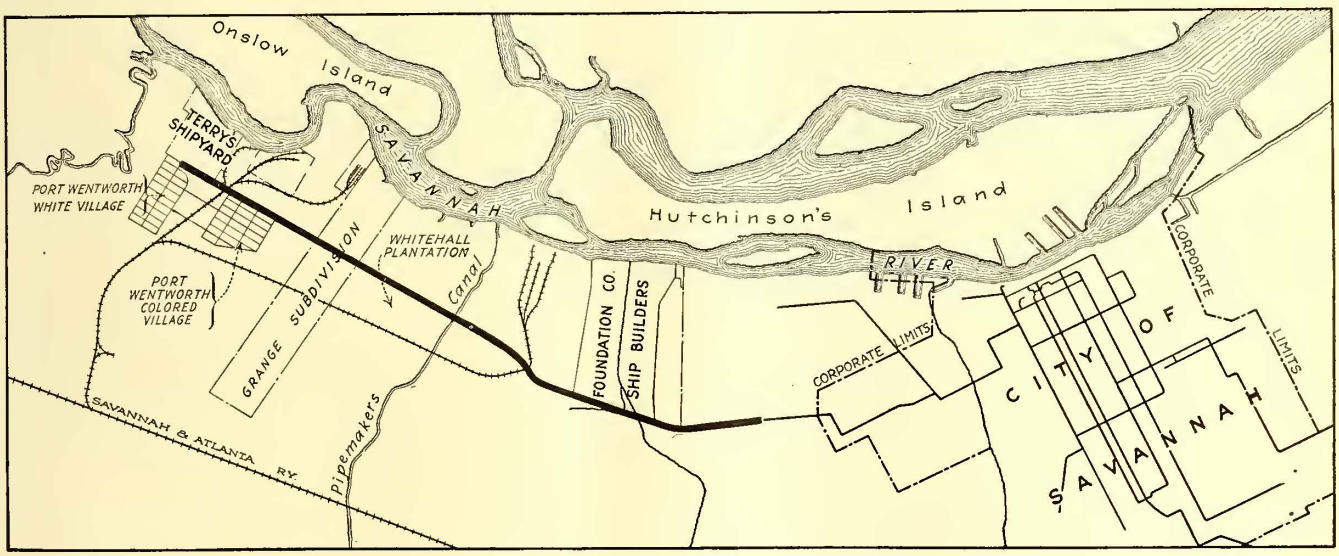
Because of the shortage of men, however, the company recently published an advertisement for four weeks in seven county papers. This has brought in country boys, some of whom are only seventeen years of age. In fact, war conditions have also forced the company to engage men over fifty years of age. It is not improbable that women will be tried this autumn. If so, they will be put on lines in high-grade residential districts.

New Five-Mile Savannah Line

Extension to Government Shipyards Is Well Under Construction—Ten Open-Bench Cars Are Being Inclosed

THE county of Chatham (Savannah) has planned a concrete road about 5 miles long, with an electric railway extension, to open up an immediate approach to the yards of the Foundation Company, now in course of erection on grounds almost contiguous to Savannah, and also to the yards of the Terry Shipbuilding Corporation at Port Wentworth, 8 miles out. The accompanying map shows the route. The new facilities would also serve intermediate interests, such as the Savannah Warehouse & Compress Company, Savannah Sugar Refinery, Globe Machinery & Barrel Factory and the Atlantic Paper & Pulp Company.

For a time the work was held up through delay on the part of the owners of the Whitehall plantation in granting a right-of-way, but recently the Emergency Fleet Corporation secured the necessary land. Now the Savannah Electric Company is building the single-track (eventually a double-track) line which it has a right to lay on the left-hand side of the road for a width of 25 ft. The subgrading is now 50 per cent to 75 per cent completed for the remainder of the distance, and the steel laying is practically finished.



NEW FIVE-MILE CONCRETE ROAD AND EXTENSION OF SAVANNAH ELECTRIC RAILWAY TO SHIPYARDS

At present transportation to the Terry assembling plant is effected by a Savannah & Northwestern steam train, by boats and by automobiles—all of which have proved to be insufficient, roundabout and expensive. The Terry people have stated that with regular electric transportation, for which the fare would be 10 cents, the yards would be able to attract from 15 to 40 per cent more men. The Savannah Electric Company would give a twenty-minute headway during rush-hour operation, with a forty-minute headway in off-peak service. In order to be ready to give this service it is inclosing ten forty-passenger open-bench cars, and it is installing a substation.

At this time the railway is serving morning and night only 2000 employees of the Foundation Company, which is building thirty-six steel mine sweepers. The

Foundation Company has installed at its own expense a 1-mile spur so that its men can have direct service with a minimum of walking. The fare is 10 cents, although a mile walk reaches the present Mill-Harper line and a 5-cent fare limit.

Traffic Up 50 per Cent at San Antonio

Five-Mile Extension, Thirty New Motor Cars and Fifty-four Home-Made Trailers Added to Handle War Business

THE pre-war population at San Antonio, Tex., was 130,000. Now a harried postmaster asserts that 300,000 people are addressed *via* the City of the Alamo. Be that as it may, about 80,000 men have been added through Kelly Field (America's greatest aviation school), Brooks Field, Balloon School, Camp Travis and Fort Sam Houston. In addition the city now holds the dependents of many of these men and a large number of Mexican refugees. The general increase in population has resulted in a 50 to 60 per cent gain in traffic. For the twelve months ended April 30, 1918, the San Antonio Public Service Company carried more than 37,000,000 passengers.

The company faced a serious problem in providing for this increased traffic. Operating expenses have been going up enormously, fuel has more than doubled in cost, and the cost of other supplies, when obtainable, has increased in an even greater ratio. New equipment practically could not be procured, both because of war conditions and because of the lack of money to purchase it.

Handling the Increased Traffic

A year ago the company was operating eighty-two motor cars and no trailers; to-day it is operating 100 motor cars and as many as fifty-four trailers. In view of the impossibility of getting new cars quickly, the company was fortunate in having received thirty new motor cars just before the rush began.

The entire track system of the company has been rehabilitated and extended, the last of the work having just been completed. In order to provide adequate service to Kelly Field about 5 miles of new track had to be built.

The increased business is handled during rush hours by trailers on the Hot Wells, Kelly Field and Army Post lines; and by trippers on the other lines. The charge for service is 5 cents. A 5-cent bus line, however, giving a ride up to two miles, connects with the electric railway at Fort Sam Houston in order to give service to Fort Travis. Army traffic is extremely difficult and expensive to handle, as heavy peaks occur at uncertain times.

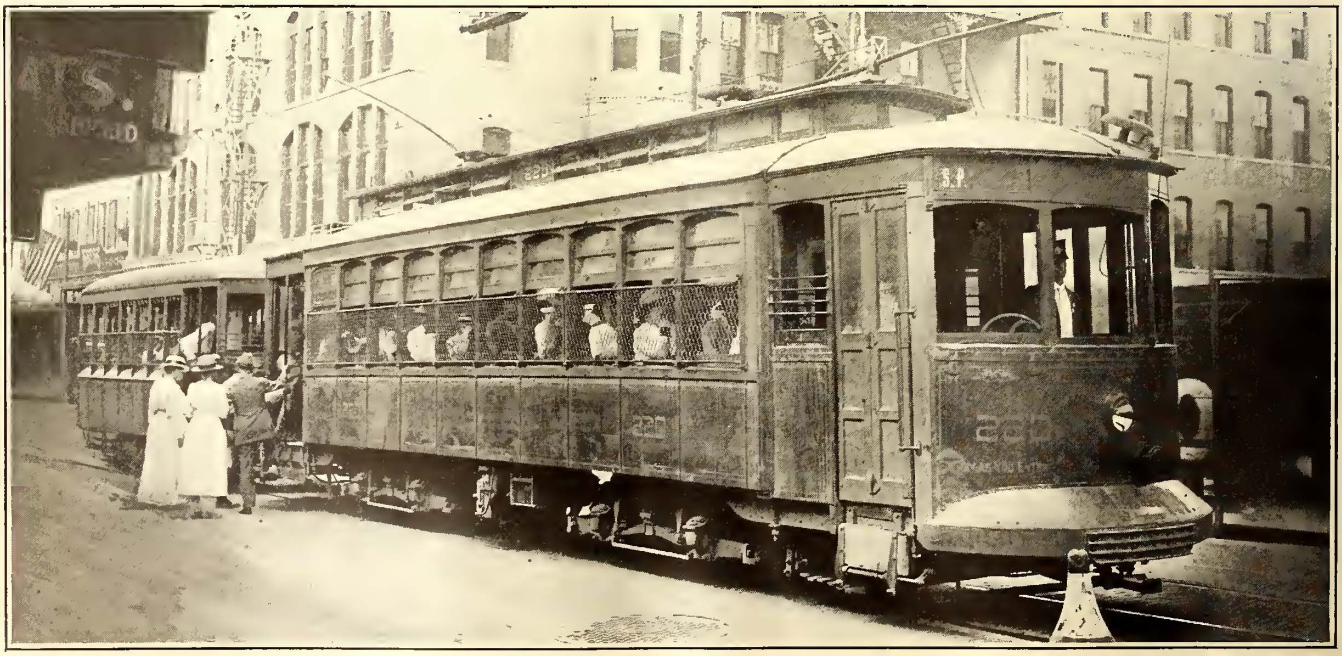
The Army Post line of the company, covering Fort Sam Houston and Camp Travis, has seven and one-half and five-minute headways, while the West End-Alamo Heights line service serves the same district in part with fifteen and ten-minute headways. The Hot Wells line to Brook Field has ten and five-minute headways and the South San Antonio line has a twenty-minute all-day headway which is changed when special conditions require.

As has been found by other electric railways to be the case, it is difficult in these days to hold the men even by wage increases. The wages in San Antonio were increased 5 cents an hour on April 1. Men for tripper service are taken from the extra list.

Thirty Motor Cars with Non-Parallel Axles and 12-Ft. Wheelbase

The thirty motor cars which have been in use since the spring of 1917 have car bodies 22 ft. 3 in. long, 34 ft. 3 in. over the dashers and 35 ft. 3 in. over the bumpers. One of the most notable features is the use of non-parallel axle trucks. Fifteen of the cars are on Brill "Radiax" trucks and fifteen on St. Louis trucks with non-parallel axles, the wheelbase in both cases being 12 ft.

Fully equipped, these cars weigh 22,600 lb. for thirty-six seated passengers, or only 626 lb. per seat. The



TWO-CAR TRAIN OPERATION DOWNTOWN IN SAN ANTONIO

AT LEFT, ONE OF THE LATEST MOTOR CARS IN OPERATION IN SAN ANTONIO; AT RIGHT, LOADING SOLDIERS IN SAN ANTONIO

construction, except part of the superstructure, is of steel. Half the cars were built by the American Car Company and half by the St. Louis Car Company. The equipment includes Westinghouse 512 C motors, K-36 J control and Westinghouse M-W I airbrakes.

Fifty-four Home-Made Trailers Were Pressed Into Service

In order to meet the traffic demands, the company resorted to the use of trailers during the rush hours. Twenty-four of the trailers were old trail cars. These were reversed for front instead of rear entrance, so that as in the case of the other trailers passenger movement will be concentrated at two adjacent entrances. The other thirty trailers were built up from the substructure of work cars. The wheelbases of the original Bemis 6A trucks were extended from 6 ft. 6 in. and 6 ft. 7 in. to a uniform spacing of 8 ft. The 33-in. wheels were replaced by 24-in. wheels, so that the vestibule is flush with the body floor. The bodies were built of wood, with an arch roof covered with No. 8 duck.

A two-leaf folding door at the front provided for entrance and exit. The windows were not glazed but were protected against the weather by awning material. Longitudinal wooden seats were used, but if desired these could readily be changed to transverse seats. Instead of straps, a horizontal pipe, a convenient height and stiffened by vertical stanchions, was installed the length of the car. Signal buzzers for the passenger were also provided.

7000 Camp Gordonites Are Handled Daily

To Reach This Camp, 12 Miles North of Atlanta, the Local Company Has Built a 4-Mile Extension—15-Cent Fare Is Charged

ONE of the great cantonments of the south is Camp Gordon, which is located 12 miles north of Atlanta, Ga. The number of soldiers at the camp has been as high as 30,000, and civilians have totaled about 800. Ordinarily, the Georgia Railway & Power Company gives to the camps a service with ten cars under a twenty-minute headway, but during the rush periods on Wednesdays, Saturdays and Sundays it operates as many as forty-five cars.

The travel is largely of the twice-a-day kind. The inbound morning travel from regular riders is largest when the outbound camp travel is at its height, and *vice versa*. Cantonment employees come at 6.30 a.m. and leave with a rush at 5 p.m. About 7000 passengers are handled daily.

The line to the camp is an extension of the Bulkhead 10-cent suburban line. When the route was extended another 4 miles the fare for the full ride became 15 cents. The fare, however, is paid according to the number of zones instead of the maximum being imposed at one time. In this way ordinary passengers to the intermediate 2-mile zone are not kept off the camp cars, for their travel is not enough to justify a separate service.

The extension, which comprises 5.36 miles of single track, was financed by the company at a cost of $225,000. The 90-lb. T-rails were purchased from a broker, while most of the other supplies except ties came out of the stock which the company had purchased for work later deferred.

Substation Equipment and Cars Needed Transferred from Other Lines

Two substations were erected to handle the camp load, one containing two 500-kw. rotaries and the other one 2000-kw. rotary. These machines were taken out of other stations.

The cars in use have been taken from other lines. They are of various types, seating from twenty-eight to fifty-six passengers. Single trailers are attached as needed. The company was unable to secure suitable second-hand cars, and it is therefore converting to closed trailers some cars which were open above the belt rail. Twelve trailers, seating forty each, are also being built for camp or other suburban service. These cars will have steel underframes and steel sides, and will weigh 20,500 lb. each. All of the trailers will be fitted with Hale & Kilburn slat seats of the Walkover type.

Besides five multiple-unit cars now in use, twelve motor cars are being fitted with Westinghouse HLD control. The original Westinghouse 68-C motors are being retained. The Brill 22-C maximum traction trucks, however, are being altered to take swinging bolsters. These cars also seat forty, and they weigh 26 000 lb. each.

Tacoma Uses Zone Fares to Shipyards

Municipal Railway Sells Tickets for 6 Cents and 7½ Cents Over Extensions to Industries on the Tideflats—8000 Shipbuilders Handled

TACOMA, WASH., is doing its share and more to carry Uncle Sam's men and Uncle Sam's wares. Within less than a year there has sprung from an insignificant beginning a force of 8000 shipworkers employed by six shipbuilders.

The great bulk of Tacoma's war development lies in a filled-in and recently enlarged section known as the Tideflats. Tacoma proper is built on the sides of steep hills and does not offer much space for docks and shipways. The Tideflats district is purely industrial, so that travel to and fro at any time of the day except when working shifts change is very small. Obviously, this is not the kind of traffic which most railways are seeking, especially when it comes as the extension of a 5-cent ride already exceedingly liberal. This fact was recognized by the city when the industrial development began, and it solved the problem by constructing its own line to the Tideflats. Owing to its straitened finances, however, the city has asked the Emergency Fleet Corporation to help complete the double tracking which is imperative to insure satisfactory service even now.

NOT EVERYONE OF TACOMA SHIPBUILDERS DEIGNS TO RIDE HOME IN ELECTRIC CARS

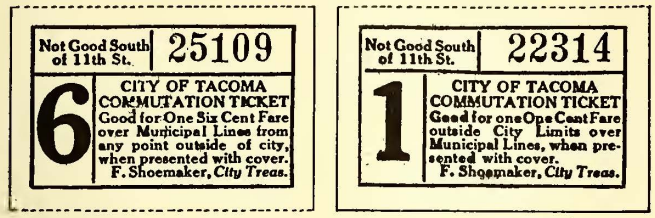
The regular rate of fare in Tacoma is 5 cents to any point inside the city limits on the lines of both the Tacoma Railway & Power Company and the Tacoma Municipal Railway. The municipal line extends from the center of the business district through the industrial district on the Tideflats to the city limits, a distance of 1⅝ miles, with two extensions beyond the city limits. One of these is 1⅓ miles in length and the other 1⅝ miles. A passenger not provided with tickets pays an extra 5 cents for a ride beyond the city limits. By the purchase of tickets, however, a passenger from the center of the city can ride to the end of the shorter extension for 6 cents and to that of the longer extension for 7½ cents. Tickets for rides solely outside the city limits are provided for 1 cent and 1½ cents respectively. All the tickets are sold in books of twenty each.

Transfers are exchanged between the municipal line and the line of the Tacoma Railway & Power Company. The city redeems its transfers from the company for 3 cents each, while the company pays only 2 cents to get back its transfers. The company operates the municipal line under a two-year contract which began on Nov. 1, 1917, with equipment and facilities furnished by the city. The city is billed at cost for the expenses of operation, and it assumes all liabilities for accidents on its track.

AT LEFT, A LINE-UP OF TACOMA'S SHIPWORKERS READY FOR THE DAY'S PLEASURABLE TASK. AT RIGHT, UNLOADING THE SHIPWORKERS FROM THE MUNICIPAL TIDEFLATS LINE FOR TRANSFER TO THE TACOMA RAILWAY & POWER COMPANY LINES AT ELEVENTH AND A STREETS

At present the Municipal Railway is equipped with such second-hand cars as could be purchased, including four closed cars, ten open cars, one locomotive, four trailers and ten closed single-end cars just bought from the Twin City Rapid Transit Company. The ultimate plan is to use multiple-unit trains of three and four cars each for the rush periods and smaller units during the light-traffic periods. The line has loops at both ends so that single-end cars or single-end-control trains can be operated satisfactorily.

Considerable congestion exists in the Tideflats district at the end of the working day, but an effort has recently been made to reduce this by staggering the hours. Another difficulty has come from shortage of labor, for more than one-third of the former employees of the



TICKETS USED ON TACOMA MUNICIPAL LINE

Tacoma Railway & Power Company have gone into the shipyards.

The Municipal Railway handles all the freight outside the city limits going to the several industries on its line, and it collects $5 a car for switching. This freight business has proved most profitable and is increasing as each additional industry is started in this district.

A Cantonment Almost Within City Limits

Camp Bowie's Presence Has Brought An Increase In Travel to Fort Worth of From Thirty to Forty Per Cent

NOT 3 miles from the center of Fort Worth is Camp Bowie, located on the Arlington Heights line of the Northern Texas Traction Company. This cantonment has had more than 28,000 men, the number varying from week to week as the men come and go. The presence of this camp has stimulated riding on practically all of the city lines by 30 to 40 per cent.

As for the Arlington line itself, the last 2 miles of route have been double-tracked. While the service to the end of the line is given under a fifteen-minute headway, the camp normally has a 10-minute headway, with any desired increase in emergencies. At present the motor-trailer combination in use have to operate to the loop at the end of the line, 5.2 miles out, but cars will soon be turned back at the camp.

To meet the needs of the Arlington line, ten open cars were leased from the Dallas Railway. Five single-truck and six double-truck trailers were leased from the El Paso Electric Company, and three cars from the Galveston Electric Company. Six closed-car bodies were bought from the East St. Louis & Suburban Railway, and were equipped in Fort Worth, and six trailers were bought from Colorado Springs.

There are also three aviation camps near Fort Worth: Hicks, 15 miles to the north on the Fort Worth & Denver Railway; Benbrook, 9 miles to the west on the Texas & Pacific Railway, and Everman, 12 miles south on the Cleburne interurban line of the Tarrant County Traction Company. The last camp is the only one reached by electric railway. Connection to the camp is made at Aviation Junction, from which a spur 0.8 mile long runs to the camp. The track for the spur was built by the International & Great Northern Railway, but the poles and wire were furnished by the electric railway. A shuttle car running between the camp and the junction takes care of all aviation camp traffic.

One-Cent Zones Advocated

Peter Witt Urges the Merits of the Zone System of Fare Collection But Thinks that Zone Fares Should Be One Cent

"WERE our street railways on a competitive basis they would have been driven to adopt the zone system long ago. Now the pressure of war-time operating costs has made the zone system practically inevitable."

These opinions were recently expressed to a newspaper man in Cleveland by Peter Witt of Cleveland, former traction commissioner of that city. Mr. Witt then explained that by the zone system he meant "putting the fare on a mileage basis" and not a 5-cent or 6-cent interior zone with exterior 2-cent or 3-cent zones. He believes in the 1-cent zone with adjustments of length of zone to suit the traffic and income. According to Mr. Witt the low zone rate would greatly encourage off-peak riding as well as short-haul riding. Thus on the Euclid Avenue line in Cleveland, where all lines loop at the Public Square, he would establish the 1-cent zone boundary at Fourteenth Street, fourteen blocks from the square. This is the boundary of the most crowded shopping and business district, and as cars come from town people begin to get off there. Continuing, Mr. Witt said, in part:

One-Cent Rate Would Increase Traffic

"If there were a 1-cent rate for passengers boarding and leaving within the zone, the company would get for every car many passengers who now, rather than pay a nickel, will walk. The company would be increasing its net income, and the long-haul passengers would not be compelled to pay any different fare from that which they will pay anyhow under the necessity of the companies to raise their unit rate to 6, 7 or even 8 cents.

"With cars going out from the Square, the conditions would be the same. The car does not get its full load before it reaches Fourteenth Street. All along the route there are a certain number of short-haul passengers. Thoughtful study of the situation and careful experiment will determine what zone arrangement will produce the maximum revenue.

"Night and morning the cars run crowded into or out of the central zone. But these are the very hours when potential traffic wholly within the zone is comparatively light. On the other hand, all through the middle of the day the downtown district is jammed with thousands of people—not only women shoppers, but business men and transients—who would patronize the cars at a 1-cent rate per zone and who now will not pay a nickel or 6 cents for a ride only one-tenth as long as the ride to the end of the line which they could have for the same rate. Anybody who has studied the currents of women shoppers through the streets will agree on the increase of business which they alone, trained nickel-savers as they are, would give to the cars at a penny fare per zone.

"More than this, I would divide each zone in half, making thus two sub-zones. A passenger boarding a car in the last half of the one zone should be able to ride into the first half of the following zone for 1 cent instead of having to pay 2 cents as he would under a rigid zone system.

"Each passenger when he enters the car would receive an identification slip. It would be lettered and numbered to indicate the point where he boards the car. Thus, a slip numbered 1-A would indicate that the bearer boarded the car in the first half of the first zone. Slip 1-B would indicate the second half of the first zone. At the point where he left the car the passenger would deliver his identification check to the conductor and it would be easy to determine instantly the rate of fare he must pay.

"With modern front-entrance pay-as-you-leave cars, the process would be still simpler in that the motorman who is unoccupied while the car is stopped could deliver the identification slips to the entering passengers while the conductor was busy collecting fares from alighting passengers.

"Take a car running on a 10-mile line and costing 30 cents per mile to operate. Its operating cost is $3 every trip. It must carry sixty passengers every trip just to meet expenses alone. No car on such a line carries that number every trip. But under the zone system, without losing any of its long-haul riders, and without losing the money which they now pay at the 5-cent fare or the higher fare which is bound to come, that same car would increase its revenue considerably on the short-haul riders. In the rush hours these cars under the present system make up their losses in the off-hours. Under the zone system they would still make their big rush-hour revenue and they would build up their off-hour revenue as well.

Zone System Not Cause of Congestion

One objection which has been advanced to the zone system is that it produces congestion in housing conditions in the center of the city. In other words, the policy of the uniform fare is said to be to tax the short-haul rider in order that poor people may live in the suburbs and get to work cheaply. But that is not the way it works out. As soon as you give cheaper-than-cost fare to an outlying district, realty values jump in that district, and the landowner absorbs the benefit which was intended for the poor man. We have never had anything but a unit rate of fare in this country, yet it has not prevented congestion. Crowded slum districts still center in the very region from which you would like to eradicate them. As it works out, the poor man lives well within the city limits, and himself is the short-haul rider. He pays the tax. And the comparatively well-to-do man lives in the suburbs, profiting by the cheaper-than-cost fare. The very family you pretend to help by the unit fare is the one you in fact penalize.

"The problem of congestion is a grave one. But it cannot be solved by a flat rate of fare on our car lines. Other conditions cause it, including fundamentally the land question, and it must be solved by changing those conditions—not by attempting to palliate them with the profitless and inefficient system of a flat unit rate of fare.

Will Protect Against Jitneys

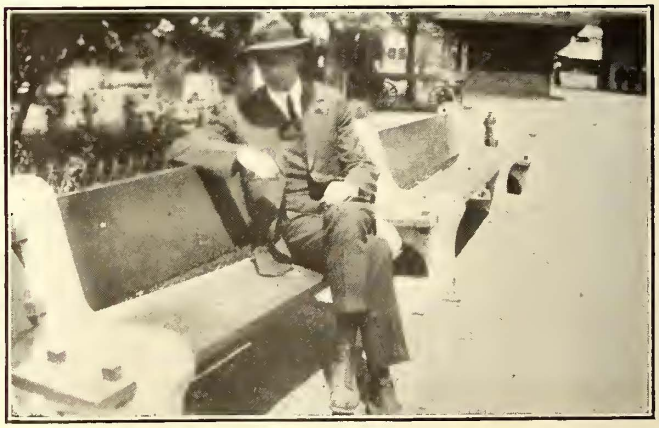
"Competition by the jitneys is still another factor which is going to render the 6 or 7-cent rate of fare ineffectual. The higher the fare goes, the more people will be driven to make use of other forms of transportation for short hauls. 'We can't compete with the jitneys,' cry the street railway companies. Therefore they have tried to legislate them out of existence. It can't be done. But the plain fact is that the street railway companies can compete with the jitneys, if they would only wake up to the zone system. You cannot carry people as cheaply on rubber tires as you can on steel rails. You cannot carry them as comfortably that way, either. Only you must meet the jitney price and beat it. By the zone system that can be done. The jitney only takes the short-haul traffic. At a moderate fare per zone you can not only grab all of the passengers away from the jitneys, but kill the jitneys as well—as they should be killed. Competition with a natural monopoly is an economic waste which the riders in the end must pay for.

"The zone system is therefore fair, feasible, effective. It will give the greatest revenue and the best service. And it will give the public the cheapest fare per mile compatible with good service. The zone system must come if we are to save the street railways from collapse. But it must be a system such as I have outlined here and not the anomaly of a 5 or 6-cent inner zone and a 2 or 3-cent outer zone which most companies now contemplate."

Durable Benches for Outdoor Service

THE Southern Pacific system has adopted a simple and durable form of bench for outdoor service in the West that is used on both steam and electric railways. The design is varied somewhat but, in general, consists of two concrete standards used to support two 2-in. x 12-in. planks, one serving as seat and the other as back rest, as shown in the illustration.

These benches can be assembled in the shop or along the line, whichever is most convenient, the only tools required for assembly being a chisel to fit off-size wedges or holes and a hammer to drive the pieces together properly.



DURABLE BENCHES WITH CONCRETE STANDARDS USED BY SOUTHERN PACIFIC SYSTEM

The seat and back planks are held in place by wedges driven through holes just outside the concrete standards, four wedges being used to each plank. The concrete standards are made about 4 in. thick. The fact that the benches are rather heavy is an advantage in that they are not easily overturned and are not likely to be carried away.

FRONT END OF CARHOUSE AFTER THE FIRE. THE SUBSTATION WHERE THE FIRE STARTED IS LOCATED ON THE EXTREME RIGHT

Some Lessons from a Disastrous Carhouse Fire

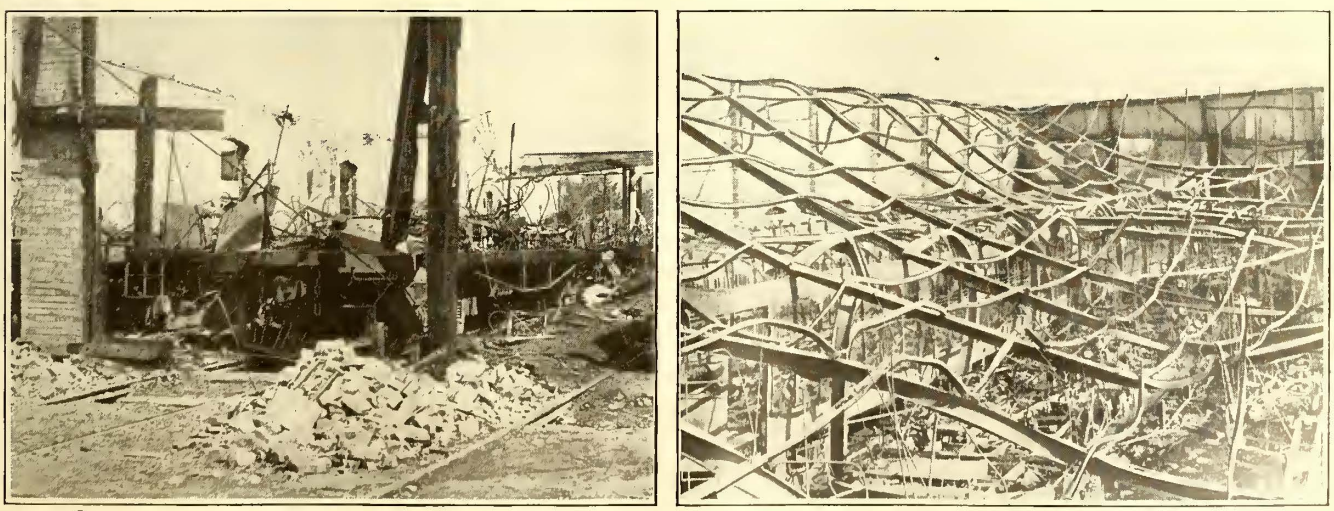
The Carhouse and Fine Interurban Cars of Bamberger Electric Railway Were Recently Destroyed and Service Was Badly Crippled for Time

A FIRE on May 7 in the carhouse of the Bamberger Electric Railway at Ogden, Utah, destroyed one 40-ton electric locomotive, ten 56-ft. motor cars, four 56-ft. closed trailers and six 61-ft. open excursion trailers. These latter were nearly new, having been in service but slightly more than a year.

The fire started from an explosion in one of the tanks of a 44,000-volt lightning arrester in a substation located at one side of the carhouse. The explosion broke a large window between the substation and the carhouse and the burning oil from the lightning arrester scattered over the first row of cars and the roof of the carhouse. All of these immediately caught fire and this was rapidly communicated to other rows of cars and to the roof of an adjoining carhouse. The d.c. system grounded immediately after the explosion, cutting off all power for moving the equipment from the burning building. Of the company's fine interurban equipment nothing was left but trucks and charred underframes.

This fire serves to illustrate the soundness of the recommendations made by the committee on buildings and structures and the committee on equipment of the American Electric Railway Engineering Association, incorporated in the 1915 Proceedings. These recommendations for proper construction in order to prevent excessive damage from fires were worked out in conjunction with the National Board of Fire Underwriters.

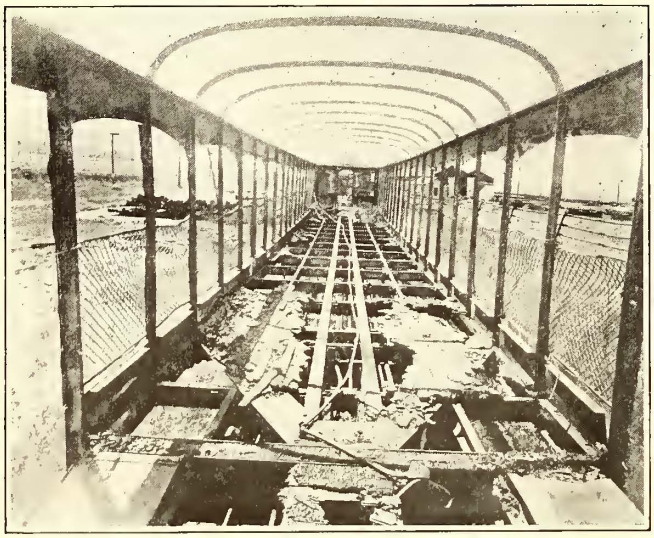
Some of these recommendations may be properly referred to in connection with this fire. A paragraph on lightning arresters states "If the voltage of the circuit is in excess of 6600 a special fireproof room, compartment or building shall be provided to contain such arresters." Further recommendations provide that windows and skylights must be provided with wired glass and standard metal frames. The roof construction must be of non-combustible material and have non-combust-



AT LEFT, A CLOSE-UP VIEW SHOWING HOW THE SUPERSTRUCTURE OF THE CARS WAS COMPLETELY DESTROYED; AT RIGHT, LOOKING DOWN ON THE REMAINS OF THE CARHOUSE AND EQUIPMENT

ible coverings of approved composition. The feeder system for each compartment of the carhouse must have an individual circuit breaker at the entrance so that, in case of a ground on one section, the circuit breaker controlling this section can be opened and power still be made available for removing cars in other sections.

The best construction provides that there shall be no inter-communicating windows between adjacent buildings. The wall between the substation and this carhouse should thus have been without windows and, in case openings were necessary, these should have been equipped with standard fireproof doors. Another method for providing necessary protection is to provide a cut-off wall between substation and the carhouse. This should be a blank wall without openings constructed of brick, stone or reinforced concrete and rising not less than 2 ft. above the roof.



AN INTERIOR VIEW SHOWING THE RESULTING DAMAGE TO ONE OF THE OPEN EXCURSION TRAILERS

At the time of this fire a hand sprinkler system was in the course of construction but was not yet in operating condition. Such a sprinkling system is not favored by the Board of Fire Underwriters, which recommends that all sprinkling systems must be automatic. Any hand system necessitates the entering of the building and turning on the cocks in case of emergency, and often the fire and smoke will prevent efficient use of such a system.

In order to maintain its service the Bamberger Electric Railroad leased temporarily some steam railroad coaches. A new concrete carhouse with arrangements for future shop extensions is in contemplation, and though definite location has not yet been decided upon, it will no doubt be at Salt Lake City, where the general offices of the company are located.

The accompanying illustrations give a clear idea of the extent of the damage and the present condition of the carhouse and equipment immediately after the fire.

A novel feature of the wooden car loading platforms at Winnipeg is that they are built and maintained by the city. They have proved a great convenience to the public, particularly as protection against vehicular traffic.

Maintenance of Car Equipment*

The Author Describes the Procedure Which He Has Found Most Effective in Making Running Repairs and in Overhauling Cars Periodically

BY JESSE M. YOUNT
Master Mechanic, United Railroads of San Francisco

THE passenger of a street railway, when he pays his fare, buys a ride to his destination, which he can reasonably expect to be without delay and in comfort.

To give him this requires the equipment to be maintained to a reasonably good standard of condition. Naturally it follows that the management defines what the standard shall be, and the mechanical department can work accordingly.

To keep the maintenance up to the standard of policy decided, you must have an organization of forces which work in harmony. The master mechanic or superintendent of equipment, who is the head of the department, should have the following sub-heads under him, namely; chief clerk, chief draftsman, chief inspector, and the following foremen; machine shop, truck and forge shops, car wiring and controller, armature room, carpenter shop and paint shop. Far better results can be obtained by having the department foreman report direct to the master mechanic, than when there is an intermediate official between them.

Now that we have an organization formulated, we must develop a system of inspection and general overhauling.

MAINTENANCE ROUTINE

The inspection is done in the operating carhouses, under the supervision of carhouse foreman. The general overhauling is done under the supervision of the master mechanic, at the general shops, where he should have his headquarters. Inspection and general overhauling can be done either on a daily basis or on a mileage basis. For inspection, I have found it better to use the mileage basis because some particular car will make more mileage in three days than another car in five days. An economical and efficient basis of inspection is from 1100 miles to 1600 miles, depending on the age of the equipment. On a daily basis the usual time between inspections is seven days. By going to the mileage basis, we find some of the cars out twelve or fourteen days between inspection, while others are only out six or eight.

The main features that limit the mileage between inspections are adjustment of brakes, lubrication of motors and adjustment of controllers.

The average number of cars operated from a carhouse (in San Francisco) is approximately seventy. To take care of these requires the foreman, one carpenter, one controllerman, one man on air and trolleys, two for brakes and bolts, two for oiling and inspecting motors and journals, a night foreman and two repairmen to look over bolts and brakes and to check any defects the motormen might note on their defect cards.

In the operation of an electric railway a number of things can be put off or curtailed without serious results, but not so with the inspection. The inspection can be regulated to do work at the critical moment, but if you go beyond this point the equipment is ruined

*A paper read before the Pacific Railway Club.

and has to be renewed. For instance, the armature of the motor, revolving between field pieces with $\frac{3}{16}$-in. air gap, has babbitted bearings. Should these bearings run hot, the armature rubs on the pole pieces, ruining the armature and causing the expensive operation of rewinding the armature.

Overhauling on 50,000- 60,000-Mile Basis

Now as to overhauling. An economical point for general overhauling of equipment is the 50,000 to 60,000-mile period, or approximately every sixteen months. This is about the limit to the wear of wheels and bearings, and also an economical point to touch up and revarnish the car bodies.

Order of Work

With limited forces at the inspection stations, it is impossible to do much needed testing. Therefore, it is up to the shop force to look after all tests, while the car is being overhauled. The first test should be the one on the air reservoir. This can be done under hydraulic pressure, without removing the reservoir from the car and before the car is taken inside the shop.

The car is now turned over to the truck-shop foreman, and the car body is raised, the trucks run from under the body and the body placed on wooden horses. To keep the car in the shop the least possible time all departments should start to work on the car together, so that by the time the truckmen have overhauled the trucks, the other departments will have finished their work, with the exception of the paint work.

Before the trucks are dismantled they should be cleaned with sand blast, or other effective means, so as to make inspection for flaws more thorough. Motors then should be removed by crane, wheels removed and brake rigging dismantled. In reassembling the trucks, they should be squared up so as to reduce flange wear of the wheels. As far as possible, new wheels should be used in the overhauled car. Those wheels which are yet serviceable, when the car is brought in, should be reground and used for replacements, when wheels are changed at the carhouses. By the use of bushings, electric welding, and oxyacetylene welding, the brake levers, shoe heads and castings can practically all be reclaimed. In overhauling the motors, the armatures should be removed and thoroughly inspected and tested; the field coils should be tested and terminals inspected, and the inside of motors should be cleaned and painted with waterproof paint.

Brush yokes and holders should be removed, cleaned and repaired. In assembling the motor, care should be taken that the liners do not bind, and that the brush-holders are properly set to give the right space between brushes. The motor can then be mounted on the trucks; and the trucks are ready to be replaced under the car.

The electricians in the meantime have removed all main switches and breakers, testing them and renewing worn parts. The controllers are thoroughly cleaned and adjusted and connections tested. It is good policy to use mostly new fingers on an overhauled car, and send the old fingers that are not worn out to the carhouses for further use.

Air compressors are removed and dismantled, cleaned and inspected; also gages are removed and reset by the master governor. While this work is going on the carpenters are going over the woodwork. All crews should end in the same period, which should be in three days. The car is then ready for the paint shop, for touching up and revarnishing which take aonther six or seven days.

With all departments working together in this manner, a car should not be in the general overhauling shop more than an average of two weeks in every sixteen months.

A New Type of Lightning Arrester Spark Gap

Shunting of the Gap with Impedances Proves Effective in Greatly Reducing the "Impulse Ratio" of the Gap

THE term "impulse protective gap" has been applied to a new type of spark gap for lightning arresters which was described by C. T. Allcutt of the Westinghouse Company at the last A. I. E. E. meeting. The principle involved is the connection of two spark gaps in series, these being shunted with unlike impedances. The shunts are made up of combinations of condensers and reactors or resistors, and they are designed so that when high-frequency impulses are received one gap will break down more readily than the other. When the first breaks down the second is stressed to the breaking point and it breaks down in its turn. As a practical matter it has been demonstrated that it is not necessary to have two physically separate gaps, but an electrode can be introduced into the middle of one gap thus subdividing it into series parts.

Experiments, described by the author, were made to determine the best form of electrode, but as far as the new device is concerned, the form of electrode appeared not to make much difference in the result. However, in general, it is best to use such forms of electrodes as will give the highest possible 60-cycle breakdown voltage. This condition is approximated with spherical electrodes.

In considering this new type of spark gap it should be remembered that in general the high-voltage lightning arrester consists of two distinct parts, a spark gap for discharging abnormal voltages and some means for preventing the normal line voltage from maintaining a power arc across the gap. F. W. Peek, Jr., has shown that some forms of spark gap require a very much higher voltage to discharge a high-frequency impulse than is required to discharge a continuously applied electromotive force. The name "impulse ratio" has been given to the ratio of the impulse breakdown voltage to the continuously applied breakdown voltage. The purpose in designing the new form of gap has been to produce one with a low impulse ratio, and the combinations described yield a gap with a ratio less than unity.

In putting forward the results of this work covered by his paper Mr. Allcutt points out that while the impulse gap has great possibilities as a protective device the results so far secured are not conclusive. The new gap must be studied under more adverse conditions before its protective value can be regarded as definitely established.

Women in the Metal Trades

War's Requirements Have Demonstrated Their Efficiency in Machine Shop Work

DISTINCTLY favorable results from the war-time employment of women in the metal trades are shown in a report issued on July 24 by the National Industrial Conference Board. The report summarizes information obtained from 131 establishments employing 335,015 men and 49,823 women. The work done by the women embraces a great variety of processes, from the operation of ordinary drill presses and lathes to coremaking, inspecting and assembling mechanical parts. In the main, their work was confined to the lighter processes in which rapidity and dexterity are more important than technical skill acquired by long training. The report emphasizes that work of a "repetitive" character is exceptionally well adapted to the utilization of female labor.

Employers generally commended women as being more thorough and conscientious, as producing less spoiled work, and as being more careful with tools. In many cases the quantity of work produced was more than that of men, but where less the quality was frequently better. Women were also reported as more regular in production, and as not showing the tendency to restrict output, which is sometimes characteristic of men.

Generally the principle of equal pay for equal work was followed. Work hours of women are largely dependent on the labor laws of the respective states. Nevertheless, in fifty-six establishments of 105 reporting, women were working fewer hours than the legal limit. In most states represented in this investigation the legal maximum is fifty-four hours per week. In Ohio, however, it is fifty hours and in California forty-eight.

It was the general experience that women are "more teachable," "quick to learn," and that they "follow instructions better" than men. In fact, in 103 establishments reporting, the attitude of women toward their work was considered to be as good or better than that of the men; in only eight was it regarded as worse.

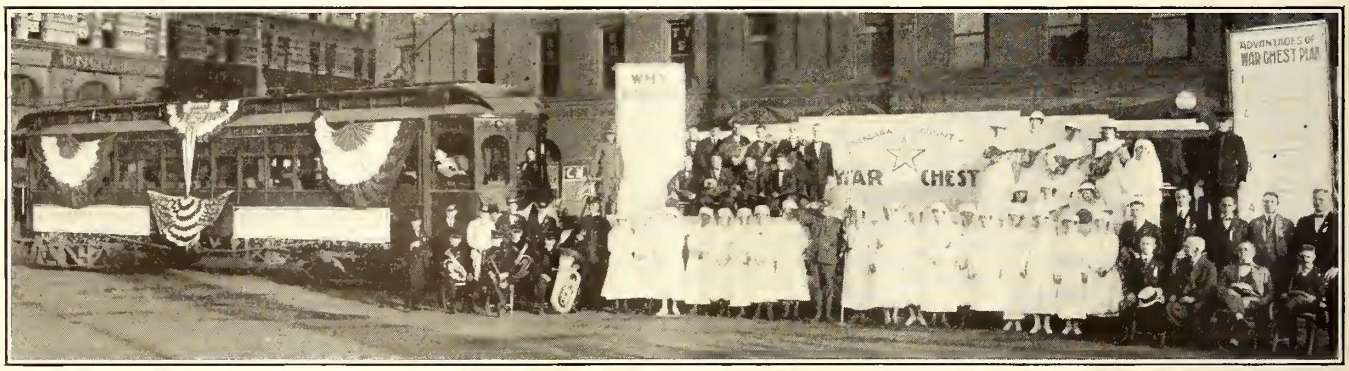
One reason given for this was that the women are superior to the class of men at present available. Some employers reported that the increased demand for the services of women is tending to make them more independent than formerly, although one machine tool manufacturer with wide experience stated that women are "as exacting as men but no more." Women are generally reported as taking a more personal attitude toward their work, which is reflected on the one hand in greater sensitiveness to criticism and on the other in increased loyalty.

Greater stability of female labor was generally indicated by the information gathered in the course of the investigation. Of ninety-four employers reporting on this subject, sixty stated that the record of the women was better than that of the men; twenty-six that there was no difference; only eight that the turnover among women employees was higher. In this respect, therefore, the results are exceptionally favorable to employment of women.

Syracuse War Service Committee Greatly Assisted by Local Railways

IN THE recent war service campaign in Syracuse, N. Y., and throughout Onondaga County, the local committee used the decorated two-car train shown in the accompanying photograph. It consisted of an interurban car loaned by the Empire State Railroad and a double-truck flat car loaned by the Auburn & Syracuse Electric Railroad.

The cars making up the train were equipped in the Wolf Street shop of the New York State Railways. The motor car was decorated with flags, signs, etc., and the flat car was made into a traveling stage, the scenery in the background being removable so that it could be carried flat on the floor of the car in transit. This car was equipped with two pianos and two rows of footlights consisting of high-power Mazda lamps spaced a foot apart. A standard battleship searchlight, loaned by the Crouse-Hinds Company, was used as a signal to the villages that the train was coming.



TRAVELING STAGE AND MOTOR CAR USED IN ONONDAGA COUNTY, N. Y., IN 1918 WAR SERVICE CAMPAIGN

The train carried twenty Red Cross nurses, a band of seven pieces, a mandolin club, several singers, a "Four-Minute" speaker, and a veteran of the Civil War who has served in the Canadian Army during the present war in France for two years and is now incapacitated.

The train reached from one to three towns each night of the campaign, and at each place an entertainment lasting from thirty to forty minutes was given, followed by short addresses. It played an important part in enabling the city and county to raise a fund of $2,500,000, an oversubscription of $500,000. The committee also used an elaborately decorated single-truck open car loaned by the New York State Railways, equipped with a set of electrically operated chimes. This car was used in Syracuse over the lines of the State Railways every day during the campaign.

Principles in Labor Awards

Board Explains General Basis Followed in Its Decisions Made Public Last Week

IN THE official summary of the twenty-two awards in street railway cases of the War Labor Board given out in Washington the end of last week the board outlined some of the principles which it followed in making the various awards. The statement was made public just as the last issue of this paper was going to press, so that only the actual wage rates could be printed. The major principles enumerated by the board as covering its awards follow:

Where the wages of track men, pitmen, pitmen's helpers, controllers, men, etc., were advanced, the plan followed was to increase their wages in the same ratio as the highest increase to conductors and motormen.

In all cases where motormen and conductors are compelled to work in excess of the period of their regular runs they are to be paid on the basis of time-and-half time for the excess, thus placing them on the same plane with skilled mechanics in government industries. This award, the board says, marks a new departure in the adjudication of street railway disputes in that it provides for the penalization of companies for extending the spread of hours in which men perform their day's work beyond the number of thirteen hours. Motormen and conductors in a majority of the cities are compelled to break up their working time during the day on account of the rush hours. Wherever this split of time spreads beyond thirteen hours the companies are penalized by being compelled to pay all the way from one-third time to double time to the workers according to the spread. This, it is believed, will have a tendency to diminish the spread of the work hours of the men.

In calculating the additional pay for overtime the board in several instances cites its decision in the award in the Cleveland Railway case as a precedent. The award in that case was that where the elapsed time consumed by swing runs exceeds fourteen hours, an addition of pay for the period of excess consumed time shall be allowed as follows:

For the fifteenth hour.....Fifteen minutes
For the sixteenth hour.....Thirty minutes
For the seventeenth hour.....Forty-five minutes
For the eighteenth and each successive hour.....One hour

On Sundays and holidays and on night car runs, the run shall be straight, with no more than eight hours' time, and with ten hours' pay for eight hours' time on night runs.

The award arbitrarily fixes the limit of apprenticeship on the cars at one year. This accelerates the method of graduating the men from one wage classification to another. Thus, instead of compelling men to work a full year before they may expect a wage increase and two years before they may expect a second increase, the award fixes three months as the first period upon the completion of which men shall receive their first increase and the second increase is made payable nine months after receipt of the first one. Heretofore, the wages have been raised in small amounts every year, covering fixed periods, so that in several instances which have come under the observation of the arbitrators it took ten years for the motorman or conductor to get the highest wage rate paid by the company.

While it is difficult to state definitely the exact percentage of increase granted in the awards, it may be said that in the larger cities the increase is from 35 to 40 per cent. The increase in Detroit, for instance, approximates 40 per cent, in New Orleans 50 per cent. In the smaller cities, such as Galesburg, Ill., it runs as high as 65 per cent on account of the extremely low pay received by the men up to this time. In New Orleans the wage was fixed lower than in other larger cities, the principal reason being the climatic conditions which made possible the omission of the items of fuel and heavy clothing from the cost of living budgets.

In cases where the right to organize has been an issue, the arbitrators applied the War Labor Board principles protecting workers in the exercise of their right to join trade unions without fear of molestation by the employer. Where individual employment contracts have been exacted by employing companies they are ordered eliminated for the period of the war on the ground that they constitute an interference with the free right of men to organize. Such an order was made in the case of the Omaha & Council Bluffs Street Railway. The administrators were called upon to render a decision with respect to the right of organized operatives to wear the button of their local union in the case of the Columbus Railway, Power & Light Company. This question, the board says, has frequently become an issue between street railway companies and their employees. In the Columbus award the arbitrators declared their inability to "see any objection under ordinary circumstances to the workers wearing a modest button of the ordinary size and design, worn presumably not for any objectionable purposes, but as men wear Red Cross or fraternal buttons." In the same case four men named as having been discharged for union activities were ordered reinstated in their former positions and ratings with full pay for lost time.

The War Labor Board says it "is now engaged upon investigations preliminary to decisions by the two chairmen in the street railway controversies which have come before the Board during the course of consideration of the cases decided today. A staff of women investigators is conducting an investigation of street railway industries with regard to the employment and treatment of women who have been entering the industry in large numbers in several communities. The attitude of the National War Labor Board toward the employment of women," it says, "is that they should receive for their services pay equal to that received by men for performing like services."

In the case of the Detroit United Railway the board says that "No objection shall be made to the employment of women or colored men, if necessity arises."

In the case of the Public Service Railway the board says that the "pay of men failing to answer roll-call on any one day or days shall be reduced only in the proportion that the roll-calls he fails to answer bear to the total number of roll-calls during the week."

Cases Still to Be Decided

The board says that it has still before it sixteen cases undecided, giving the cases by name. It says that the decisions in these cases will be handed down as rapidly as possible.

The board estimates the number of men affected by the decisions already rendered at 50,000.

AMERICAN ASSOCIATION NEWS

War Board Issues Bulletins

THE American Electric Railway War Board has issued three bulletins during the past week. Bulletin No. 25 contains the brief statement issued by the National War Labor Board denying that it has any intention of promulgating a flat wage rate for motormen and conductors of 50 cents an hour as reported in the daily press. Bulletin No. 26 is twelve pages in length and gives the full statement issued by the War Labor Board in regard to the twenty-two wage cases decided by the board last week. Bulletin No. 27 gives the text of the letter addressed to the president by Charles E. Elmquist, president National Association of Railway & Utility Commissioners, and Joseph B. Eastman, chairman special war service committee of that association, advising the appointment of a national administrator or board of three, as reported in the issue of this paper for Aug. 3.

The War Board held a meeting in New York on Aug. 6.

LETTER TO THE EDITORS

Use Salesmanship in Selling Transportation

NEW YORK CITY, AUG. 5, 1918.

TO THE EDITORS:

Although Demetrius Econoupoulos charges 5 cents for a single apple in order to enjoy a reasonable rate of return upon his investment, it is notorious that the wily Levantine wholesales the same wares at six for a quarter. Why not consider the case of Mr. Econoupoulos as applied to the sale of tickets at a slightly reduced rate? Demetrius knows that by selling his apples at the lower rate for a wholesale purchase, the buyer will surely consume more, but few railway men seem to believe that by selling tickets, preferably of metal, at the reduced rate for a wholesale purchase, the buyer will surely ride more.

Too many railway men seem to think that the fewer tickets they can sell to comply with franchise stipulations, the better off they will be. Hence they limit their sale to the company offices and to a few stores, which do more to get the privilege than the railway man does to induce them to accept it. They ought to realize that it is as hard for a man with tickets in his pocket to refrain from riding, if there is a car in sight, as for a man with apples in his pockets to refrain from eating. There is absolutely no difference in principle. What is more, much of the extra riding will be shorthaul, downtown riding or riding during the noon-time off-peak period.

"Nonsense," or some shorter expletive, utters the operator when urged to sell transportation upon merchandising principles. "This game is different." Is it really different in its appeal to the bargain instinct? Of course it isn't. The railway man's own crude selling of the past proves it! What about those parks with their twelve months' investment for three months' business, their heavily cut rates, their maximum length rides, their frequent accidents, their waste mileage, their hours of costly layovers at park sidings? Should those who were so keen for that kind of traffic creation despise a plan that increases the only kind of riding that brings a profit—the short pick-me-up of a few blocks?

To come down to hard pan: Here's a case vouched for by the financial officer of a certain railway. His company used to sell metal tickets at a 5 per cent reduction for $1 lots. People bought them freely and rode with reckless abandon. The railway man, whose pass privileges do not extend to his own large and interesting family, always had a pocketful of tickets and never hesitated to comply with: "Daddy, kin y' give me some tickets for the street car?" Now he says that such a request means cash, and the youngsters ride only one way to or from school instead of both ways.

Take a second case: A certain franchise calls for a 10 per cent reduction on metal ticket sales in quantities of $1. The tickets are sold only at the railway office and some department stores—very, very quietly. Result: Less than 8 per cent of the riding by adults is on metal tickets. The company has obeyed the letter but not the spirit of the law. Here's a true incident to prove that this policy is not for the best interests of the railway. In the office building of this company is a bright young man who discovered that tickets could be bought at 10 per cent off. Unselfishly he passed the good news on to a number of his female friends whose bargain instinct was aroused at once. They never ride without tickets now, and they do a lot of noon-time riding they never did before.

The third case will make it clear that I am not talking about the justice or injustice of a given rate of fare but of the principle of wholesale rather than of retail riding. A company which had secured the right to charge a 6-cent fare decided to put on sale a 6-cent metal ticket to avoid the inconvenience of collecting the odd fare but made no plan for selling these tickets in quantities at a discount. Why should it expect the public to go to the inconvenience of purchasing such tickets in advance simply to make the work of collection easier?

For obvious reasons the sale of such tickets should not be conducted on the cars, but a most intensive selling campaign should be carried on elsewhere. Undoubtedly many merchants would be glad to have them for their change-making value alone in these days of small coin shortage. A company could well go still further by providing the merchants with cards reading: "Save time and annoyance in boarding cars by having exact fare. Reduced rate tickets for sale here." "Ask for part of your change in reduced rate car tickets. Why walk with those bundles?" "Your time is worth more than the cost of a street car ride. Reduced rate tickets for sale here." I venture to say that with 90 to 95 per cent of adult riding in ticket sales, schedule speeds would rise, earnings would go up, operating expense would go down, peculation would be practically abolished and the honest conductor's work made much more agreeable. In all probability, also, the sale of tickets bought but never used because of being lost or carried away by visitors to the community would prove a neat little by-product in itself.

"TRANSPORTATION."

Unloading Dry Sand by Pneumatic Pressure

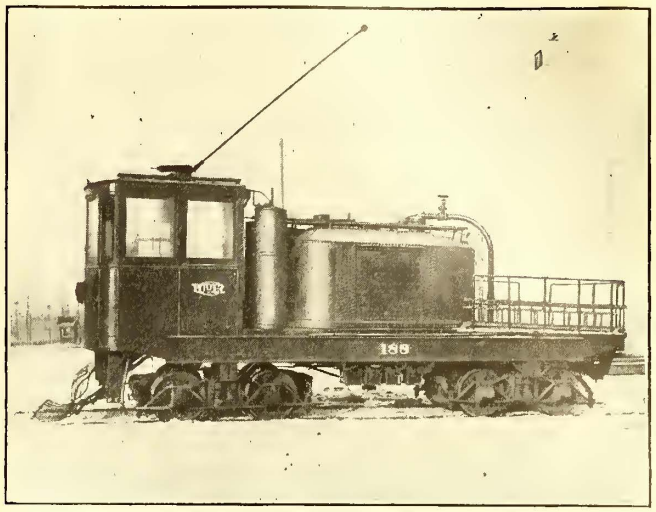
Equipment Built by St. Louis Railway Delivers 150 per Cent More Sand per Day With Half as Many Men

By Benjamin F. Thomas, Jr.
Mechanical Engineer, United Railways of St. Louis

THE problem of distributing dry sand to car sheds has been solved very successfully by the United Railways of St. Louis. In November, 1917, the dry sand car illustrated, designed and built by the company, was put into operation. From this car the sand is unloaded by the application of air pressure and the results have been very gratifying in the amount of labor saved and in reducing the amount of time necessary to unload. With a crew of two men, the car will deliver about 1000 cu. ft. of sand per day, as compared with 400 cu. ft. per day with four men when unloaded manually. This general method is not original with this company as it has been used for some time by the Philadelphia Rapid Transit Company. (See the issue of the Electric Railway Journal for April 25, 1914, page 910.)

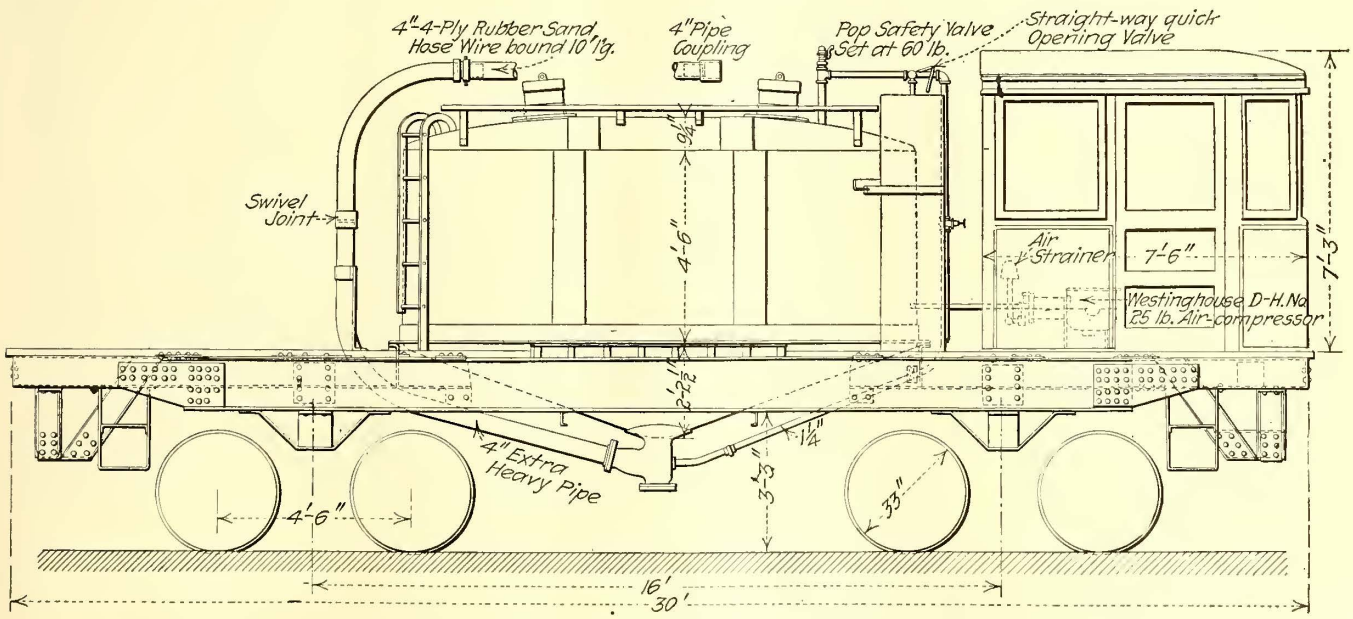
The construction details of the car are shown in an accompanying illustration. The body of the car consists of a 15-in. 60-lb. I-beam frame mounted on the company's standard diamond-frame truck and driven by four 50-hp. Westinghouse motors. The car is 30 ft. long over the bumpers, and approximately 8 ft. 6 in. wide.

The large sand tank, which is 12 ft. in diameter and has a capacity of 360 cu. ft., is placed in the middle of the car. In the concave bottom of this tank there is an opening to which is riveted a T-shaped casting. A 4-in. discharge pipe leads from one side of this casting and extends vertically up the back of the tank and over the top by means of two large radius bends. A wire-bound rubber hose is attached to the free end of this pipe. There is a 4-in. gate valve at the end and a swivel joint between the bends so that the pipe may be turned at any angle. Directly opposite this opening in the casting is a 1¼-in. pipe leading to the compressed-air equipment.



PNEUMATIC SAND CAR BUILT BY THE UNITED RAILWAYS OF ST. LOUIS

The compressed-air equipment consists of two type DH-25 Westinghouse motor-driven compressors capable of delivering 25 cu. ft. of air per minute at 90 lb. pressure, and two 18-in. x 72-in. air reservoirs which are connected to the sand tank through a quick-opening valve. The compressors are located in the driving cab which takes up 7 ft. 6 in. of space at one end of the car. This cab has a 30-in. sliding door in the rear end and is 7 ft. 3 in. high, giving a total height from top of rail of 11 ft. 10¾ in. The air reservoirs are located between the cab and the tank. After having been in operation some time, it was found to be advantageous to install two additional air reservoirs of the same size and so arranged with check valves that a back pressure of 20 lb. is always upon the compressors. This is to prevent the compressors from racing when the pressure in the reservoirs is suddenly thrown into the sand tank. The rear end of the platform is surrounded by



DETAILS OF CONSTRUCTION OF PNEUMATIC SAND CAR

a railing and is available for the transportation of men or materials.

The operation of the car is very simple. The car is loaded at the dry sand plant through the two openings in the top of the sand tank. The caps are screwed on and the car proceeds to the bins. Pressure is pumped up in the reservoirs while the car is traveling and upon arrival is turned onto the sand through the quick-opening valve at a pressure of from 25 to 60 lb. per square inch. The sand is forced down into the T-shaped casting at the bottom of the tank and, assisted by air pressure entering the T through the 1¼-in. pipe, is forced up and out through the stand pipe and hose. Sand begins to flow at 25 lb. pressure, but operates best at about 40 lb. The tank is designed for 60 lb. working pressure, and is protected by a safety valve at the top of the tank.

Power-Operated Train Order Signals Produce Economies on the Erie

A Comparison of Improvement in Train Operation by Use of Automatic Signals Instead of Manual Signals or Telegraph Train Dispatching

A COMPARISON of the results of train operation on the Erie under two different systems of signals is made by Henry M. Sperry in the *Railway Age* of July 5. The Susquehanna division of the Erie was selected for making this comparison, as any resulting improvements would be due entirely to the signal facilities, there being no change whatever in track facilities or motive power.

Prior to the installation of the automatic block signals, the Susquehanna division was operated under manual block signals. The average length of the blocks was 3.07 miles and there was a great difference in the length of the various blocks, the shortest block being but 0.3 mile in length while the longest was 7.27 miles long. This variation in block lengths is characteristic of the manual block, as the block stations are usually placed at passenger stations, passing sidings, junction points, etc. As a result it is often impossible to avoid delays in trains which are required to move under close headway.

Under the manual block system train dispatching was by written train orders sent by telegraph. This system caused a loss of time in operation as trains were required to either slow down or stop in order to receive their orders, which were necessary for all special or irregular movements. The old style written train orders were replaced with three-position signals electrically operated. The three-position train-order signal is an electric motor signal on the same mast with the automatic block signal and is located at passing sidings or crossovers. The control of these signals is from the nearest day and night train order office, making it possible for the train dispatcher to direct the operation of these signals by telephone instruction to the offices controlling them. With this method it is a comparatively simple matter for the train dispatcher to display the required signal indication for directing train movements at the various sidings. Trains at the blind sidings either continue on the main track or take the siding as required by the signal indication of the train-order signal. If they enter the siding they report by telephone to the office from which the train-order signal is controlled. The dispatcher makes no record of the train movement authorized by him until after the train has acted upon the instructions of the train-order signal.

Under the method of train orders by signal indication, the dispatcher with a few words over the telephone directs the signal. The train is not required to slow down simply to receive instructions, as the instructions are conveyed to the train by the unmistakable indication of the train-order signal. Further, these instructions are given to the train at the point where it is required to act upon them and not at some distant point as is often the case under the written train-order system.

The improved results in train operation have more than justified the installation of this system. Delays to freight trains due to the manual block have been practically eliminated. The train load has been increased and the time consumed in passing over the division has been reduced 15 per cent. The accompanying table shows the improved results which were accomplished.

TABLE 1—RESULTS OF FREIGHT TRAIN OPERATION ON THE SUSQUEHANNA DIVISION—ERIE RAILROAD

For Months of December, 1909, to November, 1910, Under Manual Block
Compared with Months of December, 1910, to November, 1911, Under Automatic Block

	Ton Miles		Ton Miles per Train			Reductions a/c Temperature			Freight Trains				
Months (a)	1909–10 Manual Block (b)	1910–11 Automatic Block (c)	1909–10 Manual Block (d)	1909–10 Manual Block (Corrected) (See Note a) (e)	1910–11 Automatic Block (f)	1909–10 (See Note b) (g)	1910–11 (See Note b) (h)	(i)	1909–10 (k)	1909–10 Manual Block (Corrected) (See Note c) (l)	1910–11 Automatic Block (m)	Saving in Freight Trains (n)	Saving in Train Operation (o)
December	173,387,082	177,605,807	227,542	217,757	228,285	8.5	12.8	+4.3	762	811	778	33	$4,511
January	162,944,115	194,134,250	224,750	232,392	251,795	12.4	9.0	—3.4	725	835	771	64	7,401
February	154,443,876	180,987,865	225,136	231,215	252,072	12.0	9.3	—2.7	686	782	718	64	7,629
March	199,235,797	178,197,673	247,497	239,577	244,106	6.0	9.2	+3.2	805	744	730	14	4,284
April	131,246,585	168,295,833	245,320	241,640	256,548	2.2	3.7	+1.5	535	696.5	656	40.5	6,512
May	170,527,993	189,061,368	268,548	268,348	276,002	0.0	0.0	0.0	635	704	685	19	4,931
June	160,521,776	202,898,946	250,815	250,815	293,206	0.0	0.0	0.0	640	809	692	117	11,944
July	189,088,090	207,184,154	271,289	271,289	298,106	0.0	0.0	0.0	697	764	695	69	8,242
August	195,734,433	203,503,501	297,921	297,921	302,832	0.0	0.0	0.0	657	683	672	11	3,834
September	195,588,923	189,772,505	273,550	273,550	296,057	0.0	0.0	0.0	715	694	641	53	7,041
October	210,030,355	221,607,785	260,583	260,583	308,216	0.0	0.0	0.0	806	850	719	131	12,765
November	195,119,249	208,820,764	267,653	263,370	293,700	3.7	5.3	+1.6	729	792.9	711	81.9	8,875
	2,137,868,274	2,322,070,451	254,751 (Average)	254,054 (Average)	274,217 (Average)	44.8	49.3	+4.5	8,392	9,165.4	8,468	697.4	$87,969

NOTE.—(a) The "Ton miles per train" under manual block (corrected Col. e.) are the totals for 1909–10 corrected by the difference in temperature of the winter months of the two years in order to place the totals for the two years on an equal basis in respect to weather conditions.

(b) The "Reduction on account of temperature" (Cols. g and h) are the percentages by which the monthly ton mile totals were reduced on account of low temperatures. These percentages were used to arrive at the totals under manual block (corrected).

(c) The "Freight trains" manual block (corrected Col. l) were computed by dividing the "Ton miles per train" manual block (corrected Col. e) into the ton miles per month moved under the automatic block (Col. c). The results (Col. l) show the number of trains that would have been required to move the traffic that was moved under automatic block if the trains had been operated on the manual block basis.

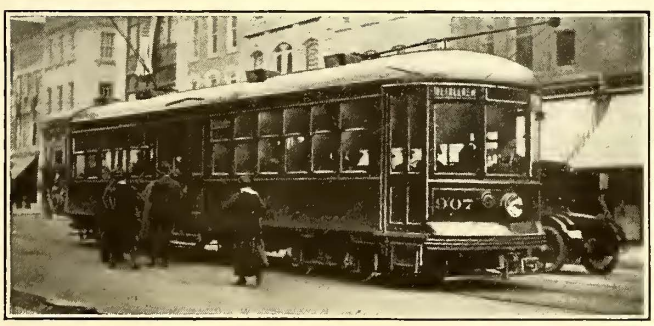
Center-Entrance and Exit Cars for Allentown

Lehigh Valley Transit Company Installs Twenty-Four New Cars to Provide Increased Service to Training Camps

THE Lehigh Valley Transit Company operates 215 miles of electric railway in eastern Pennsylvania and western New Jersey, serving Allentown, Easton, Bethlehem, South Bethlehem and numerous other towns and boroughs. It furnishes high-speed limited service between Allentown and Philadelphia. Allentown is one of the principal cities in the Lehigh Valley and is located in the center of the great cement belt and 30 miles south of the anthracite coal fields. The government has leased the Allentown fair grounds as a training site for the United States Army Ambulance Corps and has several thousand men stationed there.

Due to these activities and to those of the Bethlehem Steel Company, located at South Bethlehem, it was recently decided to purchase twenty-four new double-truck cars for city and suburban service. A careful study was made of the latest equipment in large Eastern centers, and as a result it was decided to design a light-weight, prepayment, center-entrance and exit type of car, with double truck, and of all-steel construction.

The cars as purchased are 47-ft. over-all length and 8-ft. 6-in. over-all width. They have entrance and exit doors at the center on both sides, and a door for the motorman and for emergency exit at diagonally opposite corners. Equipment is for double-end operation with couplers and multiple-unit control for train operation during rush hours. The conductor's door control standard is at the center. The doors, equipped with Brill automatic mechanism, fold outwardly, operating in conjunction with a single folding step. The door opening is 4 ft. 10 in. wide with no stanchion in the middle. A 3½-in. depression in the floor at the center and 26-in. diameter wheels, gives steps of 15½-in. and 13⅜-in. respectively.



PASSENGERS BOARDING CAR AT STOP

With the exception of four longitudinal seats at the center doors and one in each end at the left of the motorman's position, all seats are arranged transversely. The seats are of the Brill "Winner" type with a total capacity of fifty-seven.

Windows are provided with metal sash, stiles fitting the "Renitent" post construction. The lower sashes raise to a height above the eyes of the seated passengers. The vestibule windows drop into pockets and the sashes are provided with racks to hold the window at various heights.

The floor of the car is double, the first layer being of ¾-in. yellow pine and the upper one of ⅞-in. maple. Oak strips are laid in the aisle between the cross seats and at the doors. The inside walls of the car body below the side windows are lined with Agasote $\frac{3}{16}$-in. thick and having ½-in. air space between inside and outside sheathing. The roof is of the plain arch type supported on pressed steel rafters and sheathed with ½-in. tongued and grooved poplar boards covered with No. 8 cotton duck. Eight Automatic Ventilator Company's ventilators are placed four on each side of the roof. Ceilings are lined with Agasote, painted white.

INTERIOR ARRANGEMENT OF CARS

Each end of the car is provided with a 6-in. channel bumper faced with a 6-in. Hedley anti-climber and reinforced with a ⅛-in. x 22½-in. steel anti-telescoping plate. Westinghouse car and air couplers are furnished, also HB lifeguards and Horne double-acting hand brakes. The sand boxes have Ohio Brass Company's air valves.

The trucks are Brill 77-E-1, equipped with Davis steel wheels, hammered steel axles and Westinghouse 514-A motors.

Other features of the car equipment are Adams & Westlake gongs, Pantasote curtains, Cooper No. 12 heater, International type R-5 double register, Keystone illuminated car signs, Ohio Brass Company trolley retrievers, Keystone bell and buzzer high-voltage system with push buttons on each side post, Electric Service Supplies Company's bronze lamp fixtures and shades and Pyrene fire extinguisher.

These cars will be operated from Allentown to Bethlehem, a round-trip mileage of 15.56 miles and 16 miles respectively. No terminals are provided as the cars make a loop in both cities. An amusement park owned and operated by the company and located midway between Allentown and Bethlehem furnishes especially heavy traffic in the summer months. It is expected that the new cars will show a marked reduction in the time element of loading and unloading.

A bill has been presented to the Municipal Council of Tokyo favoring the extension of the local electric railway system. Extensions of about 54 miles are proposed for the next four years.

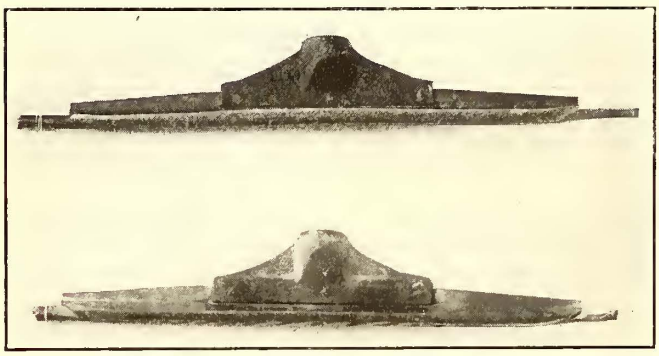
Hard Spots in Trolley Wire Result from Hammering of Trolley Wheels

Flexibility of Supports and Light-Weight Fittings Will Reduce Hammering and Result in Increased Service

BY G. H. BOLUS
Designing Engineer The Ohio Brass Company

TROLLEY wire freely suspended between supports assumes a catenary curve the depth of which is governed by the weight of the wire, the tension to which it is subjected and the distance between supports. If a trolley wire could be suspended between supports without sag the ideal condition would be approached. The catenary type of construction with messenger wire and hangers of various lengths approximates this, but even with a spacing as short as 10 ft. between hangers there is some sag in the trolley wire.

The catenary type of construction is not well adapted to city service as the extra number of fittings required



REDUCED SECTION OF TROLLEY WIRE COMMON AT EAR APPROACHES

and the cost are against it. The most common construction for this service consists of direct suspended trolley wire supported by brackets or cross-span wires every 100 ft. With such a spacing of the supports there is more or less sag. For instance, at 1800-lb. tension a No. 00 copper trolley wire sags 3.36 in.

When a trolley car equipped with pole and wheel having, say 25-lb. tension, is run under a stretch of direct suspended trolley wire the wheel moves in both a horizontal and vertical direction, the latter due to the sag in the wire. In other words, the trolley wheel travels a greater distance than the car. An abrupt change in direction of motion occurs at support points, which causes a hammering or hollowing out of the trolley wire by the force of the blow.

In practice the points where hollowings occur in the contact wire are usually spoken of as hard spots in the line and they are present at all supports and between supports where a very heavy trolley splicer is used to connect two small trolley wires. They are also very common under elevated structures and the like, due to the unyielding nature of the supports.

An accompanying illustration shows two ears removed from different properties where slack trolley wire and high base tensions are common. The reduction in cross-section of trolley wire at the approach end of the ears due to the hammer blow from the wheel is clearly distinguishable. The properties using these ears are widely separated geographically.

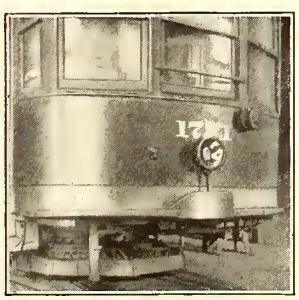
The effect of hammering is sometimes found at the center of the ear directly under the boss. This is caused by the wheel actually leaving the wire at the ear approach and striking under the boss.

Flexibility at supports and light-weight fittings will reduce hammering, and an ear using a flat steel spring to connect the boss to the runner has been used with success, although the regular type of ear will give perfect results if sags and cross-spans are properly handled. In cross-span construction the hammering effect due to hard spots at supports may be modified by slacking off on the cross-spans so as to allow the wheel to lift the span slightly. Tight spans produce hard spots and put an unnecessary strain on poles and guys.

Vibration is present in the trolley line and if damped out suddenly or localized produces crystallization and early breakage of trolley wires. For this reason frogs, crossings and section insulators, while usually made of malleable iron, are fitted with bronze approaches or shock absorbers to absorb the vibration gradually and minimize wire breakage due to crystallization.

A broken trolley wire is a dangerous thing not only to traffic and pedestrians, but if it should "freeze" to the rail it would undoubtedly be annealed for some distance, in most cases back to the first feed point. A corrective measure sometimes used to prevent this with double-track construction is to cross-connect the trolley frequently so that only a very short length of wire could be damaged. It should be remembered that copper trolley wire which has become annealed has less than 50 per cent of its initial strength and its resistance to wear is greatly reduced. Copper alloy trolleys do not seem to anneal as readily as copper, but they have a tendency to break up into short pencils.

Brass Footing for Metal Dashers



DASHER WITH STRIP OF BRASS AT FLOOR LINE

SHEET iron or steel dashers are apt to rust along the lower edge on account of the moisture which accumulates on the inside at the point of junction with the floor. The Rhode Island Company at its Providence shops finds it economical to cut away the lower part of rusted dashers, replacing it with sheet brass, a strip about 10 in. wide being riveted on in place of the discarded metal. The accompanying photograph shows the "rejuvenated" dasher in place.

Conserving Domestic Sizes of Coal

The Detroit United Railway has been conducting tests to determine if buckwheat size anthracite, bituminous coal or coke cannot be used as fuel for their car heaters. These tests were made at the suggestion of the Fuel Administration as it is considered extremely unlikely that any domestic sizes of anthracite will be available for industrial or public utility use during the coming winter.

Auto-Trolley-Car Shows Big Saving in Operating Costs

Passengers Call Them "War Cars" and Consider Their Operation as a Patriotic Measure Adopted by the Company

AS DESCRIBED in the ELECTRIC RAILWAY JOURNAL of May 18, page 977, the Westchester Electric Railroad Company of the Third Avenue Railway System, New York City, began placing cars of the one-man pedal-controlled type in service on its Chester Hill line early in May. Since their initial introduction here cars of this type have been gradually introduced on three other lines and it is expected that eight short lines will be completely equipped with them within the next two months.

Results so far have been very gratifying both in regard to the type of service provided and its resulting costs. Indications are that lines which have always been "lame ducks" and have been previously operated at a loss will be able, by the use of this type of car, to show a reasonable return upon the investment in them.

In adopting this type of car the company has pursued the policy of making the change to one-man operation only as fast as the men left the company's employ or were taken for war service, and none was displaced in the change. The rate of pay for operators on this type of car is 30 cents per day higher than in two-man operation and the labor is less trying. As a consequence the men are anxious to obtain a chance to operate the cars and many have requested permission to "break in" on their own time.

On the Chester Hill line the average payroll for operation a year ago was $330 per week. This has now been reduced to $200 per week, a saving of $130 or about 40 per cent. At the same time the operators are receiving more returns, as already suggested. Passengers are referring to cars of this type as "war" cars and they consider their introduction in the nature of a patriotic measure on the part of the company. As these cars replace older ones with fewer conveniences, and as the new cars are clean, bright and sanitary, all patrons are immensely pleased with the change.

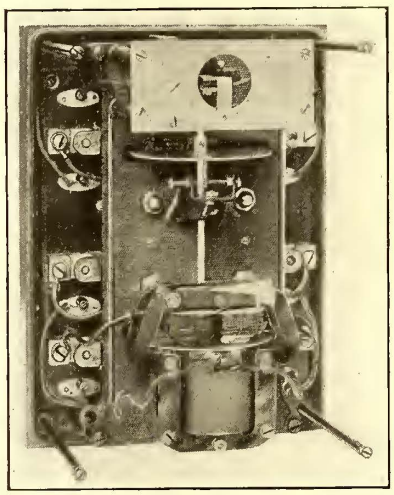
In starting operation on a new line, the cars are first placed in regular service with a motorman, a conductor and an instructor. This avoids any delays or inattention that might result from unfamiliarity with the equipment. When the operator and the public have been somewhat accustomed to the change, regular one-man operation is taken up.

As the principal object of pedal operation of the equipment was to give greater freedom to the operator for supervising boarding and alighting, and to leave his hands free for making change, the question of whether the men should be permitted to make change with the car in motion had an important bearing. Results have shown that an experienced operator can collect one or two fares after starting the car without increased hazard. In average service there are not more than one or two passengers left standing on the platform after the doors are closed. The operators are provided with a change-carrying machine to assist them in their duties. Of course, at intersecting points or when the cars are crossing busy thoroughfares it is considered advisable for the operators to devote their whole attention to the operation of the car rather than to risk an accident for the small saving in time that would result.

The management of the road is particularly impressed with the field for the use of this car in putting back in their service soldiers who return partly disabled from the front, thus giving them a useful occupation and assisting them to become operators instead of helpless dependents.

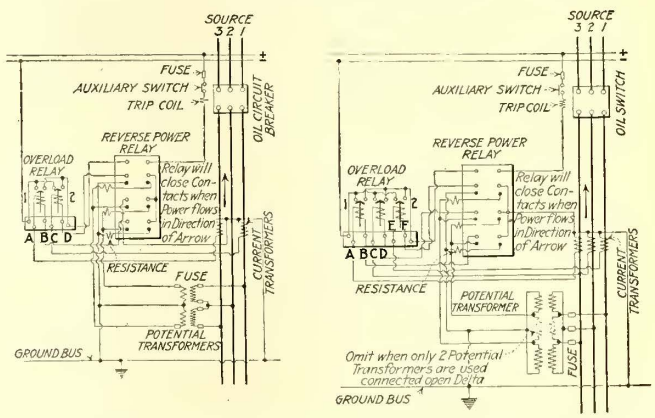
Polyphase Induction Reverse Power Relays

THE polyphase induction reverse power relay here illustrated has been brought out by the General Electric Company. It will operate correctly on practically all single-phase short-circuits, even though the voltage between two lines which are short-circuited may fall to zero, on balanced three-phase short-circuits with 10 amp. secondary and 1 per cent of normal voltage remaining and in practically every case on balanced short-circuits, with a voltage of one-half of 1 per cent normal. The relay is constructed along the lines of a polyphase watt-hour meter, but with three instead of two driving elements. Each of the elements has a current and a potential coil.



INDUCTION POLYPHASE REVERSE POWER RELAY

Two disks connected to a single operating shaft are used, the upper one of which is driven by one element and the lower by two elements, one in front and one in back.



REVERSE POWER RELAY CONNECTIONS FOR UNGROUNDED AND GROUNDED CIRCUITS

The use of three elements is required for grounded Y circuits. For ungrounded circuits two current and two potential transformers are sufficient. The third current coil carries the resultant current of the two current transformers and the third potential coil is connected

across the open delta of the two potential transformers.

The relays are built with single or double-throw contacts which, however, carry for only an instant the tripping current of the automatic circuit opening device, because the closing of these main contacts sends the entire tripping current of the breaker being protected through the operating coil of an auxiliary relay within the case of the reverse power relay and causes its contacts to close and short-circuit the main relay contacts. The auxiliary contacts are sealed closed by the tripping current until the trip circuit has been opened by means of an auxiliary switch on the air or oil circuit breaker. The breaking of the tripping current by this auxiliary switch permits the auxiliary relay to open.

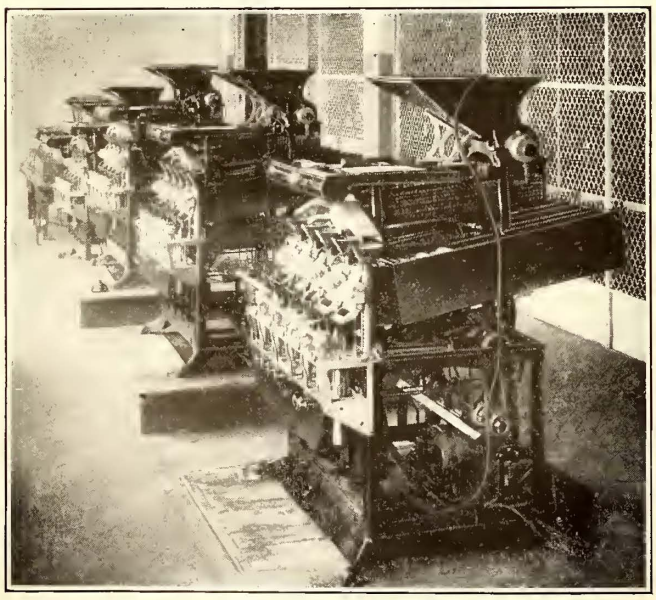
Vibration is practically eliminated even at very heavy currents.

The relays are made sensitive in order to operate properly on very low potentials. Thus overload relays must be used in conjunction with the reverse power relays to prevent operation at normal potential until a predetermined current and time are reached. The contacts of the overload and reverse power relays are connected in series so that both must close to trip the breaker.

Coin Handling Machines Save Labor in Sorting and Counting Money

MUCH labor is saved daily at the offices of the Detroit United Railway by automatic coin handling machines. A bank of machines made by the Sattley Coin Handling Machine Company of Detroit, Mich., handle an average of 200,000 coins each day.

The machines, operated by Westinghouse ⅓-hp. motors, receive the miscellaneous coins in the hoppers at the top. Without further attention, battered and badly-worn pieces are thrown out and the remaining coins are sorted into their respective denominations. These are accurately counted and properly wrapped in rolls of any desired amounts. Thus a great deal of time is saved and the element of error is reduced to a minimum.



BANK OF AUTOMATIC COIN HANDLING MACHINES

Types of Track Construction Used in Brooklyn During 1917

Construction, Reconstruction and Modification are Necessary to Meet the Intensified Conditions Caused by the War

IN A REPORT recently prepared within the way and structure department of the Brooklyn Rapid Transit System several changes in track construction are given.

It appears that the installation of the general standard surface track construction as adopted in 1911 has been continued but modified by the use of cast-weld joints of which there are more than 13,000 now in service on that system. The use of continuous joints was resumed last season for certain short sections where conditions are against welding economically. The use of gravel concrete was practically discontinued in favor of ⅜-in. crushed stone screenings. The standard track construction now calls for 7-in., 122-lb. grooved girder rail; 6-in. x 8-in. x 8-ft. rough yellow pine ties; standard flat tie rods spaced 8 ft. apart; four standard hook head spikes per tie; cement mortar rail filler; new 5-in. granite blocks with cement-grouted joints on gravel or crushed stone concrete base; gravel concrete mixed 1 to 3 to 6, and extending down from 1 in. above the ties to the level of the bottom of the ties. The crushed stone screenings concrete was mixed ¾ to 2½ to 6. The grout mixture of one part cement to one and one-half parts sand has also been continued.

The spacing of tie rods was increased from 6 ft. to 8 ft. on centers, partly to offset the increase in cost of the rods and partly because it was decided that the new 122-lb. rail, being stiffer laterally, does not need to have the rods spaced as closely as with the former standard rail. The granite pavement installed in 1916 with pitch and sand joints has given excellent service so far, indicating that this type of paving joint is very satisfactory for use under heavy team traffic conditions.

A second gasoline motor roller was secured early in 1917 and the two rollers have been used to good advantage in rolling sub-grades. The roller has also been used to assist in cutting asphalt into 2-ft. strips by rolling a special T-iron into the surface. This practice has eliminated excessive asphalt surface restoration work, and practically no men are required now for cutting work. This yields a considerable saving.

The curved-head rails installed in 1915 and universally since that year have not shown any signs of corrugation as yet. Corrugation usually develops within two years at the latest after installation and it is felt that the curved heads have accomplished the main object claimed, namely, the postponement, if not the actual elimination of corrugation. It may be noted in passing that the American Electric Railway Association is seriously considering the incorporation of the curved head idea in its standard design for 7-in. grooved girder rail.

The curved head rail section used by the Brooklyn Rapid Transit Company is a modification (in the head contour only) of the association standard 7-in. grooved girder rail, and is known as L. S. Company section 122-491. The difficulty in gaging this rail has been overcome by the adoption of a new standard track gage adopted after consultation with the mechanical department.

News of the Electric Railways

TRAFFIC AND TRANSPORTATION

FINANCIAL AND CORPORATE · PERSONAL MENTION · CONSTRUCTION NEWS

P. R. T. Increases Wages

Additional Wages Granted by the Philadelphia Rapid Transit Company this Year Aggregate $4,000,000

To save the War Labor Board the bother of passing on the carmen's wage question in Philadelphia and to give incentive to the men further to facilitate the transportation of war workers, the management of the Philadelphia Rapid Transit Company on Aug. 4 announced to the Employees' Co-operative Committee that, effective Aug. 4, wages would be increased to a maximum of 48 cents an hour, the amount which the War Labor Board required railway companies in other large cities to pay their men. This increase in wages and the other advances granted since the beginning of the year aggregate more than $4,000,000.

A letter sent by Mr. Mitten to the War Labor Board said in part:

"The contract (for the operation of the high-speed lines) approved by the city and now before the Public Service Commission provides the machinery for such increase in fare as should protect the solvency of the company, and it is only in the event that this contract be not approved that we may be obliged to ask that your honorable board then use your good offices for us to the same extent that may be done in the interest of other cities making similar increases in wage."

Some Details of Wage Scale

The wages of trainmen are to be increased and adjusted as of the pay-week commencing Aug. 4 to conform to the wage scale now made effective by the War Labor Board in cities of the first class, in cents per hour, namely:

Surface System:	Conductors and Motormen
First three months	43
Following nine months	46
Thereafter	48

Elevated system:	Motormen	Conductors	Guards
First three months	46	43	43
Following nine months	49	46	45
Thereafter	51	48	46

Where the over-all time of swing runs exceeds fourteen hours, an addition of pay for the period of such excess time is to be allowed as follows:

For the fifteenth hour.....Fifteen minutes
For the sixteenth hour.....Thirty minutes
For the seventeenth hour.Forty-five minutes
For the eighteenth hour and each succeeding hour .....One hour

Time and a half will be paid for extra trips or tripper service.

These rates eliminate the nine-hour minimum guarantee, present allowance for trippers, present allowance for swing runs, weekly guarantee to extra men, together with any other limitations, time allowance or guarantees heretofore existing.

The wages of all other employees are now being considered for an adjustment which will be made effective as of the same date, Aug. 4.

Student Training Corps Plans

The War Department has recently announced an arrangement by which college students more than eighteen years of age may enlist in the military forces of the country and obtain training in college which will prepare them for the service. They will enlist in what is called the Students' Army Training Corps and will be provided with uniforms and equipment by the War Department, but will be on furlough status. They will receive regular military training and will be subject to call, but the policy of the government will be to keep members of the corps in college until their draft age is reached or possibly longer if the needs of the service, *e.g.*, for doctors, engineers, chemists and the like are such as to make that course advisable. Camps for these students will be held at Plattsburg, N. Y., Fort Sheridan, Ill., and Presidio, Cal.

Seattle Wages Fixed

As a result of numerous conferences between officers of the Puget Sound Traction, Light & Power Company, Seattle city authorities, and representatives of the street carmen's union, extending over a period of weeks, a wage scale has finally been decided upon, and ratified by the union.

The agreement under which the street car strike of a year ago was ended expired on Aug. 1, and the new wage scale will date from that day. However, before the agreement can become effective the revenues of the company must be increased. In case the city shows no disposition within twenty-one days to assist the company, or is unable to devise means of affording relief, the union will appeal to the National War Labor Board, and at the same time the company will carry its case to the proper government officials. In the meantime the platform men will continue working under the present arrangement, with the understanding that their increased pay is to be made retroactive to Aug. 1.

The new wage scale increases the present wage of 33 cents to 40 cents an hour to 50, 55 and 60 cents an hour. Other conditions will remain practically the same as under the old agreement.

Ordinance Before Council

Chicago Measure Will Come Up for Passage on Aug. 14—May Be Voted Upon in November

The ordinance for unification of the railway companies and the construction of subways in Chicago was approved by the local transportation committee of the City Council on Aug. 5 and submitted to the Council on the same day. It will come up for passage on Aug. 14.

Trustees Named

The measure as finally drafted had only a few minor changes aside from those mentioned in the account of the proceedings in last week's issue of the Electric Railway Journal. Interest centered on the names of men proposed by the companies for members of the board of trustees. There seemed to be general satisfaction with the following selections, which are subject to approval by the City Council:

E. D. Hulbert, president of the Merchants Loan & Trust Company; Harrison B. Riley, president of the Chicago Title & Trust Company; George G. Tunnell, assistant to the president of the Atchison, Topeka & Santa Fe Railroad and trustee of the Chicago bureau of public efficiency; John F. Smulski, president of the Northwestern Trust & Savings Bank; Joseph E. Otis, vice-president and acting president of the Central Trust Company of Illinois; John W. O'Leary, president of the Arthur J. O'Leary & Son Company; Henry A. Blair, chairman of the board of operation of the Chicago Surface Lines and president of the Chicago Railways; Leonard A. Busby, president of the Chicago Surface Lines and president of the Chicago Railways; Britton I. Budd, president of the Chicago Elevated Railways.

Four Present Directors Included

Of the nine men proposed, the present directorates of the companies include Messrs. Busby, Blair, Budd and Riley. The trustees under the new ordinance must have no financial interest in the companies and will be entitled to annual salaries of $5,000 each.

Several attempts were made to require additional elevated or subway construction in the first period, but the Aldermen stood firm against adding to the financial requirements.

While there is still some opposition to the measure on the part of radical municipal ownership advocates it is not expected that this will hinder its passage. The newspapers are almost a unit in calling for favorable action and it looks as though the people will vote on the ordinance next November.

San Francisco-Oakland Terminal Wage Award

Brief Review of Full Award of Board Appointed to Pass Upon Wages for Key Route Employees

The board of arbitration consisting of Paul A. Sinsheimer, chairman; George C. Kaufman for the men and John S. Drum for the company, which has been considering the wage controversy between the San Francisco-Oakland Terminal Railways (Key Route) and its employees, handed down its findings under date of July 3 and issued them on July 11. The award is signed by Messrs. Sinsheimer and Kaufman.

Wages Only Thing Before Board

The only issue before the board was the wage to be paid to the men. The conditions of employment were established under a new agreement between the company and the men. The existing wage schedules and the proposed readjustments all contemplate a ten-hour day.

The company operates a system of street railways, fast interurban electric railways and ferry boats. Its street railways serve a number of municipalities fronting the shore of San Francisco Bay, in Alameda and Contra Costa counties, including the cities of Oakland, Alameda, Berkeley, Richmond, Haywards and Piedmont, and embracing a territory of approximately 300,000 population. Its ferry boats and electric trains operate between the city of San Francisco and the cities of Oakland, Berkeley and Piedmont. The entire system embraces within its scope the largest cities on San Francisco Bay, with a population of approximately 800,000 people. This railway property consists of two sections: the Oakland Traction Company, commonly known as the "Traction Division," embracing the street railway service; and the San Francisco-Oakland & San Jose Railway, commonly known as the "Key Division," embracing the fast electric train service to the piers and the ferry boats which connect with San Francisco.

On June 17, 1917, the carmen's union called the existing agreement into question and asked for a modification of its terms. These modifications were adjusted satisfactorily with the company, with the exception of the new wage proposals made by the men. It was thereupon agreed between the company and the union that the question of wages should go to arbitration. Accordingly, on Aug. 25, 1917, an agreement of arbitration was entered into between the company and the union.

The Elements Considered

The agreement of arbitration required that in reaching its conclusions the board should consider the four following elements:

1. The value of the services rendered by the men.
2. The wages paid on traction and interurban lines in other communities.
3. The cost of living in Oakland and the other East Bay cities, as compared with other communities.
4. The financial ability of the company, in view of its present income and growing operating costs, to pay an increased wage.

The board reached and announced its conclusions in a memorandum on Nov. 2, 1917. The complete and final report is now presented in compliance with the full requirements of the arbitration agreement, so that it may be made available as a detailed record for the purposes of the Railroad Commission of California.

The board says it was offered six alternatives as follows:

1. To adopt the theory of the social minimum.
2. To adjust the existing wages by adding thereto the measure of the increase in living costs.
3. To determine the wage scale by a comparison with street railway compensation in other cities throughout the United States.
4. To determine the wage scale by the schedules paid in other industries in Oakland, Alameda and Berkeley.
5. To adjust the wages of the men in respect to the earnings and profits of the company—the theory of the economic maximum.
6. To compute a series of wage schedules which should be reasonable *per se*.

The Board's Conclusions

It reviews at length the degree and balance of emphasis to be placed on these various alternatives.

In conclusion the board says:

"The railway has maintained a continuity of its service. It has suffered a loss of revenue which these rising costs have entailed. It has honorably joined with its employees to meet the question of wages. Company and union have united in an effort and desire to do and to receive equity. They have been willing to forego such powers as each might possess to seek its own advantage and have placed the issue so vital to both in the hands of a disinterested tribunal.

"This company, we believe, in doing equity, is entitled to equity. It has continued to transport the populations of San Francisco, Oakland, Alameda, Berkeley and Piedmont with the same excellence of service that has heretofore obtained.

"We submit these facts for the consideration of the tribunal which shall pass finally upon its prayer for financial relief.

"We may summarize what has here been said into the following general principles:

"1. Wages are measurable only by their relation to the costs of life.

"2. Wages adjusted by arbitration must be reasonable and equitable *per se*.

"3. Capital cannot successfully urge its right to pay less than a reasonable standard because of financial impairment. This would mean that each purchaser could adjust prices to his financial means.

"4. If the sum available to capital and labor be limited, capital may wait for its return and still live. Labor cannot.

"5. It is manifestly inconsistent in industry to increase prices because wages are high and then, maintaining the prices, to withhold the wages.

"6. During a period of suddenly advancing costs, the public utility enterprise lacks the freedom of self-adjustment to the new condition that attaches to industry generally.

"7. In the public utility service, when rising costs and increased wages transgress on capital, either relief must be found in augmented earnings or the burden will continue to rest on capital.

"8. In the public utility service, the inter-dependence of the wages of the employee, the capital of the stockholder and the service to the patron demands a form of adjustment which shall assure equity to the wage earner and the stockholder and continuity of service to the patron.

"This brings us to the determination of the new schedule of wages in this enterprise. We have suggested a basic wage average from 40 cents to 42 cents an hour for the experienced men in the Traction Division. For the men in the Key Division, we recommend a scale graded from 43 cents to 45 cents an hour. Every man in this division will, however, by reason of his length of service, receive the maximum of 45 cents an hour. We, accordingly, find the following schedule of wages to be reasonable, as a minimum:

Traction Division	Pay Per Hour
First six months	30 cents
Second six months	32 "
First six months of second year	34 "
Second six months of second year	36 "
Third year	38 "
Fourth year	40 "
Fifth year and thereafter	42 "
Key Division	
First year	43 "
Second year	44 "
Third year and thereafter	45 "

"Brakemen of the Key Division will take the same wage rating as motormen and conductors of the Traction Division.

Eastern Wisconsin Company Celebrates

The biggest patriotic celebration ever held in Winnebago County took place on July 14, Bastile Day, at Eweco Park, owned by the Eastern Wisconsin Electric Company, Oshkosh, Wis. Arrangements were made for a company of Wisconsin State Guards to be present. They formed a hollow square at the foot of the flagpole and when the salute was fired and the band struck up the national anthem a 12-ft. x 20-ft American flag was hoisted to the top of an 85-ft. flagpole on the shore of Lake Winnebago. The flag was then lowered and the flag of the French Republic was attached below

the American flag. This was followed by a salute, the band then struck up the national anthem of France, and the American flag and the French flag were hoisted up. Following this the two flags were lowered and the service flag of the Eastern Wisconsin Electric Company with thirty-three stars was attached below the French flag. The salute was again fired and the three flags were hoisted to the top of the pole, the band playing "On Wisconsin," the State song. More than 9000 people witnessed the ceremonies. Ten per cent of the receipts of the park division for that day were given to the Red Cross and the Knights of Columbus War Relief Funds. B. W. Arnold, manager of the company, received many compliments on the handling of the crowds by the company.

Successful Appeal for Men

The Rhode Island Company, Providence, R. I., has recently advertised as follows in the Providence papers:

"MEN IN NON-ESSENTIAL INDUSTRIES

"The electric railways of the country are absolutely essential to winning the war. At the present time there is a shortage of men. The Rhode Island Company has many openings for men as conductors and motormen. Good wages are being paid and steady work guaranteed. Men in non-essential lines are asked to get into communication with our transportation department. This is your chance if the business in which you are engaged is not necessary to the winning of the war. Write or call on Mr. Hackett, Room 307, 100 Fountain Street, Providence. Hours 10 to 12 a.m., 2 to 5 p.m."

The results obtained are said to have been very satisfactory, and would seem to indicate that the appeal for men is one that might be employed profitably by electric railways elsewhere.

News Notes

Increase in Pay on Interurban Railway.—A new wage scale has been put into effect by the Interurban Railway, Des Moines, Iowa, which gives the men an average increase of about 35 per cent. The increase is retroactive and all employees will receive back pay from June 1.

San Francisco Men Accept.—The platform men of the San Francisco (Cal.) Municipal Railway have accepted the compromise wage proposition of the Board of Works and will receive 50 cents an hour for an eight-hour day, with time and a half after the first twenty minutes of overtime has elapsed.

Wages Increased in Fargo.—The wages of the trainmen of the Northern States Power Company, at Fargo, N. D., have been increased to the following scale: first six months, 26 cents an hour; second six months, 27 cents; third six months, 28 cents; fourth six months, 29 cents; after twenty-four months, 30 cents. On Jan. 1, 1917, an increase of 1 cent an hour was made and on Nov. 16, 1917, a further increase of 2½ cents was made. The total increase since Jan. 1, 1917, amounts to 6 cents an hour, or 25 per cent.

Get-Together Meetings.—In a statement to the employees of the Pacific Electric Railway, Los Angeles, Cal., in the *Pacific Electric Railway Magazine* for July 10, Paul Shoup, president of the company, suggests department family meetings at least once a month, to be attended by all the employees and officers to talk over all matters of common interest. Mr. Shoup says that he would be glad to attend the meetings if he were invited. He says: "Let's have no more bars between the company management and the rest of the people who are on the payroll."

Change in Pooling Plan Ratified.—The Board of Estimate of New York City on Aug. 2 ratified the plan by which the city will begin to share in new subway earnings on Jan. 1, instead of about three months later. This will result from a modification of the pooling arrangement. The amended plan was agreed upon several days ago by city officials, members of the Public Service Commission and the officers of the Interborough Rapid Transit Company. The proposed change in the pooling arrangement was referred to in this paper for Aug. 3, page 206.

Denver Wage Demands Before Board.—The wage committee of the union formed among the employees of the Denver Tramway have sent demands to the War Labor Board at Washington for an increase to 50 cents minimum and 55 cents maximum with a basic eight-hour day. Following this action a conference was held with the management. The men were not ready to present the demands so only preliminary discussion took place. No feeling of animosity exists between the men and the company and the trainmen continue to show the same spirit of courtesy and co-operation to the public.

Wages and Fares Coupled.—A local of the Amalgamated Association has just been organized among the employees of the Louisville (Ky.) Railway. Superintendent Riddle of the company addressed the union men at a meeting on July 30, in which he delivered a message from President Minary relative to the increased cost of materials, supplies, etc., and the need of a 6-cent fare. Mr. Minary urged the men to aid in the movement to obtain an increase in fare, a subject which will be taken up with the city administration at once. Mr. Riddle stated that increased wages were only possible in event a 6-cent fare was obtained.

Increase in Wages in San Francisco.—The third voluntary increase within one year in the wage scale for platform men was announced on July 27 by the United Railroads, San Francisco, Cal., to become effective on July 28. The increase affects 2200 employees. Under the new scale all the platform men getting less than 36 cents an hour receive a 4-cent raise for each hour's work. Those receiving 36 cents an hour and over get a 3-cent raise an hour, up to 45 cents, which is the new maximum. This is to be increased 1 cent an hour each year for those receiving under 45 cents an hour until they reach the maximum. For new men entering the service of the company this will be the wage scale: 37 cents an hour for the first six months, 39 cents an hour for the second six months, 40 cents an hour for the second year and 1 cent an hour for each year thereafter until the maximum of 45 cents an hour is reached.

Service Withdrawn Following Confusion.—Because it believed that a continuance of the shuttle service connecting the lines of the H subway system at Times Square and the Grand Central Station, New York, would prove a peril under the present uncompleted condition of these stations and until the public has learned the new routes, it was decided by the Public Service Commission on Aug. 2 to stop this service temporarily at midnight that day. It was made clear that the plans of the subway, as originally made, were not affected by the stopping of this short-line service, but that it was a mistake to try to give complete service at the present time. Construction work at Times Square station and at the Grand Central station will be rushed, and when the dead tracks and the temporary platforms at the Grand Central are removed and the passageways shortened at the Times Square station the shuttle service will be resumed.

Effect of War Board Ruling on Chicago Companies—Raising of the wages of trainmen approximately 9 cents an hour by mandate of the Ward Labor Board brought to the people of Chicago a realization of the fact that higher fares will be necessary to meet the additional cost of operation. To the Chicago Surface Lines the new wage scale means about $3,500,000 added to the payrolls, while the elevated companies' burden will be close to $1,500,000. The traveling public had heard of the provisions of the pending ordinance which would put rates of fare on a sliding scale to meet the cost of service, but many persons evidently had not figured that higher fares would ever be necessary. The railway officials have not announced any definite program of action looking to extra revenues, but they have informed the public that increases in the prevailing rates are inevitable. The Surface Lines probably will ask the city authorities to agree to an amendment in the present ordinance so that fares can be raised. The elevated lines will probably seek relief from the State Utilities Commission.

Financial and Corporate

Net Lags Behind Gross

Subsidiaries of United Light & Railways Company Feel Effects of Rising Costs

The gross earnings of the subsidiaries of the United Light & Railways Company, Grand Rapids, Mich., for the calendar year 1917 showed substantial increases in all departments. Owing to the higher cost of materials and labor and the increased taxes, however, the net earnings did not show a proportionate increase.

PASSENGER DECREASE OF 15.16 PER CENT

The revenue passengers of the railway subsidiaries totaled 43,777,903, an increase of 5,764,828 or 15.16 per cent. The sources of revenue of the subsidiary companies, both gross and net, and the percentage of each class of revenue to the total, are shown in Table I.

TABLE I—DIVISION OF GROSS AND NET EARNINGS OF SUBSIDIARIES OF UNITED LIGHT & RAILWAYS COMPANY FOR CALENDAR YEARS 1916 AND 1917

	1917	Per Cent of Total	1916	Per Cent of Total
Gross Earnings:				
Gas	$1,539,844	19 99	$1,353,805	19 66
Residuals	126,787	1.65	92,709	1.35
Electric	2,786,411	36.13	2,587,459	37.58
Railway—City	2,090,648	27.14	1,806,218	26 23
Railway—Interurban	910,322	11.82	868,601	12.61
Heat	121,365	1.58	86,215	1.25
Miscellaneous	129,888	1.69	90,770	1.32
Total	$7,705,268	100.00	6,885,779	100.00
Net Earnings:				
Gas	$481,588	18.12	$564,160	21.16
Electric	1,054,814	39.68	1,152,546	43.22
Railway—City	737,668	27.75	571,968	21 45
Railway—Interurban	284,726	10.71	300,693	11.28
Heat	303	0.01	10,745	0.40
Miscellaneous	99,259	3 73	66,280	2.49
Total	$2,658,361	100 00	$2,666,393	100 00

During 1917 a total of $1,903,053 was expended for additions and extensions to properties. Of this total $220,990 was expended on gas properties, $779,282 on electric properties, $817,303 on railway properties and $85,476 on heating properties.

Expenditures for construction were general in nature and became necessary because of the growth of the communities served. A large proportion of the above-mentioned sum was expended on the properties of the Tri-City Railway & Light Company, serving Davenport, Iowa, and Rock Island, Moline and East Moline, Ill. The expenditures there were made to satisfy the requirements of the United States Government and industries employed on important government contracts

The comparative statement of the holding company and the subsidiaries for 1916 and 1917 is given in Table II. From the surplus accounts of subsidiary companies, $309,161 was transferred to their depreciation reserves, and in addition the subsidiary companies expended or set aside for maintenance

TABLE II—COMPARATIVE INCOME STATEMENT OF UNITED LIGHT & RAILWAYS COMPANY AND SUBSIDIARIES FOR CALENDAR YEARS 1916 AND 1917

	1917	1916
*Gross Earnings, (all sources)	$7,853,909	$6,922,559
*Operating Expenses (including maintenance, general, income and excess profit taxes	5.046,907	4,219,386
Net Earnings	$2,807,002	$2,703,173
Interest on subsidiary securities held by public	899,381	931,260
Balance	$1,907,621	$1,771,913
Interest on first and refunding 5 per cent bonds, United Light & Railways Company	434,302	403,724
Balance	$1,473,319	$1,368,189
Interest on debenture, notes and loans of United Light and Railways Company	268,748	174,916
Balance available for dividends	$1,204,571	$1,193,273
Dividends, first preferred stock, 6 per cent	605,557	595,793
SurplusEarnings	$ 599,014	$597,480

* The gross earnings and operating expenses of the subsidiary companies include inter-company transactions to the amount of $925,110, of which $256,522 represents electric power sold to subsidiary railway properties.

$521,065, which was charged directly to operating expenses. This made the total expended or set aside for maintenance and depreciation of property $830,226, or over 12.88 per cent of the gross earnings received from the sale of gas, electricity, heat, and transportation. In compliance with the depreciation fund agreement with bondholders, there was expended in 1917 the further sum of $246,342 for extensions, betterments and additions, against which no bonds can be certified.

The operating expenses of the subsidiary companies covered $395,460 accrued for payment of general and federal taxes, including excess profit taxes, an increase of $100,028 for the year.

New Cities Service Issue

Henry L. Doherty & Company and Montgomery & Company have formed a syndicate to underwrite $6,000,000 convertible 7 per cent gold debenture bonds of the Cities Service Company which are to be offered to stockholders for subscription at 102½. The bonds are part of an authorized issue of $30,000,000, of which $3,000,000 were disposed of last March. The proceeds of the new offering are to be used in developing oil land holdings.

After Jan. 1, 1920, the bonds will be convertible into Cities Service stock in proportion of 80 per cent of preferred and 20 per cent of common for each $100 par value of bonds.

Against Finance Plan

Attorney General Is Opposed to Proposed Utility Finance Corporation

The Attorney General has reported adversely on the plan for a $100,000,000 corporation to act as an intermediary between borrowing corporations and the War Finance Corporation. This was disclosed on Aug. 2 by W. P. G. Harding, governor of the Federal Reserve Board and managing director of the War Finance Corporation, following an informal conference with New York bankers at the Federal Reserve Bank. Mr. Harding, before taking the train for Washington, said:

PLAN ORIGINATED IN NEW YORK

"The plan originated by New York bankers and strongly supported by Chicago bankers appeared to be faulty and Attorney-General Gregory was asked for a ruling. He decided that section 10 of the war finance act, limiting loans to any one corporation to 10 per cent of the War Finance Corporation's capital, or $50,000,000, applied to the corporation proposed as an intermediary. In consequence the utmost amount that such a corporation could receive from the War Finance Corporation is $50,000,000."

The New York *Sun* says that when Governor Harding's announcement was reported to a banker intimately connected with the plans to form a $100,000,000 buffer corporation, he said:

"That settles it. Our plans are knocked in the head. Some new method will have to be devised or the borrowings of corporations will be sadly limited. We had hoped to aid not only public utilities but all corporations in need of assistance.

"The banks are well loaned up. They would not care to indorse or guarantee the obligations generally of debtor corporations, and the War Finance Corporation finds it difficult to make loans on the collateral without some guarantee. If the War Finance Corporation could loan a much larger amount than $50,000,000 to our proposed intermediary concern, the problem could have been easily solved, but such a ruling puts an end to a scheme that received strong support and was carefully studied."

$100,000,000 CORPORATION PROPOSED

The War Finance & Utilities Corporation, organization of which awaited a favorable ruling from the Attorney General, was to have been a $100,000,000 corporation at the start with plans for further enlargement. It was being formed under section 7 of the War Finance Corporation act, which provides in brief that a bank or banking establishment may make loans to any business which is necessary or contributory to the prosecution of the war and may rediscount 75 per cent of every such loan at the offices of the War Finance Corporation. The limitation to $50,000,000 affects the extent of rediscounts and loans combined.

Cleveland Railway Shows Deficit for 1917

Traffic Increase of 1916 Not Maintained Last Year, with Rising Taxes and Expenses

Two of the most important incidents of operation for the Cleveland (Ohio) Railway during the calendar year 1917 were the increases in the operating allowance and in the rate of fare. An increase in the operating expense allowance to 14½ cents per revenue car-mile became effective on Jan. 1 and continued during the whole year, instead of 13½ cents, the allowance in effect from May 1, 1916, to the end of that year. On Dec. 15 the rate of fare was changed from rate "*e*" (3 cents cash fare, plus 1 cent for a transfer) to rate "*d*" (4 cents cash fare, three tickets for 10 cents, 1 cent transfer and 1 cent rebate), and, on Dec. 26, to rate "*c*" (4 cents cash fare, three tickets for 10 cents, 1 cent transfer, no rebate).

The company was aided in keeping down the fare in 1916 by an increase of something like 12 per cent in business, with an increase of only 5 per cent in car mileage. During 1917, however, the receipts from April on began to fall. The increase for the first ten months was less than 7 per cent and for November only 4 per cent over 1916. At the same time taxes increased 10.9 per cent, and the expenses of maintenance and operation rose 13.44 per cent in the first ten months.

During 1917 the operating revenues increased $654,570 or 6.87 per cent, the gain in passenger revenue being 7.04 per cent. Revenue from other operations rose $13,496 or 14.44 per cent, and non-operating income $4,638 or 6.12 per cent. On the other hand, the total maintenance and operating expenses increased $901,905 or 13.54 per cent. The largest items of increase were in the following accounts: Wages of trainmen, $241,777; injuries and damages, $169,350; fuel for power, $93,303, and power purchased, $185,250.

The accident department estimates that more than $600,000 will be required to settle claims unadjusted at the close of the year arising from accidents that happened between March 1, 1910, and Jan. 1, 1918. There is no balance in the operating expense reserve, or in any other reserve, to meet these liabilities.

The car-mile earnings and expenses of the company for the last two calendar years are given in the accompanying statement. The total revenue car-miles increased from 35,673,567 to 37,648,670, and the ordinance car-miles (with trailers at 60 per cent) from 33,871,076 to 35,822,584. The total rides increased from 375,382,748 to 398,378,894. The percentage increases during 1917 in these and other items are shown below:

	Per Cent Increase in 1917 Over 1916
Passenger revenue (exclusive of transfers)	7.69
Passenger revenue (including transfers)	7.04
Gross income	6.87
Maintenance allowance	5.77
Maintenance expenses	7.71
Operating allowance	15.62
Operating expenses	15.88
Taxes	10.99
Interest	.84
Operating expenses, taxes and interest	11.51
Total expenses, taxes and interest	10.73
Fares	6.86
Transfers	3.50
Rides	6.13
Ordinance car-miles	5.76
Actual car-miles	5.54
Allowances, taxes and interest	10 23
Expenses, obsolete equipment, taxes and interest	11.76

On Dec. 31, 1917, the interest fund was $273,963 less than the amount originally provided under the terms of the Tayler ordinance. The earnings in excess of allowances, taxes and interest totaled $463,173 for 1910, 1912, 1915 and 1916, but the losses in 1911, 1913, 1914 and 1917 showed the preponderating total of $737,136, leaving the net decrease noted above. The balance in the fund on Jan. 1, 1917, was $545,438, and at the end of the year $226,036. The maintenance reserve on Dec. 31, 1917, showed a deficit of $298,624 as compared to $268,918 the year before, and the operating reserve a deficit of $216,281 as compared to $195,075. Besides these deficits, aggregating $514,905, there were various suspense accounts bringing the total reserve and suspense accounts on Dec. 31 to $2,338,589.

The expenditures on betterment or construction accounts in 1917 amounted to $1,219,715, the largest items being for the new track extensions, a new transformer station and its equipment, new motor-cars and trailers, and land. In line with the general policy of the nation, expenditures for track extensions and other new property will probably be held down as closely as possible in the current year.

COMPARATIVE INCOME STATEMENT OF CLEVELAND RAILWAY FOR CALENDAR YEARS 1916 AND 1917

I—Based on Ordinance Allowances

	1917 Amount	1917 Cents Per Car-Mile	1916 Amount	1916 Cents Per Car-Mile
Operating revenues:				
Revenue from transportation	$10,069,164	.....	$9,428,091	.....
Revenue from other operations	106,961	.....	93,464	.....
Total operating revenues	$10,176,125	28.41	$9,521,555	28 11
Expense allowances:				
Maintenance	$1,770,074	4.94	$1,673,548	4.94
Operating	5,194,275	14.50	4,492,732	13.27
Total expense allowances	$6,964,349	19.44	$6,166,280	18.21
Net operating revenue	$3,211,776	8.97	$3,355,275	9.90
Non-operating income	80,388	0.22	75,750	0.22
Gross income	$3,292,165	9.19	$3,431,025	10.12
Taxes	643,107	1.80	579,423	1.71
Net income	$2,649,057	7.39	$2,851,602	8.41
Interest	1,928,856	5.38	1,912,815	5.65
Surplus	$720,200	2.01	$938,787	2.76
Special allowances	1,039,602	2.90	936,000	2.76
Net surplus	*$319,401	0.89	$2,787	0.00

II—Based on Actual Expenses

Operating revenues	$10,176,125	28.41	$9,521,555	28.11
Actual expenses:				
Maintenance of way and structures	$1,089,883	3.04	1,062,379	3.14
Maintenance of equipment except power plant	946,604	2.64	808,060	2.38
Maintenance of power plant	32,211	0.09	49,254	0.15
Total maintenance	$2,068,698	5.77	$1,919,693	5.67
Power	$1,094,942	3.06	$811,594	2.40
Conducting transportation	3,120,295	8.71	2,824,852	8.34
Traffic	500	0.00	500	0.00
General and miscellaneous	1,277,902	3.57	1,103,793	3.26
Total operating	$5,493,639	15.34	$4,740,739	14.00
Total expenses	$7,562,338	21.11	$6,560,433	19.67
Net operating revenue	$2,613,787	7.30	$2,861,122	8.44
Non-operating income	80,389	0.22	75,751	0.22
Gross income	$2,694,176	7.52	$2,936,873	8.66
Taxes	643,109	1.79	579,423	1.71
Net income	$2,051,068	5.73	$2,357,450	6.95
Interest	1,928,856	5.38	1,912,815	5.65
Surplus	$122,212	0.34	$444,635	1.30
Obsolete property	524,000	1.46	384,000	1.13
Net surplus	*$401,788	1.12	$60,635	0.17

*Deficit.

I. R. T. Financing Discussed

W. P. G. Harding, governor of the Federal Reserve Board and managing director of the War Finance Corporation, on Aug. 2 called on Mayor Hylan and Comptroller Craig with reference to the proposed Interborough Rapid Transit Company financing and reported that he had obtained from them full information regarding the relations between the city and Interborough Rapid Transit Company and the Brooklyn Rapid Transit Company. He said:

"I took advantage of this trip to New York to ascertain from the municipal authorities the terms on which the companies operate the lines owned by the

city, and Mayor Hylan gave me all the information I required. The Interborough company had an application before the War Finance Corporation for a direct loan, but this was subsequently withdrawn. I have received intimation that a fresh application is about to be made and I secured first-hand information regarding the company's financing problems."

The Public Service Commission has granted the application of the Interborough Rapid Transit Company to issue $39,416,000 of 7 per cent notes at not less than 95½ of their face value convertible into 5 per cent bonds at 87½.

W. S. S. Campaign at Wheeling

To assist Wheeling "over the top" in the recent national campaign for the sale of War Saving Stamps, the employees of the Wheeling Traction Company formed an organization known as the Wheeling Traction System War Savings Society. The organization dedicated the first of the fifty-two new cars being delivered to the Wheeling Traction Company by using it as a meeting hall at the time of the formation of the society and as a means of transport for the campaign workers. Their first meeting was addressed by the Highlander Sandy MacGregor of Tank Britannica fame. The employees of every department of the company belong to the organization. The society secured subscriptions for $9,010, or about $22 per man employed. This sum was secured notwithstanding the fact that many of the employees are members of other war saving clubs. To stimulate interest and show the progress of the campaign a great clock diagram was painted on the bulletin board on the front of the Highland carhouse of the company. As this carhouse faces the National Pike over which army trucks are passing at the present time at the rate of 500 per week, the board attracted considerable attention.

Financial News Notes

$5,000,000 Mortgage Recorded.—The Sacramento Northern Railroad, the successor to the Northern Electric Railroad, Chico, Cal., has filed for record a $5,000,000 mortgage in favor of the Mercantile Trust Company, San Francisco, Cal. This is in accordance with the plan for the reorganization of the Northern Electric Railroad following foreclosure and sale recently. The reorganization plan was reviewed in the ELECTRIC RAILWAY JOURNAL for June 15, page 1161.

Municipal Line Sold for Junk.—At a special meeting of the Council of Yazoo City, Miss., on July 16 the Municipal Railway, abandoned about three months ago on account of the expense of operation exceeding the income, was sold to the highest bidder, Ben Goldstein, Yazoo City, for $20,000. Mr. Goldstein gets the entire equipment, except the engines and generating outfit at the power house, which will be sold as a separate outfit. The purchaser has a year in which to dismantle the property.

$1,000,000 Bond Issue Authorized.—Chairman Hill of the Public Service Commission for the Second District of New York has heard the application of the Syracuse & Suburban Railroad, Syracuse, N. Y., for permission to make a first refunding mortgage on all the company's property for $1,000,000, and for authority to issue $750,000 of fifty-year 5 per cent bonds. The proceeds of the bonds are to be used in purchasing outstanding bonds and for reimbursing the company's treasury for capital expenditures made and under contemplation.

Winnipeg Net Income Drops.—The net income (excluding depreciation) of the Winnipeg (Man.) Electric Railway for the year ended Dec. 31, 1917, at $353,629 showed a decrease of $151,621 as compared to 1916, although the gross earnings at $3,339,009 represented a gain of $27,840. In commenting upon this showing the company says that so long as materials continue to rise in price, demands for higher wages have to be met and the jitney question remains unsettled, no substantial improvement in net income can be expected. The company provided $201,050 for depreciation and $60,000 for a sinking fund appropriation in 1917, and the surplus carried forward amounted to $1,218,106.

Lincoln Traction Removes Track.—Some years ago two electric railways operated at Lincoln, Neb.—the Lincoln Traction Company and the Citizens' Railway. Both companies operated a line between Lincoln and College View, one line being 6¼ miles long on direct private right-of-way with a running time of twenty-four minutes, while the other was 7 miles long with a running time of forty minutes. Since the Lincoln Traction Company took over the Citizens' Railway the operation of the two lines has been continued, but on July 13 the Public Service Commission gave permission for the removal of 1 mile of track between Normal and College View. In order to avoid any delay laborers were put to work on Sunday morning, July 14, and the offending track was removed forthwith.

Enforced Service Unsatisfactory.—On Aug. 2 J. S. Lewis, president of the Southern Traction Company, Bowling Green, Ky., was arrested for maintaining a nuisance in the form of a street railway. The warrant followed complaints registered by citizens relative to the operation of the cars and to the condition of the plant of the company. Some months ago the officers and stockholders of the company endeavored to dispose of the property as junk to a St. Louis Company, which announced its intention of dismantling the road. A temporary injunction prevented this. Later a permanent order was entered prohibiting the company from dismantling the plant and selling the equipment. Under the terms of the franchise the city held that the company would have to give service. The enforced service proved unsatisfactory.

Supplementary Receivership Bills.—Ephrim Caplin, attorney for John W. Seaman, New York, in receivership proceedings against the United Railways, St. Louis, Mo., on July 27, filed in the United States District Court a petition supplementary to the two bills previously filed in the proceedings, and naming six local members of the board of directors as defendants. As in the preceding petitions, the supplementary bill asks that the directors be ousted. Those named additionally are A. C. Brown, Murray Carleton, A. J. Siegel, A. L. Shapleigh, F. O. Watts and D. R. Francis, Jr. These six names were left off the other petitions because of there being no judge in the city who could give this permission. The new petition also includes a request that a special master be appointed to call a special meeting of the stockholders for the election of new directors. The petition would debar from the election the directors just mentioned because of their alleged complicity in deeds affecting the company adversely.

Electric Railway Monthly Earnings

NORTHERN OHIO TRACTION & LIGHT COMPANY, AKRON, OHIO

Period	Operating Revenue	Operating Expenses	Operating Income	Fixed Charges	Net Income
12 m, June, '18	$6,750,454	$4,339,549	$2,410,905	$1,047,182	$1,363,723
12 m., June, '17	5,864,694	3,389,006	2,475,688	953,141	1,522,547

TWIN CITY RAPID TRANSIT COMPANY, MINNEAPOLIS, MINN.

1 m., June, 18'	$808,431	$542,769	$265,662	$155,612	$110,050
1 m., June, '17	853,195	542,238	310,957	145,598	165,359
6 m., June, '18	4,847,573	3,515,491	1,332,082	938,080	394,002
6 m., June, '17	5,175,944	3,408,072	1,767,872	876,011	891,861

* Includes Tanks. † Deficit.

PADUCAH TRACTION & LIGHT COMPANY, PADUCAH, KY.

Period	Operating Revenue	Operating Expenses	Operating Income	Fixed Charges	Net Income
1m., May, '18	$24,218	*$17,106	$7,112	$8,073	†$961
1m., May, '17	23,265	*18,202	5,063	7,472	†2,409
12m., May, '18	305,014	*226,940	78,074	93,976	†15,902
12m., May, '17	310,441	*231,374	79,067	86,779	†7,712

PENSACOLA (FLA.) ELECTRIC COMPANY

1m., May, '18	$38,606	*$25,996	$12,610	$8,131	$4,478
1m., May, '17	25,313	*15,644	9,669	7,801	1,869
12m., May, '18	404,933	*249,282	155,650	94,973	60,677
12m., May, '17	291,587	*170,102	121,485	92,990	28,495

Traffic and Transportation

New York Inquiry Begun

City Commission Asks Surface Railways for Data to Permit Inquiry into Their General Condition

The Public Service Commission for the first District of New York, on Aug. 7, began an investigation into the general condition of all street surface railroad corporations operating cars within the city of New York.

Object of Investigation Stated

Chairman Hubbell presided, and Commissioners Travis H. Whitney, Charles S. Hervey, F. J. H. Kracke and Samuel H. Ordway were present. Chairman Hubbell opened the hearing. He stated that the object of the investigation was to ascertain actual conditions upon surface car lines, and to determine whether the service afforded is adequate and proper for the war period.

Commissioner Charles S. Hervey, upon whose motion the investigation was ordered, suggested the appointment of a conference committee on service, to report at the next hearing, consisting of one member each from the New York Railways, the Third Avenue Railway, the Brooklyn Rapid Transit surface lines, the Queens Borough surface lines and the Richmond Borough surface lines, together with a representative each from the transit bureau, the bureau of electrical equipment, the bureau of statistics and accounts, the transit division of the secretary's office and the law department of the commission, such conference committee to report as follows:

1. What lines largely used by the public are now applying inadequate service, and what additional service thereon is necessary to meet the public need?
2. What, if any, surface lines in the city can be discontinued during the period of the war, without serious inconvenience to the public?
3. Where service cannot be discontinued, what reduction in non-rush hour service can be made?
4. If any discontinuance of service or reduction in service is recommended, what will be the annual or monthly saving thereby, expressed in quantity of material or labor and in money:

(a) in the consumption of coal,
(b) in the release of labor to other lines,
(c) in the release of cars to other lines,
(d) in the general overhead of operation and in the maintenance of property in the streets,
(e) in the release of property which can be taken wholly out of service.

Statistical Data Requested

In reporting on any of these proposed discontinuances or reduction of service, the committee is to furnish full information as to the use of these lines, the number of passengers carried, the number of cars operated, the passenger revenue and operating costs, etc., for a full year preceding July 1, 1918.

With respect to statistical data required, the companies are requested to prepare for submission at the next session, for all property under their jurisdiction in public use, either owned or leased, full information for each year of the period beginning July 1, 1909, and ended June 30, 1918, including the following:

1. Revenues and expenses, including taxes.
2. Disbursements for interest, dividends or rentals.
3. Value of property in public use, owned or rented, as reported by the companies to the departments of taxation.
4. Amortization or depreciation reserves.

Commissioner Whitney advised the preparation of these additional data:

On the basis of adequate service, give the following costs by months, from Aug. 1, 1918, to Aug. 1, 1919:
1. Wages of platform employees.
2. Wages of employees necessary to maintain property in safe and efficient condition.
3. Cost of material necessary for such maintenance.
4. Other costs necessary for such operation and maintenance.

In each case the companies are asked to furnish such wages and costs on the following bases: (1) Wages and costs in 1915, (2) wages and costs as of Aug. 1, 1918, (3) wages and costs necessary to maintain the property and operate adequate service.

In basing the estimates on adequate service the companies are also to give by months the total car-miles to be operated and the estimated passengers.

The hearing was adjourned one week.

Jersey Company Renews Appeal

The Public Service Railway, Newark, N. J., on Aug. 6 made another application to the Board of Public Utility Commissioners for an increase in fare to 7 cents on all the company's lines, urging that because of the War Board's decision allowing an increase in wages to employees the increased fare is an absolute necessity. Counsel said that another reason for the application was that the company might accumulate a surplus to maintain its credits. The War Board's order compelling an increase in wages, he said, would cause an expenditure in that direction by the company between now and Dec. 31 next of $877,571.

Vice-President Slocum, of the utility board, said that the application would throw the doors wide open again on the matter. The board will fix a date for a hearing.

The original application of the company to the commission was for an increase in fare from 5 cents to 7 cents and to charge 2 cents on an original transfer and another cent on a transfer on a transfer. On July 12 the board issued an order allowing the company to charge 1 cent for each original transfer on each fare starting Aug. 1.

Five Cents for Cleveland

Company Will Also Charge for Transfers—Tayler Grant Provisions Revised for War Period

..Cleveland now has a straight 5-cent fare, with a 1-cent charge for transfers without rebate. The ordinance increasing the rate of fare from 4 cents, or seven tickets for a quarter, with 1 cent for a transfer, was passed at a special session of the City Council on Aug. 3. The session was called by Mayor Harry L. Davis immediately after the receipt of information that the conductors and motormen had been granted a substantial advance in wages by the Federal War Labor Board.

Five Fare Schedules Fixed

The new ordinance fixes five fare schedules. Unlike the Tayler plan, the first is the highest. For the present, however, it was considered sufficient to put the second one into force. The first calls for a maximum cash fare of 6 cents, 1 cent for a transfer and no rebate. As a matter of fact all five schedules provide for this transfer charge without rebate. The schedules are as follows:

1. Six cents cash fare, nine tickets for 50 cents.
2. Five cents cash fare, five tickets for a quarter.
3. Five cents cash fare, eleven tickets for 50 cents
4. Five cents cash fare, six tickets for a quarter.
5. Four cents cash fare, five tickets for 20 cents.

This ordinance also provides for an increase from 16 cents per car-mile to 19½ cents per car-mile in the operating allowance. The increase will date from May 1, the date when the advance in wages takes effect. The City Council urged that all back pay due the men under the increase be paid up by Aug. 15, but the company doubts its ability to complete the payment of the accumulated wages before Oct. 1 without borrowing money for that purpose.

The ordinance dates from Aug. 4 and will be in effect until six months after the close of the war, when the schedules of the Tayler ordinance again become operative.

The finding of the Federal War Labor Board, in the case of the men in Cleveland was referred to in the Electric Railway Journal for Aug. 3, page 207.

Wage Award Will Cost $1,500,000

It is estimated that the award will result in an increase of between $1,250,000 and $1,500,000 a year in wages. As the old wage scale meant the payment of about $2,500,000 a year, wage requirements will be increased to almost $4,000,000.

Local fares in Lakewood and Cleveland Heights will remain as they are, but no transfers will be issued. Fares for those places for passengers going in or out of the city will be 5 cents, the same as within the city limits of Cleveland.

Many Railways Increase Fares

Statistics Published by the American Electric Railway Association Give Data Since the Last Report

The statistical department of the American Electric Railway Association has compiled a list of electric railway companies whose fares have recently been increased. It is supplementary to the list issued by the association during the first part of the year and mentioned on page 541 of the issue of this paper for March 16. Roughly, the period covered is from February to the middle of July. The list follows:

CITY RAILWAYS

Arkansas

Hot Springs (Hot Springs Street Railway)—All reduced fares eliminated. Flat 5-cent fare in effect.

California

San Francisco district (San Francisco-Oakland Terminal Railways)—Trans-bay fare increased to 10 cents and 11 cents and commutation rate raised on parity with steam road rates. Permitted by Railroad Commission.

Delaware

Wilmington (Wilmington & Philadelphia Traction Company)—Former fare 5 cents, present fare 7 cents. Permitted by Public Utility Commissioner.

Iowa

Des Moines (Des Moines City Railway)—Reduced rates eliminated. Flat 5-cent fare in effect. Permitted by City Council.

Illinois

Bloomington, Cairo, Champaign, Danville, Decatur and other cities in Illinois, (Illinois Traction System)—Reduced fares eliminated. Flat 5-cent fare in effect.

Elgin (Aurora, Elgin & Chicago Railroad)—Former fare 5 cents, present fare 6 cents.

Jacksonville (Illinois Traction System)—Former fare 5 cents, present fare 6 cents.

All permitted by Public Utilities Commission.

Indiana

Evansville (Public Utilities Company)—Reduced fares eliminated. Flat 5-cent fare in effect.

Jeffersonville and New Albany (Louisville & Southern Indiana Traction Company)—Reduced fares eliminated. Flat 5-cent fare in effect.

All permitted by Public Service Commission.

Kansas

Kansas City (Kansas City Railways)—Former fare 5 cents; present fare 6 cents. Permitted by Public Service Commission.

Kentucky

Paducah (Paducah Traction Company)—Former fare 5 cents, present fare 6 cents. Permitted by City Commission.

Massachusetts

Amherst, Greenfield and Northampton (Connecticut Valley Street Railway)—Reduced fares eliminated. Flat 5-cent fare in effect.

Boston, Suburbs (Middlesex & Boston Street Railway)—Former fare, 7 cents with 6-cent tickets, present fare 7 and 8 cents, with charge of 1 cent for transfer between 7 and 8-cent lines. Six-cent tickets abolished.

Holyoke (Holyoke Street Railway)—Fares increased through adoption of zone system.

Springfield (Springfield Street Railway)—Fares increased by adoption of zone system.

All permitted by Public Service Commission.

Michigan

Battle Creek and Jackson (Michigan United Railways)—Former fare, 5 cents; present fare, 6 cents. Permitted by City Commissioners.

Manistee (Manistee City Railway)—Former fare 5 cents, present fare 10 cents, three tickets for 25 cents, seven tickets for 50 cents. Permitted by City Council.

Missouri

Kansas City (Kansas City Railways)—Former fare 5 cents, present fare 6 cents.

St. Joseph (St. Joseph Railway, Light, Heat & Power Company)—Sale of tickets at six for 25 cents eliminated.

St. Louis (United Railways of St. Louis)—Former fare 5 cents, present fare 6 cents.

All permitted by Public Service Commission.

New Hampshire

Claremont (Claremont Railway & Lighting Company)—Reduced rates eliminated. Flat 6-cent fare in effect.

Keene (Keene Electric Railway)—Former fare 6 cents, present fare 7 cents.

Manchester (Manchester Street Railway)—Former unit fare, 5 cents; present fare, 6 cents.

All permitted by Public Service Commission.

New Jersey

Atlantic City (Atlantic City & Shore Railroad)—Unit zone fares increased 1 cent, except that fare between Atlantic City and Pleasantville was increased 2 cents.

Newark and all other cities in New Jersey served by the company (Public Service Railway)—One-cent charge for transfer added to unit fare.

Ocean City (Ocean City Electric Railroad)—Former fare, 5 cents; present fare, 7 cents.

All permitted by Public Utilities Commission.

New Mexico

Albuquerque (City Electric Company)—Former fare, 5 cents; present fare, 6 cents. Permitted by City Commissioners.

New York

Geneva (Geneva, Seneca Falls & Auburn Railroad)—Former fare, 5 cents; present fare, 6 cents. Permitted by Public Service Commission.

Ogdensburgh (Ogdensburgh Street Railway)—Former fare, 5 cents; present fare, 7 cents. Permitted by Public Service Commission.

Ossining (Hudson River & Eastern Traction Company)—Former fare, 5 cents; present fare, 6 cents. Permitted by Village Trustees.

Peekskill (Peekskill Lighting & Railroad Company)—Former fare, 5 cents; present fare, 6 cents. Permitted by Village Trustees.

Poughkeepsie (Poughkeepsie City & Wappingers Falls Electric Railway)—Former fare, 5 cents; present fare, 6 cents. Permitted by Public Service Commission.

Waverly (Waverly, Sayre & Athens Traction Company)—Former fare, 5 cents; present fare, 6 cents. Permitted by Village Trustees.

White Plains (Westchester Street Railroad)—Former fare, 5 cents; present fare, 6 cents. Permitted by Common Council.

North Carolina

Asheville (Asheville Power & Light Company)—Reduced rates eliminated; flat 5-cent fare in effect.

Greensboro (North Carolina Public Service Company)—All reduced fares eliminated; flat 5-cent fare in effect.

Wilmington (Tidewater Power Company)—Former fare, 5 cents; present fare, 7 cents; fare to Wrightsville Beach increased from 35 to 40 cents. Permitted by State Corporation Commission.

Ohio

Cleveland (Cleveland Railway)—Fare increased to highest scale provided in franchise; 4-cent cash fare, 1 cent for transfer, no rebate; seven tickets for 25 cents.

Toledo (Toledo Railways & Light Company)—Former fare, 5 cents; present fare, 5 cents with 1 cent charge for transfer. Permitted by United States District Court. City restrained from interfering.

Oklahoma

Chickasha (Chickasha Street Railway)—Former fare, 5 cents; present fare, 6 cents. Permitted by State Corporation Commission.

Pennsylvania

Chester (Chester Traction Company)—Former fare, 5 cents; present fare, 6 cents.

Lebanon suburban lines (Reading Transit & Light Company)—Former fare, 6 cents; present fare, 8 cents.

Mauch Chunk (Carbon Transit Company)—Former fare, 5 cents; present fare, 7 cents. Permitted by City Council for period of war and eighteen months thereafter.

Mount Carmel (Shamokin & Mount Carmel Transit Company)—Unit zone fares increased from 5 to 6 cents.

Norristown suburban lines (Reading Transit & Light Company)—Former fare, 6 cents; present fare, 8 cents.

Pittsburgh (Pittsburgh Railways)—Former fare, 6 cents and 5½ cents; present fare, 5 cents in central zone and 7 cents to points outside.

Suburban Pittsburgh (West Penn Railways)—Former fare, 5 cents; present fare, 6 cents.

Reading, suburban lines (Reading Transit & Light Company)—Former fare, 6 cents; present fare, 8 cents.

Rhode Island

Providence and other cities (Rhode Island Company)—Fares increased by introduction of zone system. Permitted by Public Utilities Commission.

South Dakota

Sioux Falls (Sioux Falls Traction Company)—Former fare, 5 cents; present fare, 6 cents. Permitted by referendum of voters.

Utah

Salt Lake City (Utah Light & Traction Company)—All reduced rates abolished; flat 5-cent fare in effect; suburban zones readjusted. Permitted by Public Utility Commission, contested by city and upheld by Supreme Court.

Virginia

Charlottesville (Charlottesville & Albermarle Railway)—Sale of six tickets for 25 cents eliminated; school and workmen's tickets raised from 2½ cents to 3 cents. Permitted by State Corporation Commission.

Lynchburg (Lynchburg Traction & Light Company)—Reduced rates eliminated; flat 5-cent fare in effect. Permitted by State Corporation Commission.

Roanoke (Roanoke Railway & Electric Company)—Reduced rates eliminated; flat 5-cent fare now in effect. Permitted by State Corporation Commission.

Washington

Tacoma (Tacoma Railway & Power Company)—Former fare, 5 cents; present fare, 7 cents, fifteen tickets for $1. Transfers between company's lines and municipal lines provided for. Permitted by City Council.

Tacoma (Municipal lines)—Former fare, 5 cents; present fare, 10 cents; commutation rates, 7½ cents.

Wisconsin

Fond du Lac (Eastern Wisconsin Electric Company)—Sale of six tickets for 25 cents eliminated.

Milwaukee (Milwaukee Electric Railway & Light Company)—Reduced rates abolished in central zone; flat 5-cent fare in effect.

Sheboygan (Western Wisconsin Electric Company)—All fares less than 5 cents eliminated.

All permitted by State Railroad Commission.

Canada

Edmonton (Radial Railway, municipally operated)—Former fare, cash, 5 cents; workmen's tickets, good until 8 a. m., eight for 25 cents; present fare, 7 cents to 11 p. m., after which 10 cents; tickets sold on cars, six for 25 cents; tickets sold at stations, five for 25 cents; two tickets for night fares.

Fort William (Municipal Railway)—Flat 5-cent fare for adults, except after 12 o'clock midnight, when fare is 10 cents; children's tickets, eight for 25 cents; children's cash fare, 5 cents.

Montreal Tramways—Fare increased in uniform tariff or city territory in accordance with following schedule: 12 o'clock midnight until 5 a. m., 15 cents cash; 5 a. m. to 8 a. m., 6 cents cash or five tickets for 25 cents, and on week days no charge for transfer; 8 a. m. to midnight, 6 cents cash, five tickets for 25 cents, 1 cent for transfer; for school children between five and sixteen years old, week days only between 8 a. m. and 6 p. m., 7 tickets for 25 cents, transfers free.

Quebec Railway, Light & Power Company—Former fare, cash, 5 cents, six tickets for 25 cents; male workmen's tickets, good between 6 and 8 a. m. and 5 and 7 p. m., eight for 25 cents; children under seven, accompanied by elders, free; present fare, cash, 5 cents, twenty-one tickets for $1; male workmen's tickets, seven for 25 cents; children under seven, accompanied by elders, 3 cents or 10 tickets for 25 cents.

Vancouver (British Columbia Electric Railway)—Former fare, 5 cents; present fare, 6 cents. Permitted by City Council.

INTERURBAN RAILWAYS

California

Central California Traction Company—Rates increased by 10 per cent to put them on parity with steam railroad rates.

Colorado

Denver & South Platte Railway—Fares, Eaglewood to Littleton increased from 5 to 10 cents; from Denver to Littleton increased from 5 to 11 cents. Permitted by Public Utilities Commission.

Connecticut

Hartford & Springfield Street Railway—Former unit zone fare, 6 cents; present

unit zone fare, 7 cents, 15 tickets for $1.

Georgia

Augusta-Aiken Railway & Electric Corporation—Rate between Augusta and Aiken increased from 25 to 40 cents. By Circuit Court, which overruled decision of State Railroad Commission refusing increase.

Illinois

Chicago & West Towns Railway—Fares generally increased. Permitted by Public Utility Commission.

Indiana

Rates of all interurban companies increased to 2½ cents per mile. Permitted by Public Service Commission.

Union Traction Company—Fare between Sistersville and New Martinsville increased from 20 to 25 cents. Permitted by Public Service Commission.

Kansas

Kansas City—Western Railway—Fares increased by substitution of mileage system for zone system. Rates 2 cents per mile. Permitted by State Public Utility Commission.

Kentucky

Kentucky Traction & Terminal Company—Fares on interurban lines, excepting through rates from Lexington, increased from 2½ to 3 cents a mile. On Lexington business unit fares in 2-mile zones increased from 5 to 6 cents.

Massachusetts

New Bedford & Onset Street Railway—Former unit zone fare, 6 cents; present unit zone fare, 7 cents.

Northern Massachusetts Street Railway—Length of zones reduced.

Worcester & Warren Street Railway—Former unit fare, 7 cents; present unit fare, 10 cents. All of these permitted by Public Service Commission.

Michigan

Houghton County Traction Company—Rates between Houghton and Calumet increased from 25 to 30 cents. Permitted by State Railroad Commission.

New Hampshire

Manchester Street Railway—Former unit zone fare, 5 cents and 6 cents; present unit zone fare, 7 cents and 8 cents. Permitted by Public Service Commission.

New Jersey

New Jersey & Pennsylvania Traction Company—Former unit zone fare, 5 cents; present unit zone fare, 6 cents. Permitted by Public Utilities Commission.

Ohio

Cleveland, Chagrin Falls & Cincinnati Railway—Mileage rate increased from 2 to 2½ cents. Permitted by Commission.

Cleveland & Eastern Traction Company—Fares between Cleveland and South Euclid raised from 5 to 10 cents. Cuyahoga county attempted to enjoin company from putting increase into effect. Supreme Court refused injunction.

Dayton, Covington & Piqua Traction Company—Rates increased from 2 to 2½ cents a mile. Permitted by Commission.

Ohio Electric Railway—Fares increased to 2½ cents per mile with exception of few short runs.

Pennsylvania

Allentown & Reading Traction Company—Former unit zone fare, 5 cents; present unit fare, 6 cents.

Lackawanna & Wyoming Valley Railroad—Former fare, 2 cents per mile; present fare, 2½ cents per mile.

Lehigh Valley Transit Company—Length of zones reduced. Reduced round-trip tickets eliminated. Commutation rates standardized at 4 cents per 2½-mile zone.

Scranton & Binghamton Traction Company—Former unit zone fare, 5 cents; present unit zone fare, 6 cents.

Texas

Texas Electric Railway—Fares over 35 cents increased 8 per cent.

Washington

Puget Sound Electric Railway, Seattle Division—Fare between Seattle and Tacoma and Seattle and Puyallup increased from $1.35 to $1.50. Permitted by Public Service Commission.

Washington Water Power Company—Flat 3-cent per mile rate in effect.

West Virginia

Monongahela Valley Traction Company—Former unit zone fare, 5 cents; present unit zone fare, 6 cents.

Newell Bridge & Railway Company—Former fare (on Newell-East Liverpool lines), 5 cents; present fare, 10 cents.

West Virginia Traction & Electric Company—Former unit zone fare, 5 cents; present unit zone fare, 6 cents. Permitted by Public Service Commission.

Canada

London & Port Stanley Railway—Fare increased 15 per cent. Permitted by Board of Railroad Commissioners of Canada.

Buffalo Votes on August 20

Electors Will Pass Upon the Matter of a Higher Fare for the International Railway

Voters of Buffalo, N. Y., are waiting for the opportunity on Aug. 20 to express their preferences on whether or not to repeal the action taken by the City Council waiving certain franchise restrictions and allowing the Public Service Commission for the Second District to fix a higher rate of fare to be charged by the International Railway within the city. Women qualified to vote at the general election in November under the new state law registered with the Bureau of Elections on Aug. 9 and 10 and will be allowed to express their preference at the special election. This will be the first time women have voted in the city and will be the first time a referendum election has been held under the commission charter, adopted three years ago.

Wages Depend on Election

Upon the result of the election depends the wage recently granted its employees by the railway, also the additional wage increase granted by the War Labor Board. One sentence in the decision rendered by the War Labor Board says that should the City Council revoke its action granting the company permission to apply to the Public Service Commission for a higher rate of fare, the wage increase shall be automatically terminated. Thus the situation will revert back to the original condition and may result in a general strike of all employees.

Mayor George S. Buck and three of the city commissioners are urging voters to ratify the action of the City Council. These city officials were originally opposed to higher street fares, but after Day & Zimmerman, accountants, made an investigation of the financial condition of the company they voted to suspend certain franchise restrictions between the city and the company and recommended to the Public Service Commission that a higher rate of fare be charged. It is generally believed that a 6-cent fare will not be sufficient to pay the wage increase allowed platform employees by the War Labor Board and make improvements which are declared to be absolutely essential to the upkeep of the company's city properties. It is believed by municipal authorities and officials of the International Railway that either a 7-cent or 8-cent fare is necessary or else a 6-cent fare and additional charges for transfers.

Company Planning Campaign

Ivy Lee, of Lee, Harris & Lee, New York, will handle the details of the campaign to be waged by the railway for ratification of the Council's action. Many of the large labor organizations of the city have pledged their support to the company in its effort to secure higher fares. The Mayor has promised to speak before many business and commercial organizations on the company's need for higher fares. The Mayor was elected on a platform of railway reform, revocation of franchises, etc., but he has apparently realized the serious situation now confronting the railway.

A statement filed with the City Council by the city's expert accountants who have been investigating the financial condition of the International Railway shows that a 6-cent fare would increase the company's gross income from transportation $1,114,474 a year. Increased wages would take from this sum $467,500 a year, leaving the company $646,974 with which to make improvements. Experts say this sum would be too small to make many of the improvements which are essential.

The special referendum election will cost the taxpayers of Buffalo $30,000. Of this sum $25,000 will have to be paid to clerks and inspectors of election. Election inspectors get $10 a day and there are 191 election districts in the city. On election day the polls will be open from 6 o'clock in the morning until 8 o'clock in the evening. Paper ballots will be used in taking the vote. The question will be: Shall the action of the City Council * * * be repealed? By voting "yes," the voter is opposing a higher fare, and by voting "no," the voter favors a higher fare.

Recent Dividend Action Questioned

A formal complaint against officials of the International Railway has been filed with the District Attorney of Erie County by an organization of businessmen opposed to the higher fare. It is alleged in the complaint that officials of the company acted improperly in declaring a dividend of one-half of 1 per cent last March when there was a deficit of $1,317,829 and that the company filed false financial statements with the Public Service Commission.

In a public statement, President Connette denied any crime had been committed by declaring this dividend. In reference to the charge that the company filed false statements with the Public Service Commission, the District Attorney says this matter will be investigated by the officials of Albany County in which the capital is located.

Fare Plea Reproduced

The New York *Evening Sun* of Aug. 2, gave 16½ in. of space to the plea for fair play addressed to the editors of New York State papers by J. K. Choate, chairman of the special committee on ways and means to obtain additional revenue of the electric railways of New York State.

Financial America and the New York *Commercial* are also among the papers that have reproduced the plea.

The statement by Mr. Choate was reviewed briefly in the Electric Railway Journal for Aug. 3, page 214.

New Interurban Freight Rates in Indiana

Indiana Commission Rejects Plea for Same Schedule as Steam Roads —Allows Special New Scale

New freight rates for the interurban lines in Indiana were authorized on July 31 by the Public Service Commission of that State to be effective for two years. The petition of the electric roads for the same schedule of rates now in effect on the steam roads was denied by the commission, but a new scale was designed to attract light freight for short hauls to the interurbans and to divert heavy freight for long hauls to the steam lines. The same freight classification is maintained, but the new rate scale is as follows:

Details of Rates

First-class rate, 21½ cents for 100 lb. for 4 miles; first class rates for greater distances to be based on 1 cent for 100 lb. for each 4 miles; second-class rates to be 86 per cent of first-class rates; third-class rates to be 70 per cent of first-class rates; fourth-class rates to be 55 per cent of first-class rates; fifth-class rates to be 40 per cent of first-class rates; and sixth-class rates to be 30 per cent of first-class rates. Thirty-five cents is the minimum charge.

The new rate structure was built on the theory that interurban and steam carrier functions are different, in the terms of the order of the commission, which states that interurban freight transportation is more nearly akin to express service than the steam freight service.

It is held that the interurban terminal cost of handling package freight is much less than that of steam carriers, while the haulage cost is much greater; that a scale of rates adjusted to steam carrier conditions is not suited to interurban conditions; that a scale of reasonable class rates applicable to interurban transportation must necessarily be less for short distances and higher for long distances than steam carrier rates; relatively lower on the high classes and higher on the low classes than steam carrier rates; that uniformity in rates throughout the State is desirable; that if the commission granted the rates prayed for, automobile truck competition with the interurban lines would be stimulated to a degree that would result in a depletion of the interurban revenues from freight transportation.

Burdens of Companies Reviewed

The order of the commission referred to the burden placed on the interurbans by increasing costs of operation, and that the increase in coal rates made by the federal government has borne very heavily upon them, not only in the ratio of increase which affected all utilities, but in the loss of the preferential basis previously accorded the interurban lines in the way of "fuel rates" accorded the steam lines on whose line the coal does not originate.

The commission held that no parallel can be drawn between the interurban and steam-line freight rates, declaring that "an interurban can handle package freight for a distance of 5 miles at a great deal less cost than a steam road; while the steam road cost for a 100-mile haul is less than that of the interurban. Steam rail rates are no criterion for interurban rates, save from the viewpoint of competition. Considered from an operating cost basis, the interurban rates should be lower than steam carrier rates on high-class freights, and higher on low-class freight; lower in short hauls and higher on long hauls."

Taking up the adjustment of the relation between the steam carrier freight rates and those of the electric lines, the commission was confronted by the problem of according to the public reasonable charges for both classes of transportation, and at the same time encouraging the offering of high-class freight to the interurban lines and of low-class freight to the steam carriers. The commission concluded that the way to do this was to authorize a small advance on high-class freight and a larger advance on low-class freight. The commission held that greatly to increase the interurban rates would divert the short-haul package freight business to auto-truck transportation systems. This would take away from the interurban electric railways their most profitable class of freight.

Illinois Traction System Rate Changes

Review of Decision of State Body Holding Electric Railway Subject to Same Conditions as Steam Lines

Stating, in brief, that the electric railway is subject to the same general operating conditions and expenses as the steam railways the Public Utilities Commission of Illinois has handed down two decisions of importance in that State in the case of the Illinois Traction System. These orders allow the Illinois Traction System and the Chicago, Ottawa & Peoria Railway, a subsidiary line, to increase class and commodity rates to a figure equal to that allowed steam carriers in the McAdoo General Order No. 28, and permit the companies to withdraw reduced round-trip and excursion passenger fares.

Both orders were issued on July 30, were effective as of Aug. 1, and are to continue during the war.

Application was made by the Illinois Traction System and the Chicago, Ottawa & Peoria Railway on June 12 and 20 for permission to increase class and commodity freight rates governing the movement of traffic between points in Illinois. No protest was made at subsequent hearings before the commission.

In approving the petition, the commission said in part:

"From the record it appears the petitioners are subject to the same general operating conditions and expenses as exist on steam lines of railroads and that the service performed by them compares favorably and is in competition with the said steam carriers, and that unless they were permitted to increase their freight charges to the same extent serious congestion and inadequate service would result.

"In the granting of said petition the commission authorizes rates equal to but not exceeding the rates now in effect via competing steam carriers between common points, together with the same relative increase between local points, to become effective. The commission reserves the right to enter any further order which it may deem proper and just in the premises."

The Illinois Traction System has petitioned the Interstate Commerce Commission for similar freight rate increases on interstate business.

In petitioning the Illinois Commission for increases in passenger tariffs the system asked permission to cancel all of the present commutation fares now on sale between points in Illinois, to increase the one-way local fares to the actual mileage carried, and to charge for round-trip tickets straight 2 cents per mile and to cancel the present Sunday excursion fares between Springfield and Peoria. Objection was entered by the commuters of Edwardsville, Ill., and the commission has not disposed of this part of the petition.

Under the old tariff a round-trip passenger was given a rate approximately 185 per cent of the local one-way rate. The company claimed that this practice had now been done away with by its competing carriers. It was further contended that prior to June 10, 1918, it met the competition of competing short-line fares based upon 2 cents per mile between points on its lines, and at the present time all of such competing carriers by virtue of General Order No. 28 issued by the Director General of Railroads have increased their rates to 3 cents per mile, placing them much in excess of its present rates. For some time prior to June 10, 1918, a rate of $1.25 per round trip, Springfield to Peoria, was maintained to meet the competition of steam lines. These rates having been canceled by the competing steam carriers the Illinois Traction System asked permission to make the same cancelation. No objection was filed relative to any of the proposed changes except the commutation fares involved.

The commission has also issued an order allowing the Chicago, Ottawa & Peoria Railway to cancel reduced round-trip fares on the same basis as that granted the Illinois Traction.

Indiana Commission Has Jurisdiction

State Supreme Court So Rules in Indianapolis Case After Lower Court Had Decided Other Way

On July 30 the Supreme Court of Indiana handed down a decision ruling in favor of the contention of the Indianapolis Traction & Terminal Company that the Public Service Commission, acting under Sec. 122 of the public utility commission act, has authority to hear the rate increase petition of the company purely on the ground that an unusual emergency exists (with reference to the war). The Supreme Court instructed the Marion County Circuit Court, from which the case was appealed last February, to overrule a demurrer which that court had upheld, and set out that a common writ of mandamus will issue against the Public Service Commission to compel it to take official jurisdiction of the company's appeal for a straight 5-cent fare.

History of Case

The Indianapolis Traction & Terminal Company on Nov. 19, 1917, filed with the commission a petition asking for authority to abolish the six-for-a-quarter and twenty-five-for-a-dollar tickets and charge a straight 5-cent fare, retaining all the present transfer privileges. The petition set out that because of the unprecedented increases in operating expenses due to the war conditions, an increase in fare was necessary to insure a continuance of good service and the solvency of the company. The commission declined to hear the case on the ground that it did not have jurisdiction, owing to the Indianapolis franchise being a special grant of the Legislature. This opinion was upheld by the Circuit Court of Marion County.

The opinion of the Supreme Court sets out that in this particular case the fixing of the rate of fare was not left to the municipality, as is sometimes done, but that the State granted the right to make the present system of fares to the utility as a condition for using a part of the highway system of the State, and the city was not a necessary party, only acting as the agent of the State in incorporating the existing rate schedule in the franchise under which the company operates.

Commission Qualified to Regulate Utilities

"The Public Service Commission is a legislative agency, assumed to be qualified by knowledge and experience to regulate public utilities of the State with reasonable fairness and substantial justice, not only to the public but to the utility as well," the court said in explaining the character of the body in which the Legislature has invested the rate-making power, which may, under Sec. 122 of the utility commission act, be applied even where contractual relations exist, to relieve a utility in an emergency such as that faced in the present war conditions.

The court states that the franchise rate would continue to hold, except for Sec. 122, which gives the commission broad powers in an emergency. The court adds that the utility law, and particularly that section, should be liberally construed with a view to the public welfare. Then, it argues, if a utility is in the midst of such an emergency as the present, the commission may take action toward relief as a temporary measure even if contractual obligations would block such relief as a permanent blessing to the utility.

It was agreed between representatives of the Indianapolis Traction & Terminal Company and the members of the Public Service Commission that it was not necessary to await the formal action of the Circuit Court mandating the commission to hear the case, and the commission has set Aug. 19 as the date when it will hear the petition of the company for the elimination of the reduced-rate tickets and establishment of a flat 5-cent fare in the city of Indianapolis.

The Indianapolis Traction & Terminal Company on Aug. 1 filed a petition with the Public Service Commission asking that it set aside its order that it had no jurisdiction in the matter of fares and enter into another hearing. This action followed the finding of the court that the commission did have jurisdiction in the case. A copy of the decision of the Supreme Court, quoted above, accompanied the petition.

Report Presented in Syracuse Fare Case

Expert Accountants Show Financial Condition of Company, but Make No Recommendations

The report of Price, Waterhouse & Company, New York, N. Y., agreed upon by the New York State Railways, Syracuse and Utica Lines, and the officials of those cities to make an investigation and report of the earnings of the railway properties there wa placed in the hands of the Public Servi Commission for the Second District July 31. The report was made in connection with the petition filed by the road for permission to increase fares in Syracuse and Utica from 5 cents to 6 cents. The report covers forty-four typewritten pages besides many schedules. It represents the result of a thorough examination of the books and accounts of the company for the years 1916 and 1917 and the four months ended April 30, 1918. The report gives the facts as summarized but makes no recommendations.

If the rate of wages prevailing from June 15, 1918, had been in force during the four months ended April 30 the net income from railroad operation would have shown on all lines a deficit of $194,000 and on the Syracuse Lines a deficit of $70,000.

An appraisal of the company's property which formed a part of the report was not made by the investigators and it was decided to adjourn the hearing until Aug. 7 at which time the makers of the appraisal will be sworn. It is also expected at that time that the Public Service Commission will ask for any additional information which it may desire.

On top of the presentation of the report of Price, Waterhouse & Company came the announcement of the War Labor Board with respect to wages on the New York State Railways. As a consequence Stewart S. Hancock, corporation counsel, who has handled the fare increase opposition for the city of Syracuse and B. E. Tilton, general manager of the local lines of Syracuse both issued statements to the press. Mr. Hancock doubts the efficacy of the 6-cent fare as a means of adding to the revenues of the company. He intimated, however, that the city will accept the 6-cent fare, but that it will oppose any further increase until the 6-cent method has been tried for a reasonable length of time.

Mr. Tilton is quoted as follows:

"The situation of the company is that it has discontinued the dividend on the common stock and discontinued the dividend on the preferred stock, is not earning interest on the bonds and with the increase in the payroll faces bankruptcy. Without prompt and immediate relief—the increased revenue from a fare of at least 7 cents—the company cannot remain solvent."

The Syracuse papers were quick to express candid opinions on the street railway situation. In concluding an editorial on the railway crisis in the issue of Aug. 3 the *Post Standard* said:

"There can be no continued delays. There can be no more lawsuits to decide where the regulatory powers rest. The city and the railways with the aid or through the medium of the Public Service Commission should agree upon rates just to the city and fair to the company. If two private enterprises bearing the same relationship were similarly in disagreement they would have come to a friendly understanding long ago."

On Aug. 2 the Syracuse *Journal* said:

"We are convinced that the fair-minded people of Syracuse will be accord with our declaration that only are the local street car lines en titled to earn more than operating costs but that too close a paring between net revenues and actual costs would be far more disturbing to the city generally than even the imposition of a 7-cent fare. It is in the interest of all of us that this question of street railway fares be settled at once."

Six Cents in Detroit

Detroit United Puts New Rates Into Effect Following Failure of Council to Grant Relief

The Detroit (Mich.) United Railway on the morning of Aug. 8 raised rates within the limits of the city on the so-called "5-cent" or non-franchise lines, from 5 cents to 6 cents; abolished the eight-for-25-cent workingmen's tickets and placed on sale ten tickets for 55 cents.

This action was taken by the company when the Common Council refused to afford the company relief in the way of increased revenue.

In a letter to Mayor Marx, the company through its president, Frank W. Brooks, had offered two fare proposals. This letter was in turn sent to the Council. Mr. Brooks pointed out that the award of the War Labor Board had materially increased the wages of motormen and conductors and that the high and steadily increasing costs of material, equipment, etc., made a revision of fares absolutely necessary. Mr. Brooks' proposals were:

1. That for the time being a 5-cent fare with a charge of 1 cent for a transfer be established on all lines of the city; this proposal suggesting that the franchise on the so-called "3-cent lines" be modified respecting the rate of fare by a day-to-day agreement. This would give a uniform rate of fare throughout the city.

2. That the following rates of fare be authorized: single cash fare, 6 cents; ten tickets for 55 cents, both with free transfer privileges; the rates of fare now in effect on the 3-cent lines to remain unchanged, except the 6 cents cash fare and the ten tickets for 55 cents will be accepted on these lines and be good for a transfer to the so-called 5-cent lines.

Mr. Brooks in his letter quoted the comment of the Labor War Board, which said in discussing the Detroit case:

"The fares allowed the Detroit United Lines are exceptionally low, being 3 cents a passenger on some lines, 4 cents on others and 5 cents on others. They should all be raised to meet the cost due to high prices of needed material and equipment, and the increased pay herein awarded."

Mayor Marx sent the company's proposals to the Common Council with a recommendation that there be an investigation by experts to be employed by the city to determine whether the company was entitled to a raise in fares.

The Council, however, ignored the Mayor's recommendations and gave no heed to the urgent appeal of the company. It adopted a resolution to the effect that the Aldermen were unalterably opposed to the raising of fares; that if any attempt was made by the company to alter fares on the 3-cent lines the Council would deem it a surrender by the company of all its franchise rights; and that if the company raised fares on the 5-cent lines where franchises have expired it must bear the odium itself.

When company officials, through the Council's action, learned definitely that the Aldermen were not inclined to give the company a fair show, they immediately announced an increase to 6 cents. Proposal No. 2 was put into effect Thursday morning. It was realized that with an election a few weeks off and the politicians again making the railway question an issue, there was no hope that the city authorities would deal justly with the company on the fare question.

The company secured 2,000,000 pennies so that conductors might be able to make change when the 6-cent rate went into effect.

Transportation News Notes

Santa Cruz Would Increase Fares.—The Union Traction Company, Santa Cruz, Cal., has applied to the Railroad Commission of California for permission to increase its fares.

Fare Increase Denial Appealed.—Application to the State Railway Commission of Nebraska for an increase in rates was denied the Lincoln Traction Company on June 18. The case has been appealed to the Supreme Court of Nebraska and will be heard on Sept. 18. The company is asking for permission to increase fares to allow a fair and reasonable return on the investment. At present tickets are being sold six for 25 cents.

Increases for North Carolina Companies.—To meet increased operating costs street railways of Raleigh, Charlotte, Durham and Winston-Salem have been authorized by the State Corporation Commission of North Carolina to increase fares from 5 cents to 7 cents, effective from Aug. 1. The companies will be required, however, to sell four tickets for 25 cents. Among the companies affected are the Carolina Power & Light Company, the Southern Public Utilities Company and the Durham Traction Company.

Jitneys Under Ban in Sacramento.—The jitneys operating in the city of Sacramento, Cal., were put out of commission on July 20 when an injunction was granted forbidding the City Commissioner to hold a special election on the question of whether the jitney ordinance should become effective. Hereafter, before being allowed to operate jitneys will be required to purchase a franchise, which will be granted only in accordance with the commissioner's opinion as to the routes on which jitney service is needed.

Binghamton Wants Fare Relief.—On July 29 through its president, F. L. Fuller, the Binghamton (N. Y.) Railway petitioned the Common Council to remove any limitations now included in the franchise granted to the company which would prohibit the Public Service Commission from granting permission to increase the fare from the present 5-cent rate to a higher figure. The suspension of the present fare stipulation is asked "for the period of the war and as long thereafter as the Public Service Commission may deem proper."

Montreal Would Charge Seven Cents.—H. E. Smith, comptroller of the Montreal Tramways, speaking before the Public Utilities Commission on the company's application for a rate increase, said that for the present year up to April 30 operations would show a deficit of $252,538. The company is asking for a 7-cent fare or four tickets for 25 cents with free transfers. Only recently the commission announced the fares to be in force for the next year. This decision was reviewed briefly in the ELECTRIC RAILWAY JOURNAL for July 13, page 78.

Fare Complaint Dismissed. — The Public Service Commission of Pennsylvania has dismissed the complaint of the Merchants' Association of Pottsville against the Pottsville Union Traction Company, in which it was alleged that the company showed discrimination in charging an extra fare from the city line to Westwoods. In dismissing the order the commission ruled that the fixing of fare boundaries is the most difficult problem electric railways have to face, and that the fare is not excessive, as it permits the rider to go through to Minersville, a distance of 3 miles.

Jitney Case to Supreme Court.—The record has been completed and appeal perfected in preparation for taking the case testing the jitney ordinance enacted by the city of Dallas, Tex., to the United States Supreme Court. The style of the case is D. H. Gill et al. *vs.* the city of Dallas, for injunction. The jitney men lost in all the State courts and are carrying the case to the federal courts as a last resort. The city of Dallas has been cited to appear in the Supreme Court within thirty days from July 6. This means that the city will have until the October term of the court to make answer to the jitney men's petition.

Albany Tariff Further Suspended.—The Public Service Commission for the Second District of New York at its regular session on July 30, Chairman Charles B. Hill presiding, further suspended the operation of the tariff of the United Traction Company, Albany, filed on May 2, under which increased fares were proposed on its lines. Pending the investigation by the commission, the tariff was originally suspended until July 31. The commission was unable to complete its investigation within the period of the original suspension, and on July 30 it passed an order further postponing operation of the increased rates for a period of sixty days from July 31.

Charleston Fare Case Started.—The Public Service Commission of West Virginia has resumed its hearing on the application of the Charleston Interurban Railway for authority to increase its rates on the St. Albans and Cabin Creek lines. By the change an increase in the fare to South Charleston from 5 cents to 10 cents and to Kanawha City from 10 cents to 15 cents is sought. No change is proposed within the city limits. The Libby-Owens Glass Company, located at Kanawha City, and the citizens of that place and of South Charleston are protesting any increase. Evidence was offered in support of the petition of the company. The opposition will not be heard until later.

More Roads Seek Service at Cost.—The Connecticut Valley Street Railway, Northern Massachusetts Street Railway, and the Concord, Maynard & Hudson Street Railway have applied to the Public Service Commission of Massachusetts for an investigation of the capital requirements of their system, preparatory to assuming operation under the service-at-cost act passed by the last Legislature. The engineering and accounting departments of the commission have begun investigations of the physical and financial condition of the properties, which are operated by the interests identified with the Greenfield Electric Light Company and the Turners Falls Power & Electric Company. It has not yet been determined whether it will be necessary to hold public hearings upon these cases.

Desires Service at Cost.—The Northampton (Mass.) Street Railway has notified the Public Service Commission of its intention of accepting the general service-at-cost act for electric railways passed by the last Legislature. Under the terms of the act the commission must determine the amount of the company's capital investment, amount of stock investment and status of the unfunded debt. The commission must also determine the amount of reserve fund and improvement fund necessary for the acceptance of the act. Should the company finally accept the act, it will arrange a fare system of nine gradations, with four units above and four units below the initial one, and automatic adoption above and below the medium unit according to the return yielded. The act also provides for public directors.

Additional Fare Data Submitted.—Members of the committee on streets of the City Council of Richmond, Va., have received from the Virginia Railway & Power Company a tabulated statement of the earnings and expenses of the railway and electric light and power departments of the Richmond division of the company for the years beginning June 30, 1913, to the present fiscal year just closed. This statement is in response to a resolution passed at the meeting of the committee on June 27 at which the matter of increased fares was discussed. The additional data asked for at that time were referred to in the ELECTRIC RAILWAY JOURNAL for July 23, page 77. The committee has since recommended an ordinance providing for a straight 5-cent fare, labor tickets at three for 10 cents to be good until 8 a.m. instead of 7 a.m. and the retention of the 3½-cent school tickets and universal transfer privileges.

Freight Increase Allowed in Ohio.—Permission to increase freight rates was granted to ten Ohio interurban roads by the Public Utilities Commission on July 19. While the increases will be based upon those allowed steam railways by Director General McAdoo, the roads receiving them were compelled to show the necessity for a greater income. The increases apply only to the roads named and, if others find themselves in need of additional revenue, they will be compelled to show necessity in each case. The roads receiving this permission are as follows: Cleveland & Eastern; Ohio Electric; Sandusky, Norwalk & Mansfield; the Toledo, Fostoria & Findlay; the Tiffin, Fostoria & Eastern; the Stark Electric; the Western Ohio; the Toledo, Bowling Green & Southern; the Cleveland & Chagrin Falls, and the Cleveland, Southwestern & Columbus. New schedules must be filed with the commission fifteen days before they become effective.

Franchise Fare Provisions Rescinded.—George Bullock, as receiver of the Buffalo & Lake Erie Traction Company, Buffalo, N. Y., has filed with the Public Service Commission for the Second District copies of certain contracts which provide that all provisions relating to passenger fares in franchises held by the company or its receiver are annulled for a period of fifteen years from July 1, 1918. The contracts also provide that the receiver, the company or their successors, shall from July 1, 1918, charge "such rate or rates of fare as may be fixed from time to time and for such time during said period of fifteen years as the Public Service Commission of the State of New York or its successor may order and direct." These contracts are with the following: Town board and superintendent of highways, town of Westfield; president and trustees, village of Westfield; superintendents of highways and town boards of the towns of Portland, Ripley and Brocton and the president and trustees of the village of Brocton.

Attorney General Decides Road's Status.—According to an opinion to the Public Service Commissioners of Washington by Attorney General Tanner, relinquishment of the Spokane & Inland Empire Railroad to private ownership by the federal railroad directorate automatically revives the freight and passenger rate schedules in effect on that line before the government's increase of 25 per cent went into effect last month. The Attorney General does not hold directly that the State-regulated rates are now the only legal rates the Spokane & Inland Empire Railroad may charge, but that the Public Service Commission has the right to proceed with complaints on the basis that the jurisdiction of State regulation was reextended over the road when control of it was surrendered by the federal government. As noted in the ELECTRIC RAILWAY JOURNAL of July 20, page 131, this road was recently referred to by the Public Service Commission as being "In a Hell of a Fix" as a result of changes in rates and division of responsibility following government control.

Kansans Can't Dodge Six-Cent Fare.—Officials of Kansas City, Kan., were barred by Federal Judge John H. Cotteral from proceeding in the State Court in their fight against the collection of an extra cent for fare at the State line until the suit pending against the Kansas City Railways in the Supreme Court is decided. Judge Cotteral maintained that the Federal Court has jurisdiction in such matters and that the State Court cannot legally issue a restraining order. Hence the collection of the extra fare. The Kansas City Railways has adopted a new transfer marked with a large red cross in order to prevent Kansas City, Kan., patrons from evading the extra charge across the State line. Many persons have been getting a transfer when entering the cars in Kansas, leaving the cars before reaching the State line where the cent is collected, and walking a short distance to a transfer point across the line. Those who attempt that ruse now are forced to give up their transfer and pay a 6-cent fare. Patrons who remain on the car until one of the six collection points along the State line is reached tender their marked transfer and 1 cent and receive in return a Kansas City, Mo., transfer for all points on that side of the State line.

Increase in Jersey Mileage Charge.—The Public Service Railroad has served a notice with the Board of Public Utility Commissioners of New Jersey that it proposes to put into effect a new schedule of rates for transportation, so that the mileage charge will be 2½ cents with a minimum fare of 10 cents between stations, except between Chrome and Chrome Junction, where the fare will remain 5 cents. The Public Service Railroad is a part of the Public Service Corporation's transportation system in New Jersey. It operates under a railroad charter and has no connection as to service with the Public Service Railway. The increased rates, if put into effect, will boost the transportation charges between Bayway, Elizabeth and Bonhamtown, between Bayway, Elizabeth and Sewaren and between Milltown Junction and Trenton. The proposed rates would not affect the operation of cars of the company over the tracks of the Public Service Railway in Trenton from the outskirts to the center of the city. This section of the road is operated as a trolley line and on the property of the railway the railroad's cars are being used. The new rates would not affect any section of the State where the railroad cars are operated over the railway's tracks. The old rate was 2 cents a mile.

Personal Mention

H. Bunce has been appointed roadmaster of the Pacific Coast Railway, Seattle, Wash., to succeed P. Dineen.

L. H. Crowell has been appointed assistant treasurer of the Columbus (Ga.) Railroad to succeed A. A. Wilbur.

C. M. Kittle has been made vice-president of the Kensington & Eastern Railroad, Chicago, Ill., to succeed W. L. Park.

J. P. Pulliam has been appointed acting treasurer of the Wisconsin Railway, Light & Power Company, Winona, Minn.

Otto Kirchheiner has been appointed master mechanic of the Key West (Fla.) Electric Company, to succeed E. D. Loper.

A. F. Marion has been appointed chief engineer of the Pacific Coast Railway, Seattle, Wash., to succeed N. D. Moore.

John Fisher has been appointed chief engineer of the Western Light & Power Company, Boulder, Col., to succeed A. Jardine.

F. O. Cooke has been appointed vice-president of the Fresno (Cal.) Interurban Railway Company to succeed J. J. Mahoney.

Herbert A. Loring has been elected president of the Western Light & Power Company, Boulder, Col., to succeed Guy E. Tripp.

E. N. Thyse has resigned as superintendent and purchasing agent of the Mankato (Minn.) Electric Traction Company.

L. P. Peterson has been appointed engineer of cable equipment of the United Railroads, San Francisco, Cal., to succeed J. H. Stott.

R. W. Wise has been appointed secretary of the Petaluma & Santa Rosa Railway, Petaluma, Cal., to succeed E. T. McMurray.

Charles P. Stone has been appointed auditor of the California Street Cable Railroad, San Francisco, Cal., to succeed Allen Knight.

E. W. Ackerman has been appointed auditor of the Interurban Railway & Terminal Company, Cincinnati, Ohio, to succeed C. Hogan.

S. Gerian has been appointed purchasing agent of the Western Light & Power Company, Boulder, Col., to succeed H. U. Wallace.

J. J. Ahearn has been appointed inspector of rolling stock of the Ottawa (Ont.) Electric Railway, succeeding R. A. Baldwin, promoted.

J. S. Billings has been appointed auditor of the Tuscaloosa Railway & Utilities Company, Tuscaloosa, Ala., to succeed G. A. Daniels.

H. V. Schenck has been appointed assistant secretary and assistant treasurer of the Grand Rapids (Mich.) Railway, to succeed S. E. Wolff.

H. D. Jennings has been appointed auditor of the Waterville, Fairfield & Oakland Railway, Waterville, Me., to succeed John S. Everett.

R. A. Baldwin, heretofore inspector of rolling stock of the Ottawa (Ont.) Electric Railway, has been appointed master mechanic of the company.

C. A. Semrad has been appointed acting general manager of the Western Light & Power Company, Boulder, Col., to succeed H. U. Wallace.

J. F. MacGilvray has been appointed treasurer of the Fort Smith-Oklahoma Light & Traction Company, Fort Smith, Ark., to succeed R. D. Beard.

Charles Vickery has been appointed roadmaster of the Fairburn & Atlanta Railway & Electric Company, Fairburn, Ga., to succeed G. T. Wooten.

D. A. Roberts has been appointed superintendent of the Southern Illinois Railway & Power Company, Harrisburg, Ill., to succeed C. F. Richardson.

H. I. Reuler has been appointed chief engineer of the Atchison Railway, Light & Power Company, Atchison, Kan., to succeed Henry F. Bryant.

Gus Peterson has been appointed auditor of the Minneapolis, Anoka & Cuyuna Range Railway, Minneapolis, Minn., to succeed C. A. Bratnober.

H. C. Mackey has been appointed comptroller of the Wisconsin Railway, Light & Power Company, Winona, Minn., to succeed Charles C. Major.

Don Baumhart has been appointed engineer of overhead construction of the Hutchinson Interurban Railway, Hutchinson, Kan., to succeed D. T. Taylor.

J. S. Minary has been appointed auditor of the Benton Harbor-St. Joe Railway & Light Company, Benton Harbor, Mich., to succeed Oren A. Small.

F. L. Farrell has been appointed general freight and passenger agent of the Fresno (Cal.) Interurban Railway to succeed M. T. Dohner, who is now in the United States army.

Ralph W. Eaton for five years electrical engineer for the Shore Line Electric Railway, Norwich, Conn., has been chosen to succeed Robert L. Brunet as public service engineer at Providence, R. I.

C. F. Richardson has been appointed assistant general superintendent of the Indiana Railways & Light Company, Kokomo, Ind. Mr. Richardson was formerly general superintendent of the Southern Illinois Railway & Power Company, Harrisburg, Ill.

R. B. Claggett, secretary and treasurer of the Columbus Railway, Light & Power Company, Columbus, Miss., who is also interested in similar corporations at Greenville, Miss., and Lake Village, Ark., has been commissioned as a lieutenant in the aviation corps and is now stationed at Kelly Field, near San Antonio, Tex.

Morton G. Lloyd, electrical engineer in charge of safety work in the Bureau of Standards, Washington, D. C., has been appointed a member of the electrical committee of the National Fire Protection Association, to represent the bureau. Dr. Lloyd is a fellow of the American Institute of Electrical Engineers and has served upon its standards committee and various other committees.

Charles Barrington, Jr., has resigned as purchasing agent of the Los Angeles (Cal.) Railway Corporation after having been connected with the company for seventeen years. Mr. Barrington has now become connected with the Hubbs-Storage Battery Company, in Los Angeles, manufacturers of storage batteries for automobile starting, lighting, etc., as vice-president and general manager. He organized this company about a year ago.

William M. Casey, former superintendent of transportation of the Denver (Col.) Tramway, has been appointed superintendent of transportation of the Washington Railway & Electric Company, Washington, D. C., succeeding William F. Dement. Mr. Casey, from the time of his leaving Denver at the end of 1916 until his new appointment, has been on the staff of John A. Beeler, consulting engineer, who is advising the Public Utilities Commission of the District of Columbia on the solution of its traffic problems.

Erwin W. Clapp, for the last eight years superintendent of the Bristol & Norfolk Street Railway, with headquarters at Randolph, Mass., has resigned to join the staff of the Bay State Street Railway, Boston. In his new post Mr. Clapp has been assigned to the office of the manager of transportation, reporting to Ralph M. Sparks, head of that department. Upon leaving the Bristol & Norfolk road Mr. Clapp was presented with a gold watch and charm by employees who have been associate with him and served under him.

William F. Dement has been appointed by the Washington Railway & Electric Company, Washington, D. C., to fill the new position of superintendent of employment and instruction, which has been created in view of the extraordinary labor conditions prevailing. Mr. Dement leaves the position of superintendent of transportation to take up his new duties, for which he is peculiarly fitted, having been with the company since the horse car days and having organized and conducted the instruction department fifteen years ago.

A. J. Witchel has been appointed chief engineer of the Spokane & Inland

Empire Railroad and the United Railways, with headquarters at Portland, Ore. Mr. Witchel has been connected with the North Bank System since its organization. The properties which he will now supervise were not taken over by the government when the Spokane, Portland & Seattle, Oregon Electric and Oregon Trunk line were federalized. A. E. Lupfer, chief engineer of the Spokane, Portland & Seattle lines under government supervision, will relinquish supervision of the Spokane & Inland Empire and United Railways lines.

Obituary

Charles A. Goodnow, vice-president of the Chicago, Milwaukee & St. Paul Railroad, died at the New Washington Hotel, Seattle, Wash., on July 26, following a brief illness. Mr. Goodnow went to Seattle recently to confer with officials of the railroad company and to attend to business concerning the electrification of the railroad. Mr. Goodnow was born in North Adams, Mass., on Dec. 22, 1853. He began his railroad career as a telegraph operator on the Hoosic Tunnel route and was advanced to train dispatcher before leaving that road and going to the West Shore as trainmaster during the period of construction. He went West in 1883 to take a position as train dispatcher on the Chicago, Milwaukee & St. Paul Railroad, and later as superintendent of construction on the new lines into Dakota. He went to the Burlington in charge of construction when the Chicago, Burlington & Quincy line was extended to St. Paul and Minneapolis, returning to the Milwaukee as superintendent, and later as assistant general superintendent. After the reorganization of the Chicago & Alton he was made general manager of that company, and for a time held a similar position with the Chicago, Rock Island & Pacific. Returning again to the Milwaukee he was made assistant to President A. J. Earling, and had charge of the building of the Gallatin valley road in Montana, the location and construction of the Milwaukee lines to Lewistown and Great Falls, Mont., and the securing of the exceptionally fine terminals which the Milwaukee has in Great Falls. For the past five years he had given exclusive attention to the electrification of the Milwaukee. He had seen his plans brought to successful completion on that portion of the road from Harlowtown, Mont., to Avery, Idaho, and the results had fully justified his expectations. On his return to Seattle just before his death Mr. Goodnow announced that the work on the western end of the road was progressing so satisfactorily that electric locomotives would be running into Seattle from Othello by July 1, 1919.

Construction News

Construction News Notes are classified under each heading alphabetically by States. An asterisk (*) indicates a project not previously reported.

Track and Roadway

Southern Pacific Company, San Francisco, Cal.—It is reported that the Chino branch of the Southern Pacific Company will probably be electrified and extended to Corona.

San Francisco, Cal.—The Board of Supervisors of San Francisco has instructed the Mayor to assure the Emergency Fleet Corporation that San Francisco will take over the proposed road to Hunter's Point after the war. This action was taken in complying with the desire of the federal government for an authoritative expression from the city on the subject of the electric railway to the proposed ship repair plant at Hunter's Point, where 100 acres are to be used adjacent to the dry docks. The government is to advance the funds for the construction of the road.

Detroit (Mich.) United Railway.—Work on the Ferndale Avenue extension of the Detroit United Railway is progressing rapidly, and it is expected that the line will be ready for operation by September. The new Ferndale main line begins at the junction of Springwells and Ferndale Avenues, and runs west on Ferndale to Woodmere Avenue, where it branches off onto a private right-of-way, continuing to a connection with Dearborn Avenue. The line then runs over Dearborn Avenue to Fort Street connecting with the Fort line at Fort Street and Dearborn Avenue. There is also a branch running north from Ferndale Avenue to the northerly end of the Ford plant. The line intersects Baby Creek at two points and this necessitated the construction of bridges.

Public Service Railway, Newark, N. J.—It is expected that the extension of the Public Service Railway to the Submarine Boat Corporation plant and the United States Army Quartermaster's Depot, both at Port Newark, will be completed by Labor Day, Sept. 2. The extension will provide facilities for about 20,000 workmen.

Cincinnati, Milford & Loveland Traction Company, Cincinnati, Ohio.—The Public Utilities Commission of Ohio has denied the application of the Cincinnati, Milford & Loveland Traction Company, the property of which was recently sold to the bondholders' committee, to junk the road.

Lake Shore Electric Railway, Cleveland, Ohio.—The Lake Shore Electric Railway will complete its cut-off near Huron in September. All of the work except that within the corporation of Huron has been finished. The cut-off tracks will reduce by ½-mile the traction mileage from Sandusky to Cleveland. The cost of the work is approximately $180,000.

Seattle & Rainier Valley Railway, Seattle, Wash.—To provide a connecting link between Division A and the municipal elevated street railway lines, the city has asked the Seattle & Rainier Valley company to relinquish its abandoned tracks along Washington Street, from First Avenue South to Fourth Avenue. In a letter to John C. Higgins, attorney for the Seattle & Rainier line, Councilman Oliver T. Erickson, chairman of the utilities committee, states that "Under agreement on common-user rights, the city could use the tracks, but rehabilitation of the line involves big expense, and therefore it would be better for your company to surrender that piece of its franchise to the city and donate what is left of the old tracks."

Shops and Buildings

Pacific Electric Railway, Los Angeles, Cal.—New quarters have been rented by the Pacific Electric Railway in the Odd Fellows' Building at Whittier. The first floor will be remodeled into a station which will more nearly meet the requirements of the city than have the old quarters in the Mason Building.

New York, N. Y.—A trolley station will be established on the Queensboro Bridge at Blackwell's Island for the use of persons visiting the hospital and prison on the island. The cost is estimated at $10,000 and will be paid for by the Department of Charities of the City of New York.

Power Houses and Substations

Des Moines (Ia.) City Railway.—This company is completing the construction of a new substation building at East Fourteenth Street at Des Moines Street. This is the last building to be erected in the substation plans of the Des Moines City Railway Company in connection with its rehabilitation plans.

Portsmouth, Dover & York Street Railway, Dover, N. H.—Work has been begun on the laying of the cable from the power plant of the Rockingham County Light & Power Company to Badger's Island. This cable when completed will furnish energy to operate the Portsmouth, Dover & York Street Railway.

Manufactures and the Markets

DISCUSSIONS OF MARKET AND TRADE CONDITIONS

FOR THE MANUFACTURER, SALESMAN AND PURCHASING AGENT

ROLLING STOCK PURCHASES · MARKET QUOTATIONS · BUSINESS ANNOUNCEMENTS

Car Enamels, Varnishes and Paints Stiffen in Price

Due to Continued Increases in Cost of Material and Labor—Railway Buying Steady

In the spring prices for enamels, varnishes and mixed paints used in the electric railway field were going up rapidly. Since then further advances, which were predicted at the time in the ELECTRIC RAILWAY JOURNAL have materialized. Traction properties have not bought freely, excepting in a few instances, for reasons too numerous to mention and quite familiar to everybody knowing anything of natural conditions. At the present time such varnishes and paints as have been bought are for overhauling or the reshopping of cars. This means, of course, a steady, if comparatively, modest demand.

Linseed oil, China wood oil, varnish gums, reducers (turpentines), pigments ground color rubbings have not only risen in price, but additional increases are coming along with the abnormal existing conditions. For example in the last few weeks enamels have gone up 25 per cent; varnishes, 10 to 15 per cent; oil enamels, 25 per cent; varnish enamels, 10 to 15 per cent; car paints, 10 to 25 per cent. Yellows and greens are hard to get and the situation is growing worse. Linseed oil has advanced 15 to 20 per cent, and paint and varnish manufacturers declare it is going out of sight. Linseed oil substitutes are now 40 per cent above the former cost, with reducers up 50 per cent.

Crushers of linseed oil do not care to accept orders except for specifications to be shipped at once from stock if they have it. Few are disposed to obligate themselves for oil to be delivered in the future, as they are four weeks and more behind now on deliveries. There are slight prospects of catching up because of the dearth of flaxseed. The situation would be greatly improved if the embargo on importations of seed from the Argentine was lifted, and if the necessary ocean tonnage could be found to bring it north to the United States. The supply of flaxseed raised here and in Canada has long since been exhausted and prospects for the fall are none too good. Paint manufacturers say this outlook renders opinions on future prices for finished goods purely problematical. Domestic holders of the oil and seed are waiting for a still higher market.

China wood oil, the base of all fine car varnishes and enamels, is not only difficult to obtain, in any satisfactory quantities, but its price has been rising in proportion. Potash, another essential paint base, is scarce and high. Colors are restricted in delivery to the immediate future, with few if any orders being accepted for longer periods than three months, and then the price at shipment controls. There is a heavy demand for turpentine and something of a shortage is developing. Scarcity of skilled labor and difficulties of transportation are also factors of the first importance in all car painting and finishing commodities.

Traction Material Bought for Foreign Countries

Eastern and Western Manufacturers Making Heavy Shipments for New Construction Work

If buying of railway equipment and material for domestic uses is sluggish it appears the deficiency is being made up to some extent by heavy purchases for the export trade. One large Eastern manufacturer has recently executed an order of considerable size in overhead material for South American countries. In view of the quantity taken and the character of the equipment it is evidently not for maintenance or replacements but for new construction work. The manufacturer, in speaking of this particular transaction, stated that while this business was very satisfactory, he expected further and larger orders from the same source.

A Middle West concern also volunteered the information that it had booked and shipped a number of unusually large orders of transmission construction equipment for France and Spain. The business was placed in New York by direct representatives of the foreign companies. Both of these orders ran into large amounts, totaling fully $200,000.

Of domestic trade a manufacturer of high standing said that since 1915 the traction roads had been out of the market, excepting for necessary material and equipment for maintenance and replacements. This condition of affairs had led to a more active cultivation of the export field.

Catalogs Wanted

The Montreal Tramways Commission, Royal Trust Building, Montreal, will be pleased to receive catalogs, booklets, bulletins, data or samples from manufacturers of, or agents for, all kinds of electric railway supplies, appliances, machinery and equipment.

Pre-War Prices Compared With Current Increases

Electric Railway Company Presents Tabulated Statement of Cost Differences

In its petition to the City Council of Akron, Ohio, for an increase of fares on June 24 by the Northern Ohio Traction & Light Company a statement of comparative costs of equipment, accessories and supplies was submitted. The years 1914 and 1915 witnessed normal prices for material used in railway operations, the difference up to the present time being shown in the appended table:

Articles	Per cent Increase	Articles	Per cent Increase
Solder	156	Track shovels	58
Pig lead	193	Steel wheels	76
White lead	87	Boiler tubes	300
Shellac	150	Coal	131
Armature coils	79	Armature bearings	77
Magnet wire	133	Journal bearings	115
Wool waste	104	Axle bearings	106
Trolley wheels	63	Castings, steel	114
Trolley harps	119	Angle bars, 7 in. x 20 in.	134
Trolley rope	88	Bolts, track	107
Dry batteries	93	Rails	82
Linseed oil soap	111	Steel ties	32
Brooms	127	Spikes, track	130
Carbon brushes	460	Ties, oak	31
Gear cases	154		
Linseed oil	142		

The company adds that these are but a small part of the full list of all materials used in the operation of the railway. Some of the items enumerated are used in smaller quantities, some in larger, but the list shown gives evidence of the general increase.

Coal Production Still Short

Production to Date Is 15,000,000 Net Tons Behind the Schedule for the Year's Requirements

The output of bituminous coal in the United States, according to the weekly report of the Geological Survey, declined approximately 1 per cent during the week of July 27. The production is estimated at 12,802,000 net tons, a decrease compared with the week preceding of 121,000 net tons but an increase over the corresponding week of 1917 of 1,471,000 net tons or 13 per cent. The average daily production is estimated at 2,134,000 net tons as against 2,154,000 net tons during the week of July 20 and as compared with 1,889,000 net tons during the week of July 27, 1917.

Last week's output, while 343,000 net tons or approximately 3 per cent in excess of weekly requirements of 12,459,000 net tons during the balance of coal year to make up the deficit to date, is nevertheless 1,300,000 net tons or 9 per cent behind the weekly requirements during the balance of the sum-

mer months to make up the deficit to date.

The difference between the summer requirements and those specified for the balance of the coal year is accounted for by the necessity to ship practically all lake coal during the summer months and 50 per cent more tidewater coal to New England during the summer than in the winter. Production to date is approximately 15,000,000 net tons behind schedule, and in order to meet all requirements as outlined by the United States Fuel Administration it will be necessary that the output of coal during the last of the summer months, August and September, be equivalent to more than 14,000,000 net tons per week, 714,000 net tons or 5.5 per cent in excess of the record to date.

Inquiries for Snowplows and Sweepers Running Behind

Electric Railway Properties Seemingly Indifferent to Next Winter's Storms—Cost of Equipment Higher

While this is the buying season for snow-clearing equipment very few orders are being booked. Brooms and brushes of every description have been advancing in price rapidly, one of the latest increases being from 10 to 25 per cent, effective July 15. On some grades of brooms the market is nearly bare, and buyers are being advised by manufacturers to anticipate their requirements as far ahead as possible if they wish to take advantage of the current cost.

For a while quite a number of orders were filed for snowplows and sweepers, and the manufacturers looked forward to a brisk demand. But for inexplicable reasons, inquiries seemed to drop off short. In this field also purchasing agents and traction managers were cautioned against the constantly increasing cost of this equipment. They were likewise warned that if early and dependable deliveries were a primary consideration, specifications should be put in the maker's possession before the middle of the month and not later than Sept. 1.

An advance of 25 per cent in the price of plows and power sweepers was made in June, with no revision since. Manufacturers are not sure how long the current selling figure can be maintained. At any rate, it is believed that if orders multiply shortly prices will go up again. Small sales mean unchanged cost, as enough material has been accumulated to take care of such orders. The buying averages about the same every year.

So far virtually no inquiries have been received for ice cutters. Last winter this equipment sold readily. Horse-drawn snow removers are being bought for early delivery. The changes in price of such lines have followed the steel and iron revisions, rating higher, of course, than the corresponding figures of a year ago.

Heavy Demand for Spraying Equipment

Raw Materials Being Secured in Good Quantities—Scarcity of Piping Brings About Higher Prices

Unusually heavy calls for spray cooling apparatus and for painting equipment operated on the spraying principle are reported by the Spray Engineering Company, Boston, Mass. An interesting application of the air-washing principle has lately been made by this concern in connection with the loading of gas shells, special equipment having been fitted up to dispose of surplus gas released during the filling process. The spray painting apparatus of this company has just been accepted by the American Bitumastic Enamels Company for use in painting vessels shortly to be launched at the Hog Island yard, and an initial shipment of ten sets has just been forwarded. The Chicago Railways Company is using this apparatus for the painting of street poles carrying trolley and other overhead equipment by using an extension arm which does away with a ladder. It has been found that car trucks can be painted with the spray equipment in about twelve hours against twenty-four hours by the usual hand methods, and the work can be done with the trucks in place under a freshly painted car body.

President L. H. Parker states that the total business of the company in May, 1918, was double that of any previous month, and that June also showed a gross business far in excess of other months with the exception of May. Raw materials are being secured in good quantities through government authorization. On account of the recent scarcity of piping, it has been necessary lately to increase the selling price of some of the company's products to correspond to the higher cost of this material.

Steel Rail Price Undetermined

Manufacturers Still Unable to Agree on Price for Presentation to War Industries Board

According to the latest reports on going to press steel rail manufacturers have not yet come to an agreement over the price which they believe should rule for the next few months. The War Industries Board, through its price-fixing committee, will of course make the final decision, but no meeting between the government representatives and manufacturers has taken place.

Some of the manufacturers, it is reported, want the price to remain at the present level of $55 a ton for Bessemer and $57 for open hearth, while others are more in favor of a new basis around $51 to $53 a ton.

The government, through control of the railroads, has become practically the only customer for rails. Europe has taken very large quantities, but the tonnage has fallen off during the past year as indicated by exports of 405,278 tons during the eleven months ended May 31, against 533,152 tons in the same period in 1917 and 489,037 tons two years ago.

Centralizing Government Purchasing

Boards of Review Control Contracts—Purchase of Railway Materials Assigned to Engineers' Branch

Organization of the centralized purchasing scheme whereby the General Staff controls the buying of all commodities and supervises all contracts for the Army is rapidly progressing. Already assignment of purchases of a number of commodities has been made to the several branches of the War Department, and boards of review are passing on all contracts in order to insure uniformity of contract control and provisions. The general administration of the scheme is under the direction of Brig. Gen. Hugh S. Johnson, head of the purchase and supply branch of the division of purchase, storage and traffic of the General Staff of the Army.

The purchase of railway materials is assigned to the engineers' branch. This branch purchases among other things paint containers, gantry cranes, locomotive cranes, paint driers, enamels, japans, lacquers, paint, steam shovels, turpentine, varnishes, linseed oil, and railway equipment.

Renewed Interest in Fare Boxes

A renewed interest in fare boxes is apparent from numerous inquiries and orders. As evidence of this condition, the Johnson Fare Box Company, Chicago, Ill., reports the following orders recently received from some of the principal traction properties.

United Railroads, San Francisco, Cal., 450 boxes; Takoma Railway & Power Company, Tacoma, Wash., 163 metal ticket boxes; Minneapolis (Minn.) Street Railway, 100 boxes; Memphis (Tenn.) Street Railway, 62 metal ticket boxes; Public Service Railway, Newark, N. J., 58 boxes; Pacific Electric Company, Los Angeles, Cal., 47 boxes; Stone & Webster Properties, Texas and Oklahoma, 35 boxes; Gary (Ind.) Street Railway, 28 metal ticket boxes; Utah, Idaho Central Railway, Ogden, Utah, 20 boxes; Mobile Light & Railway Company, 10 metal ticket boxes.

Rolling Stock

The Sheffield (Ala.) Company has purchased from the Cincinnati Car Company two motor cars, double equipment, Westinghouse 101-B, and two all-steel trailers. The company also is negotiating with the car builders for three additional motor cars and three trailers.

Trade Notes

R. H. Corson, representative of the National Carbon Company of San Francisco, will establish offices at 314 Empire State Building, Spokane, which will become the distributing center for the Inland Empire, Northern Idaho & Western Montana.

Trolley Supply Company, Canton, Ohio, reports that it has received from the Boston Elevated Railway an order for 400 No. 2 Simplex roller bearing trolley bases to be used on the road's new cars.

Washington Railway & Electric Company, Washington, D. C., is using "Presto" drawing holders as described in the ELECTRIC RAILWAY JOURNAL of Dec. 15, 1917, page 1086, for the purpose of filing car schedules. The "Presto" holder is manufactured by the National Company, Boston, Mass.

L. D. Calhoun has been appointed as assistant sales manager of the Square D Company, manufacturer of electrical safety switches, at Detroit, Mich. Mr. Calhoun has been advertising manager of the company for the past year, and in addition to his new duties will continue to handle the company's advertising, etc.

J. N. Mahoney, for twelve years connected with the engineering department of the Westinghouse Electric & Manufacturing Company, has tendered his resignation from that company and will open consulting offices in New York. For the last eight years Mr. Mahoney has been in charge of designing switches, fuses and circuit breakers and prior to that time was connected with the railway engineering department in charge of control design.

F. A. Mansfield, formerly connected with the sales department of the Westinghouse Electric & Manufacturing Company at East Pittsburgh, Pa., has resigned to take the position of Pittsburgh district sales manager of the Mechanical Appliance Company at Milwaukee, Wis. This company manufactures a complete line of alternating-current and direct-current motors, small generators, motor-generator sets and inverted rotaries.

American City Bureau, New York, N. Y., is the title of consolidation of the American City Bureau and the Town Development Company. Its purpose is to build and maintain civic commercial organizations in different municipalities, improve chamber of commerce methods and broaden the scope of commercial organizations. It also conducts an annual summer school for secretaries. Harold S. Buttenheim is president.

Aero Fire Alarm Company, New York, N. Y., is manufacturing a hollow wire of small diameter which can be carried to buildings or around moldings and extends to a cabinet containing a sensitive diaphragm and electrical contact. In the case of fire the air in the tube expands, thus creating a pressure on the diaphragm and causing an alarm. It has been admitted to the list of fire apparatus authorized by the National Board of Fire Underwriters.

The Dearborn Chemical Company, Chicago, Ill., has just made general announcement of the establishment of a specialties department, for the manufacture and marketing of a number of specialties of interest to manufacturers of steel products, including a rust preventive, known as No-Ox-Id, which is already in use in many plants. Other specialties developed by the Dearborn Laboratories are cutting oils for use in metal cutting, to lubricate the cutting tool and prevent overheating; quenching oils, for heat treating; drawing oils, and Dearboline—a preparation for cleansing machined parts of emery or grease.

New Advertising Literature

Carleton-Wenstrom Company, Philadelphia, Pa.: Circular describing Carwen ball bearings. The specifications and list price of these ball-bearings for the 200 series is given.

Cruban Machine & Steel Corporation, New York, N. Y.: "Safest Solderless Electrical Connectors" is the title of a circular that is being distributed to the trade. This circular describes and illustrates the several kinds of connectors that are manufactured by this company.

NEW YORK METAL MARKET PRICES

	July 31	Aug. 7
Copper, ingots, cents per lb	26	26
Copper wire base, cents per lb	29.25	29.25
Lead, cents per lb	8.05	8.05
Nickel, cents per lb	40	40
Spelter, cents per lb	8.23	8.45 to 8.55
Tin, Chinese*, cents per lb	94	92
Aluminum, 98 to 99 per cent., cents per lb	†33.00	†33.00

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

OLD METAL PRICES—NEW YORK

	July 31	Aug. 7
Heavy copper, cents per lb	23¾	23.50 to 24.50
Light copper, cents per lb	20½	20 to 21.50
Red brass, cents per lb	22	21 to 22
Yellow brass, cents per lb	14	14.50 to 15
Lead, heavy, cents per lb	7	7.12½ to 7.50
Zinc, cents per lb	5¾	5½ to 5¾
Steel car axles, Chicago, per net ton	$41.52	$41.52
Old carwheels, Chicago, per gross ton	$29.00	$29.00
Steel rails (scrap), Chicago, per gross ton	$34.00	$34.00
Steel rails (relaying), Chicago, gross ton	$60.00	$60.00
Machine shop turnings, Chicago, net ton	$16.25	$16.25

ELECTRIC RAILWAY MATERIAL PRICES

	July 31	Aug. 7
Rubber-covered wire base, New York, cents per lb	30 to 37	30 to 37
Weatherproof wire (100 lb. lots), cents per lb., New York	32.40	32.40
Weatherproof wire (100 lb. lots), cents per lb., Chicago	37.50 to 37.72	35.00 to 37.72
T rails (A. S. C. E. standard), per gross ton	$70.00 to $80.00	$70.00 to $80.00
T rails (A. S. C. E. standard), 100 to 500 ton lots, per gross ton	$67.50	$67.50
T rails (A. S. C. E. standard), 500 ton lots, per gross tons	$62.50	$62.50
T rail, high (Shanghai), cents per lb	4½	4½
Rails, girder (grooved), cents per lb	4½	4½
Wire nails, Pittsburgh, cents per lb	3½	3½
Railroad spikes, drive, Pittsburgh base, cents per lb	4½	4½
Railroad spikes, screw, Pittsburgh base, cents per lb	8	8
Tie plates (flat type), cents per lb	*3¼	*3¼
Tie plates (brace type), cents per lb	*3¼	*3¼
Tie rods, Pittsburgh base, cents per lb	7	7
Fish plates, cents per lb	*3¼	*3¼
Angle plates, cents per lb	*3¼	*3¼
Angle bars, cents per lb	*3¼	*3¼
Rail bolts and nuts, Pittsburgh base, cents per lb	4.90	4.90
Steel bars, Pittsburgh, cents per lb	5	5
Sheet iron, black (24 gage), Pittsburgh, cents per lb	4.90	4.90
Sheet iron, galvanized (24 gage), Pittsburgh, cents per lb	5.80	5.80
Galvanized barbed wire, Pittsburgh, cents per lb	4.35	4.35
Galvanized wire, ordinary, Pittsburgh, cents per lb	3.95	3.95
Car window glass (single strength), first three brackets, A quality, New York, discount†	80%	80%
Car window glass (single strength, first three brackets, B quality), New York, discount	80%	80%
Car window glass (double strength, all sizes AA quality), New York discount	82 & 3%	82 & 3%
Waste, wool (according to grade), cents per lb	11½ to 22	11½ to 22
Waste, cotton (100 lb. bale), cents per lb.	13 to 13½	13 to 13½
Asphalt, hot (150 tons minimum), per ton delivered	$38.50	$38.50
Asphalt, cold (150 tons minimum, pkgs. weighed in, F. O. B. plant, Maurer, N. J.), per ton	$42.50	$42.50
Asphalt filler, per ton	$45.00	$45.00
Cement (carload lots), New York, per bbl	$3.20	$3.20
Cement (carload lots), Chicago, per bbl	$3.34	$3.34
Cement (carload lots), Seattle, per bbl	$3.68	$3.68
Linseed oil (raw, 5 bbl. lots), New York, per gal	$1.86	$1.86
Linseed oil (boiled, 5 bbl. lots), New York, per gal	$1.88	$1.88
White lead (100 lb. keg), New York, cents per lb	10½	10½
Turpentine (bbl. lots), New York, cents per gal	63	63

* Government price. † These prices are f. o. b. works, with boxing charges extra.