

Electric Railway Journal

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The Need of a Greater Sense of Individual Responsibility

"THIS matter of making ends meet next year is
as much your job as it is mine." These in substance were the words used recently by the president of a great public utility corporation to a gathering of

1500 of his employees. His purpose was to give each of his auditors a sense of individual responsibility for the success of the corporation by which they were employed. If the industry in general would believe and act upon this principle, utility problems would be easier to solve. During the past three years wages have increased enormously. But has the efficiency of labor increased in the same ratio? Every evidence is that it has not. Nevertheless, every man or woman who is gaining a livelihood from the electric railway industry owes it loyal service, and never more so than now when it is so difficult to give the public satisfactory transportation and at the same time pay for the use of the money which makes transportation possible. If there ever was a day for the "time-server," this isn't it. Those of us whom duty does not call to the firing line simply must keep things going at home in spite of shortage of

men, materials and money, even if it means longer hours of work and greater efficiency of output during the time we are at work. Transportation is a necessity in war time even more than under normal conditions, and a man may be a patriot on the front platform of a car or in supervising transportation, as well as in the trenches. He can also be a slacker in either place at home if he does not individually do all he can to assist the government. What is needed in every public utility to-day is a greater sense of individual responsibility on the part of each man to perform his duty, whether he occupies the presidential chair or works on the platform or in the repair pit.

The Company Section's Opportunity in War Time

COMING out of a recent company section meeting at which the president of the company had expressed himself freely and forcefully on the difficulties of operating the property under present conditions, a

thoughtful railway official said to the writer, "These company sections are worth while on this property even if it is only to furnish the auspices for getting men together to hear a talk like that." Other reasons for such sections are given by Britton I. Budd, in a letter published on Dec. 8, and in one by Frank R. Coates, printed this week. Hardly a week passes that some evidence of the useful part that is being played by the company sections is not recorded somewhere in the JOURNAL. They are preaching and practising patriotism, loyalty and economy, the trilogy of virtues of the hour. They are furnishing the opportunity for co-operation and mutual understanding between the men and those more directly responsible to the public and the stockholders for results. It is unfortunate that the clouds of war settled down upon us before more sections could be organized. This, however, puts greater respon-

sibility upon the eleven now in action, and in justice to them it must be said that through the publicity given to their efforts, the effect of their work is not confined to their several localities. They represent also proportionately more than their number would indicate, as the properties on which they are organized control about 6½ per cent of the mileage and more than 9 per cent of the rolling stock of the industry. At this season the newly elected officers are formulating plans for the year's work. Never have those charged with these responsibilities and honored with this confidence had greater opportunity for leading their sections in aggressive, definite and stimulating work. While we

A Great Opportunity for the Electric Railway in Freight Transportation

IT IS HIGH TIME that the electric railways awakened to the great opportunity which lies ready at their hand for relieving the congestion of freight traffic on the steam railroads.

They have an impressive object lesson in the vigor and vim which the highway and motor truck interests are manifesting in preparing for big things in transportation. By way of illustration it is necessary only to cite the plan for bringing motor-truck trains, loaded, under their own power from Detroit to the Atlantic Coast. Again, supplies for Interborough Rapid Transit construction work have lately been carried from Pittsburgh to the job by motor truck.

The opportunity must be embraced by doing at least these things:

1. Every traffic department must exert itself to find out how it can get and handle freight business.

2. Every rolling stock department must put all available equipment into shape for handling the business that the traffic department gets.

3. Every manager must utilize the War Board, the national and sectional electric railway associations and any other agencies which may be provided, for the purpose of co-ordinating the efforts of his company with those of other companies.

4. Everybody must insist that these co-operative agencies do all that they are capable of doing, "and then some."

believe that it would have been better to elect officers in the spring so that they might have planned farther ahead, there is still time to get big results before hot weather returns.

Opposing Six-Cent Fares by a Campaign of Letter Writing

THE Mayors' Conference knows a thing or two about the value of publicity. But it is just as certain that there is a thing or two it does not know. The Mayors' Conference is that association of mayors and corporation counsel which has furnished the principal opposition to the increased fare campaign in New York State outside of the Metropolitan section.

The electric railways have furnished to the Second District commission a large mass of specific evidence bearing on the case—testimony of manufacturers and dealers as to the hard market facts of costs of labor, cars, overhead supplies, copper, electrical apparatus, oil, steel, coal and the like. They have made a complete exhibit of the financial condition not only of the thirty odd companies that are petitioning for increased fares but of all the companies in the district. Nine of these companies have presented in detail the special facts relating to their own conditions.

The Mayors' Conference has heard all this testimony, but it has not put in one line of testimony in rebuttal. The reason is ample—these facts cannot be rebutted. Therefore it has fallen back on the cry "over-capitalization." But—before bringing up this point for judicial determination—the mayors have tried to arouse the public by mere assertions. They have even written an open letter to the commissioners, warning them that rates should not be based upon capitalization. For ignorance of what present-day utility laws require in the matter of rate-making, this warning would take the prize.

We have no objection to the displaying of such a lack of knowledge, but we do deplore the animus that prompted the following statement:

"For years it has been a matter of common understanding that such difficulties as the electric railways may have been laboring under were largely attributable to over-capitalization. * * * And it has been charged and has been fairly apparent that surplus, reserves, replacements, efficiency of management—all or many of them—have been sacrificed for, or at least subordinated unto, interest and dividends on what is nothing more or less than water in the capitalization."

The Mayors' Conference figured correctly—this open letter, given by it to all the papers, was printed all over the State and generally under very large headlines such as: "*Watered Stock Attacked by Mayors.*" This result, with its effect upon the unthinking public, was doubtless the object sought. Such a letter could be only an impertinence to the commission, and the commission did not even have the opportunity to be the one to make it public, if it saw fit.

Doubtless some electric railways have been over-capitalized. In all fairness, however, the way to expose

that fact is not by a campaign of open letter writing but by the submission of specific evidence to the commission when a case is on trial. The contrast between the kinds of publicity resorted to by the companies and the Mayors' Conference—one, the publicity of official records and sworn testimony; the other, that of unofficial and unsupported allegations—is most noteworthy.

What Do the Mayors Want—Dead Electric Railways?

INDEED, the whole campaign that has been and is being followed by the Mayors' Conference is destructive in character. It really seems as if nothing will satisfy them except the wrecking and the junking of the transportation lines in their local communities.

In their letter of admonition to the Public Service Commission the mayors suggested that the board withhold the granting of a higher fare, which was said to be undeserved because of a condition of over-capitalization, until reorganizations of the companies shall be voluntarily effected. And Mayor Koon of Auburn, N. Y., has issued a public statement reiterating the charge that the companies are simply seeking dividends on watered stock. All of this is utter misrepresentation, in total disregard of the efforts of the utilities and the commission to handle the rate problem constructively.

The wishes of the companies have been plainly stated to the New York commission. To use the words of Mr. Choate, acting as their chairman, they ask only "a fair return on a fair valuation." Mr. Choate informed the commission that the valuation was ready and at its command. Every case for increased fares put in has stated the value of the property used in the service, and no request for any stated percentage of dividends on any given capitalization has been made in any case. The Mayors' Conference is fighting a bugaboo of its own making.

The mayors do not seem to appreciate that the interest of their communities—business men, workers, everyone—does not lie in throwing companies into receivership. As Commissioner Emmet said in his concurring opinion in the Huntington case, "under the abnormal conditions of to-day many a small electric railway system in New York State is facing ruin, and if ruin overtakes these companies the public will suffer quite as much in bad service as the owners of the enterprises will in loss of money." The prime consideration, therefore, is service, and the basic function of the Public Service Commission is to see that this is preserved. The proposal of the mayors to refuse aid because of fancied over-capitalization is as absurd as the results would be injurious to the public.

And the railways are not at all exaggerating the seriousness of their troubles, as Mayor Koon has charged. We respectfully refer him to the fact of the recent receivership—since it petitioned for increased fares—of the Hornell Traction Company. We refer him to last week's receivership of the Bay State Street Railway, operating more miles of track, with one exception, than any other electric railway in America. We draw special

attention to the fact that the company has been operating a large part of its lines on a 6-cent fare. We call attention to the barely escaped scrapping of the Providence & Fall River line, and the actual dismantling of others. We call attention to the cessation of dividends by the New York State Railways, the Boston Elevated Railway, the Springfield (Mass.) Street Railway and numerous others whose securities, held by savings banks and other investment institutions, are now paying nothing.

It is not dividends that the companies in New York and elsewhere are requesting. All they want is a fair return on property used in the public service, so that they will not be forced to stop their operations entirely and scrap their cars. Mayors and other city officials ought to get this fact into their heads. A dead electric railway is about the worst advertisement a city can have.

Viewing Transportation in a Big Way

IT HAS been said that this war is a war of machinery, and so it is. But it is more than that, it is also a war of transportation. Success of the armies at the front and of the industries in this country depends upon the promptness with which the men and the materials are carried where they are wanted and at the time that they are wanted. If there had been adequate transportation, the present fuel and food situations would have been much less acute. This means that we who are engaged in transportation as a business must speed up if we are going to keep up our end of the war operations. We need, above all, a broad vision of our functions, our resources and our possibilities. Next we must make ourselves felt in a positive way so that we shall be called upon to do everything that we are in a position to do.

We believe that all effective transportation agencies in this country have their place; that steam railroads, waterways, highways and electric railways must all be utilized to the full if the transportation requirements of this country are to be met. There is a definite work for each to do. Unfortunately, there is no omniscient presiding genius who is in a position, or rather who is qualified, to assign definitely to each transportation agency the detailed duties which it should assume. As our country is organized it is necessary for each, knowing its own capabilities and limitations, vigorously to go after the business which it knows it should have.

At present the electric railways are not leading the

procession by any means. There may be some good reasons for this, but if so they must be removed at once or the function which the electric lines should be performing will be taken over by the steam roads and the motor trucks operating on improved highways.

While urging vigorous action in this matter, we do not wish to be misunderstood as to motive. It is no game of grab that we are advising but rather what we believe to be the highest patriotism. Take an analogy closer home. Here is a man of marked executive ability who is anxious to get into active military service. Is he unpatriotic if he tries to engage in that class of work where his peculiar talents will make him most useful to his country and succeeds in so doing? Most certainly he is not, no matter what captious critics may remark.

This is just the case of the electric railways. They are anxious to do in this emergency only that kind of transportation which they are particularly fitted to perform, namely, the short-haul quick-service business. And this, it so happens, is where the steam railroads need the greatest assistance.

The electric roads have this in their favor in providing this additional transportation. But little additional expenditure is required, and in many cases not any, to enable them to carry a very much larger amount of freight than they are hauling at present. There is no such necessity for new roads or new cars as with motor trucks. The work now is principally to get the traffic, although in some cases it will be necessary to provide the additional equipment and also to get the right to haul the freight. This duty is clearly up to the railways themselves.

This is no time for half-way, half-hearted measures. The advocates of the motor truck for short-haul business are active. They believe in their apparatus and are convincing others of it and are making it easy for large shippers to use this class of conveyance. Admittedly they have a large field, but it is not the same as that of the electric railways. The steam railroads have indicated that help from the electric roads will be very welcome, so no opposition from them should be met. Every electric railway which is in a position to haul freight owes it to itself and to the industry to get active in this matter. The American and sectional associations, as well as the War Board and its director at Washington, have also a great responsibility in this matter. They should leave no opportunity neglected, no stone unturned, to see that the electric roads make a success of this opportunity which they now have to serve the nation.

Last Call for 1917 Statistics

The annual tables of track, car and other statistics compiled by the "Electric Railway Journal," which have come to mean so much to the industry, will appear in the "Better Service" issue of this paper, that for Jan. 5, 1918. A few roads have not yet sent in their returns, but there is still time to have them included in the tabulation. The Jan. 5 issue, by the way, will contain as one of its feature articles a most extensive analysis of the fundamentals of economical electric railway operation.

Arousing Public Interest in Crossing Construction Work

Denver Company Published Series of Advertisements Simultaneously with Installation of Important Downtown Crossing to Forfeud Criticism and Make People Realize the Tremendous Amount of Work and Investment Involved—Also to Call Attention to the Special Means Employed to Expedite the Work

THE Denver (Col.) Tramway had occasion recently to replace a track intersection at Fifteenth and Curtis Streets, one of the principal corners in the downtown district. Realizing the disruption of traffic that would inevitably accompany the work, the tramway officials set out to interest the people in the job through a series of advertisements in the daily papers.

As expressed by J. C. Davidson, publicity manager, there were several motives which prompted the company to take this step. He says:

"We tried with this batch of publicity to make people appreciate where the tramway money goes and the value there is under the surface of the tramway tracks. We also tried to forfeud the criticisms of passengers and pedestrians who were inconvenienced by the re-routing of lines and by the construction work, and to prevent accidents and cussing on the part of the motorists who were forced to exercise a good deal of care on Fifteenth Street and stay off Curtis Street entirely. Of course, underlying the whole plan was the object of making people realize the tremendously increased cost of tramway materials and labor."

HOW THE STORY OF A CROSSING WAS TOLD

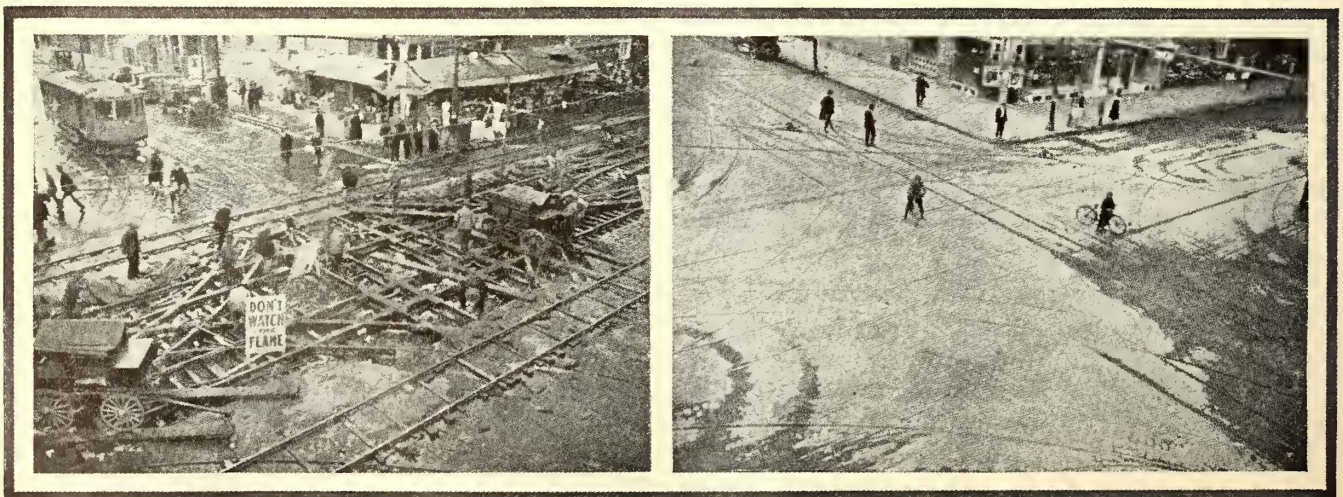
The advertisements, entitled "The Story of a Street Railway Crossing," were numbered in sequence up to fourteen and published while the construction work was in progress. They occupied spaces varying from about one-third of a column to one-half of a page. Some are reproduced on the next page.

The first advertisement announced that "To-morrow Morning at One o'Clock" the tramway would begin the construction of the new crossing. It was pointed out

that this was the biggest and most intricate job of special work that the tramway had ever undertaken, and that the story would give the public an inside glimpse of the tramway workings that it had never had before. Then followed a brief description of what would be the first order of work in preparation for the job, telling how the line crews would string wires for the temporary track and also for ten 200-watt nitrogen lamps around the intersection, the latter to give the workmen ample light to work during the night and thus complete the job in the shortest possible time.

Lights were also to be strung on Fifteenth Street so that passengers, motorists and trainmen would have plenty of light to cope with the unfamiliar operation at this point. In asking the co-operation of the public the company said: "We hope that we will have no accidents of any kind, and we are doing everything in our power to prevent them. But we are going to need the co-operation of our passengers and all vehicle drivers. We ask our passengers to be careful in alighting and boarding the cars at Fifteenth and Curtis because of the uncertain footing. We ask motorists to approach Fifteenth and Curtis with extreme care and very slowly. Curtis Street at Fifteenth will be closed to traffic. A space just wide enough for the passing of vehicles in single file will be left along Fifteenth between Arapahoe and Champa, but there will not be any too much room and the motorists will unquestionably find that they can save time by avoiding Fifteenth and Curtis and going around the block." The first advertisement also contained a notice of the temporary re-routing of three car lines.

The second advertisement told how the engineering



THE CONSTRUCTION WORK THAT WAS ADVERTISED—IN PROGRESS AND COMPLETED

department had planned to handle the work, how special schemes had been devised to cut the installation time from twenty-five to fourteen days, how the planning bureau had prearranged the arrival of materials so that it would not be necessary to store them on the street, how every foreman knew in advance what his part of the work was and when it must be done, and how the work of three gangs of sixteen men was to be co-ordinated. A personal touch was given by including the pictures and functions of the various tramway men connected with the work. At the bottom of the advertisement was published a tabulated schedule showing

In the fourth advertisement there was published a photograph of the mass of steel required in a special-work crossing. The following paragraph is quoted to show how interest was aroused in the details of the work as it progressed:

"Few people realize how much construction there is under the surface of the street. We are going down 2 ft.! The crushed rock ballast forms the bed on which we are laying not rails, but steel foundations for the rails. There will be no wooden ties used on this job. Nothing but steel and concrete—no wood, no spikes and only a few bolts. To-morrow we'll show you how

THE STORY OF A STREET RAILWAY CROSSING—NO. 2

15th & Curtis Intersection To Be Torn Up

Time Required Cut From 25 Days to 14

Along in August, reported that the Fifteenth and Curtis in a few months. As a matter of fact, the work was started in August.

What the Job Is
The job consists of making arrangements to operate cars on the street while work is going on—tearing up the old crossings and special work and the paving and getting the new crossings in.

How the Work Was Started
The contrast between the Tramway's present carefully planned schedules and the old-time "cut-and-try" method of doing things is shown in the following table:

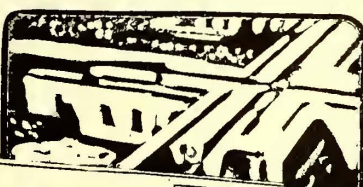
The Story of a Street Railway Crossing—No. 3

Taking the Steel Out at 15th & Curtis

Under the eyes of the thousands, the tramway men are taking the steel out of the old crossings.


The Story of a Street Railway Crossing—No. 4

Nine tons of steel crossings go in today



THE STORY OF A STREET RAILWAY CROSSING—NO. 5

The Welding Crews Are on the Job



The Story of a Street Railway Crossing—No. 10.

How the Tramway Concrete Train Speeds Up Track Work

This morning at 7:15 the new Tramway concrete train pulled in at 15th and Curtis and fifteen minutes later began pouring concrete into the network of special work and tracks.

First dump car was run up to the hopper of the mixer and its load of gravel and sand and cement dumped in. The empty car is then shoved off on the extra track and the content of another loaded car piled into the hopper.

certainly none that lays concrete at such a low cost and with such speed. And the thing that makes us proud of the time from our Heap Box Chief and the

THE STORY OF A STREET RAILWAY CROSSING—No. 13

"Some Speed, Boys!"

The last concreting at 15th and Curtis was finished at 11 o'clock this morning, one hour ahead of the schedule.

If the same of October 2nd, 26th and 28th had not interfered, the Tramway crews would have finished 24 hours ahead of their schedule. Up to Sunday morning they were two shifts ahead of their schedule.

Some of the overloads and

Most Delays and Troubles Impossible to Control

HOW THE ADVERTISEMENTS KEPT THE PUBLIC INTERESTED IN THE COURSE OF CONSTRUCTION

the time allotted for each operation during the first four days of the work. The schedule was said to be made for top speed.

The third advertisement described the use of the oxy-acetylene flame in cutting the old steel and the hard work of taking out the old concrete to get ready for the new construction. It also carried this significant paragraph:

"When you go past Fifteenth and Curtis to-day or to-morrow, stop and try to realize that every foot of the new special crossing costs the Tramway \$100. The cost equals every cent of revenue from 400,000 of our passengers. Yet this is only a few hundred feet out of a total of 253 miles of track on the tramway system."

the entire intersection is electrically welded together into one piece."

The fifth advertisement pictured the electric welder on the job, with an insert photograph of the arc-welding foreman. A prominent feature of this illustration was a "Don't Watch the Flame" sign in the foreground, a matter which the company wished to emphasize. The text discussed briefly the results accomplished with the electric welder, and it explained why only one track at a time was pulled up, in order that the crane might be used without tying up one of the temporary tracks at the side of the street. A paragraph pointing out the advanced cost and time-saving methods in use follows:

"The Fifteenth and Curtis work shows probably the

most efficient use of mechanical appliances that Denver will have an opportunity to see for a long time. A few years ago most of these jobs were done by slow hand methods, but the tramway's engineering department now uses such improved machinery as compressed-air tie tampers, concrete-cutting machines, track grinders, electric-arc welders, electric cranes, gas appliances for cutting steel rails and a hundred other smaller time-savers and expense-reducers. And soon you will have an opportunity to see the masterpiece of which the engineering department is so very proud—the tramway's new concrete train."

The next advertisement was historical in nature, dealing with the several layers of earlier construction work to be found below the crossing. Subsequent advertisements covered various phases of the work, bringing out how the workmen were keeping ahead of the schedule. Particular emphasis was laid in the tenth advertisement on the tramway's concrete train, which was described in ELECTRIC RAILWAY JOURNAL for Oct. 6, 1917. This, it was pointed out, formed the basis of what was probably the fastest, most efficient and most economical method of pouring concrete that had ever been devised for electric railway work. Some pride was taken in the fact that the train had been thought of and developed by the local company.

One of the last advertisements pointed out that the concreting had been completed that morning one hour ahead of the schedule. Some space was then devoted to complimenting the various men connected with the work, several of those in charge being mentioned by name. Then it was explained why the concrete must "set" for seven days before any cars could operate over the new track.

RESULTS OBTAINED FROM PUBLICITY

Throughout the whole work the public was much interested in following the schedule. The general results of the advertisements are best summed up in the words of Mr. Davidson. He says:

"We seem to have accomplished those of our objects which furnish results in tangible form. We have had no criticism, no complaints. On the contrary, we have had a large crowd of interested watchers day and night. One of the engineers said that more people had been watching the men on this one small job than had been in evidence when the whole street from Broadway to Lawrence was reconstructed. The gang foremen called it the 'Tramway Circus,' and the personal touch we injected into the advertising seems to have interested our own men in their own work more than ever before."

Railway Returns for 1916

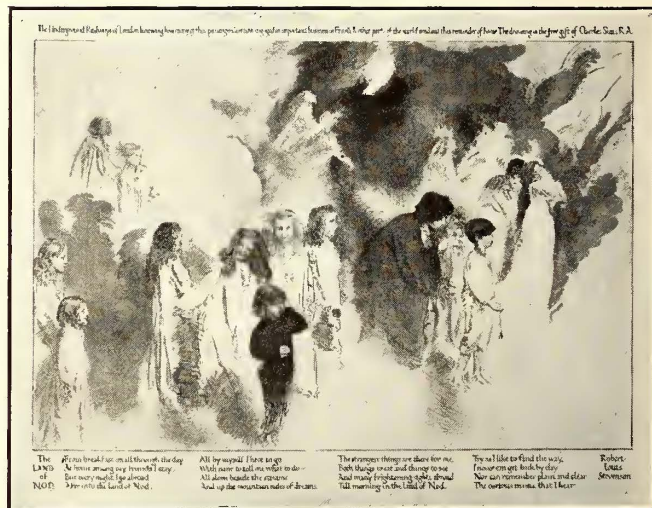
The Bureau of Railway Economics, Washington, D. C., has just issued its third annual summary of steam railroad returns as compiled from reports to the Interstate Commerce Commission. The compilation is for the year ended Dec. 31, 1916, and is confined to carriers with annual operating revenues in excess of \$1,000,000. This class includes approximately 89 per cent of the entire mileage of the country and 97 per cent of the operating revenues. No account is taken of inter- corporate duplications, but it is believed that the gross figures are of sufficient value to warrant such a preliminary tabulation.

The railway operating revenues for the whole United States amounted in 1916 to \$3,592,591,023, an increase of \$530,969,372. Railway operating expenses at \$2,354,548,724 showed an increase of \$301,183,800, and accrued taxes at \$156,875,396, an increase of \$19,476,743. The gross income totaled \$1,353,454,172, a gain of \$251,088,394, but an increase in deductions from income reduced the gain in net income, at \$645,529,205, to \$189,143,052. The net income was disposed of as follows: Dividend appropriations, \$187,884,557, an increase of \$11,284,757; income appropriated for investment in physical property, \$62,507,009, an increase of \$30,764,805; other income appropriations, \$35,122,052, an increase of \$22,217,218; balance to credit of profit and loss, \$360,015,587, an increase of \$124,876,272.

Art Traffic Posters

London Underground Railways Reproduce the Work of Famous Modern Artists

THE character of traffic posters used by the Underground Electric Railways Company, Ltd., of London, has always been of the highest grade. Recently a new series has been issued for use at the entrances to its underground stations representing the gifts of



ONE OF THE NEW SERIES OF TRAFFIC POSTERS OF THE LONDON UNDERGROUND RAILWAYS

a number of the most prominent artists in the British Empire. The subjects selected are peaceful scenes, usually to illustrate some choice bit of poetry. Thus, the one reproduced illustrates and gives the words of Robert Louis Stevenson's "The Land of Nod." The only reference to the company and to the war is in the line at the top, which reads:

The Underground Railways of London, knowing how many of their passengers are now engaged on important business in France and other parts of the world, send out this reminder of home. The drawing is the free gift of Charles Sims, R. A.

Other recent posters illustrate A. L. Salmon's "At Dawn and Dark"; Thomas Campbell's "Song to the Evening Star," and Samuel Rogers' "A Wish."

The original size of the drawings on the posters is 20 in. x 30 in. The posters are beautifully reproduced in colors which unfortunately are lost in the process of reproduction.

How the War Tax Is Collected

Several Schemes Have Been Worked Out by the Electric Railways for Checking the Collection of the Tax Paid on Cash Fares

THE collection of the special war taxes required of the railways by the Oct. 3, 1917, law has necessitated the planning of no particular arrangements, except perhaps for that portion of the 8 per cent passenger fare tax which it has been necessary for the conductors to obtain on cash fares paid on the car. The collection of the tax on tickets purchased from station agents, and likewise that on special cars, on milk and cream shipments and on extra baggage and commutation fares, has for the most part been simple, since these collections have been made by the station agents, where definite records are obtainable for each transaction. Most companies have provided the conductors with some form of tabulation showing the amount of tax which should be collected for each fare amount so that they would be relieved of the necessity of computing 8 per cent of the fare each time. The conductors have also been assisted by various publicity matter informing the riding public of its obligations. The schemes of reporting the conductors' tax collections and of providing a check on these for the auditing department are quite varied, as is evidenced by a canvass of the practices on some twenty roads. Some of these plans are given herewith:

The Cleveland, Painesville & Eastern Railroad, Wiloughby, Ohio, follows the practice of having the conductor record cash fares on the Ohmer register and punch a small duplex receipt, Fig. 1, one-half of which is given to the passenger as a receipt for his tax

payment and the other half is turned in with the conductor's report to the auditor. The conductor has simply to punch this receipt once to indicate both the fare and the tax paid.

The Chicago, North Shore & Milwaukee Railroad, Chicago, Ill., issues a duplicate cash fare receipt which is punched so that the amount includes the rate of fare plus the war tax. The portion of the receipt which is given to the passenger reads that the receipt includes the 8 per cent war tax.

On the Chicago, South Bend & Northern Indiana Railway, South Bend, Ind., the conductors ring up on the Ohmer register the amount of the cash fare plus the tax. At the same time that this is done, a tally mark is placed on a card supplied to each conductor, opposite the corresponding rate of fare printed on the card. One of these tally cards is turned in with each trip sheet, thus forming the conductor's record and the auditor's check on the amount due the government. No receipt is given to the passenger for either the cash fare or the tax payment. These tally cards are made up in pads of fifty, measuring 3 1/2 in. wide by 5 1/2 in. long and are easily carried by the conductors. A sample is shown in Fig. 2.

The Ohio Electric Railway, Springfield, Ohio, records the cash fare collections on Ohmer registers and lists the tax collections as individual items on the form, Fig. 3, supplied to the conductors. The cash collections recorded in this manner can be partially checked against

No. 29049			No. 29049		
Fare	Tax	Total	Total	Tax	Fare
\$0.40	\$0.03	\$0.43	\$0.43	\$0.03	\$0.40
.45	.04	.49	.49	.04	.45
.50	.04	.54	.54	.04	.50
.55	.04	.59	.59	.04	.55
.60	.05	.65	.65	.05	.60
.65	.05	.70	.70	.05	.65
.70	.06	.76	.76	.06	.70
.75	.06	.81	.81	.06	.75
.80	.06	.86	.86	.06	.80
.85	.07	.92	.92	.07	.85
.90	.07	.97	.97	.07	.90
.95	.08	1.03	1.03	.08	.95
1.00	.08	1.08	1.08	.08	1.00
Fare	For	Tugs	Dogs	For	Fare
.25	.01	.26	.01	.25	

TO BE TURNED IN WITH REPORT

FIG. 1

Chicago, South Bend and Northern Indiana Ry. Co.
Record of Tax Collected on Cash Fares

Trip No.	Car No.	Date	191
From	To		
Rate of Fare	Rate of Tax	Rate of Fare	Rate of Tax
36 3 37		54 4 55	
35 3 40		55 4 59	
34 3 41		56 4 60	
33 3 42		57 5 42	
32 3 43		58 5 63	
31 3 44		59 5 64	
30 3 45		60 5 65	
29 3 46		61 5 66	
28 4 48		62 5 67	
27 4 49		63 5 68	
26 4 50		64 5 69	
25 4 51		65 5 70	
24 4 52		66 5 71	
23 4 53		67 5 72	
22 4 54		68 5 73	
21 4 55		69 5 75	
20 4 56		70 6 76	
19 4 57			

Turn in Tally Card with each trip sheet. If no cash fares over 35c are collected while on one section face of card

Form W T R

War Tax Receipt

To be delivered to passenger

No. *Coughlin*

8% of all fares over 50c must be collected by conductors and receipt properly issued.

1	2	3	4	5	6	7	8	9	10
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The Chicago, Lake Shore & South Bend Ry. Co.
H. G. Falhorn, V P

FIG. 5

THE NORTHERN OHIO TRACTION AND LIGHT COMPANY

Passenger's Receipt for WAR TAX

No. 0010

3	CENTS
4	CENTS
5	CENTS
6	CENTS
7	CENTS
8	CENTS
9	CENTS
10	CENTS
11	CENTS
12	CENTS
13	CENTS
14	CENTS

Conductors will tear off at perforation the amount of War Tax paid by passenger. Balance of receipt to be turned in with report.

H. G. Falhorn
Traffic Mgr

No. 0010

FIG. 6

The Ohio Electric Railway Co.
Form 530.

CONDUCTOR'S REPORT OF REVENUE TAX COLLECTIONS FROM PASSENGERS

Division 191 List No. Punch Here

Conductor's Badge No.

Train No.	Amount	Train No.	Amount	Train No.	Amount
3	03				
4	06				
5	10				
6	04				
7	03				
8	05				
15	05				
	36				

FIG. 3

FIG. 2 VARIOUS WAR TAX RECEIPTS FOR PASSENGER FARES

TERRE HAUTE, INDIANAPOLIS & EASTERN TRACTION CO.
EASTERN DIVISION—MAIN LINE.

AUDITOR'S STUB.

This Duplicate must be sent to Auditor with each trip report.

ROBERT I. TODD, President.

FARE—(CENTS)	WAR TAX	AMOUNT OF TAX
1	11	59
2	12	70
3	13	81
4	14	92
5	15	103
6	16	114
7	17	125
8	18	136
9	19	147
10	20	158
11	21	169
12	22	180
13	23	191
14	24	202
15	25	213
16	26	224
17	27	235
18	28	246
19	29	257
20	30	268
21	31	279
22	32	290
23	33	301
24	34	312
25	35	323
26	36	334
27	37	345
28	38	356
29	39	367
30	40	378
31	41	389
32	42	400
33	43	411
34	44	422
35	45	433
36	46	444
37	47	455
38	48	466
39	49	477
40	50	488
41	51	499
42	52	510
43	53	521
44	54	532
45	55	543
46	56	554
47	57	565
48	58	576
49	59	587
50	60	598
51	61	609
52	62	620
53	63	631
54	64	642
55	65	653
56	66	664
57	67	675
58	68	686
59	69	697
60	70	708
61	71	719
62	72	730
63	73	741
64	74	752
65	75	763
66	76	774
67	77	785
68	78	796
69	79	807
70	80	818
71	81	829
72	82	840
73	83	851
74	84	862
75	85	873
76	86	884
77	87	895
78	88	906
79	89	917
80	90	928
81	91	939
82	92	950
83	93	961
84	94	972
85	95	983
86	96	994
87	97	1005
88	98	1016
89	99	1027
90	100	1038
91	101	1049
92	102	1060
93	103	1071
94	104	1082
95	105	1093
96	106	1104
97	107	1115
98	108	1126
99	109	1137
100	110	1148

FIG. 4

the register reading sheets, although it is not possible to verify all of them in this manner. No receipt for the collections is given to passengers.

On the Detroit (Mich.) United Railway cash fare collections made by conductors are receipted for with duplex tickets, indicating the amount of fare and the stations between which it is paid. Two forms of agents' tickets are in use, one of which shows the amount of fare paid and the other does not. Neither the agent nor the conductor includes the amount of the tax in punching the fare on these tickets, but the agent is required to indicate the tax paid either in pencil or ink on the agent's stub sent to the auditor, while the conductor makes his indication by a punch mark in numerals which appear on the end margin of the receipt and formerly were used to indicate the train number. The auditor of passenger receipts checks the conductor's returns by examining all cash fare receipts over 35 cents in value to make sure that the tax has been collected and accounted for. No receipts are given to passengers for the tax payments.

The duplex cash fare receipt used on the Illinois Traction System does not include the tax payment in its printed form. However, the conductor is required to write the amount of the war tax collected on the portion of the receipt issued to the passenger. The auditor checks each receipt for an amount subject to tax to see that the proper amount of tax has been collected and remitted. The trainmen's report shows a separate item for the amount of tax collected. Cases where a conductor has not collected enough tax are rare, but in such cases the deficit is made up by the company and the correct figure reported to the government. If a conductor collects 1 or 2 cents more than he should, the full amount is allowed to the government as collected.

The Terre Haute, Indianapolis & Eastern Traction Company, Indianapolis, Ind., is making use of duplex cash fare receipts which are printed to include the war tax as well as the railway fare (Fig. 4). The conductors punch the towns between which the fare is paid, the amount of the fare and the amount of the war tax. With the use of these receipts it is, of course, a simple matter for the auditor to go through the receipts, summing up the individual tax collections and checking the total with the conductor's turn-in. On one division of this company the use of the Bonham fare recorder provides an accurate and simple means of checking the fare and tax returns, as described on page 1044 of the Dec. 8, 1917, issue of this paper.

The Chicago, Lake Shore & South Bend Railway, Michigan City, Ind., makes use of a special duplex war tax receipt and audit stub in addition to the cash fare receipt. On each half of the war tax receipt (Fig. 5) is printed the tax schedule, with a column of figures along the perforated edge at which the receipt is folded. A single punch mark opposite the proper figure indicates to both the passenger and the auditor the amount of tax collected.

The Fort Wayne & Northern Indiana Traction Company is making use of the MacDonald cash fare system, the conductors tearing off the receipt so that the amount indicated on the receipt includes the cash fare and the tax. The conductors make a separate notation of the tax collections, and these are checked against the receipt stubs turned in.

The Northern Ohio Traction & Light Company is ringing up the cash fare on the Ohmer register and then tearing off a slip with perforations between figures in a vertical column (Fig. 6) at the proper place so that the lowest figure on the portion handed the passenger indicates the amount of tax he has paid. The portion torn off at the bottom is turned in to the auditing department, where the small figures at the right are summed up to get the total tax and to check against the conductor's turn-in. No punching is required and the proper tearing of the slips has been found to require very little time. A serial number is printed on the slips for checking purposes.

A most interesting method of collecting the tax is that adopted by the Texas Electric Railway, Dallas, Tex. On Nov. 1, 1917, this company published a new tariff raising its passenger rates from 2½ cents to 2¾ cents per mile. From this additional revenue it will pay the 8 per cent war tax. This blanket scheme of collecting the war tax will likely exceed the 8 per cent requirement, but it was explained in the publication of the tariff that the additional revenue received from this source would be applied on the increased expense of operation.

None of the companies canvassed reported any particular difficulty from passengers attempting to split their fares into amounts below 36 cents in order to avoid paying the war tax. The conductors in general have been patriotic in watching for this sort of thing and have been instructed to collect the full tax from the beginning of the ride to the point of destination upon the collection of the last installment of fare, regardless of how the fare was paid. Where payment of the tax has been refused, the conductors have been directed to explain that it was a government matter and to request the name and address of the individual so that report could be made to federal authorities. However, extremely few cases of this kind have been reported.

Trial Trips of Giant Electric Locomotives

The electrification of the Silesian mountain railways has been practically completed and numerous trial trips have been made with the new electric locomotives, which are reported to exceed in size and pulling power anything tried in Germany so far. Built by Bergmann (Berlin), they take their current from overhead trolley lines, supplied by the hydraulic power station near the Mittelstein. Eight driving wheels and six smaller running wheels carry the load. These locomotives are used to draw express trains, weighing 400 metric tons, exclusive of the two large steam locomotives which are pulled along, over a rise of 1 in 50.

The "Journal" as a Holiday Gift

For the convenience of managers of electric railways and others who desire to use the **ELECTRIC RAILWAY JOURNAL** as a holiday gift, the publishers have prepared an appropriate card to be mailed to the recipient with the Christmas number. This number will be complimentary, the subscription being entered as paid up to Jan. 1, 1919.

Denver Tramway Adopts Novel Transfer

The New Transfer Is Specific in Its Conditions of Usage, Yet Simple to Punch and to Read—The Reverse Side Is Used for the Information of the Passenger

By HARRY C. KENDALL

Efficiency and Traffic Engineer Denver (Col.) Tramway

BEFORE the advent of the pay-as-you-enter system of fare collection the transfer problem was difficult enough, with the arguments that arose as to whether the time, date, line, etc., were correctly punched, and the misunderstandings as to what lines the transfer entitled the passenger to ride on and at what points it might be used. Too often pressure from some source would result in a special rule which made a transfer punched to line A good on line B, whereas a transfer punched for line B would not be good on line A. Such arbitrary and inconsistent rules, as well as the fact that transfers became too complicated to be quickly punched and inspected, naturally led to continual trouble.

Then came the pay-as-you-enter cars, and the grief was multiplied a hundredfold. Issuing conductors had no time to punch, nor receiving conductors to inspect, the month, day, a. m. or p. m. hour, minute and line. Various expedients were resorted to to lighten the work required of conductors. Several of the larger companies adopted the dated transfer, on which the date in full is printed conspicuously on the face of the transfer. This dated transfer has the objection of high cost, partly on account of the direct extra cost of printing, but more particularly because the wastage is necessarily

very great, since the requirements cannot be accurately forecasted.

To reduce this waste several companies print the day of the month on the transfer in large letters, and punch the month in the office or on the conductor to punch it. This method of indicating the date reduces the waste somewhat as compared with the full dated transfer, but it is far inferior, because conductors will, as a rule, note only the day and not bother to see that the proper month is punched.

The endeavor to simplify the transfer has led also to the adoption, by some companies, of what is often incorrectly called the "universal transfer," by which is usually meant a "direction transfer," i. e., one on which the destination is indicated by punching the direction only. The transfer itself is certainly simplified by this expedient, but the transfer rules are made very complex because it is impossible to adhere rigidly to the direction idea without unreasonably curtailing the transfer privilege. The use of such transfers simply "passes the buck" to the receiving conductor, for he is then expected to remember a lot of rules and to know instantly when such a transfer is presented to him whether it should be accepted on his line.

The direction transfer, I believe, is based on wrong



Fig. 1

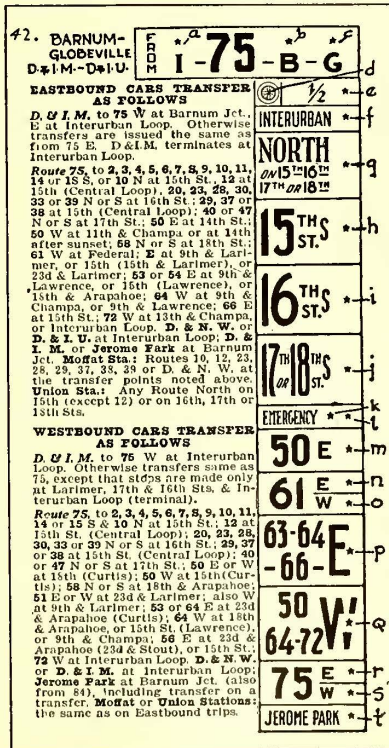


Fig. 2

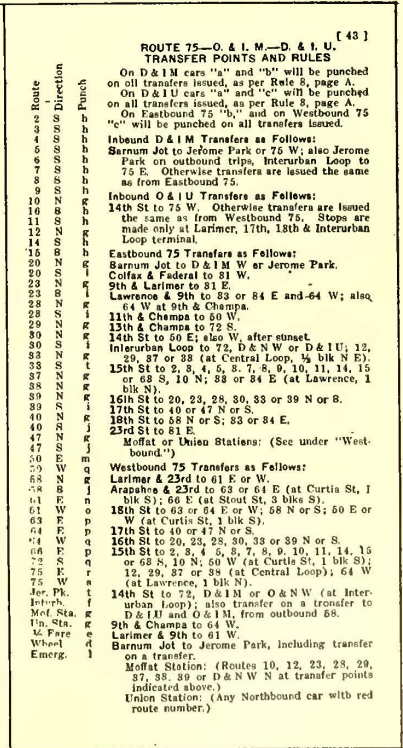


Fig. 3

Fig. 4

FIGS. 1 AND 2—FRONT AND BACK OF NEW DENVER TRANSFER. ONE OF THE NOVEL FEATURES IS THAT THE DATE IS INDICATED BY LETTERS. FIGS. 3 AND 4—PAGES FROM THE RULE BOOK WHICH TELL HOW THE TRANSFERS ARE USED

principles; first, because it opens up wide avenues for abuse in trading of transfers; second, because it either curtails the transfer privilege or else permits looping back; third, because the passenger, when he gets the transfer, does not know just how he is permitted to use it, and fourth, because the receiving conductor has all he can do to inspect transfers without cudgeling his brain to remember whether a transfer from such and such a line punched "East" is good on his car at the particular point presented. In my opinion, a transfer should show plainly the exact conditions of its use, on what lines, in what direction, at what place and at what time it is valid. It should be easy and quick to punch and still easier to inspect.

These are the points we have kept in mind in designing our new transfer. On this work we have endeavored to focus the thought of everyone in the company who is directly concerned. Not only officials, but several of our trainmen, have contributed, some of the most valuable suggestions coming from F. W. Werner, who for many years punched and received transfers himself. The result, we modestly believe, is the best transfer in the world.

FEATURES OF NEW DENVER TRANSFER

Separate pads of transfers are printed for a. m. and p. m. use. Fig. 1 shows the face of one of the p. m. transfers. Fig. 2 shows the back of this transfer. There are thirteen different transfers for our thirty-six lines. These are arranged in seven groups, and a distinct color is used for each group. This color scheme aids the receiving conductor in quickly spotting transfers presented at the wrong transfer point. The particular transfer reproduced is used on the Barnum-Globeville line, a through route, which carries route number 75; and also on two interurban lines, the Denver & Intermountain Railroad, running from the center of the city out over the Barnum line, and the Denver & Interurban Railroad, running out over the Globeville line.

Figs. 3 and 4 are reproductions of pages 42 and 43 of our new book of transfer rules. These two pages give detailed instructions concerning the transfer illustrated herewith. It will be noted that the left-hand page (42) is a reproduction of the back of the transfer and of those parts of the front which indicate the issuing line and the destination. On the right-hand page the triple column at the left refers to the front of the transfer shown on the opposite page and tells which space is to be punched when a transfer is issued to any route and in any direction. These directions are almost superfluous, except for the instruction of green men, as the face of the transfer is self-explanatory to anyone familiar with the routings of the various lines.

Referring to Fig. 1 the line from which the transfer is issued is indicated by punching out the star above I, B or G at the top of the transfer, as described at the top of page 43 of the rule book. At the moment of issuing the transfer only two punch marks need be made—the destination and the time.

The most novel feature of the new transfer is the method of indicating the date by an arbitrary combination of two letters. This date symbol is more easily discerned by the receiving conductor than even the full printed date and has the great advantage of eliminating

the wastage which is unavoidable with the dated transfer. Transfers are made up in pads of fifty, and all unused pads are returned to stock and used at some future date. The large number of combinations possible with the letters of the alphabet, using only two at a time, and the fact that the combinations are not known in advance, will deter dishonest passengers or conductors from keeping unused transfers with the intention of using them when the same combination appears again. The saving in wastage alone will amount to several cents on every thousand transfers.

The letter combination is obviously far superior to printing the day of the month in conspicuous type and punching the month, as practised by several companies, because with such transfers, as mentioned before, very little attention is paid to the month, and the dishonest person, knowing that exactly one month later transfers bearing the same number will be used again, might be tempted to save transfers for fraudulent use on that day.

As an additional safeguard against the transfers being saved by passengers, or held out by conductors for use on a later date, the transfers have printed beside the date combination and the serial number the words, "These figures and letters indicate the date." The auditing department will systematically check redeemed transfers by serial numbers to detect any fraudulent use, and as the conductors are aware of this, we anticipate no trouble whatever in this respect. Abuse naturally would be less than with any other dating scheme, except that of printing the full date on the transfer.

The time feature on the transfer is an original design which we believe is superior in ease of punching and inspection to anything heretofore used. It requires only one punch mark to indicate the hour and quarter hour, since the position of the punch mark on the hour figure designates the quarter hour period opposite. The transfer is compact, measuring only 2 in. x 6 in., and all punching is near the right-hand edge, thus expediting careful inspection. A black background is used for the hours on the p. m. transfer readily to distinguish it from the a. m. transfer. These figures on the p. m. transfer are made heavy because it is easier to see a punch mark in the white figure than on the black background. The letters a. m. or p. m. and the date combination are printed in red on the morning transfers and in black on the afternoon transfers further to distinguish between them. This involves no extra cost, as these letters are printed by the use of a separate roll on the press.

The arrangement of spaces for punching the destination is such that all punching may be done from the right-hand side of the transfer and, with few exceptions, before detaching it from the pad. The more important transfer routes are indicated by the wide spaces toward the upper end of the transfer, while the spaces which are rarely punched, or are punched only at the outer ends of the lines when the conductor has plenty of time, are located toward the perforated end of the transfer.

The question of looping back on a single fare was thoroughly investigated and the new transfers are designed to prevent this practice without unduly restricting the transfer privilege.

On the back of the transfer is complete information concerning transfer points. This is intended for the use of the passenger and accordingly is arranged numerically by route numbers. For example, if a passenger wishes to transfer to Route 58, he looks on the back of the transfer, finds 58 in its numerical order and reads "58 N. or S. at 18th St." As the geographical order of transfer points is more convenient for the instruction of new conductors, such an arrangement is provided in the instruction book on transfers. (See Fig. 3).

Saving \$400,000 a Year on the Bay State

Mr. Goff Explains Measures of Economy, Such as Rerouting of Cars, Reduction of Stops, and Consolidation of Carhouses, Shop Facilities and Accounting Offices

PRESENT and proposed measures of economy looking toward an annual saving of \$400,000 for the Bay State Street Railway, were outlined by Robert S. Goff, vice-president, at a recent hearing before the Massachusetts Public Service Commission on the company's application for a zone system of interurban fares. Mr. Goff said that about \$175,000 has been saved by rerouting of cars and shortening of layovers, mainly on the northern lines, and that further changes on the system may be expected to realize \$100,000 more in transportation cost economies.

The speeding up of cars, the discontinuance of duplicated service, and improved acceleration and braking under the direction of three representatives of the General Electric Company, have all been undertaken with success. Lynn, Salem, Lawrence, Lowell and Haverhill lines and through ones in their territory have been rerouted. In the whole Bay State territory 26 per cent of the white poles have been cut out, with some reduction in the number of car stops in actual service. The reduction in white poles has led to the rendering of better service and to the elimination of some of the setbacks necessary in the Boston district in order to maintain a reasonable headway under drawbridge and other handicaps. All new cars are now assigned by the time-table and statistics department, with resulting decreased investment in spare parts, standardization of maintenance and improvement of service.

The company, Mr. Goff stated, cannot buy any more one-man cars because of its lack of funds. Within a year the cost of such cars has risen from \$4,000 to about \$6,000. Studies are being made, under the direction of Vice-president R. B. Stearns, to reduce the weight and energy consumption of the one-man car rebuilt by the company, without affecting its safety or operating features adversely. The converted car weighs about 50 per cent more than the purchased unit, and its consumption of energy is disproportionately greater.

Mr. Goff also said that the company could not raise the \$400,000 necessary to build large repair shops at Reading on the north of Boston and also at a point south of the city. Plans are afoot, however, to close eight or ten carhouses. It is estimated that at least \$100,000 will be saved by the consolidation of carhouse and shop facilities. The saving comes in in superintendence and in standardizing the car, as well as in put-

ting the maintenance on a car-mile basis where a certain man will have specialized work to perform, with mass repairs and the elimination of the production losses associated with small carhouses.

In the matter of accounting and general office work the company expects to effect a consolidation of accounting offices and establish one general office on either side of Boston during the present month, with a material reduction in expense. Changes have been made in outside superintendence which are expected to yield a saving of at least \$10,000 a year and to improve the service by having men of better caliber in charge of operation in the larger cities.

Total present and prospective economies from all sources are estimated at \$400,000 a year, based in large degree upon the findings set forth in the report of B. J. Arnold to the commission. Mr. Goff referred briefly to a report by John A. Beeler upon possible improvement of operation between Lynn and Boston. His main recommendation was that the Bay State company establish a terminal in Chelsea for all northern inward and outward lines, handling the business from Chelsea to Boston by three-car trains, if necessary, and perhaps building a subway or viaduct. The estimated cost of the Chelsea terminal was about \$200,000.

Help Them to Live

A STARVING man does not want flowers for his funeral; he wants food. Post-mortem evidences of appreciation may be perfectly fitting, but they do not make up for prior neglect. These facts are being

brought home to some communities that have allowed—or, worse yet, caused—their electric railway facilities to pass into the junkman's hands. When it has been too late, they have begun to realize the value of the local transportation service.

Instances of this sort, however, may be of use in inducing other communities not to be so foolish. That is the hope of E. J. Cooney, executive assistant Rhode Island Company, who is relating to the public in his bulletin, "Better Railway Service," the tale of two Massachusetts lines that have just been sold to

wreckers. This, he remarks, is a rather ominous sign, and it foreshadows events of a similar nature that are bound to occur in other parts of New England in the near future unless relief is granted. May the public in New England and elsewhere learn the lesson in time!

The British Columbia Electric Railway, Vancouver, has resumed its technical classes for the instruction of employees. The classes, as heretofore, are in charge of J. G. Lester.

BETTER RAILWAY SERVICE

Edited by E. J. Cooney, Executive Assistant
The Rhode Island Company
100 Peaslee Street, Providence, R. I.

**Another Electric
Railway To
Be Junked?**

Bulletin No. 2 December 4, 1917

RHODE ISLAND COMPANY
BULLETIN DESIGNED TO
EDUCATE PUBLIC

Dispatching the Work of the Busy Executive

A Plan Which Is Operated Successfully in the Office of the President of the Boston Elevated Railway

THE duties of an executive officer on an electric railway property are so numerous and varied that some kind of system which can be operated by his assistants must be in use if his time is to be spent effectively and his energy conserved for the most important duties.

In this connection a representative of the ELECTRIC RAILWAY JOURNAL, in calling recently on Matthew C. Brush, president Boston Elevated Railway, was interested in a plan which Mr. Brush said is proving very effective for his purpose. Each morning his secretary fills in a form similar to that reproduced herewith and places it under a plate of glass at one end of a long table. Mr. Brush sits at the head of this table for conferences with callers, both individually and in groups. He then has directly before him in condensed form any of the data which are likely to be referred to in these conferences. When there is no definite appointment scheduled he takes up in order the items which happen to be pending so that there is very little time lost. The form as reproduced is printed on a sheet 18 in. x 22 in. in size. While in the experimental period it was blueprinted from a tracing.

In studying the blank form it will be noted that certain sections are assigned to individuals by name whereas only one section is allowed for bureaus and heads of departments. This arrangement was worked out experimentally to provide the greatest space where entries were most likely to be made. The men whose names appear in these spaces have general or special duties likely to require daily conferences with the president. The heads of nearly all the departments require definite appointments only occasionally, although they are expected to drop in on the president informally whenever they desire his advice or have anything of special interest to report.

An unusual feature of Mr. Brush's office routine is the presence of his secretary at all conferences held during the day or evening. The secretary is expected to correct him if he makes any errors in statement and to attend carefully to any discussion that may be going on. A condensed record of all interviews is maintained, furnishing a convenient diary for reference and supplementing the records furnished by the appointment sheets.

The whole organization of the Boston Elevated is

somewhat unique in that here is no general manager, the heads of all departments reporting directly to the president. In each department there is an assistant who acts in place of his chief when necessary, being in such cases brought into direct contact with the president. Mr. Brush's idea is that this plan of organization brings him more closely into contact with the departments than would otherwise be possible, and also strengthens the bond between himself and his subordinates. Under this arrangement department heads probably have more than the usual autonomy, but they are kept in contact with the work of other departments through weekly conferences held around the president's table.

These conferences are the clearing house for all kinds of information regarding the property. For example, at a meeting held recently the topic was the new type of car of which 100 will soon be placed in operation. After inspection of a sample car the heads of the department were asked to comment upon the design from their respective standpoints. The brunt of the discussion was naturally carried by John Lindall, superintendent of rolling stock and shops, whose duty it was either to satisfy critics or to accept their suggestions. At this meeting the president also took occasion to give the

MR. FLINT	MR. PUTNEY	MR. GILMAN	MR. POTTER	MR. LEARNED-MR. CHING	HEADS OF BUREAUS AND DEPARTMENTS
STATISTICS		PROGRAM AND APPOINTMENTS FOR		MISCELLANEOUS MATTERS	PENDING
ESTIMATED RECEIPTS, including This Year _____ Corr. Days of Month Last Year _____ Gain _____		9			
This Year _____ Corr. Week Days Last Year _____ Gain _____		10			
Remarks _____		11			
ACCIDENTS This Year _____ Last Year _____		12		TELEPHONE CALLS	
C and V _____ C and P _____ C and C _____ A L I _____ B D C _____ DERAIL _____		1			
TOTALS _____		2			
COAL		3			
COAL CONSUMED 1917 1916 _____		4			
COAL ON HAND 1917 1916 _____		5			

APPOINTMENT AND CONDENSED RECORD FORM USED IN RAILWAY PRESIDENT'S OFFICE

Council, as this group is called, the latest accident statistics and to congratulate the departments upon the splendid record just made. The reasons for the reduction of accidents were analyzed and plans were laid for continuing the safety work.

While each electric railway must have its own way of conducting its affairs, depending largely on the preferences of the executive in charge, it is essential that the officials most closely associated with the public should have ample time for studying the big problems of the industry and for meeting the representative of the public. The plan described above appears to be effective for this purpose.

The Treasury Department has issued from Washington two bulletins describing the United States war-savings certificates and thrift stamps and telling how these may be secured for sale by those who desire to act as agents for the government. These bulletins are known as Treasury Department Circulars No. 94 and No. 95 (War-Savings Circulars No. 1 and No. 2). Agents of the first class may obtain, at the current price, certificates up to \$1,000 from post-offices, banks and other agents. Agents of the second class—those holding more than \$1,000 of certificates—may deposit collateral.

Meeting the Critical Coal Situation

Notes from Different Sources Reflecting the Effects of the Shortage and the Efforts Being Made to Meet It

[The coal shortage has become so acute and such vigorous measures are being taken to overcome it that it has seemed desirable for the benefit of those who are following developments closely to assemble in one part of the paper some of the most important items of news which are pouring in from all parts of the country.—Eds.]

New England Service Cut

Strenuous Measures Have Been Necessary in New England to Meet the Acute Coal Shortage in That District

AT ONE TIME this week it looked as if the existing coal shortage would compel the Massachusetts Northeastern properties, operating 200 miles of track in New Hampshire, Maine and Massachusetts, to suspend night service after 8 p. m. and make other radical curtailment in their service. President David A. Belden was able, however, late in the week to obtain some coal by government order from the Portsmouth Navy Yard, thus temporarily preventing the partial shut-down of service. The roads which would have been affected are the Massachusetts Northern, the Exeter, Hampton & Amesbury, the Dover, Somersworth & Rochester and the Portsmouth & York electric railways. Cuts were made, however, by the Bay State Street Railway and the Boston Elevated.

Wallace B. Donham, receiver for the Bay State Street Railway, and P. F. Sullivan, president, briefly discussed the coal situation in press interviews early in the week, and stated that entire stoppage of service would become necessary in the early future if coal could not be secured at the Quincy Point station. About 200 tons per day are burned in this plant, which operates nearly all of the Bay State company's service south of Boston. Important traffic to and from war service plants is served by the Quincy Point station. At present the Bay State company has made no plans to eliminate night service, but emergency schedules cutting down the car-mileage about 8 per cent went into effect Thursday morning. On Wednesday night there was every prospect that unless coal could be obtained within a few hours the entire service south of Boston dependent on this tidewater plant would have to be shut down. Barely enough coal remained in the bunkers for twenty-four hours' service plus the amount required to bank the fires and keep the boilers from freezing. On Thursday morning dasher signs announcing the service cut due to coal shortage were carried on all cars, with fliers in the cars and announcements in the daily press explaining the situation. The company planned, in case coal arrived Thursday, to disturb the early morning, last night and rush-hour service as little as possible. Ordinarily seven days' statutory notice of a service curtailment is required, but in the present case the emergency came so suddenly that it was necessary to cut through the regulation.

The Boston Elevated Railway planned to put into effect this Saturday morning a service cut of about 3 per cent, or 4000 car-miles per day. The changes take the form of eliminating surface car service which duplicates rapid transit service, and doing away with overlapping surface line routes. A conference was held at the company's offices Tuesday upon receipt of advices of Fuel Administrator James J. Storrow emphasizing the seriousness of the coal situation in New England. This conference was attended by inspectors of the Public Service Commission of Massachusetts, and at the meeting careful consideration was given to the surface operation of the Boston system in order to lift out mileage which would result in a decreased consumption of coal and yet not seriously impair facilities provided. Edward Dana, manager of surface transportation, informed the Public Service Commission by letter Wednesday afternoon that changes would be effected on seventeen lines. These changes consisted of entire cutting out of some lines, increases in headway, short routing, shuttle service and increased facilities for transfer between short-routed and connecting or through cars. Formal approval of the commission is not required in advance of service changes, but the company has kept the board fully informed of its conditions.

President M. C. Brush has asked the public to use the rapid transit lines wherever possible instead of the surface cars. The company has a fair supply of coal on hand at present. Its coal consumption is now about 7000 tons per week, which under normal conditions is handled by the collier *Everett*, chartered by the road for weekly service between Boston and Hampton Roads. This vessel has been tied up for eight days at Hampton Roads waiting for a berth, congestion being very severe at tidewater. The company's coal contracts cover the 1915-1920 period at an average price of \$2.775 per ton, compared with the present tidewater price, based on the government's fixed price at the mine of \$4.25 per ton. Concerns with which the company has had coal contracts have been unable to meet their agreements owing to the commandeering of coal by the government. About 30 per cent of the Boston Elevated coal supply, therefore, has been purchased in the open market, and the company has paid as high as \$9.50 per ton alongside in Boston. The loss of service of the *Everett* due to delays represents \$17,500 per week, and it is not unlikely that the government will commandeer the vessel in the near future. If this is done the road will have to fall back upon some of the steamers from the Great Lakes which have been brought to the Atlantic coast.

The following statement has been issued by Mr. Brush:

The company has received two communications from James J. Storrow, New England Fuel Administrator, under dates of Dec. 10 and 15, in both of which, due to the very serious situation with respect to fuel supply for New Eng-

land, he urges the earnest co-operation on the part of the public, the company and its employees to do everything within their power to economize in every conceivable way in the use of fuel. The company has posted copies of each of these letters on every bulletin board in all its shops and carhouses; further, it has posted on 150 of its advertising boards copies of these letters.

Among other things, Mr. Storrow urges, entirely aside from the advisability of cutting down heat as much as is possible and coasting by motormen as much as they can with due regard for proper service, to "reduce schedules when it can be done without interfering with transporting people to and from work and without serious inconvenience to the public."

The company is keenly aware of the very serious situation and it is entirely possible that unless the utmost efforts are made to conserve fuel, immediate conditions may arise which will seriously affect the transportation in Greater Boston. It is not intended to arbitrarily and without proper consideration modify present schedules or service, but it is intended to co-operate with the Public Service Commission with a view toward preventing, so far as possible, duplication of service or unnecessary service from the standpoint of meeting this situation. The company further is earnestly in hopes that due to the fact that this fuel shortage is primarily caused by the war situation and that the value of fuel for transatlantic service both for men and supplies should be worthy of serious consideration by all Americans, its patrons will co-operate with it and be patient in modifications which may be inconvenient but at the same time necessary.

It is anticipated in any modifications of schedules and service to be particularly careful to endeavor to maintain a service necessary for the transportation of employees engaged in government service.

In carrying out its plan for reduction of service it seems to the company that even though it is recognized that in some cases marked inconvenience is going to be caused, effort must be made to substantially reduce street car service and carry, as far as possible, patrons thus inconvenienced on rapid transit lines.

One of the very important sources of success in the effort to conserve coal will lie in the hands of the employees of the company to whom we have earnestly appealed for co-operation and help in this very serious situation which calls for the utmost patriotic effort on the part of everyone. We are absolutely confident from the spirit of co-operation shown by the association that they will assist us and the public in this very important matter.

With a view to assisting the association officials in bringing this seriously home to all employees the company has mailed a copy of each of Mr. Storrow's letters to each of its employees at their home address.

Coal Situation in Ohio Was Critical Last Week

Several Electric Railways in the State Had a "Close Call" with Regard to Power Supply

FOR a time last week the shortage of coal created an alarming condition in Ohio among street and interurban railways. This is perhaps the first time in the history of the business that such difficulties have been encountered. Consigned coal stood on railroad sidings in many places, but this could not be diverted to the railways without authority from the Federal Fuel Administration, and even then the railroads were unable to move it rapidly enough to take care of the situation. An arrangement was finally completed by the State and federal authorities for the use of about 2200 cars of coal that had been consigned to lake shippers. This was being moved as rapidly as possible, but it is a very small amount to meet the needs of both the steam and domestic consumers all over the State.

At Dayton on Dec. 11 both the city and interurban service on the Ohio Electric Railway ceased at 7 o'clock in the evening, and the intention was to furnish only a very limited service thereafter until a supply of coal could be secured. The same condition prevailed at

Hamilton. General Manager C. D. Nicholl communicated with the authorities in Washington in the hope of securing a priority order that would release coal for the plants at Hamilton and Medway. The Dayton, Covington & Piqua line at that time was depending upon the arrival of a single car of coal. Of all the interurban roads entering Dayton only the Dayton & Troy had a sufficient supply to last any length of time.

In Cleveland at the end of the week street railway service was threatened because the Cleveland Electric Illuminating Company, from which the Cleveland Railway receives most of its power, had only a two-day supply of coal. Already it had withdrawn its service from a large number of industrial plants, said to be 1800, in order to maintain its lighting service and to furnish the railway with power. Coal had been promised and was said to be on the way but the company held out no encouragement until it could be certain of the situation.

A supply of coal was received by the Cleveland Electric Illuminating Company on Dec. 16 and the danger of the Cleveland Railway's having to suspend or curtail operations has been eliminated for the present, although the amount of fuel received will last but a few days. By the time it is exhausted, it is hoped that regularity in shipment may be resumed.

At Columbus the Columbus Railway, Power & Light Company was on the point of shutting off the power from many industrial concerns on Dec. 11 when it received a supply sufficient to insure comparative safety. However, it will probably reduce its evening service 50 per cent, on the recommendation of Mayor George J. Karb, adopt the skip-stop system in the residence districts and will put into operation the rerouting plan approved by the City Council recently to conserve power and the coal supply.

The Cincinnati Traction Company had only enough coal at its Depot Street power plant on Dec. 14 to last that day and the next, and conditions at the Pendleton Street Station were not much better. These two plants supply the power for the entire street railway service of the city. Vice-President Walter A. Draper stated that the company had in transit 133 cars of coal which had been purchased on contract and sixty-five cars purchased in the open market. If that coal arrived on time, he said, the road would be safe for a short time. The two plants consume about ten cars per day. Mr. Draper appealed to Street Railway Commissioner C. W. Culkins for aid. Mr. Draper attributed the shortage to the inability of the railroads to secure empty cars.

The coal producers have formulated a pooling plan for a number of points in the State and it will be put into operation within a short time. It is believed that this will increase the efficiency of the railroad equipment 25 to 30 per cent and result in a much greater movement of coal. Switching at the terminals will be reduced to a minimum under this plan and all coal will be hauled by the most direct route. As a rule, cities and communities will be supplied from the nearest point of origin, and cars, as far as possible, will be kept on their own roads.

For a time last week the Northern Ohio Traction & Light Co. had a very small supply of coal, but it received a few cars which will probably tide it over until shipments can be resumed in the regular way.

Preventable Waste of Coal in the United States*

Many Boiler Plants Operate at Less Than 60 Per Cent Efficiency—Two Possible Methods to Reduce the Consumption of Coal

AN ORGANIZED effort to bring about efficiency in the production and distribution of coal is being made, but no parallel measures have been adopted to bring about a normal and practicable efficiency in its use. The hundreds of large plants which are consuming fuel wastefully are directly and needlessly causing a large fraction of the existing car shortage. They are overloading the already strained capacity of the railroads and rendering slower and more difficult the transportation of food and other vital commodities.

For obvious reasons the boiler plant offers the most lucrative field for producing economies with a minimum of alteration in physical equipment. Under present conditions a plant which carelessly operates at an efficiency of 40 to 50 per cent receives from the government the same consideration in the delivery of coal as the one whose efficiency is 70 to 75 per cent. This is unfair and wasteful. The government hands over say 200,000 tons of coal a year to a plant owner, but asks for no accounting as regards its consumption, nor any questions as to the amount of steam it is made to produce. There is, nevertheless, an equivalent amount of steam this fuel is capable of generating and it can and should be made to produce that quantity.

In general, there are at least two kinds of operation worthy of consideration. One might be termed the autocratic method. This would involve the use of authority to compel coal consumers to execute such measures of economy as the proper authorities might prescribe for any given case, limits being set as to expense to the user. Such limits might be in terms of a percentage of his present yearly coal bill. Alterations should be directed chiefly to purely operating improvements. Many objections would probably be made by consumers against this plan, but once in effect the majority would no doubt realize its pecuniary advantage to themselves.

The other plan would be largely an educational one, in which patriotism and efficiency would furnish the motive forces required. The requisite information in regard to this plan must reach the owners and managers of industries and there must be simple instruction sheets for the engineers and firemen. The vital importance of daily accurate records of coal and water must be taught and information given regarding practical appliances for automatic measurements of both.

This work could be very greatly aided by a staff of experts who would visit the plants, make investigations and recommendations and keep in touch with the progress of economies. They should also deliver lectures or talks, planned so as to reach directly not only managers and owners of the industries, but also chief engineers and firemen of the boiler plants. This feature of the plan itself would, undoubtedly, result in great good.

It is estimated that approximately 67 per cent of the coal mined, or about 469,000,000 tons, is burned for

steam-making purposes on land. The saving or wasting of one-quarter of this coal, more than 117,000,000 tons, depends upon the efficiency with which we operate our boiler furnaces. If we actually saved by proper methods only 50,000,000 tons per year, this economy would result in freeing for other important service the use of 1,000,000 50-ton freight cars per year. The direct saving to our industries would be \$250,000,000 worth of coal per year, if figured at \$5 per ton. This saving would be 10.65 per cent of the coal now burned for steam production.

INCREASES IN COMBINED EFFICIENCIES OF BOILER AND FURNACE NECESSARY TO EFFECT A 10.7 PER CENT SAVING IN COAL

Old Efficiency, Per Cent	New Efficiency, Per Cent	Old Efficiency, Per Cent	New Efficiency, Per Cent
44.67.....	50	62.54.....	70
49.14.....	55	67.00.....	75
53.60.....	60	71.47.....	80
58.07.....	65		

The accompanying table shows to what point the efficiency of a plant must be raised to obtain the saving of 10.65 per cent upon which these economies are based. Hundreds of boiler plants operate at no greater than 58.07 per cent efficiency, and it is a comparatively simple matter to bring them up to an efficiency of 70 per cent or higher. The latter would result in a saving of more than 17 per cent of the coal. Thus, the large improvements possible in the less efficient plants would tend to balance, or more than balance, the smaller economies to be obtained in those which are better operated.

If we do not limit our field of action to coal used merely for steam generation, but extend it to include a consideration of the economy with which the steam itself is utilized and applied, there is no doubt that the above saving could be doubled, so that we might save 2,000,000 50-ton carloads of coal per year.

Our steam plants are under the immediate management of chief operating engineers. The examination requirements for licenses in this profession call for practically no knowledge of steam and fuel economics. These examinations deal chiefly with matters of safety, repair and maintenance of equipment, and neglect almost entirely the subject of coal economy. This is a very serious defect in our present system and is directly responsible for large preventable waste of fuel.

The work involved in a general program such as suggested will undoubtedly be undertaken. Its success or failure will depend chiefly upon the kind of men who may be selected for its planning and execution.

Letter on Fuel Conservation Used as Advertisement

The Connecticut Company, New Haven, Conn., has used as an advertisement in the *Hartford Courant* the letter sent by the Fuel Administration in Washington to the State Fuel Administrators throughout the United States on the conservation of coal, and the suggestions of the Electric Railway War Board. The following is the company's statement with which the advertisement concludes:

"During the past two years the company has spent more than \$1,000,000 in modernizing its boiler plants and power stations, in order that there might be an

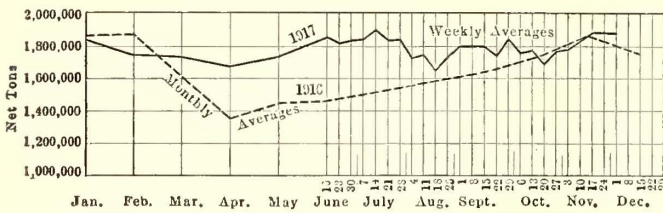
*Abstract of a paper by David Moffat Myers presented at the meeting of the American Society of Mechanical Engineers held in New York, Dec. 4 to 7, 1917.

assurance of ample power supply and a more economical use of fuel.

"The company will welcome any suggestions that may aid in a full compliance with the request of the Fuel Administration and trusts that its patrons will assist in the successful carrying out of plans that may be inaugurated after full consideration of all the details by the State Fuel Administration and the Public Utilities Commission."

Data on Bituminous Coal Production

The United States Geological Survey has issued the statistics reproduced in the accompanying diagram of bituminous coal production in the entire country. The production is now running about 11,250,000 tons per week, last week's low figure of 10,250,000 being due



ESTIMATED AVERAGE TOTAL PRODUCTION OF BITUMINOUS COAL PER WORKING DAY—INCLUDING COAL COKED

to Thanksgiving Day. Slightly more than 5½ per cent of the production is coked at the mines.

The shipments of coal, in carloads, originating on the principal coal-carrying railroads for a few weeks past were as follows:

Shipments	Week Ended—					Dec. 1
	Oct. 27	Nov. 3	Nov. 10	Nov. 17	Nov. 24	
Bituminous, 114 roads	189,589	192,419	199,205	201,787	199,385 (a)	182,387 (a)
Anthracite, nine roads	42,338	31,314	40,459	42,024	42,936 (a)	37,533 (a)
Beehive coke, four roads	12,900	12,234	11,799	12,784	13,178 (a)	12,025 (a)

(a) Subject to revision.

Cutting Down Suburban Service

The United States Geological Survey has issued brought to its attention the possibility of saving a considerable quantity of coal in the larger cities by cutting down the suburban steam-railroad passenger service during the non-rush hours.

On many lines a number of trains are now operated at non-rush hours which require only three or four cars for the small traffic handled. Many of these trains are run merely to afford a maximum of convenience through frequency of service. Competent railroad men have informed the Fuel Administration that, on the average, two of these non-rush hour trains could well be made to do the work of three by increasing the headway and adding one or two cars to the trains run.

One important railroad as an experiment recently decreased its non-rush hour service without serious inconvenience to the public. This company has just announced a further withdrawal of about 10 per cent of its suburban trains, whereby it will be able to release more than 1000 tons of coal per month.

The Fuel Administration suggests, therefore, that the railroads generally do what they can in this respect, and that the suburban towns, through community action, acquiesce where no great hardship is involved.

A Good Chance for Publicity

Electric Railways Are Keeping the Public Posted on the Effects of the Coal Shortage

ELECTRIC railways generally are taking every opportunity to keep the public informed as to the present and possible effects of the coal shortage on their service. In the issue of *Public Service*, issued by the Pine Bluff (Ark.) Company, for Dec. 16 the following statement is made: "We expect to operate our power house and maintain full capacity of light, power and street railway service just as long as we can secure coal. We are doing all possible to continue your service and know that if we are successful you are really receiving a service that you have every reason to be thankful for and appreciate. We have had a man in the Arkansas coal fields for weeks buying all coal possible. This man has been going from mine to mine and now has over twenty cars bought, but has been unable to get coal cars to move more than a few loads. We have called upon St. Louis, Memphis, Jonesboro and every other place possible to secure coal and have at this time about fifteen cars of coal moving toward Pine Bluff. The railroads barely have enough coal to move the trains, industries have shut down in a great many cities, including Pine Bluff, but we hope for continuous operation of your service. We, the Pine Bluff Company, and you, the public, are obligated to the Missouri Pacific Railway, the Cotton Belt Railway, the Union Seed & Fertilizer Company, the Pine Bluff Cotton Oil Company for coal they have diverted to us, and these concerns should be remembered for assisting us in giving you a large part of your service to date."

On Dec. 15 the Kansas City Railways issued an 18-page booklet giving full information regarding the fuel situation. It is introduced with this statement: "The officials of the Kansas City Railways Company feel that the facts now affecting car service in the Kansas cities should be made known. Everything possible is being done to give service. If the service during the rush hours is not what is desired, the public should bear in mind that circumstances outside the control of any management are responsible." After explaining the local coal situation the pamphlet states: "In light of this situation the officials of the company would be subject to rightful condemnation if they did not conserve all coal that can be reasonably conserved."

More than half of the Kansas City Railways' pamphlet is taken up with reprints of articles and bulletins. Many of the articles appeared originally in the ELECTRIC RAILWAY JOURNAL.

Coal Shortage Forces Skip Stop at Columbus

On a statement of Harold W. Clapp, general superintendent Columbus Railway, Power & Light Company, Columbus, Ohio, to the effect that the adoption of a skip-stop plan would save from 400 to 500 tons of coal a month, the City Council adopted a resolution authorizing it. The company will be permitted to eliminate alternate stops on certain lines outside of the business section. Mr. Clapp also asked approval of a plan to reduce the evening service about 50 per cent as a war emergency measure, but no action was taken.

Illinois Railway Operators Studying Coal Conservation

In accord with the policy outlined by Fuel Administrator Garfield that the electric railways take steps to bring about important savings in coal consumption through the reduction of schedules and the amount of heating in the cars, Samuel Insull, chairman of the Illinois Council of Defense, has appointed a committee of electric railway men of the State to give careful consideration to these possibilities. The committee is composed of Edwin C. Faber, Aurora, Elgin & Chicago Railroad, chairman; J. R. Blackhall, Chicago & Joliet Electric Railway, secretary; C. F. Handshy, Illinois Traction System and president of the Illinois Electric Railway Association; D. E. Parsons, East St. Louis & Suburban Railway; L. A. Busby, Chicago Surface Lines, and Britton I. Budd, Chicago Elevated Railways.

The committee sent out a questionnaire to the various electric railway properties in the State requesting various information, and later held a meeting on Dec. 18 to review this information and condense it into a report to be made before the Illinois Public Utilities Commission and J. E. Williams, Illinois fuel administrator. What plans will be adopted to accomplish the end in view will have the approval of the Illinois Utilities Commission. The recommendations of the committee and the extent to which coal can be saved through execution of its recommendations, is not yet available for publication.

The Latest from Kentucky

Threatening shortages of coal which were stated to be about to compel suspensions of electric railway service at numerous Kentucky points have not as yet reached that stage. The Louisville Railway has been having some difficulties using the coal it has obtained, but there has been no danger of a famine. The Paducah Traction Company characterized as without foundation a report that it would shut down through lack of fuel.

The situation in Kentucky has been greatly helped by seizure by the State Fuel Administrator of 150,000 tons of coal on railroad tracks billed to points north of the Ohio River. Freight congestions of northern railroads have made it impossible to take this coal north, and it is now being diverted to Kentucky points where it is needed. Public utility coal was not included.

Doherty Organization Suggests Simple Rules for the Boiler Room

To impel employees of the Doherty organization to co-operate in reducing power-plant coal consumption by 10 per cent, or 7500 tons per month, the following suggestions have been sent to all workers in the company's power plants:

1. Keep the boilers in good condition by thorough and systematic inspection, cleaning and repairing.
2. Blow the soot from the tubes daily.
3. Keep the grates and stokers in good repair.
4. Help the firemen to get proper combustion by analyzing the flue gases, ash content and coal.

5. Maintain proper drafts and flue temperatures.
6. Keep no unnecessary boilers "hot," and bank fires properly.
7. Keep steam leaks at a minimum.
8. Get the greatest feed-water heating from exhaust steam by seeing that all free exhaust goes to the heater; that no steam exhaust from the heater has a water temperature of less than 210 deg. Fahr., and that the oil separator is properly piped up.
9. Do not overlook cleanliness.

Railways in Washington and Baltimore to Save Fuel

IN THE campaign for economies in the transportation department, the Capital Traction Company of Washington, D. C., and the United Railways & Electric Company, of Baltimore, Md., are issuing pledge cards to their motormen and conductors to save energy in

THE CAPITAL TRACTION COMPANY	
I,	Motorman Conductor
of THE CAPITAL TRACTION COMPANY, realizing that the conservation of power and fuel is, during the continuance of the war, a patriotic duty and necessary to the success of our arms, hereby pledge myself to use every effort in my power, by coasting, by the proper use of brakes, the proper regulation of heating apparatus, and in every other way to save power while operating cars of THE CAPITAL TRACTION COMPANY.	
(Signed).....	
Date.....	

PLEDGE OF TRAINMEN TO SAVE ENERGY

every proper way. A reproduction of the card issued by the Washington company is shown herewith.

A reproduction is also shown of one of the posters carried in the cars in Baltimore during the period there last week of acute power shortage brought about in part by the scarcity in fuel and in part by interruption in the company's supply of hydroelectric power. During the present week there has been a marked improvement in water conditions, so that the company is now receiving an increased amount of hydroelectric power, and normal operating conditions have been resumed.

**TO OUR PATRONS:
THE WAR HAS CREATED
A TREMENDOUS COAL SHORT-
AGE. THIS AGGRAVATED BY
UNPRECEDENTED WEATHER
MAKES IT NECESSARY TO DE-
CREASE SERVICE, ELIMINATE
HEAT AND THEREBY CONSERVE
POWER. WE HOPE SHORTLY
TO RESUME NORMAL OPERA-
TION.**

UNITED RAILWAYS & ELECTRIC COMPANY.

EXPLANATORY POSTER ISSUED IN BALTIMORE

Some More Rays of Hope

New York Second District Commission Grants One Six-Cent and Two Seven-Cent Fares—Nine Increases Now Authorized

MORE aid to struggling electric railways in New York State has been granted by the Public Service Commission for the Second District. On Dec. 13 and Dec. 15 the commission announced increases in fares from 5 to 6 cents for the Glen Cove Railroad, and from 5 to 7 cents for the Peekskill Lighting & Railroad Company and the Putnam & Westchester Traction Company. Six previous increases were noted in the *ELECTRIC RAILWAY JOURNAL* of Dec. 8, page 1029. In all of these the new fare authorized was 6 cents, with the exception of one 7-cent rate.

The decision in the Glen Cove Railroad case was based upon evidence presented at a hearing on Aug. 29, when the company furnished proof that the existing 5-cent fare was insufficient to yield reasonable compensation for service rendered. Under the order the rate of fare will be 6 cents for a trip between any two points on the railway, which operates 3.28 miles of track from Sea Cliff to Hempstead Harbor.

The fare increases for the Peekskill Lighting & Railroad Company and the Putnam & Westchester Traction Company were granted subject to the abrogation of a contract between the two companies which provides for the issuance of transfers from either line for continuous rides over the entire systems of the two companies. This reciprocal transfer agreement was made on Oct. 1, 1910. Under the terms of this agreement the Peekskill company furnished all car equipment for use on the Putnam & Westchester company's system, and also power at 2½ cents per kilowatt-hour. In return the Putnam & Westchester line paid its proportion of other general operating expenses on a car-mile basis, as well as all other expenses incident to the repair and upkeep of its property plus a certain amount per car per month for depreciation in the equipment furnished by the Peekskill company.

Under the order just issued by the commission the companies are allowed to raise the maximum fare within the limits of Peekskill from 5 to 7 cents and to sell tickets at the rate of four for 25 cents. The order also provides for the discontinuance of free transfers. In making this fare readjustment, the commission ordered the discontinuance of the practice of carrying employees of the gas and electric light departments of the companies on passes. The practice of allowing this in the past resulted, the commission held, in loss of revenue.

In both instances the village authorities, represented by Corporation Counsel Robert F. Barrett, made objection to the rate increases. It was asserted that under the franchises granted the companies a maximum fare of 5 cents within the village limits was established. The commission, however, was governed by the determination adopted in the Huntington case [*ELECTRIC RAILWAY JOURNAL*, Nov. 24, page 946], namely, that it has the power to permit a company to increase its fares notwithstanding franchise restrictions. The commission decided that the fares charged by the Peekskill and Putnam & Westchester com-

panies were insufficient to provide a fair return upon the value of property in public service.

The following details of the previously granted increase for the Northport Traction Company have just been published in the tariff bulletin of the commission: The local one-way fare within the limits of the incorporated village of Northport, and between the Long Island Railroad station at Northport and the village of Northport, was increased from 5 to 6 cents, effective on Dec. 14.

Electrification of Norwegian Railways

Following the example of Sweden, the kingdom of Norway is now working feverishly on the electrification of all its state railways, with the expectation of relieving the present unbearable situation caused by the coal famine. The experiences gathered on the Reichsgrenze-Kiruna line in Sweden will be used as the basis of all the electric roads planned in both Scandinavian countries. Seven million crowns (about \$1,800,000) have been set aside by the Storting for motors, engines, conductors, equipment, etc., and an additional \$1,100,000 for the construction of a power station near Haka-wik Falls. The plans comprise the electrification of all Norwegian railways as speedily as the work can be finished and materials obtained. The importance of electricity for railway operation in Norway is evident from an examination of the coal expenses for 1911 and 1916 respectively. In 1911 the state railways spent \$550,000 for coal, and in 1916 \$1,800,000, or more than three times as much. Norway has an abundance of available water power, estimated at about 7,500,000 hp. The state railways would use only about 150,000 hp., or barely 2 per cent of the available supply. The electrification of all the railways in Norway, at \$55 per horsepower, would cost about \$8,000,000.

Car Cards Used in Vancouver

Somewhat of a departure by way of co-operation between the British Columbia Electric Railway, Vancouver, B. C., and the advertising company holding the concession in the cars has led during the last year to a more extensive use of car cards in publicity work.

Primarily to fight the jitney, the company started a little more than a year ago to point out the public's part in keeping up the service. The advertising company offered space in the regular advertising racks in the cars, realizing that as the people were induced to patronize the cars more and the jitneys less and that as the jitneys were regulated or restricted the advertising space in the cars would be more valuable.

For the most part the advertisements have been addressed to the person who rides regularly in the cars, pointing out the benefit he will gain by supporting the service. At the same time there has been an appeal to the jitney patron, who is always at some time or other a street car patron. In general, fair play, appreciation of electric railway service, and co-operation of patrons have been the ends sought in the car cards.

The company has put its cloth fender signs on city cars on a paying basis. This space was formerly used for patriotic and traffic advertising. In the future, while some space will be given for this purpose, it will be used mainly for increasing the company's revenue.

COMMUNICATION

Mr. Coates Vindicates Expenditure for Educational Work

THE TOLEDO RAILWAYS & LIGHT COMPANY

TOLEDO, OHIO, Dec. 17, 1917.

To the Editors:

In response to your suggestion that I state my opinion as to the results of our joint (railway, light, heat and gas) company section work, I take pleasure in submitting the following comment:

While the activities of our section have been confined practically to the past ten months, during which period we necessarily experienced a lull on account of the summer season, we believe that much good has been accomplished throughout the property. By this token we feel there is a brilliant future straight ahead and our conclusions are based upon these considerations. America has been racing on and on industrially. She has been developing so rapidly that no measures could be adopted for meeting the contingencies which we now face.

We must tarry a while and inventory our resources. The world's stock in trade is men. As our government sends call after call we are going to be brought more and more to the dire need of trained men. Ours is a business which is no exception to the rule. We need highly skilled and trained men as we have never needed them before, due to a marked depletion of our ranks. We feel this is true of the industry. Therefore we must confront the task of properly training our men, introducing efficiency and bringing about both results through the cheerful co-operation of all concerned. This we hope to accomplish through the medium of education.

The joint section we feel to be a means to the above end. Through it we hope to dispel for all time the very shadow of suspicion that normally characterizes some individuals and often groups of men. We have begun an educational program and have more than 140 enrollments under the auspices of the group work committee. We have started departmental meetings in a small way and the results so far are very promising indeed.

Our employees are also being offered rewards for meritorious work in correspondence courses or in any of the local night schools. These, together with a monthly bulletin and open meetings of an instructive and entertaining nature, will, we think, produce lasting results for both men and company. By literally saddling the responsibility and policy of the joint section on the members themselves through their chosen leaders, and by adopting an attitude of absolute frankness and impartiality, there is every reason to believe our organization will fit itself admirably for the most trying future.

More than 350 of our employees have availed themselves of this opportunity to travel straight ahead constructively, and we feel that the joint section will attract as many more before next summer. The financial question has been practically eliminated by the company's decision to pay one-half of all dues and to foot

all the bills incidental to the complete activities. This is not philanthropy, but rather it is labor maintenance work of the highest type, and we believe it is a proper operating expense. Among other things it is our duty to lead as well as direct. Between the two we choose to lead and to do so in the most natural and logical manner, namely, by indicating the way and inspiring our own men to leadership. The joint section has already proved its worth in that regard by forcing into the foreground personalities and talents that were literally being destroyed through mental indifference. We now know the real worth of the venture and do not hesitate in recommending a similar program to other organizations. The joint section has come to stay, it is very much alive, and it is here for the inspection of all.

F. R. COATES, President.

AMERICAN ASSOCIATION NEWS

Officers of Section No. 9

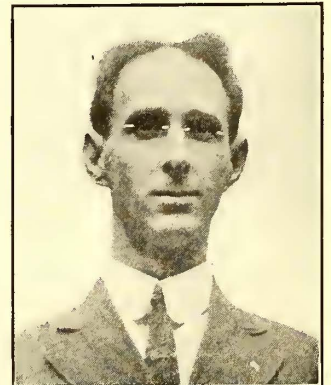
The following biographical notes relative to this year's officers of the Portland section continue the series of articles begun recently.

C. W. Bent, who was recently re-elected president of the Cumberland County Power & Light Company section, entered railroad work as freight clerk in 1907 with the Maine Central Railroad, Monmouth, Me. He



C. W. BENT

President Cumberland County
P. & L. Co. Section



P. C. PRATT

Secretary Cumberland County
P. & L. Co. Section

was transferred to the automatic signal department and later was placed in charge of maintenance and construction on one of the divisions. He went to Portland in 1910 and entered the transportation department of the Portland Railroad, which is now operated by the Cumberland County Power & Light Company, and is now serving as motorman and spare starter. Mr. Bent is a charter member of this section and was its president last year.

P. C. Pratt, secretary of the section, succeeds H. V. Adleson, who is now in the United States Army. Mr. Pratt is chief clerk in the engineering department. He was stenographer in the operating department of the electric light company from 1908 to 1910 and was then made office assistant. He was transferred to the engineering department two years later when the railway property was consolidated.

EQUIPMENT and MAINTENANCE

HAVE YOU A GOOD WAY
OF DOING A JOB?
—*Pass It Along*

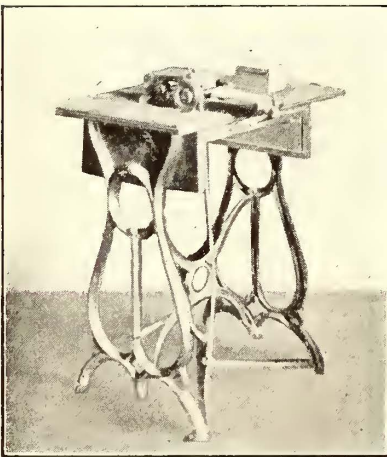
These Articles Have Been Selected to Provoke Thought and Stimulate Discussion. All of the Technical Departments Are Represented

Home-Made Machine for Dating Extra Transfers

BY R. A. WILLSON

General Superintendent Washington Water Power Company,
Spokane, Wash.

To avoid wasting transfers the Washington Water Power Company has the dates put on only a minimum at the time that they are printed. Then if the supply for a certain date is exhausted, the home-made dating machine described below is used.

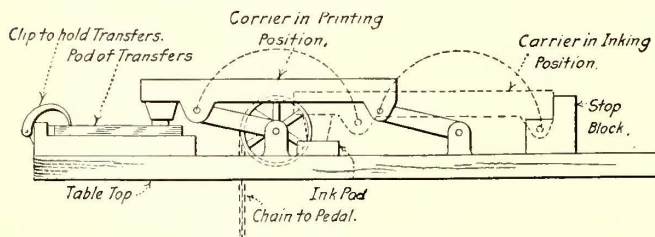


HOME-MADE MACHINE FOR DATING
EXTRA TRANSFERS

The apparatus was mounted on an old sewing machine frame. The half-tone shows the general appearance of the machine, while the drawing gives the details of the operating mechanism.

An operator can stamp 150 transfers per minute. As the pedal is pressed the

chain on the sprocket wheel causes the driving axle to revolve, thereby moving the carrier from the inking position into the printing position, the oper-



DETAILS OF OPERATING MECHANISM OF HOME-MADE TRANSFER
DATING MACHINE

ating lever moving through approximately 180 deg. This brings the type down on the transfer pad in the space reserved for the date. A helical spring attached to the operating axle causes the dater to fly back to its initial inking position as soon as the pressure on the pedal is released. The type is made of standard type metal, copper faced. Each day of the month and each month are separate type units, which makes it very easy to change the dates.

Determining Best Location of Whistles on Interurban Cars

BY F. L. HINMAN

Master Mechanic New York State Railways,
Syracuse, N. Y.

The matter of selecting a suitable location for the whistles on high-speed interurban cars operating over the third-rail division of the New York State Railways lines has received considerable attention during the past summer, and a series of tests has been made to determine which of three different locations gave the best general results.

The cars are of the full monitor-roof type, and the forward portion of the body is designed to be used as a smoking compartment.

The whistles used are of the trombone type, and are connected by means of a 3/8-in. pipe to the main reservoir carrying 100 lb. of air. They were originally mounted on the right-hand side of the monitor, approximately over the motorman's cab, and close enough to the transom sash to be somewhat protected from the weather. This location was perfectly satisfactory from an operating standpoint, but was very annoying to passengers occupying the smoking compartment, it being in some cases impossible to carry on a conversation during whistling periods, which on local runs were rather frequent.

In order to overcome this objectionable feature several different plans were tried out, the four principal ones being as follows:

1. Placing a sounding-board between whistle and transom sash.
2. Moving whistle to extreme front end of monitor deck and placing sounding-board or deflector back of whistle.
3. Moving whistle to letterboard on front end of car.
4. Moving whistle to letterboard at side of motorman's cab.

The first plan produced very slight improvement, and was immediately discarded.

The second location was very much better, but still the annoyance caused by whistling was not entirely removed.

The third location was ideal from the standpoint of the passenger riding in the smoking compartment, but when used on two-car trains it was found that with the whistle on the leading car in this location it was rarely possible for the conductor on the second car of the train to hear the three short blasts which are always given by the motorman in acknowledgment of a signal for a stop at the next station. This condition

was the cause of a great deal of complaint from crews operating the second cars of such trains.

The fourth location was found to be just as satisfactory as the third, from the passengers' standpoint, and it also possessed all of the advantages of the original location for the crew of the second car of a train.

It was found that there was a very slight difference with any of the above locations in the distance forward of the car at which a warning blast could be heard. All of the locations given above were found to be satisfactory as far as trouble caused by an accumulation of snow or sleet during severe winter weather was concerned.

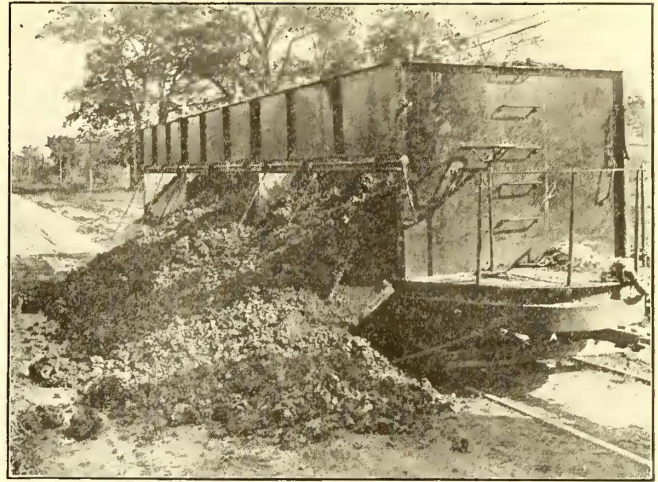
Ash Cars Made from Scrap Material

Connecticut Company Constructs in New Haven Shop Two Ash Cars from Old Carhouse Roof Trusses and Stack Plates

Since the completion of the Grand Avenue power plant of the Connecticut Company in New Haven, described in the issue of the *ELECTRIC RAILWAY JOURNAL* for May 12, 1917, page 860, two steel ash cars have been built for the purpose of removing ashes from beneath the boilers and transporting them to any part of the system. With the possible exception of rivets and a few pieces of rod they were constructed entirely from scrap material which the company had on hand. An old carhouse roof furnished the angles and channels making up the frames, while the floor and sides were covered with plates from a disused steel stack. The stack was dismantled with the aid of an acetylene torch and the plates were flattened by means of rolls in a local sheet metal working shop.

The general design of the car can be seen in the accompanying photographs, one taken in the shop at an early stage of the construction, the others taken on the road before and after dumping. The body is approximately 30 ft. long, 7½ ft. wide and 5½ ft. deep, with a floor sloping at an angle of 45 deg. from the center to each side. The platforms at the ends are each 3 ft. in length, the total length being, therefore, 36 ft. The height of the top of the body above the rails is 8½ ft. with no load.

The underframe consists of four 12-in. channels running lengthwise of the body and resting on a frame of 8-in. channel, all stiffened by means of four 1½-in. tie rods. These tie rods end in eyes, by means of which they are attached to 2½-in. bolts passing through holes in the ends of the 12-in. channels. They are bent up over the bolsters and down under the needle beams, and are without turnbuckles. The bolsters are built up of



CAR BUILT IN CONNECTICUT COMPANY'S SHOPS FOR USE IN REMOVING ASHES FROM POWER PLANT

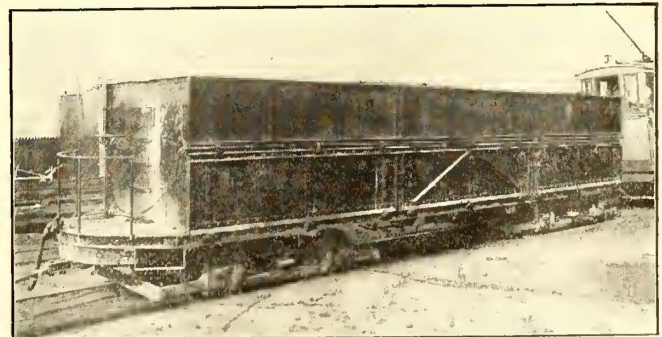
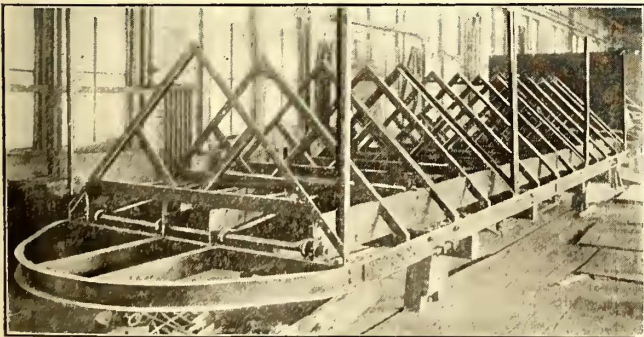
pairs of 8-in. channels joined with ¾-in. plates, 8 in. wide top and bottom.

The floor is supported on trusses, spaced 2½ ft. on centers, the trusses being built up of angle iron with vertical, horizontal and diagonal members joined with gusset plates and riveted. The floor itself, like the siding, is of ¾-in. steel plate. Two partitions serve to divide the body into three equal sections and to brace it against internal pressure.

The lower half of each side consists of three doors hinged to the side sill and held in the lowered position by means of two chains each. Locking rods spanning one and two bins respectively permit the dumping of one section or two as required. The doors are prevented by hand from falling too quickly.

The body is mounted on old Brill trucks which have been rebuilt, and the equipment also includes hand brakes, simple couplers, channel-iron bumpers, etc. The complete car empty weighs approximately 28,000 lb., and it has a capacity of 25 cu. yd. The labor cost of building both cars was about \$1,800. They were designed by the Connecticut Company's engineering department and were constructed in the company's own shops.

The use of gas for locomotive tire setting in the shops of the Rutland (Vt.) Railroad is proving much quicker and less expensive than the former kerosene method. The work can also be done indoors. This company is also using gas for heating engine frames prior to making thermit welds, superseding gasoline torches, and thereby effects a considerable saving.



FRAMING OF CONNECTICUT COMPANY'S STEEL ASH CAR, IN INCOMPLETE CONDITION AND GENERAL VIEW OF COMPLETED CAR

Rail for Use in Paved Streets

A. E. Harvey, J. M. Larned, C. G. Keen, H. H. Ross, C. S. Kimball and E. M. T. Ryder
Discuss the Points Raised by Martin Schreiber in His Article
Printed Three Weeks Ago

After the publication of the article by Martin Schreiber on "Rail for Paved Streets" in the issue of the *ELECTRIC RAILWAY JOURNAL* for Dec. 1, page 997, the editors asked several engineers of maintenance of way for their opinions on this subject, with particular reference to the use of the tram rail. Their replies are summarized in the article which follows, the contributors to the discussion being A. E. Harvey, superintendent of way and structures Kansas City Railways; J. M. Larned, engineer maintenance of way Pittsburgh Railways; C. G. Keen, engineer of way and structures American Railways, Philadelphia, Pa.; H. H. Ross, railway engineer the Toledo Railways & Light Company; C. S. Kimball, engineer of way and structures Washington Railway & Electric Company, Washington, D. C., and E. M. T. Ryder, engineer of maintenance of way Third Avenue Railway, New York City. The discussion having been opened by these engineers, it is to be hoped that others will desire to contribute to it, as this will, in a measure, make up for the lack of opportunity to discuss this very live subject under the auspices of the American Electric Railway Engineering Association this year.—Eds.

Changes in Traffic Conditions Justify Return to Tram Rail

Mr. Harvey is impressed by the fact that after a few years' experiment a decided preference is given to T-rail instead of other sections for use in paved streets. This demonstrates the fact that the defects and objections which formerly arose in connection with the use of T-rail in such cases were due not so much to the section of the rail as to the methods of construction and paving. As rail of this section tends toward economy both in first cost and in maintenance, it is undoubtedly a matter of intense interest to the traction lines under present financial conditions.

The return to the use of tram rail in place of trilby rail is undoubtedly justified by changes in traffic conditions. Where for various reasons it is undesirable to use T-rail sections in pavements, it is, of course, necessary to substitute either some section of tram rail or the trilby rail. Rail section No. 101-486 has many excellent points to commend it from an operating standpoint, and, for reasons specified in the articles published in the issues of the *ELECTRIC RAILWAY JOURNAL* for Dec. 1 and Dec. 8, it is superior in every way to the trilby section. It should, therefore, be used wherever practicable in preference to such a section. It should not be forgotten, however, that the objections that pertain to the use of all rails of eccentric sections hold also in this case. Such rails are not as economical in first cost as the T-rail; they probably have a shorter life, and they are more expensive to renew. These are matters of prime importance at the present time to all who are engaged in electric railway transportation.

The number of different sections of rails which have been rolled makes it seem absurd at times that additional sections should be designed and rolled, or that the present standard sections should be materially changed. On the other hand, it would be unfortunate indeed if the principle is maintained to the effect that types designed years ago are the best that can be produced, and that any alterations or improvements should be barred. Such changes and improvements are inevitable, and it would appear that there are so many points of excellence from an operating standpoint in the tram

rail sections that the Engineering Association should give serious consideration to adding such a section to its existing standards.

Tram Rail Not a Back Number

In the opinion of Mr. Larned the old-style plain tram girder rail should not be considered a back number, viewing the subject in a general way. It is preferable in many instances to the grooved girder or trilby girder rail. He has always thought that the Engineering Association standards should include a design for a plain tram girder rail for the reason that the street pavement can be more easily and economically maintained alongside a rail of this type that it can be alongside the grooved rail.

It is also quite possible that the crowned head may be preferable to the inclined plane head called for in the Engineering Association standard tram girder rail. Although Mr. Schreiber does not specifically call attention to the width of the head of the plain tram girder rail recommended in his article, it is interesting to note that the head of the rail is 2 11/16 in. wide, which is amply sufficient for electric railway purposes and preferable to the 3-in. width of head called for in the Engineering Association standards.

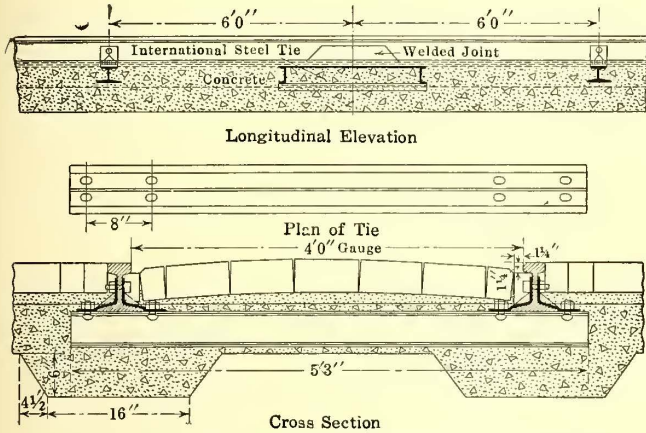
With respect to the style of rail and track mentioned by Mr. Schreiber as being his first choice for use in a paved street, namely, the 80-lb. standard section of the American Society of Civil Engineers T-rail, there has been but little experience in Pittsburgh in attempting to maintain a pavement in conjunction with T-rail of this depth. The experience of this company has largely been with such a rail upon road crossings on interurban track, and even in such places it has not been possible to maintain the pavement very successfully. With reference to Mr. Schreiber's third choice, the plain tram girder rail 7 in. deep, with a 5½-in. base and weighing 110 lb., Mr. Larned considers that this is neither sufficiently heavy nor sufficiently deep for heavy street railway traffic in paved streets on which there is heavy vehicular traffic. Neither is the rail base wide enough, for the width should be 6 in.

Mr. Larned refers further to Mr. Schreiber's fourth

choice, the grooved girder rail weighing 116 lb. per yard, which he specially mentions is for use under heavy traffic in congested parts of cities, etc. This rail is also, in Mr. Larned's opinion, too light and too shallow for such places, although undoubtedly it is a very good rail of its kind. This rail also has a base only 5½ in. wide.

American Railways Company's Standards

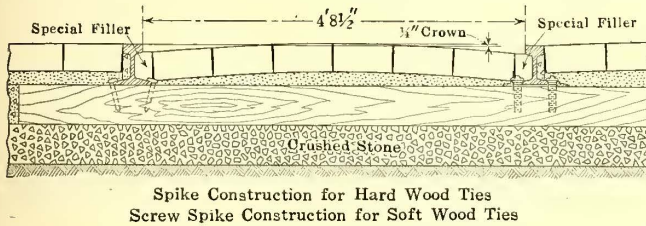
By way of contribution to the general subject of track construction in paved streets, as raised in Mr. Schreiber's article, Mr. Keen submits the accompanying drawings showing the standard construction used on



STANDARD TRACK CONSTRUCTION OF AMERICAN RAILWAYS COMPANY—STEEL TIES

the properties of the American Railways Company. This company has adopted the 100-lb. American Railway Association series A rail for all track where municipal authorities will permit its use. The steel tie construction, shown in one of the drawings, is used only when ordered by the city. In this construction the joint plates are electrically welded to the web, and the base of the rail is electrically welded to the steel ties.

In wooden tie construction the company uses the continuous joint. The only difference which is made to take care of the character of vehicular traffic is in the



STANDARD TRACK CONSTRUCTION OF AMERICAN RAILWAYS COMPANY—WOODEN TIES

modification of the paving surface. For ordinary streets the brick paving is satisfactory; for heavier traffic the granite nose block is used, and for extremely heavy traffic granite paving throughout has been adopted. The company has endeavored, wherever possible, to eliminate the groove in the paving at the inside of the rail head and has met with much success with paving laid as shown in the drawing illustrating wooden tie construction.

In Mr. Keen's opinion, the "Durex" form of granite paving lends itself admirably to this construction. The

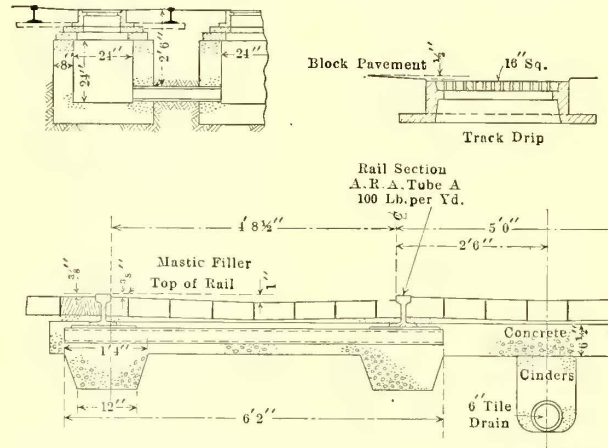
company has also laid a limited amount of cement paving in the same manner. The 100-lb. rail mentioned above is 6 in. in height, and it has proved itself to be amply high for use with any form of paving adopted by the company. It is, of course, much superior to the high T sections.

Mr. Keen calls attention to the fact that there is still considerable objection on the part of certain municipal engineers to the T-rail in paving, but it has been his experience that an inspection of track laid by the company with this rail is sufficient to convince the most skeptical engineer of its desirable qualities.

Dished Paving Preferred in Toledo

Mr. Ross states that the experience of his company with tram rail has been that wagons are always tempted to use the flangeway, and when once the wheels are in it is difficult to get them out. This causes much more delay to traffic than when wagons are kept out of the tracks. The company's experience is, further, that an 80-lb. rail is not high enough to permit the making of a good paving job.

The Toledo Railways & Light Company is at present using 100-lb. American Railway Association series A



STANDARD TRACK CONSTRUCTION IN TOLEDO WITH CONCAVED PAVEMENT AND STEEL TIES

rail, and dishing the paving between rails and in the devil strip. This construction has proved very satisfactory, as the paving does not heave and as better clearance for motors, brakes, etc., is provided when in any case they are very close to the ground. With the paving crowned between rails damage is often caused by motors and brake rigging striking high blocks. This type of construction also keeps all drainage away from the rail, and in cold climate the track stands up better. The present construction showing the use of steel ties is indicated in an accompanying drawing.

The Tram Rail and Paving Maintenance

In Mr. Kimball's opinion the return to the tram girder rail section by the Public Service Railway presents some features which will reflect the troubles which brought about the design and use of the trilby sections, more commonly called self-cleaning groove rails.

The principal trouble with the tram section was the tendency of vehicular traffic to follow the rails, particularly on roughly paved streets. This of itself occa-

sioned much inconvenience to the public and to transportation departments through the delays incident to waiting for teams to pull off and clear the tracks. Another matter is the maintenance of the track pavement. With trilby sections the pavement is brought close up to and level with the lip, whereas with the tram sections there is necessarily a wide groove between the gage lines and the outer edge of the lip, whether the pavement surface is flush with the top of the lip or above it. This creates a condition which in consequence of vehicular traffic brings undue wear on the pavement along the rail edge. There is, however, no question but that with the use of the tram section a much greater variation is permitted in track gaging. Possibly with the rapid change in the character of vehicles which travel the streets, particularly the extending use of those equipped with rubber tires, the wear on pavements will be largely reduced.

What Differentiates Heavy, Medium and Light Traffic?

Referring to Mr. Schreiber's article, Mr. Ryder notes first that the Public Service Railway has approved four types of track construction, differing chiefly in the type of rail used. The pavement in each case is granite block with the rails laid on cross-ties with ballast foundation. The order of desirability for different types of rails is stated to be as follows: First choice, 80-lb. standard T-rail; second choice, 7-in. high T-rail; third choice, 7-in. tram-head girder rail, and fourth choice, 7-in. grooved girder or trilby rail.

He notes, however, that where there is the "heaviest vehicular traffic" Mr. Schreiber prefers the use of the 7-in. grooved girder or trilby rail. Under such conditions possibly the desirability of the different types of rail mentioned would even be in precisely the reverse order to that stated. In view of Mr. Schreiber's varied experience with conditions on the different properties of the Public Service Railway, it would be very interesting to know his conclusions in the case of certain other conditions not mentioned in his article.

It is noticeable that all types mentioned call for granite block pavement. As it is not always possible or desirable to use granite, it would be interesting to know the type of rail Mr. Schreiber considers most desirable with asphalt pavement, for instance, and with wood block.

On the lines of the Third Avenue Railway System in New York City, with which Mr. Ryder is connected, the cost of paving maintenance is practically equal to the cost of all the other items making up the track maintenance account, and that rail should be used which best conserves the pavement. The type of pavement is controlled by the city authorities and trilby rail is used exclusively, of Lorain sections 492, 493, 494 and 496.

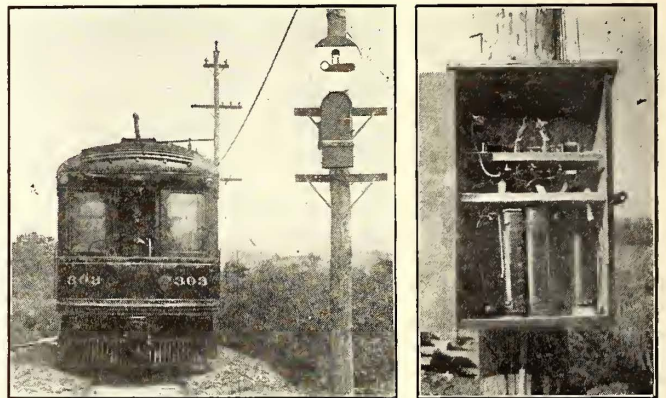
Mr. Ryder suggests that it would be very interesting to know Mr. Schreiber's recommendation for types of rails and pavements for medium and light traffic streets, as well as for heaviest city traffic conditions. In this connection it would be desirable to have some rule for determining what constitutes heavy, medium and light traffic. There is perhaps as much uncertainty and guess-work on this point as on any other maintenance of way question, different communities and individual engineers having entirely diverse opinions.

Track Relays Give Assurance in High-Speed Signaling

Their Operation on Line with Very Intensive Service Has Completely Eliminated Necessity of Actuating Signal Circuit at Low Speeds

While electric railway signals operated by overhead contactors placed on the trolley wire give excellent protection on lines where the cars are operated at moderate and low speeds, reliance cannot be placed upon the overhead contactors to operate properly at high speeds. Despite orders to the contrary, motormen will pass under such contactors at excessive speeds, thereby frequently failing to operate the signals, and after a time destroying the contactors themselves.

The Jamestown, Westfield & Northwestern Railroad, Jamestown, N. Y., faced precisely this problem on the "Chautauqua Route," which it operates between Jamestown and Westfield, and on the city lines of the allied Jamestown Street Railway. The service requires that the trains cover 32.5 miles in fifty-nine minutes and make five stops. In summer sixty-two local and ex-



VIEWS OF TRACK RELAY INSTALLATION ON JAMESTOWN, WESTFIELD & NORTHWESTERN

press passenger trains a day are operated on the "Chautauqua Route," in addition to two baggage and express cars, a freight locomotive and a line car. The company put the problem up to the Charles N. Wood Company, Boston, Mass., agent for the Chapman automatic signal, and as a result there was installed in the summer of 1917 the track relay system hereinafter described, and which is now in use on the fifteen blocks between Jamestown and Westfield.

The signals themselves are Chapman type B and are operated by the Chapman track relay system. This relay system consists of a simple relay mounted in a box and operated by a type E T, two-cell storage battery, which is put in the same box. To prevent freezing of the electrolyte, a 440-ohm resistance tube, connected to the lamp circuit of the signal, is installed in the box. The batteries are charged at $\frac{1}{2}$ amp. continuously, through the lamp circuit, and require no attention except the addition of a little distilled water every three months.

To install the system it was necessary only to insulate two 60-ft. sections of rail. This was done by using Webber joints, with fiber and wood forms for the insulation. The installation can easily be made with ordinary joints using fiber insulation. The insulated rail sections are usually placed about 300 ft. ahead of

the signal so that motormen have ample opportunity to get the indications without slowing down.

The Jamestown-Westfield installation has gone successfully through the railway's busiest service in both the operating and maintenance senses. An especially gratifying feature is that it is not necessary to slow down anywhere to be sure that the signal circuit will be properly actuated.

The relay is applicable to both single-car and train operation, and can be arranged either to operate directionally, that is, if connected to insulated rail sections on single track it will take care of travel in either direction (the Jamestown, Westfield & Northwestern uses this form), or it can be arranged to operate only in one direction by connecting it to insulated rails on the double track of a turnout.

Another use the Chapman Electric Railway Signal Company is making of this relay is for operating crossing signals or bells where certainty of operation is required and where excessive speed might cause a failure in a bell actuated by a trolley device.

Outdoor Substations for Industrial Loads

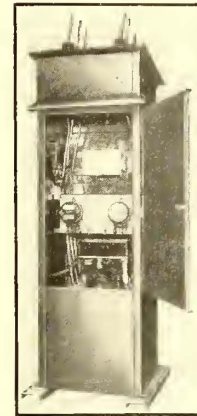
Distribution of Power from Simple Steel-Tower Stations Installed Along Transmission Lines Would Relieve Industrial Power Shortage

The sale of electrical energy to industries located along railway transmission lines is particularly favorable at this time when the high cost of operation and the shortage of coal are discouraging to the isolated plant operator. By securing additional loads with non-coincident peaks, the load factor on the line can be improved, and the higher efficiencies possible should be a patriotic consideration. An exact determination in any case of the available increased revenue from this source is quite an engineering problem, but inasmuch as taps for 15 kw. from a 33,000-volt line have been found commercially practicable, there is virtually no load, however small, not worth considering.

The degree to which continuous

service is imperative should determine the selection of the necessary protective devices. This also depends upon the character of the load. For instance, paper mills or textile factories would be seriously affected by short interruptions of power, whereas a group of farms might be cut off an hour or more without much inconvenience. It must be remembered also that a customer would be less likely to overlook an interruption in purchased power than a failure of his own plant, owing to his inability to appreciate the difficulties in the operation of a large system.

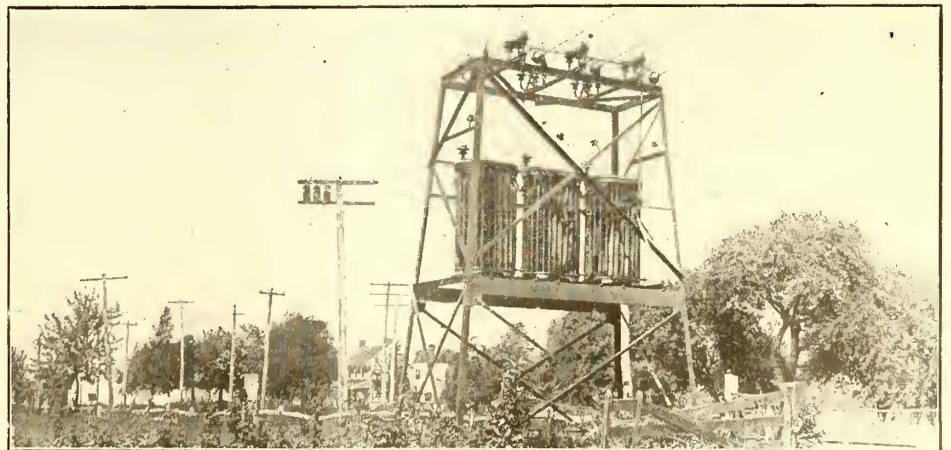
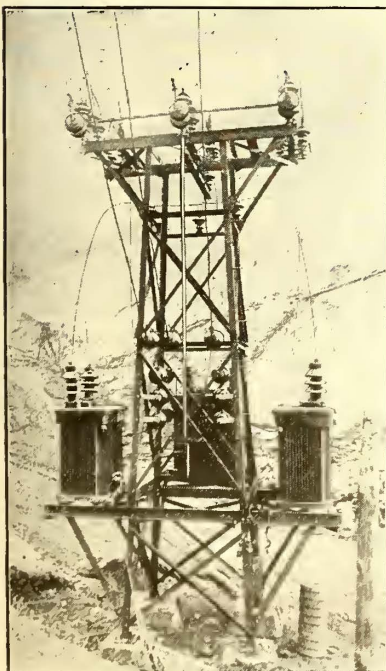
The simplest form of substation consists of a transformer, a lightning arrester, choke coil, horn-gap switches and fuses. Where the line is fed from both ends, greater flexibility can be had by installing sectionalizing switches on both sides of the tap-off, thus securing the advantage of a new sectionalizing point in case of line trouble.



INTERIOR VIEW OF OUTDOOR SWITCH AND METER HOUSE

The selection of the apparatus depends upon its relation to the system as a whole. Although a horn-gap without resistance in the ground circuit is comparatively inexpensive, the power arc which follows a discharge, especially when two phases "break over" simultaneously, will invariably trip the circuit breakers at sectionalizing points unless they are set so high as to diminish greatly their protective value. This is true also of the horn-gaps themselves. Without series resistances they must be set wide enough to increase considerably the voltage strain on the transformer at the break-over point.

Since the apparatus must operate for long periods without attention, and since the maintenance force generally consists only of the railway line and track crews, the apparatus must be mechanically simple, the condition of which can be determined by a casual inspection. For instance, a horn-gap switch with knife-blade contacts might eventually make poor contact owing to the bending of the switch jaws, while copper spring leaves working against a copper block cannot fail to make good contact so long as the switch can be closed. Exposure to weather, of course, demands that the appa-



TYPICAL OUTDOOR TRANSFORMER SUBSTATION AND 300-KVA., 13200/2200-VOLT SUBSTATION OF WILMINGTON & PHILADELPHIA TRACTION COMPANY

ratus be sleet and snowproof. While expensive apparatus would be justified at large generating plants and substations, horn gaps of the Burke type, made by the Railway & Industrial Engineering Company, with the choke coil a part of the gap itself, provide ideal protection for isolated tap-off points. The path of surges should be to ground instead of to the transformer, which should be some sort of tap-off. The gap should be close to the choke coil in order that it can discharge promptly and in so doing take the first shock of the surge.

The control and protective equipment of the 33,000-volt outdoor substation made by the Delta-Star Electric Company, Chicago, consists of a three-pole switch—double brake per phase—with arcing horns, carbon-tetrachloride fuses, choke coils and high-speed, sphere-gap, graded-resistance lightning arresters. These arresters are so designed that as the arc rises on the horns resistance is automatically inserted in the ground circuit, thus limiting current flow. The fuses are so constructed that under short-circuit or overload conditions the circuit is opened in approximately 0.013 second. This prevents the disturbance from spreading to the main transmission line. The three-pole switch is provided with a manually operated remote-control mechanism equipped with a handle which can be locked in either open or closed position and which can be located near the transformer platform or at ground level. By means of this switch the station can be “killed” to permit work on the electrical circuits. The station tower is made of hot-galvanized steel sections, shipped ready for assembly.






Where the load center is at a distance from the transmission line, it is well to reduce the pressure to 2200 volts at a substation close to the line and meter the energy at that point. This encourages the customer to keep up the power factor and makes reading of meters easier. The Westinghouse Electric & Manufacturing Company has developed a line of standard single-phase and polyphase outdoor switch houses with capacities up to 6000 amp. and 7500 volts, and for either pole or platform mounting. These usually contain an oil circuit breaker and watt-hour meter with the usual transformers, calibrating terminals and necessary wiring. All apparatus is protected from the weather by a sheet steel case.

Effect of an Electric Arc on the Character of Metal

In order to study the change in the character of iron or steel effected by an electric arc, some tests have been made at the Westinghouse works at East Pittsburgh. Five ½-in. standard test pieces of hot rolled steel with from 0.1 to 0.2 per cent carbon were prepared, four of which were struck by an arc. On some of these the arc was merely struck and on the others it was also carried along the piece for a distance of 1 in. No material was deposited from the electrode. The arc-welding circuit carried 150 amp. at approximately 60 volts. The pieces were then tested in tension and the ultimate tensile strength of all five pieces checked very closely, the one on which the arc was not struck, shown at the bottom of the accompanying illustration, having the least percentage of elongation. Evidently the arc

caused no material structural change in the metal.

Another interesting investigation was made as follows: A solid plate of steel, which had a tensile strength of 56,000 lb. per square inch with a reduction in area of 60 per cent and elongation of approximately 28 per cent, was reinforced on one side with a deposit of metal by an electric arc. After the added material was machined

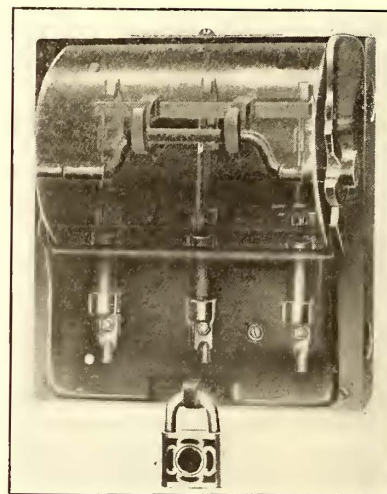
Ult. Tensile Strength lb. per sq. in.	Elongation per cent	
49,200	43	
49,100	41.7	
48,400	41.8	
48,600	44	
49,350	40	

TEST SPECIMENS OF STEEL BROKEN TO DETERMINE EFFECT ON METAL FROM APPLICATION OF ELECTRIC ARC

off the plate to the original thickness, the tensile strength was 59,800 lb. per square inch, with 33 per cent reduction in area and 14 per cent elongation, showing also that the tensile strength is not decreased by the heat of welding.

Improved Safety Lever Switch

The General Electric Company has introduced an improved type of inclosed lever switch which is especially designed to afford safety from both fire and accident hazards. The switch can be locked in the “off” position



PHANTOM VIEW OF IMPROVED SAFETY SWITCH

with from one to three individual padlocks, and the fuse cover can also be locked to prevent tampering. The main cover cannot be removed when the fuse compartment cover is closed, and the latter, of course, must be closed while the switch is closed. Another safety provision is a catch which necessitates that the operator use both hands when closing the switch, thus preventing the possibility of accidental closing. The switch is adapted to single or group mounting and when mounted in groups a bus compartment can be provided for inclosing all incoming wires and connections. The switch blades are operated by a hook-shaped casting which engages a curved shaft operated by the external handle. The box is provided with knockouts fitted with split porcelain bushings for conduit wiring.

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News of Electric Railways

Traffic and Transportation

Financial and Corporate

Personal Mention

Construction News

Portland Situation Reviewed

President Griffith Gives Reasons Why a Six-Cent Fare Is Needed—Civic Clubs Petition Commission to Act

The Portland Railway, Light & Power Company, Portland, Ore., on Dec. 10 presented to the Public Service Commission a report on the operation of its railway properties since October, to show the effect of certain changes suggested at the time the company's request for a 6-cent fare was refused.

PRESIDENT GRIFFITH SPEAKS

In this connection Franklin T. Griffith, president of the company, has reviewed the reasons why a 6-cent fare is needed. Mr. Griffith said that public service involved three factors—the public, the operatives and the investors. No question involving the conduct of a public utility should be or could be properly decided without fair consideration of each of the three factors involved. He said that in the early days of operating street railways under franchises railways were built so as to give the greatest possible net return to the utility with both the public and the employee as secondary considerations. During the last fifteen years, however, the principle of regulation had been adopted in nearly every state and that in the beginning of the era of regulation the commissions almost universally recognized one of the factors of public service—namely, the public. As the principles of public service regulation came to be better understood and the possibilities of public benefit through regulation more fully appreciated the powers of the commission were extended so as to include the power of determining the value of property used in public service.

Mr. Griffith said that, acting under the provision of the law requiring a valuation to be made, the commission required a complete inventory and appraisal of all of the property of the company. This work required three years and involved an expenditure by the company of more than \$125,000. As a result of the investigation the commission on April 30, 1917, rendered a decision holding that the value of the electric railway property of the company on Dec. 31, 1916, was \$18,233,000, which was several million dollars less than the figures presented on behalf of the company.

NO DIVIDENDS FOR THREE YEARS

In the case of the Portland company the stockholders had received no dividends during the last three and a half years nor had any sum been accumulated in that period applicable to the payment of dividends. During the same period the stockholders had paid into the treasury of the company an additional \$2,500,000, all of which had been used to maintain the credit of the company. He then reviewed the earnings of the company by years. The minimum wage paid to trainmen in 1912 was 30 cents an hour. At present the minimum wage was 45 cents an hour. The cost of materials averaged 100 per cent higher than in 1912. Notwithstanding these increased costs, the company was giving a materially greater amount of service per passenger carried than in 1912. Notwithstanding the policy of rigid economy, the railway could not continue to give adequate service, provide a standard of working conditions and pay the wages required by its employees unless its revenues could be materially increased. On that account it petitioned the Public Service Commission for an advance in fares.

COMPANY BURDENED WITH NEEDLESS EXPENSES

Mr. Griffith next referred to the finding in the preliminary decision entered on Oct. 5, 1917, by the Public Service Commission with respect to the returns on the commission's own

valuation of the property. He said that in accordance with the order of the commission the company had made some reductions in the service below the basis prevailing prior to Oct. 5, but that the present standard of service was considerably higher than the standard of service given in 1912. If the company was to restore the full service given immediately prior to Oct. 5 of this year such restoration would increase the operating expenses more than \$200,000 a year at the present basis of operating costs. He then cited the other burdens of the company, including paving charges, bridge tolls, franchise fees and free transportation to city employees. He said that it would be decidedly to the advantage of the riders if the cost of service were reduced by relieving the company of all such charges except general taxation. He then referred to operation in Cleveland, Ohio, where a net return of 6 per cent is guaranteed to the company. In conclusion, he said:

CONTINUATION UNDER PRESENT FARES IMPOSSIBLE

"We bore with such fortitude as we could muster the meager returns for the years 1913 to 1917, and because of the confidence of our stockholders in the ultimate revival of Portland and the fairness of its people we were able, during those years, to meet our deficits by calling on our stockholders. We are to-day facing a condition of business revival, but operating costs have increased so enormously as to make impossible a continuance of operation under the present basis of fares. Our only source of revenue is the fares collected from the public, and if the fares are not sufficient to discharge the obligations of the street railway, it must inevitably fail."

HELP URGED BY CIVIC CLUBS

Resolutions praying that the Public Service Commission take action to relieve the company in its existing straits, through the granting of an increased fare or otherwise, and to enable the maintenance of the present scale of hours and wages for carmen, were adopted by the general committee from civic clubs of the city at a meeting on Dec. 8. The resolutions are as follows:

"Whereas, the investigations of our several sub-committees have established:

"1. That on the present basis of revenues and operating expenses the company is not earning sufficient to pay its operating expenses, depreciation, taxes and fixed charges.

"2. That during the last three and one-half years the company has paid no dividends to its stockholders, but on the contrary the stockholders have been called upon within that time to pay \$2,500,000 into the treasury of the company in order to maintain its solvency.

"3. That the value of the street railway property has been determined by the Public Service Commission to be \$18,233,000, and that said value includes no property except that used and useful in the operation of the street railway.

"4. That there has been a considerable increase in street railway revenues during the last six months, but that the revenues of the street railway are still on a basis somewhat lower than the revenues during the year 1912. That the year 1912 was the last year in which the street railway earned 6 per cent net on the value of the railway property, as determined by the Public Service Commission.

"5. That wages of employees of the street railway were fixed by arbitration on Oct. 15 on a basis of hourly rates 50 per cent higher than the hourly rates of wages paid in 1912. That the present cost of materials required for the maintenance of the railway averages 100 per cent more than the cost of such materials in the year 1912.

"6. That on present rates of street-car fare it does not appear to be possible for the company to give adequate

service and meet the very greatly increased operating expenses to which it is subjected.

"7. That the need for the relief is immediate and urgent.

IMMEDIATE RELIEF ASKED

"Therefore, be it resolved, that this special committee, representing civic organizations of Portland, recommend to their respective bodies: That they urge upon the Oregon Public Service Commission that the Portland Railway, Light & Power Company be granted such relief as is necessary to justify the maintenance of present wages, hours and working conditions, and discharge the legitimate financial obligations of the company.

"And, be it further resolved, that the chairman of this general committee appoint a special committee of seven to further investigate the subject of street railway regulation and report back to this general committee recommendations as to a plan whereby street car fares in Portland can at all times be regulated in such a manner as to provide fair and equitable treatment of the interests of the public, street railway employees and the company, to the end that the best possible service be secured at the lowest practicable rate, including profit sharing to the city."

The civic organizations represented in the general committee of street railway investigation are the Chamber of Commerce, East Side Business Men's Club, City Club, Ad Club, Progressive Business Men's Club, Realty Board and Rotary Club.

Modification of Brooklyn Transit Plan

Changes Suggested for Downtown Brooklyn Would Involve Expenditure of \$2,750,000

A settlement of the transit problem of central Brooklyn is proposed in a communication sent to the Board of Estimate of the city of New York on Dec. 19 by the Public Service Commission on recommendation of a special committee, consisting of Commissioner Travis H. Whitney and Leroy T. Harkness, chief of rapid transit. The letter recommends the approval of a modification of the dual system contract between the city and the Brooklyn Rapid Transit Company, to provide for the changes proposed.

Among those changes are the completion of a connection between the Fulton Street elevated line and the Fourth Avenue subway at Ashland Place, construction of a new station at Lawrence and Willoughby Streets on the Montague Street tunnel line, and a transfer connection between the Myrtle Avenue elevated railroad and the Myrtle Avenue station on the Fourth Avenue subway at Flatbush extension.

IMPROVEMENTS WILL COST \$2,750,000

The program also includes the construction of a new express station on the Brooklyn Plaza of the Williamsburgh Bridge for the Broadway line and the abandonment of the Marcy Avenue station of that line. It is also proposed that the time of the Brooklyn Rapid Transit Company to third-track the Fulton Street elevated road west to Clermont Avenue be extended until one year after notice by either the company or the city. Under the plan, the completion of the Nostrand Avenue line to Clermont Avenue will be necessary in order to make full use of both subway and elevated railway facilities. The estimated cost of all these improvements is \$2,750,000.

The commission points out that it believes the advantages of the plan it recommends are very great, in that it will not only provide adequate rapid transit service to the thickly populated portion of central Brooklyn, but, through the provision of such service, result in increasing the financial returns from dual system operation. The commission holds the construction of the Ashland Place connection "to be a matter of far-reaching importance and vitally necessary to permit of the complete utilization of the new subway system in a way adequately to serve the different sections of Brooklyn."

This connection has been the subject of much discussion and has the support of practically every civic body in Brooklyn. For two years the special committee has been urging its construction as the immediate response to the transit needs of central Brooklyn.

Detroit Warfare Continues

The Common Council of Detroit, Mich., continued its guerrilla warfare on the Detroit United Railway in its session on the evening of Dec. 18, adopting a variety of resolutions as reprisals for the company's action in raising fares to 5 cents straight. A resolution providing that the Corporation Counsel take immediate legal steps looking toward the appointment of a receiver for the company was referred to that official for an opinion as to whether or not this step was possible. An attempt made by two Aldermen to restore skip-stop operation on the Woodward line was defeated, although the matter was finally referred to the public utilities committee for action.

It seems likely that the government will take a hand in the situation in Detroit through E. B. Whitcomb, the Detroit representative of the fuel administration, by ordering the company to establish skip-stop operation on every line in the city as a coal conservation measure. The Aldermen, however, at this week's session adopted a resolution warning the fuel administrator to "keep his hands off" the skip-stop proposition. It is the opinion of Corporation Counsel Dingeman that the Council would be powerless if the fuel administration ordered that skip-stop operation be re-established.

Among resolutions adopted by the Council were these: for the city to employ a staff of five inspectors to check up service and make complaints in court against the company for violations of ordinances; requiring the company to post in all of its cars signs showing the hour at which the first car leaves the terminus of each route in the morning and the frequency of service during the ensuing twenty-four hours.

The \$10,000 appropriation with which some of the Aldermen proposed to conduct an investigation of the company in competition with a similar investigation by the municipal railway commission struck a snag in the ways and means committee. The Aldermen backing the proposition told the committee that they wished to hire Engineer Frederick T. Barcroft, who several years ago made an appraisal of the property of the Detroit United Railway for the city. Some of the members of the committee, however, did not favor holding two investigations at the same time and the matter was put over for another week.

St. Louis Grant to Be Amended

City Counselor Daues of St. Louis, Mo., has announced that amendments will be made to the measure for the settlement of the differences between the city and the United Railways now before the Board of Aldermen. These changes, Counselor Daues explained, would take the form of additions and omissions. He is reported to have said:

"The provision for a board of control will be stricken from the bill, and the Board of Public Service will be constituted the authority to compel extensions and adequate service on the company's present lines.

"We have decided also to write into the bill certain requirements to insure sanitation, ventilation, light and heat in the cars and to provide for more cars during rush hours. The section in the pending bill on the subject of the purchase of the company's properties by the city will be amended so as to authorize the city to condemn them at any time under the provisions of the charter—that is by the appointment of a commission to appraise them and fix their value, just as the valuation of real estate needed for public purposes is determined.

"The discussions of the bill thus far have afforded us new thoughts. I am frank to confess that I have come to the conclusion that we can greatly improve the bill."

It was expected that the amendments referred to by Mr. Daues would be presented to the public utilities committee of the Board of Aldermen on Dec. 6, but they were not submitted at that time.

An appropriation of \$5,000 to employ additional assistance in drafting a new bill contemplating a compromise between the city and the United Railways was requested of the Board of Aldermen by the public utilities committee on Dec. 7. Chairman Barney L. Schwartz, of the committee, explained in supporting his motion to ask for additional assistance, that it will require six months to prepare a new bill.

Dempsey Conviction Set Aside

Employee Not Responsible for Violation of Commission Service Order

The Supreme Court, Appellate Division, on Dec. 7 set aside the conviction of John J. Dempsey, superintendent of elevated transportation of the Brooklyn (N. Y.) Rapid Transit Company, who was fined \$500 in the County Court because certain express trains failed to stop at the Third Street station on the Fifth Avenue line. The court held that Mr. Dempsey was merely an employee of the railroad and not an officer, and therefore could not be made the victim of the penalty which the Public Service Commission law directs against officers or agents of the railroads for failure to obey the orders of the commission.

It was shown at Mr. Dempsey's trial that the contents of the Public Service Commission order were communicated to him by John F. Calderwood, who in 1912 was vice-president and general manager. It was Mr. Dempsey's understanding that the order required trains to stop at Third Street only between 8 and 9 a. m. For three years inspectors of the commission made no complaint of the service, and it was not until 1915, when the prosecution was commenced, that Mr. Dempsey knew the order was not being obeyed to the letter.

THE DEFENDANT NOT AN OFFICER

Justice Rich, who wrote the opinion for the Appellate Division, stated:

"The law provides that every officer and agent of a common carrier or corporation who shall violate the law, . . . etc. The defendant was not an officer of the corporation. He was an employee, charged with the operation under the direction of the vice-president and general manager, who gave him his instructions. The defendant was an agent in the sense that every employee is an agent for the discharge of the duties within the sphere of his employment. He received his orders and performed the duties of his position under the direction of the vice-president and general manager, who in this case was the officer and agent within the meaning of the law. If we were to construe the legislative intent to be otherwise, the motorman and conductor of every train which failed to comply with this order would be liable to prosecution and conviction, and this without regard as to whether they had ever heard of the order."

The Public Service Commission has requested Harry E. Lewis, District Attorney of Kings County, to appeal to the Court of Appeals from the decision of the Appellate Division, setting aside the conviction and dismissing the indictment of Mr. Dempsey. The commission believes that the efficacy of the penal provisions of the public service commissions law will be weakened, if not wholly destroyed, if the rule of law declared by the Appellate Division is upheld.

"Electric Railway Journal" Correspondent at the Front

Robert K. Tomlin, Jr., managing editor of *Engineering News-Record*, sailed recently for France to serve the *Engineering News-Record*, the *ELECTRIC RAILWAY JOURNAL* and the other papers of the McGraw-Hill Publishing Company, Inc., as special correspondent at the front. Mr. Tomlin was graduated from Harvard University in 1907. During his college course he served for two summers as assistant in the surveying and railroad field engineering of the Harvard Engineering Camp at Squam Lake, N. H. After he was graduated Mr. Tomlin entered the employ of the Pennsylvania Railroad on the tunnel work in connection with the Pennsylvania Station in New York City. He left this work to go to the New York Board of Water Supply, and was stationed with the Northern Aqueduct Department at Poughkeepsie, N. Y. His journalistic experience dates from March, 1909, when he became assistant to the editor of the *Engineering Record*. He was subsequently made associate editor of that paper, in charge of the municipal and sanitary field, and in 1913 was promoted to managing editor. When *Engineering News-Record* was formed last April by the consolidation of *Engineering News* and the *Engineering Record*, Mr. Tomlin was made managing editor.

Conferences on Wages in Toledo

Should the motormen and conductors and the electrical workers of the Toledo Railways & Light Company, Toledo, Ohio, fail to secure an increase of 10 cents an hour in their schedule of wages, it is said they will appeal to the Federal Board of Labor Conciliation to act as intermediary.

In conference with President F. R. Coates, agreements have been reached on working conditions and other differences that have existed, but little progress has been made on the wage matter. Mr. Coates told the men that the increase in the price of materials and the reduction in the amount of receipts make it impossible for the company to grant the advance in wages asked.

Edward McMorrow, vice-president of the International Union, recently made a statement in which he said the officers of the company recognized the truth of the contention of the men that they find it extremely difficult to live on the wages received. He said he had no knowledge of the company's financial affairs and could not dispute the claim that conditions would not allow an increase of wages, but that this did not change the needs of the men. He asserted that the men would go the limit to evade a strike and hoped that some means might be found for adjusting the matter in a way that would be fair to all.

The men are working under a contract which expires in April, 1919. Under this agreement the scale of wages ranges from 27 to 31 cents an hour.

South Boston Extension Opened

Short but Important Underground Line Placed in Operation in Boston

The Boston (Mass.) Elevated Railway opened the section of the Dorchester tunnel between the South Station and Broadway, South Boston, for service on Dec. 15. Although the length of tunnel involved is about a mile, the operation of trains from Broadway station through the shopping district to Harvard Square, Cambridge, constitutes one of the greatest improvements in Boston transportation facilities since the establishment of the original rapid transit system in 1901. The new line forms an extension of the Cambridge subway toward Andrew Square, Dorchester, and it is expected that the completed tube will be in operation next summer. The section now opened cuts down the running time between South Boston points and the Boston railroad, wholesale and business districts by six minutes at least, and provides connections of great value for the large residential and industrial population of South Boston and upper Dorchester with the city's downtown area. The running time from Broadway station to Harvard Square is about thirteen minutes and from Broadway to Washington station, in the heart of the shopping district, it is three minutes. At both Washington and Park Streets, Boston, underground free transfer connections are made with the most important north and south trunk lines of the Boston Elevated system.

PHYSICAL FEATURES LIKE CAMBRIDGE SUBWAY

In engineering features, the new line resembles the Cambridge subway, described in the *ELECTRIC RAILWAY JOURNAL* of May 11, 1912, page 782. Each track under Fort Point Channel, however, is carried in a single-barrel section of the tunnel, and the niches formerly provided for employees working in the tunnel on foot are omitted. The dimensions of the subway bore provide ample clearance, and to increase the safety of employees, hand rails are provided on each side of each track. Running and third-rails are 85-lb. T-section, with two 350,000-circ. mil bonds per joint. The track is laid in rock ballast on wooden ties. The signal system is of the Union Switch & Signal Company's three-color lamp type, operated by track circuit and using both running rails. Nine new blocks were added between the South Station and Broadway, and in connection with this installation all signals in the Cambridge subway were changed over from the four-color to the three-color type. Lamp signals for daylight service have superseded the semaphore type of signals employed on the Charles River Bridge open-air section of the Cambridge subway. Seven track-circuit signals for surface cars are also in service on the incline and station loop at Broadway.

More Philadelphia Lease Hearings

Sessions on Dec. 14 and 18—Hearing Set for Dec. 22
Likely to Be the Last Open Discussion

Considerable time was taken up on Dec. 14 in discussion of the proposed amendments to the lease of the high-speed city rapid transit lines to the Philadelphia (Pa.) Rapid Transit Company. Several speeches were made, including those by Councilman Buchholz and C. Oscar Beasley, counsel for the United Business Men's Association, arguing against hasty action, and objecting to the provisions of some of the amendments referred to in the *ELECTRIC RAILWAY JOURNAL* of Dec. 15, page 1087.

Another hearing was held on Dec. 18. It had been planned to make this the final open discussion of the lease, but it was decided to hear further argument on Dec. 22. According to the program the lease will then be reported favorably to Councils by the joint committee on street railways and finance.

OPINION DIVIDED

The hearing on Dec. 18 was marked by opposition of the United Business Men's Association to the lease. On the other hand the executive committee of the Philadelphia Chamber of Commerce indorsed the lease. The judgment of this committee was that it was desirable to consummate the negotiations with the company as soon as reasonably possible.

ESTIMATES ON FARES

Under the lowest estimate the proposed lease would start the fares off in 1919 at 5 cents and the highest fare would be 5.64 cents in 1924. Under the highest estimate the proposed lease would start fares off in 1919 at 5.11 cents and the highest fare would be reached in 1924 with 5.97 cents. The foregoing figures provide for free transfers. On the other hand, and with no free transfers with the Philadelphia Rapid Transit Company, the fares would start out in 1920 at 5.4 cents under independent operation, reaching the high figure of 8.1 cents the following year. At no time after 1922 and up to 1930 would the fares go below 6 cents.

The estimate for the independent or municipal operation assumes that city-built lines would begin on this schedule:

Frankford to Fifteenth and Chestnut Streets, July 1, 1919.

Darby line to Fifteenth and Chestnut, July 1, 1921.

North Broad and loop, July 1, 1921.

South Broad, July 1, 1922.

Parkway northwest, July 1, 1922.

The estimate for the unified system, the city co-operating with the Philadelphia Rapid Transit Company, assumes that operation of city-built lines would begin on this schedule:

Frankford, Bridge Street, to Front and Arch Streets, July 1, 1918.

Frankford to Rhawn Street, Thirty-fifth Ward, and Darby lines, July 1, 1919.

Broad Street, Spruce Street to Erie Avenue and delivery loop, July 1, 1920.

Parkway northwest, July 1, 1921.

Remainder of Broad Street subway and branches, July 1, 1922.

Chestnut Street subway, July 1, 1924.

Dr. William Draper Lewis, the city's legal adviser, was present and answered questions that were raised during the discussion.

H. M. Brinkerhoff Retained by Chicago

Henry M. Brinkerhoff, who acted as chief engineer of the Chicago Traction & Subway Commission, which made an elaborate report to the City Council of Chicago, Ill., in December, 1916, on the local transportation problems, has been retained by the local transportation committee of the City Council to advise with the committee on the physical recommendations contained in the report and to make such suggestions in regard to these as he sees fit. The committee began its deliberations with Mr. Brinkerhoff on Dec. 18, and will continue these meetings practically continuously until the report has been gone over thoroughly. It is anticipated that it will require a period of one week to go over the work planned.

Gas Diverted from Power House

Although the Cleveland, Southwestern & Columbus Railway, Cleveland, Ohio, has a contract with the Berea Pipe Line Company to furnish natural gas for fuel to its power house at Elyria, and through this contract a priority right over domestic users, the Public Utilities Commission of Ohio issued an order that the gas be turned off at the power house on Nov. 29. This was done as a result of a plea from the people of Oberlin that they had no fuel for warming their homes and would have to have the supply of gas going to the power house at Elyria.

E. F. Schneider, general manager of the railway, secured two cars of coal by 3 p. m., the time the gas was turned off. For the four hours succeeding that time the 217 miles of road was idle and Medina, Rittman, Sterling, Seville, Creston, Le Roy, West Salem, Crestline, Grafton, Norwalk and some other places were without light and power.

Strike in Mississippi.—A general strike of employees of the Gulfport & Mississippi Coast Traction Company, Gulfport, Miss., which operates a line between Biloxi and Pass Christian, was called on Dec. 5, when officials of the company refused to recognize a recently organized union and grant wage increase demands.

Bonuses in New York.—The directors of the Interborough Rapid Transit Company, New York, N. Y., have authorized the payment of a Christmas bonus of \$5 each to employees whose pay is less than \$150 a month and who have been in the employ of the company since Dec. 31, 1916. Similar action has been taken by the directors of the New York Railways.

Shore Line Men Accept Raise.—The trainmen of the Shore Line Electric Railway, Norwich, Conn., have accepted the recent wage offer of the company, to take effect immediately. The men will receive an increase of 3 cents an hour. Those who have been with the company more than six years will receive 35 cents an hour. The minimum wage will be 27 cents an hour.

New Entrance to Cincinnati Authorized.—The Public Utilities Commission of Ohio has authorized the Cincinnati, Lawrenceburg & Aurora Electric Railroad to enter Cincinnati over a new route, which has already been described in the *ELECTRIC RAILWAY JOURNAL*, and to abandon the old one. Cars will be operated over the present line until the new track is completed. An ordinance, providing for the route, is now before the City Council of Cincinnati.

Three Hundred New Men in Chattanooga.—The Chattanooga Railway & Light Company, Chattanooga, Tenn., now has nearly a full complement of motormen and conductors. When the men now in training have served the time required by law and are considered competent by the company, normal service will be possible. It is stated that since the second strike of the company's trainmen 300 new men have been employed. Nearly full time schedules have been resumed on most of the lines.

Inquiry Into Construction Progress Put Over.—The inquiry by the Public Service Commission for the First District of New York into the reasons for the delay on the part of the Interborough Rapid Transit Company in getting the new subway lines ready this month for at least partial operation has been postponed until the week commencing Dec. 24. In the meantime there will be conferences between the commission and officials of the company for the purpose of gathering the precise details of the work needed to be done.

Hudson Vehicle Tunnel Would Cost \$12,000,000.—General George W. Goethals, who has been engaged as a consulting engineer by the New Jersey & Hudson River Bridge & Tunnel Commission, has submitted a report to the effect that a vehicle tunnel under the Hudson River to connect New Jersey with Manhattan could be built for a sum not exceeding \$12,000,000 and that the project does not present insurmountable engineering problems. Mr. Goethals' figures were contained in an estimate by John F. O'Rourke of the O'Rourke Engineering & Construction Company, who said that his concern was prepared to complete the work in less than three years.

Financial and Corporate

Annual Report

Lima Light, Power & Tramways Company

The annual report of the Lima Light, Power & Tramways Company for the year ended Dec. 31, 1916, shows that the earnings reached a new high record, exceeding the earnings of 1913, the previous banner year. This company holds practically a monopoly of the railway, power and light in Lima, Callao and several suburban towns in Peru. The bonds of the company are largely held in London, but there is also considerable local and American capital invested in it.

The gross revenues for the year amounted to \$1,986,363, compared with \$1,880,035 for 1915, an increase of \$106,328. The total expenses amounted to \$1,359,557, compared with \$1,386,968 in 1915, a decrease of \$27,411. Operating expenses in 1916 amounted to \$893,080, or \$57,035 in excess of 1915. The taxes, leases, etc., totaled \$179,783, or \$10,380 more than in 1915. Interest and other charges amounted to \$286,692, a decrease of \$94,827.

The gross revenue on the various urban and interurban tramways operated by the company amounted to \$991,762 in 1916, and the cost of exploitation to \$633,476, leaving a net revenue of \$358,286, compared with \$383,487 in 1915. The increased cost of materials was the principal reason for the decrease in net revenue from this source. The principal capital expenditure in connection with tramway operation during 1916 was the alteration in the route of one of the Lima urban lines, involving an expenditure of \$40,343. The gross revenue from the freight tramways in 1916 amounted to \$154,823, the cost of exploitation being \$153,905 for this portion of the service.

The directors distributed a part of the net revenue of \$626,805 in the following form: Dividends, \$131,475; amortization account, \$194,660; and income tax on 1913, 1914, and 1915 revenue, \$41,151. This company uses large quantities of American electrical equipment and goods; also American-built high-power cars of modern design for suburban operation.

Tax Payment Turned to Account

Milwaukee Electric Railway & Light Company Makes Public Relations Capital of Huge State and Federal Payment

The Milwaukee Electric Railway & Light Company, Milwaukee, Wis., recently made some public relations capital of its State tax payment by providing one of the local newspapers with a photograph of the check, which was for \$546,872. The company supplied the newspaper with information for a story which accompanied the photograph, in which it was brought out that the city would ultimately receive 65 per cent of this amount, or \$276,724; the county 20 per cent and the State 15 per cent, a division made in accord with a new State law. The total taxes against the company, including State and federal, will amount to \$612,390.47. This amount represents 6.18 per cent of the total operating revenue of the above company in combination with that of the Milwaukee Light, Heat & Traction Company, which amounts to \$9,892,492.04. For every dollar of the net income of \$1,463,077.96 there is paid in taxes 41.86 cents, or nearly one-half.

During the year ended Oct. 31 the company carried a total of 177,515,482 passengers, including revenue, transfer and free passengers. This was an increase over the previous year of 4.12 per cent. The passenger revenue of the company increased 6.5 per cent. The railway operating expense, including taxes, increased 11.4 per cent. The electric service department of the company showed an increase in revenue of 21.9 per cent, while the expenses of that department, including taxes, increased 41.3 per cent.

Public Utilities Important

Committee of Investment Bankers Points Out that Utilities Represent Millions in Small Savings Among Individual Investors

The public service securities committee of the Investment Bankers' Association of America in a report to that organization says:

"Our country's economic and industrial future, as well as the successful prosecution of the war, depends in large measure on the ability of our public utilities to continue their service, and even more on the large expansion of their labor, time and money-saving machinery against the exigent needs of the post-war period, and these are all functions of capital.

"No class of securities is more widely distributed than the bonds and stocks of electric railway, gas and power and light, telephone and other public utility companies. The average holdings are small, and while very large amounts of utility securities are held by the insurance companies and savings banks, they are also widely distributed in the smallest denominations among a multitude of individual investors. More than \$4,500,000,000 are invested in electric plants, nearly \$5,000,000,000 in electric railways, \$3,500,000,000 in gas plants, \$1,500,000,000 in telegraphs and telephones and probably \$500,000,000 more in equipment and supplies for these utilities in the hands of dealers—a total of \$15,500,000,000 of the people's savings that are devoted to the conservation of energy in the public service."

Public Service to Retrench

President McCarter Discusses the Problems Before His Company and Tells What It Is Proposed to Do

Thomas N. McCarter, president of the Public Service Corporation of New Jersey, Newark, N. J., has recently announced proposed retrenchments, due to the effect of the war on transportation interests. He is quoted by the *Newark News* in part as follows:

"Our company is paying 8 per cent dividends, and if it is to continue to do that every effort must be made to keep it going at the lowest possible cost. Not to be able to continue that dividend rate would perhaps render it difficult to raise money advantageously or profitably to dispose of securities.

"The utility companies are being held down, and are not permitted to work out their own salvation, as are the steam roads and business in other lines.

"Too many people are obsessed with the erroneous notion that the Public Service Corporation is still being managed on the basis it was when the securities of its component companies were watered and not always equitably administered. They forget that that day is past; that for the last fifteen years, at least, there has been no water injected, that securities have been made good where they might have been subject to criticism. And if the time does not come when the people of the State recover from this mistaken view of the management of Public Service so that the public may feel confidence in the company and be willing to buy its securities, they will handicap and hamper the enterprise in the work of trying to meet the needs of the public.

"Some of the money needed now to be put back into the property will be secured through retrenchment rather than by capital issues. Other funds will have to be obtained also. Cars will not be put through the shops quite so often as heretofore, perhaps. Men with the company have always been supposed to do a full week's work every week. Probably they have done so, but now they are going to try to do a good deal more than that. We have forty-six cars waiting for us at Cincinnati, but we can't get them owing to priority of war shipments. Large orders for electrical units for the production of more power are behind time as to delivery for a similar reason, and much money will be needed in order to make payment for them when they get here."

Bankers' Committee to Consider Security Issues

Warren S. Hayden of Cleveland, president of the Investment Bankers' Association of America, has appointed, pursuant to a resolution of its board of governors, a special committee to investigate the question of conservation of capital in its relation to the prosecution of the war. The committee consists of the following: Allen B. Forbes, chairman, Harris, Forbes & Company, New York; N. Penrose Hollowell, Lee, Higginson & Company, Boston; H. C. McEldowney, president Union Trust Company, Pittsburgh; H. L. Stuart, Halsey, Stuart & Company, Chicago, and W. R. Compton, W. R. Compton Company, St. Louis.

Bluffton, Geneva & Celina Traction Company, Bluffton, Ind.—Thomas Flinn, who purchased the property of the Bluffton, Geneva & Celina Traction Company some time ago with the intention of junking it, has filed an answer with the Indiana Public Service Commission to the petition filed two weeks ago by farmers living along the line asking that Mr. Flinn be prevented from dismantling the road. Mr. Flinn states that he purchased the road at receiver's sale on Oct. 13, 1917, for \$118,000. He declares that the Circuit Court ordered the road sold unconditionally after it had been ruled that the company operating it was insolvent; that he bought the property without any conditions, and that it is his to do with it as he pleases. For these reasons he asks the Public Service Commission to deny the petition of the people living along the road.

Chicago (Ill.) City Railway.—The directors of the Chicago City Railway have declared the regular dividend of 2 per cent and an extra dividend of three-quarters of 1 per cent, both payable on Dec. 29 to stock of record as of Dec. 24.

Eastern Power & Light Corporation, New York, N. Y.—The Eastern Power & Light Corporation has passed the regular quarterly dividend of 1¼ per cent on the preferred stock.

Fairmount Park Transportation Company, Philadelphia, Pa.—Judge Thompson, in the United States District Court at Philadelphia, on Dec. 13 confirmed the sale of the assets of the Fairmount Park Transportation Company by Frank Kreis, Jr., assignee, to Percival E. Foerderer for \$58,000, subject to a lien of first mortgage bond issue for \$750,000. On Dec. 14 the Fairmount Park Transit Company succeeded the Fairmount Park Transportation Company in the operation of the electric railway and other property.

Kansas City (Mo.) Railways.—The Missouri and the Kansas State Utilities Commissions have approved an issue of \$1,200,000 of new bonds by the Kansas City Railways in addition to the \$30,000,000 present capitalization. The company presented data before both commissions to show that it had made improvements totaling \$3,000,000 in the last three years that properly would be chargeable to capital account. Of that amount \$800,000 is credited to the city in the plan that gives it a growing interest in the ownership of the company. That left \$2,200,000 in company ownership, but only \$1,200,000 is to be borrowed. About 30 miles of extensions have been built in the last three years, making a total of 300 miles of track in Greater Kansas City.

Massachusetts Electric Companies, Boston, Mass.—At the annual meeting of stockholders of the Massachusetts Electric Companies on Dec. 19, Gordon Abbott, president, announced that a meeting of the trustees would be held the day after Christmas, when two members of the stockholders' committee would be appointed to the board. In addition, the stockholders voted to form a committee to seek additional information in regard to the situation of the company. Mr. Abbott appointed to this committee H. A. Holder, Roger W. Babson, Robert Morse and Gordon Abbott. The protective committee of the 5 per cent notes announced that more than a majority of the notes have been deposited with it pursuant to the terms of its agreement of Nov. 30. Mr. Abbott said that for the year to end with this month the controlled Bay State Street Railway would show earnings of about \$400,000 above all charges, but that the demands made

by local communities for improvements in the way of bridges, grading, etc., had used up all the company's cash.

Memphis (Tenn.) Street Railway.—Bertron, Griscom & Company, New York, N. Y., are offering at 97½ and interest, \$1,250,000 of two-year 6 per cent collateral gold notes of the Memphis Street Railway, dated Nov. 1, 1917, due Nov. 1, 1919, but callable in whole on thirty days' notice at 100½ and interest.

Minneapolis, St. Paul, Rochester & Dubuque Electric Traction Company, Minneapolis, Minn.—A part of the Minneapolis, St. Paul, Rochester & Dubuque Electric Railway, extending from Otto Junction to Loose Line Junction, was sold under foreclosure at Minneapolis on Dec. 18 to a committee of holders of collateral trust notes for \$100,000. No bid was received for the remainder of the line.

New York (N. Y.) Railways.—An order has been adopted by the Public Service Commission for the First District of New York permitting the Bleecker Street & Fulton Ferry Railroad to abandon operation of portions of its route on the lower west side of Manhattan. These portions of the route consisted of horse car lines upon which service has ceased. The commission at the same time adopted a memorandum by Chairman Oscar S. Straus setting forth the commission's reasons for its action. The Bleecker Street & Fulton Ferry Railroad is held under lease by the New York Railways, and portions of its route are valuable sections of trackage, including in the operation some of the city's most important crosstown lines. In his memorandum Chairman Straus makes it clear that parallel surface railroad lines and adjacent rapid transit lines make the continuance of the old operation unnecessary and that the abandonment will provide for the removing of the old rails from the streets, to the benefit of vehicular traffic.

Northern Ohio Traction & Light Company, Akron, Ohio.—The National City Company, New York, N. Y., is offering at par and interest \$1,000,000 of 7 per cent secured bonds of the Northern Ohio Traction & Light Company, due as follows: \$25,000 in 1919, \$50,000 in 1920, \$100,000 in 1921, \$150,000 each in 1922, 1923, 1924 and 1925, and \$225,000 in 1926. They are secured by \$1,500,000 of first lien and refunding mortgage 5 per cent bonds. The proceeds from the issue will be used to increase the generating capacity with which to supply power to the rubber goods manufactories in Akron, Ohio.

Nova Scotia Tramways & Power Company, Halifax, N. S.—In connection with the company's application to increase the authorized capital stock from \$6,000,000 to \$10,000,000 and to issue \$975,000 of bonds, the Public Utilities Commission at Halifax, N. S., has approved items of proposed capital expenditure amounting to \$845,641, but held over for further consideration items aggregating \$569,586. For the present the board refuses to increase the capital.

Electric Railway Monthly Earnings

ATLANTIC SHORE RAILWAY, SANFORD, ME.

Period	Operating Revenue	Operating Expenses	Operating Income	Fixed Charges	Net Income
1m., Nov., '17	\$11,712	\$10,175	\$1,537	\$471	\$1,066
1 " " '16	22,841	21,072	1,769	668	1,101

CLEVELAND, PAINESVILLE & EASTERN RAILROAD, WILLOUGHBY, OHIO

1m., Oct. '17	\$44,939	*\$32,250	\$12,689	\$11,691	\$997
1 " " '16	38,570	*23,545	15,025	11,489	3,535
10 " " '17	454,347	*281,890	172,447	116,838	55,609
10 " " '16	390,147	*219,471	170,676	114,042	56,634

LAKE SHORE ELECTRIC RAILWAY, CLEVELAND, OHIO

1m., Oct., '17	\$142,840	*\$107,995	\$34,845	\$35,321	†\$476
1 " " '16	136,113	*84,878	51,235	36,521	14,714
10 " " '17	1,475,625	*999,418	476,207	346,848	129,359
10 " " '16	1,343,126	*838,007	505,119	363,827	141,292

NEW YORK (N. Y.) RAILWAYS

1m., Oct., '17	\$1,103,614	*\$819,086	\$284,528	\$280,995	†\$3,022
1 " " '16	780,263	*647,559	132,704	281,111	†92,144
4 " " '17	4,388,906	*3,189,394	1,199,512	1,127,607	†72,795
4 " " '16	3,610,105	*2,689,102	921,003	1,131,850	†240,962

PHILADELPHIA (PA.) RAPID TRANSIT COMPANY

1m., Nov., '17	\$2,512,229	\$1,496,010	\$1,016,219	\$810,757	\$205,462
1 " " '16	2,361,936	1,321,399	1,040,537	814,174	226,363
5 " " '17	12,408,029	7,234,599	5,173,430	4,056,582	1,116,848
5 " " '16	11,369,858	6,307,726	5,062,132	4,073,313	988,819

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

Traffic and Transportation

Indiana Body Assumes Fare Jurisdiction

Application of Union Traction Company of Indiana for Fare Increase Considered by Commission

The Public Service Commission of Indiana on Dec. 17 assumed jurisdiction in the petition of the Union Traction Company of Indiana for increased rates of fare on its city and interurban lines. These increases cover a 7-cent fare on the Broad Ripple line to points north of Fairfield Avenue, instead of a 5-cent fare; 35 cents to Fort Harrison instead of 25 cents, with intermediate points in proportion; a 6-cent fare in the cities of Anderson, Muncie, Marion and Elwood, eliminating the tickets sold six for 25 cents; 2 cents per mile for mileage books instead of 1¼ cents; 1 1/5 cents per mile for school passengers instead of 1 cent; 1½ cents for commuters instead of 1¼ cents, and a minimum fare on interurban lines of 10 cents instead of 5 cents. Evidence intended to show the necessity for these increases was introduced by the company.

Jurisdiction was assumed only temporarily in the case as it applies to Broad Ripple and Fairmount, since it was contended by Emsley W. Johnson, Indianapolis, and Clarence T. Parker, Fairmount, both attorneys, that the company is bound by franchises and has never surrendered them. In other objections the commission held it has power to grant the increases temporarily without disturbing the basic rates. The other objections were filed by Woodburn Masson for the city of Indianapolis, S. L. Strickler for Marion and Grant County, John McPhee for Muncie, A. E. Schmollinger and J. Carson for the Northwestern Improvement and Civic Association of Indianapolis. They were overruled by the right of the commission to grant emergency rates. The entire commission sat on the case with Commissioner Edwin Corr in charge.

PRESIDENT BRADY STATES THE CASE OF THE COMPANY

Arthur W. Brady, president of the company, stated that in an effort to reduce operating expenses the company had reduced its traffic on Sunday by 700 car-miles and that further reductions could not be made without grave impairment to the service. He stated that fixed charges of the company amounted to \$935,000, and that unless sufficient increases in revenue could be obtained to meet these charges, somebody else would have to take charge of the company. The fixed charges mentioned included approximately 5 per cent of \$17,894,500 of the bonds and the stock of three leased companies on which dividend rentals are being paid. No dividend, however, on the Union Traction Company stock had been paid since 1914. The company's bonds amounted to \$15,394,500. Mr. Brady stated that the value of the property of the Union Traction Company was approximately \$21,238,265. He declared that the deficit for the Broad Ripple line for the ten months ending October, 1917, was \$22,000, and that the Elwood city line during the last six years had shown a deficit of \$34,715.

Walter Shroyer, auditor of the company, testified that the operating revenue for the first ten months of the year 1917 had increased 10 per cent, but that the operating expenses for the same period had increased 27 per cent. Fuel cost was three times the amount of last year. The percentage of operating expenses to operating revenues for the period of ten months was 64 per cent as compared with 56 per cent for the same period in 1916.

DETAILED FINANCIAL STATEMENTS PRESENTED

At the continuation of the hearing on Tuesday, Dec. 18, the detailed financial statements of the earnings and operating expenses of the owned and leased properties of the company were presented by Mr. Shroyer. It was shown that the Muncie & Portland Traction Company had a net income for the year ended June 30 of \$8,086; the Indianapolis, New

Castle & Eastern Traction Company had a net income of \$1,441.25; the Muncie, Hartford City & Fort Wayne Railway for the year ended Dec. 31, 1916, had a net loss of \$3,145; the Broad Ripple Line had a deficit for the ten months ended Oct. 21, 1917, of \$22,231, and for the period beginning with 1912 and ending Oct. 31 of this year, a total deficit of \$77,079.

Chairman Lewis of the commission remarked that the revenues from the city lines of the company were falling off and asked if that was not the condition of city lines everywhere. Mr. Brady stated that he thought it was. Mr. Lewis asked what was the reason for this condition and Mr. Shroyer said that he thought it was principally brought about by the increased operation of automobiles and jitney buses. Mr. Lewis stated that there was a question in his mind as to whether or not the higher rate of fare would not result in throwing more business to the jitney buses. Mr. Van Osdol, attorney for the company, remarked that this was a matter which would have to be worked out.

Women for St. Louis Cars

United Railways Advertises for Women for Tripper and Other Duties

The United Railways, St. Louis, Mo., has established a school for the training of women in electric railway work for such duties as they may suitably perform. Much of this work will be morning and evening service which a woman may do without neglecting her household duties. The company is now ready to receive applications for this school, and in selecting pupils members of the families of employees and soldiers will receive the preference. Applicants must be in good physical condition, between the ages of twenty-five and forty years. Each applicant is required to give as reference at least two local business men. The training will require sixteen days, and at the end of this training period the company will pay \$10 to each pupil who completes the training satisfactorily and is accepted as an emergency employee and who will agree to come to work whenever notified by the company. All work will be paid for at the same rate now paid to men for similar work.

PRESIDENT McCULLOCH EXPLAINS

Richard McCulloch, president of the company, has explained the intention of the company in part as follows:

"There is no intention of using women to replace men except where such men are needed by the government, and we expect to hold open the places of such of our men as are called by the government, so that when they return to us they may immediately step into their old places or situations equally as good.

"In the selection of women to take the instruction, preference will be given to women belonging to the families of our employees or to the families of soldiers. The women will be paid for taking the training course, and we hope in this way to attract to our service earnest women who wish to become the breadwinners for their families. It is our intention to protect women in their work, and any attempt on the part of anyone to take advantage of the fact that they are engaging in unusual work will be repressed in such a way that there will be no recurrence of the attempt. Our work is serious business and should be treated as such. Women will be paid the same rate of wages now paid men for similar work. In the *United Railways Bulletin* will be found an advertisement describing the nature of the work and the conditions under which application may be made.

"As everyone in the electric railway business knows, one of the most difficult problems is taking care of the extra service required night and morning. This constitutes one of the serious problems in arranging hours of work, as it is necessary that a man should be provided with a day's work. It is entirely possible, however, that many women who have household duties to perform can undertake night and morning work without interference with such duties. In this case work which does not appeal to men might be attractive to women.

"We hope that all of our employees will consider this as a war measure and one taken for the assistance of our government in these trying times."

Ticket Withdrawal Sustained

Massachusetts Supreme Court Decides that Public Service Commission Has Plenary Power to Adjust Bay State Company's Rates

The Bay State Street Railway on Dec. 8 was sustained by the Supreme Court of Massachusetts in a decision against the city of Fall River, which sought to set aside an order of the Public Service Commission effective March 15, 1917, relieving the company from selling six tickets for 25 cents. The court pointed out that no evidence of illegal action by the commission or error in the proceedings was apparent, and that the latter's functions are plenary with respect to the control of electric railway fares. Moreover, the decision denied the right of Fall River to a preferential rate because of the alleged profitableness of lines in that city. It is estimated that the withdrawal of tickets will increase the company's yearly earnings by about \$50,000.

WHAT THE COURT RULED

The Fall River franchise contained the condition that the railway would sell six tickets for not exceeding 25 cents. This provision has not been complied with by the company since March 15, 1917. But, the court said, the statute of 1913 (Chapter 784), with certain exemptions not applicable in the present case, placed the subject of fares on all electric railways under the exclusive control of the Public Service Commission. It provides in Section 29 that "this act shall be deemed and construed as a remedial act and enlargement and extension of all previous acts and existing laws conferring upon or vesting in the commission any jurisdiction, powers or discretion with respect to any subject or matter treated in this act," and "all acts and parts of acts which would in any way limit or prevent the exercise to the fullest extent of any of the jurisdiction, powers, authority or discretion delegated herein to the commission are hereby repealed." The statute being constitutional and the powers of the commission plenary over the regulation of fares on electric railways, independently of whatever conditions may have been imposed in antecedent grants of location by selectmen of towns or municipal boards, the withdrawal of the cut-rate tickets involved no errors of law.

In regard to the preferential fare demanded by the city, the court stated:

"The inquiry of the commission as to whether an increase of fare was necessary in order to obtain a reasonable compensation for the service rendered involved primarily a question of fact. It was not limited to any particular part of the system which if operated by itself might be found to be more self-sustaining. And the question whether the company should be permitted to withdraw the commutation tickets called for the exercise of the sound discretion and judgment of the commission, based on the evidence of the company's financial condition and ability to serve efficiently the public dependent upon the maintenance of its entire system of intercommunication and transportation."

Hearing on Freight Rates

The Railroad Commission of Texas has issued notice that it will, at a hearing to be held in Dallas on Jan. 8, consider a proposition looking to the issuance by the commission of an order requiring the interurban railways of Texas and the express companies operating over such interurban lines, to observe the freight and express rates that were in force prior to Oct. 15, 1917, in lieu of the rates now in effect and termed by the interurban lines and interurban express companies as their "Class B" tariff. It has been represented to the commission that the interurban railways and the interurban express companies, prior to Oct. 15, were charging the class rates of the Railroad Commission of Texas, but that since Oct. 15 they have adopted the rates as provided in Fonda Tariff 2-B, which are somewhat higher than the commission's rates. The commission, which, as noted in the *ELECTRIC RAILWAY JOURNAL* of Dec. 15 recently issued an order assuming jurisdiction over all interurban railways operating in Texas, now proposes to order the reinstatement of the old freight and express rates.

Connecticut Fare Hearings Go On

At Short Sessions on Monday and Tuesday Professor Swain Testified for the Company—Case Goes Over to Dec. 27

Short sessions were held on Dec. 18 and 19 before the Public Service Commission of Connecticut with respect to the application of the city of Hartford for the restoration of the 5-cent fare on the lines of the Connecticut Company in that city. Among those who testified at the sessions were W. E. Jones, statistician; ex-Congressman Louis Sperry of South Windsor, and Prof. George F. Swain of the Massachusetts Institute of Technology. Mr. Sperry appeared in the interests of the people of the town. Professor Swain appeared for the Connecticut Company.

CONSOLIDATIONS WERE IN THE PUBLIC INTEREST

Professor Swain said that consolidations of electric railways into large systems were in the public interest. They enabled the operating companies to save by unified operation and to give better service for lower rates than could independent units. He said that consolidations should not be allowed with the object of making prosperous companies bear the burden of carrying unsuccessful companies. He interpreted the statutes passed in Massachusetts to mean that consolidation must not be the pretext for raising fares on any specific road. Neither was it the intent to bar an electric railway formed by consolidation from increasing its fares. He said that a company could add to its earnings by practising economies and by securing increases in business. Consolidations were made for profits or for a change from a losing proposition to a paying one. After consolidation a company should be considered as a single unit and the same fare should be applied to all lines whether the fare was increased or decreased.

NEXT HEARING TO BE HELD ON DEC. 27

At the conclusion of Professor Swain's testimony the hearing was adjourned until Dec. 27. It is expected that at the next session Matthew C. Brush, president of the Boston Elevated Railway, and Charles Rufus Harte of the Connecticut Company will testify.

Service Change Proposed in Portland

The City Council of Portland, Ore., has ordered that the proposed ordinance permitting the Portland Railway, Light & Power Company to abandon the tracks on East Sixty-second and other streets leading from the Sandy Boulevard line to the old Country Club grounds be advertised in accordance with the provisions of the charter. After the ordinance has been advertised for twenty days objections to such abandonment will be received, and the Council will hold a public hearing on the proposal. The tracks are used only when there are attractions at the Country Club. The company desires to abandon them so as not to be required to pay its share of the cost of paving and maintaining the streets.

In an opinion to the City Council the city attorney holds that that body has the right to amend the franchises of the company so that service on stub-end lines may be abandoned. The amendments to the franchise, however, have to be made through regular procedure prescribed in the charter. The company will discontinue "owl" service on the Richmond line.

Public Representative a Director

Albert M. Lyon of the Newton (Mass.) school committee and a Boston attorney, has been appointed as a representative of the public to serve with the directors of the Middlesex & Boston Street Railway in connection with fare problem discussions and prospective increases in rates. The appointment came at the suggestion of James L. Richards, president, who advised a committee representing various Newton improvement associations and the Board of Trade to select one man who would represent all these bodies and would serve as a director in order to obtain first-hand information as to the company's affairs.

Car-Heating Case Closed

Commission Concludes Hearings on the Application of the Brooklyn Rapid Transit Company for Suspension or Modification of Car-Heating Order

The Public Service Commission for the First District of New York announced on Dec. 14 that the hearings upon the application of the Brooklyn Rapid Transit Company for a suspension or modification of the commission's car-heating order have been closed, and that the detailed reports by the commission's inspectors, who made observations during the recent tests, are being compiled and further summarized. When this is done, they will be examined by the commission, to see if there is warrant for any modification of the prescribed heat standards.

WHERE THE TESTS WERE CONDUCTED

The tests as to surface cars were conducted upon only one line, the Flatbush Avenue line, from Brooklyn Bridge to the carhouse at Avenue N and Forty-ninth Street, and no more than three cars were used in the tests during any rush-hour period. On the elevated lines, no more than one train was in any instance used during any rush-hour period, and usually only two or three cars in that train were observed and reported upon. Accordingly, out of the entire number of surface and elevated cars operated by the system in Brooklyn, no more than three surface cars and two or three elevated cars were being used in the tests during any morning or afternoon rush-hour period.

Another Connecticut Fare Change

Reasons for Adoption of Copper Zone System Explained by the Hartford & Springfield Street Railway

The Hartford & Springfield Street Railway, Warehouse Point, Conn., has explained to its stockholders the proposed change by it to the copper zone system referred to briefly in the ELECTRIC RAILWAY JOURNAL of Dec. 8, page 1055. The company said in part:

NO DIVIDENDS SINCE 1913

"Since 1913 no dividends have been paid upon the stock of the company, but up to the current year earnings have been sufficient to meet all operating expenses and fixed charges and maintain the company's property in fair physical condition. During the past eleven months, however, the price of fuel and of other raw material has advanced to such a point that the income of this company for the period is not sufficient to meet these abnormal conditions.

CHANGE BASED ON RECOMMENDATIONS OF ENGINEERS

"This state of affairs was anticipated by the officers of your company early in the year, and in the summer of 1917 Sloan, Huddle, Feustel & Freeman, engineers, were employed to make a complete study of the situation and advise some means of increasing the company's revenue. This report is now available and the engineers recommend therein that a system of charging by zones, such as has been successfully worked out in the Middle West and by the Shore Line Electric Railway in Connecticut, be installed as soon as possible. The plan contemplates the separation of the road into definite zones and to charge 2 cents per zone, with a minimum charge of 6 cents.

"This method of collecting fares is a much more equitable arrangement than the present system, as the amount each passenger pays is in proportion to the distance he rides. In no other line of business does the consumer expect to pay a fixed sum regardless of cost to the producer, but the New England public must immediately recognize that there is no mystery about the operation of an electric railway, and unless they are willing to pay the cost of service rendered then the enterprise cannot be continued.

"Preparations are now being made to have the new system effective on Jan. 1, 1918, and an increase in gross income is looked for immediately."

Traffic Study of Congested Cleveland

Fielder Sanders, street railway commissioner of Cleveland, Ohio, has completed a survey of certain spots in the congested district which shows that in the territory bounded by East Ninth Street, West Ninth Street, St. Clair Avenue and Eagle Avenue, 31,279 automobiles, wagons and street cars passed in a single Saturday between 2 p. m. and 6.15 p. m. The vehicles collectively would occupy three times as much space as is contained in the streets of that district. The displacement of wagons and automobiles was estimated at 70 sq. ft. each, and electric railway cars at 422 sq. ft. in making the compilation. The figures showed that vehicles with a total displacement of 3,534,874 sq. ft. passed through 1,000,000 sq. ft. of streets in the district in four hours and fifteen minutes. Removal of the electric railway cars would take away one-half of the space-consuming vehicles.

16,165 AUTOS PASS IN FOUR HOURS

In the four hours and fifteen minutes 16,165 automobiles, trucks and wagons and 3822 electric railway cars passed through the district. Standing automobiles and wagons to a total of 11,292 were counted. Euclid Avenue and East Ninth Street, where 4671 vehicles of all kinds passed, was the busiest corner, while Superior Avenue and East Ninth Street came second. Automobile traffic was heaviest between 5 and 5.30 p. m.

Figures are being prepared by Mr. Sanders to show the saving that will be effected by the use of subways on Superior Avenue between East Ninth and West Ninth Streets, Euclid Avenue between East Ninth Street and the Public Square and Ontario Street between Lakeside Avenue and Central Market.

HOW SUBWAY WOULD HELP

Mr. Sanders estimates that cars operate 3,548,432 miles annually in the territory above outlined. It requires 821,359 hours of labor annually by motormen and conductors to operate the cars. In Boston the number of hours, with a district of comparatively the same size, is 625,791. The Boston subways save 195,568 hours of man labor. As the average wage in Cleveland is 33.55 cents an hour, the saving in money, with the subway system completed, would be \$65,613 annually.

In the morning rush hours the average speed in Cleveland is 8.13 m.p.h. as compared with 10.95 m.p.h. in Boston. In the afternoon rush hours the speed in both cities drops, but Boston with 7.85 m.p.h. still has the advantage over Cleveland with 6.60 m.p.h.

Cleveland cars travel a total of 1,570,651 miles annually during the rush hours in the small district outlined and the hours of man labor total 357,927, as compared with 281,691 in Boston where there is a saving of 76,236 hours of labor each year during the rush periods alone.

Cleveland Fare Increase in Effect

Since Dec. 15 the people of Cleveland, Ohio, have been paying fare on the Cleveland Railway at the rate of 3½ cents, which is the first step above the minimum established by the Tayler franchise. Tickets are sold in strips of three for 10 cents or six for 20 cents, while the cash fare is 4 cents. A charge of 1 cent is made for transfers, but this is rebated when the transfer is used.

The change went into effect without any protest from the public. J. J. Stanley, president of the Cleveland Railway, said that the increase would yield very little, if any, more than the old plan of a straight 3-cent fare, with a charge of 1 cent for transfers, not rebated. Under the franchise, however, the fare must be increased one step at a time.

Should the next monthly statement indicate that as a result of the change there has been no increase in the interest fund, the charge for transfers will not be rebated. This would constitute the next step under the terms fixed by the franchise. The company asked Council to authorize it to increase the fare to this point at once, but it delayed action by submitting the matter to the railway committee.

The change in rate made on Dec. 15 did not require the consent of the Council, since the franchise provides for an automatic change when the interest fund reaches minimum.

Hearing on Rainier Valley Fares

City in Anomalous Position of Wanting to Render to One Company Relief It is Seeking to Deny to Another

A preliminary hearing was held recently on the petition of the Seattle & Rainier Valley Railway to the City Council of Seattle for permission to abolish the 4-cent fare and to impose a 2-cent charge on the issuance and receipt of transfers with the Puget Sound Traction, Light & Power Company. The majority of the councilmen who took part in the discussion declared that in view of the litigation by the city over the action of the Public Service Commission in permitting the Puget Sound Traction, Light & Power Company to abolish 4-cent tickets, the relief asked by the Seattle & Rainier Valley Railway could not be granted. The Council appointed Judge Moore and Councilman Lane as a special committee to confer with Walter F. Meier, acting corporation counsel, to determine whether the Council could grant the relief asked and whether, in view of the litigation, it would be advisable.

RELIEF SHOULD BE GRANTED

Oliver T. Erickson, chairman of the public utilities committee of the Council, intimated that the relief asked by the company should in justice be granted, but that "the public would not understand why we permit something to be done by this company which we are opposing in the case of the Puget Sound Traction, Light & Power Company." Judge Moore declared that there was a marked difference in the two cases. He said: "The Seattle & Rainier Valley Railway has offered to lay the facts before us, while the other company did not lay the facts before the City Council or the Public Service Commission."

Marshall P. Sampson, Chicago, president of the company, who is conducting the negotiations with the Council, states that wage increases made by the company during the last year have added \$30,000 a year to the operating expenses and that the advance in the cost of materials and in the maintenance of the property has added \$12,000 to the expenses.

The judiciary and franchise committee of the City Council of Seattle, Wash., in joint conference, recently decided that the City Council would not assume jurisdiction over the application of the Seattle & Rainier Valley Railway for elimination of 4-cent tickets unless the city won its appeal from the action of Thurston County in upholding the action of the Public Service Commission on the application of the Puget Sound Traction, Light & Power Company. It was decided, however, that the city would not formally oppose the application which the railway will make to the Public Service Commission, but would appeal from the commission's decision only if the Council considered that the action of the commission was not justified by facts presented at the hearing.

Jitney Injunction Made Permanent

So-Called Free Buses in Portland, Ore., Must Go, the U. S. District Court Holds

United States District Judge Jeremiah Neterer, in Seattle, Wash., entered an order on Dec. 6, making permanent the temporary injunction issued on the application of the Puget Sound Traction, Light & Power Company restraining Earl W. Arnold and nearly 190 other jitney operators from operating jitney buses in competition with the cars of the company. The permanent injunction, as did the temporary injunction, holds against all the defendants served with processes except H. G. Gould, against whom the petition for an injunction was dismissed. Following the granting of the temporary injunction on July 11, last, a hearing of the case on its merits was held, arguments made and briefs filed. The validity of the injunction was attacked chiefly on the ground that the defendants claimed not to be acting as common carriers, and that, therefore, they did not come within the provisions of the law passed by the last Legislature requiring jitney owners to furnish indemnity bonds.

In disposing of this contention, as well as the claim of

the defendants that they are operating "free buses," Judge Neterer said that the purpose of the law requiring jitney operators to furnish bonds was to protect the public against irresponsible operators, and that the act, therefore, must relate to all engaged in like business. Judge Neterer said:

"The defendants may operate jitneys carefully and free from any negligent conduct, but that does not excuse them from compliance with the act requiring the filing of a bond. The defendants are not operating 'free buses.' Operating a jitney is one of the sources of income and is employment for private gain. A card on the windshield on the outward side of which appears 'free bus' and on the inward side of which appears 'contributions received for defense fund' against the traction company' is clearly a subterfuge, and will not excuse the defendants from compliance with the provisions of the act. It is an evasion which the law will not countenance. The law may be very undesirable. The motive which inspired it may have been unworthy. The wisdom of the law or the motive which inspired it are not matters for judicial determination on this trial. This court is merely concerned with the law as it relates to the facts presented. The defendants are not prohibited from operating jitneys. They are merely required to comply with a regulatory statute which has been held by the Supreme Court of the State to be constitutional."

ONLY NOMINAL DAMAGES GRANTED

In concluding his opinion, Judge Neterer said that while the evidence shows that the plaintiff company has been damaged by reason of the acts of the defendants, there was no testimony upon which the court could base the amount of damages, except upon conjecture and surmise, and he, therefore, directed the entry of an order awarding nominal damages to the plaintiff company, and further directed that except as to the defendant H. G. Gould, who should be allowed his costs, no cost be taxed against either side.

Indianapolis Fare Case Goes to Courts

The Indianapolis Traction & Terminal Company on Dec. 15 filed a writ of mandamus in the Circuit Court of Marion County to compel the Public Service Commission of Indiana to hear the company's application for increased fares. At the hearing before the commission on Dec. 12 and 13 that body decided that it did not have jurisdiction in the case because the company had not surrendered its franchise contract.

The document filed in the Circuit Court included all remonstrances, petitions for denial of the increase and other protests which were filed with the Public Service Commission. A hearing was held before Judge Eubank of the Circuit Court on Dec. 18. The case has been set down for argument on Dec. 26.

Tickets Withdrawn in Owensboro.—The Owensboro (Ky.) City Railway has discontinued its policy of selling six tickets for 25 cents and is now collecting a flat rate of 5 cents.

Bridgeport to Postpone Six-Cent Fare Protest.—The city of Bridgeport, Conn., has decided not to carry its protest against the 6-cent fare of the Connecticut Company to the Public Utilities Commission until the similar case of Hartford has been finished.

One-Man Car in Service on Michigan Line.—On Dec. 10 the Detroit (Mich.) United Railway placed a car of the one-man type in operation in Monroe. During the first day 173 passengers were carried. The one-man car now in service in that city is of the single-truck type and was rebuilt in the company's Highland Park shops. The car is double-ended. It has longitudinal seats.

Aurora, Elgin & Chicago Fare Case Presented.—The first hearing on the petition of the Aurora, Elgin & Chicago Railroad for increased fares was held before the Public Utilities Commission of Illinois in Chicago on Dec. 14. Only a few objectors were present. The case was continued until Dec. 20, at which time the public will again have an opportunity to present any evidence against the petition.

Heavy Snow in Louisville.—The heaviest snow in the history of Kentucky fell on Saturday and Sunday, Dec. 8 and 9, and disorganized all electric railway traffic. In many

of the smaller Kentucky towns and in southern Indiana cities attempts to maintain service were abandoned. In Louisville most of the workers walked to their places of employment on Dec. 8. On the morning of Dec. 9 conditions were still unsatisfactory.

Increase in Fares on Reading Lines.—The Reading Transit & Light Company, Reading, Pa., has filed with the Public Service Commission of Pennsylvania, a new schedule of fares providing for an increase from 5 to 6 cents on the city lines of Reading, Norristown and Lebanon, to go into effect on Jan. 10, 1918. A 6-cent fare went into effect on the suburban lines of the three cities on Nov. 6, and the advance now proposed would mean a universal 6-cent fare over the entire 200 miles of railways operated by the company.

Cities Oppose Further New York Increases.—At a hearing in Albany on Dec. 19 before the Public Service Commission for the Second District of New York representatives of various cities opposed further fare increases for electric railways in the State on the grounds that the companies are overcapitalized, that their earnings are actually increasing and that a 6-cent fare would cause a falling off of traffic and be of no benefit. Edward W. Bemis was the principal witness. As noted in the *ELECTRIC RAILWAY JOURNAL* of Dec. 8 and elsewhere in this issue, the commission has already granted fare increases in nine out of thirty-one cases.

Women to Be Employed in Kansas City.—The Kansas City (Mo.) Railways placed advertisements in the Kansas City newspapers on Dec. 15 asking for women between twenty-one and thirty-five years to apply for work as conductors at the same pay as the men now employed. Although the days set for answering the advertisement were Dec. 18, 19 and 20, several women made application on previous days, showing a decided interest in the plan. The company has decided not to employ women car cleaners, as the present car-cleaning force is made up of men too old to be of practical use in operating cars. The women conductors will be used in rush-hour traffic at first.

Modification of "Full Car" Rule Sought.—Representatives of the United Railways & Electric Company, Baltimore, Md., appeared before the Public Service Commission of Maryland on Dec. 6 in support of the company's application for a modification of the "full car" order. As a substitute for the "full car" order the company suggests an order limiting overloading to 50 per cent, based on the number of cars passing a given point in fifteen minutes under a three-minute headway. This would mean no limit to the number of passengers that might be carried on one car so long as the overload on all of the cars passing a given point under conditions described above did not exceed 50 per cent.

Service Abandonment Asked.—O. W. McConnell, representing the Helena Light & Railway Company, Helena, Mont., at a recent hearing before the State Utility Commission, stated if the commission consented to the company discontinuing service on that portion of its Upper Broadwater line, from the Kenwood trestle to the Broadwater, the company would give a much improved service to patrons on both the Upper and Lower Broadwater systems. Mr. McConnell stated the company did not ask for permission to abandon its tracks; that the commission had no authority over that matter, but that it did ask for authority to discontinue the service upon the grounds that there was no public necessity for it.

Skip Stop Adopted in Columbus.—The City Council at Columbus, Ohio, has adopted a resolution authorizing the Columbus Railway, Power & Light Company to eliminate alternate stops on all lines north of Goodale Street, south of Livingston Avenue, east of Fourth Street and west of Front Street. No change has been made in the business section. Harold W. Clapp, general superintendent of the company, stated at the Council meeting that the adoption of this plan will save from 400 to 500 tons of coal per month. Mr. Clapp also asked that the proposal to reduce the evening service about 50 per cent be authorized as an emergency measure. He promised that full service would be restored when conditions become normal. No action was taken on this matter.

Personal Mention

W. H. Lines, industrial engineer of the Portland Railway, Light & Power Company, Portland, Ore., will succeed Roy C. Taylor as secretary to Franklin T. Griffith, president of the company.

George Spaulding has been appointed superintendent of the Blue Hill Street Railway, Canton, Mass., to succeed Frank T. Buchanan, whose resignation is referred to elsewhere in this column.

Oscar T. Crosby, Assistant Secretary of the United States Treasury, was elected president of the Inter-Allied Council, which is to take up the question of war purchases and finances. The council met in London on Dec. 15.

I. L. Ward has been appointed purchasing agent for the Pacific Electric Railway, Los Angeles, Cal., to succeed F. W. Taylor, who resigned recently to become purchasing agent for the Southern Pacific Company, Los Angeles.

William Bingham has resigned as assistant secretary and assistant treasurer of the Chattanooga Railway & Light Company, Chattanooga, Tenn. He will be succeeded by G. W. Bachman, at present auditor of the Tennessee Power Company.

Wilford Phillips, who recently resigned as general manager of the Winnipeg (Man.) Electric Railway on account of failing health, has been presented with a gold watch and chain and Mrs. Phillips with a traveling bag by employees of the company.

Roy C. Taylor, for the last four years secretary to Franklin T. Griffith, president of the Portland Railway, Light & Power Company, Portland, Ore., has resigned to join the legal staff of Griffith, Leiter & Allen, attorneys for the Portland Railway, Light & Power Company.

Byron M. Clendening, Cincinnati, Ohio, has been nominated by Governor James M. Cox to be a member of the Public Utilities Commission, as the successor of the late Judge Oliver H. Hughes. Up to the present time he has been a member of the State liquor licensing board.

W. C. Hawkins, formerly managing director of the Dominion Power & Transmission Company, Hamilton, Ont., has been elected president of the Southern Canada Power Company, Ltd., in place of C. J. McCuaig, who remains on the board of directors and executive committee.

Charles W. Ricker, assistant general manager and chief engineer of the Havana Electric Railway, Light & Power Company, Havana, Cuba, is in the United States for a short time in the interest of his company. Mr. Ricker expects to visit Schenectady, Buffalo, Pittsburgh and other Eastern cities before he returns to Havana early in January.

Rufus Moses has been appointed assistant manager of railways of the Mahoning & Shenango Railway & Light Company, Youngstown, Ohio. Mr. Moses has been with the company for eight years, successively occupying the positions of storekeeper and freight agent at Sharon, Pa., and then traffic chief and superintendent of freight for the entire system.

Frank T. Buchanan has resigned as superintendent of the Blue Hill Street Railway, Canton, Mass., to continue with Stone & Webster, who retired as managers of the railway on Nov. 1. Mr. Buchanan has been with Stone & Webster companies for the last fifteen years, serving at Plymouth, Mass.; Sydney, N. S.; Key West, Fla., and Canton, Mass. He will now be located in the construction department at Philadelphia.

G. W. Buchanan, formerly auditor of the Chattanooga Railway & Light Company, Tennessee Power Company and the Nashville Railway & Light Company, has been appointed assistant secretary and assistant treasurer of the Chattanooga Railway & Light Company, Lookout Mountain Railway and Lookout Incline Railway. Mr. Buchanan has been connected with these companies since 1915. Previous to that he was for several years with the Ohio Electric Railway and the Chicago elevated lines.

Clinton L. Bardo, general manager of the New York, New Haven & Hartford Railroad, has been appointed chairman of the New England Operating Committee, under which plans are now being perfected whereby locomotives, cars, and all other railroad and railroad-owned steamship facilities will be used interchangeably to the end that the highest transportation efficiency possible may be obtained for New England interests. Mr. Bardo was formerly superintendent of the electric division of the New York Central & Hudson River Railroad.

Wallace Brett Donham, recently appointed temporary receiver of the Bay State Street Railway, Boston, Mass., is a vice-president of the Old Colony Trust Company, Boston. Mr. Donham was born at Rockland, Mass., in 1877, was educated at Harvard College and received the degree of LL.B. from the Harvard Law School in 1901. He was admitted to the bar in that year and entered the legal department of the Old Colony Trust Company with which he has been closely identified. Mr. Donham is chairman of the directors of the Massachusetts Employees Insurance Association and a director and member of the executive committee of the Carolina, Clinchfield & Ohio Railroad, Clinchfield Coal Corporation and Cumberland Corporation.

F. Wharton Baker has resigned as secretary to the vice-president and general manager of the Cumberland County Power & Light Company, Portland, Me., and associated companies to become connected with the E. I. duPont de Nemours Company at its Carney's Point plant as assistant supervisor of one of the departments having to do with the manufacture of smokeless powder. Mr. Baker entered the employ of the Cumberland County Power & Light Company in 1913, and assumed the position of secretary to the vice-president and general manager in 1915. He was graduated from the civil engineering course of the University of Pennsylvania, and previous to his connection with the railway and lighting interests at Portland was an inspection engineer for the Independence Inspection Bureau of Philadelphia.

J. B. Stewart, Jr., has been promoted from assistant to the general manager to assistant general manager of the Mahoning & Chenango Railway & Light Company, Youngstown, Ohio. Mr. Stewart has been with the company since 1913, when he became safety and efficiency engineer and superintendent of freight. Subsequently he was appointed superintendent of equipment and traffic and then was made assistant to Richard T. Sullivan, general manager. Mr. Stewart was graduated from the high school at Newton, Mass., and the Massachusetts Institute of Technology. His first employment in the railway field was with the Middlesex & Boston Street Railway, Newtonville, Mass., as an engineer, whence he went to Erie, Pa., as assistant to the general manager of the Buffalo & Lake Erie Traction Company. In 1910 he was engaged in the construction of the Corning division of the Elmira, Corning & Waverly Railroad, Waverly, N. Y., and two years later became park manager and acted as assistant to the traffic manager of the Lehigh Valley Transit Company, Allentown, Pa.

Edward Troy, who was recently made engineer of maintenance of way of the Chicago, Ottawa & Peoria Railway, Ottawa, Ill., began his work in the railway field in November, 1904, with the Chicago, Cincinnati, Cleveland & St. Louis Railway as a rodman on the St. Louis division. He served with this company as rodman, levelman and transitman until April, 1911. From May, 1911, until October of the same year, he was employed by the Ashtabula Rapid Transit Company and the Pennsylvania & Ohio Electric Railway, Ashtabula, Ohio, as assistant superintendent in charge of the street railways in Ashtabula and the engineering work on both properties. He then became connected with the Central Illinois Public Service Company and the Central Illinois Traction Company at Mattoon, Ill., serving as engineer of maintenance of way until May 1, 1917. At this time he was appointed superintendent of railways of the Mattoon property and as such had charge of the operation of the city lines at Mattoon and Charleston, and the interurban electric railway between these two towns. He retained this position until his recent appointment as engineer of maintenance of way of the Chicago, Ottawa & Peoria Railway, controlled by the Illinois Traction Company.

Construction News

Construction News Notes are classified under each heading alphabetically by States.

An asterisk (*) indicates a project not previously reported.

FRANCHISES

Omaha, Neb.—The City Council committee has agreed to grant the Omaha & Council Bluffs Street Railway a permit to construct an extension from Twenty-fourth and O Streets to Nineteenth and W Streets. The company will build an extension on Thirty-sixth Street from Q Street to Y Street if the property owners will widen that thoroughfare.

Dallas, Tex.—The County Commissioners of Tarrant County have granted the franchise asked by the Dallas Southwestern Traction Company, authorizing the construction and operation of an electric interurban railway line in and through Tarrant County on a line drawn from Grand Prairie in Dallas County to Alvarado in Johnson County. The franchise is granted for a period of fifty years on condition that the road building on this line would begin within twelve months. E. P. Turner, president. [Dec. 1, 1917.]

TRACK AND ROADWAY

Stouts Mountain & Hanceville Railroad, Hanceville, Ala.—This company plans to construct a line between Hanceville and Stouts Mountain, 6 miles. Charles F. Wheelock, Birmingham, is interested.

Edmonton (Alta.) Municipal Street Railway.—A new belt line for the Edmonton Municipal Street Railway will be built shortly. The recommendation of the commissioners that the tracks be laid across 106th Avenue between Ninety-seventh and 101st Streets has been adopted by the City Council, and the superintendent of the system has authority to proceed with the work.

Pacific Electric Railway, Los Angeles, Cal.—Application has been filed by the Pacific Electric Railway with the Railroad Commission of California for authority to build its tracks at grade across twenty streets in Los Angeles County, and across the tracks of the Southern Pacific Railroad and the Atchison, Topeka & Santa Fé Railway. These crossings are in connection with the construction of a proposed line from Glendora to the Pacific Electric Company's Los Angeles-San Bernardino line at Lone Hill.

United Railroads of San Francisco, San Francisco, Cal.—A report from this company states that it will reconstruct about 5 miles of track in 1918.

Savannah (Ga.) Electric Company.—The construction of a 5-mile extension to Fort Wentworth is planned by the Savannah Electric Company.

Valdosta (Ga.) Street Railway.—A report from the Valdosta Street Railway states that it will build 1 mile of new track during the first part of the year.

Alton & Eastern Electric Railway, Alton, Ill.—A report from the Alton & Eastern Electric Railway, which is a subsidiary of the East St. Louis & Suburban Railway, states that it expects to place in service next year its line from the Alton City limits to the Alton Insane Hospital, 1¼ miles.

Chicago & Interurban Traction Company, Chicago, Ill.—This company will rebuild 4 miles of track.

Terre Haute, Indianapolis & Eastern Railway, Terre Haute, Ind.—This company reports that it will reconstruct 2.8 miles of track in 1918.

Inter-Urban Railway, Des Moines, Iowa.—An order has been placed with the Union Switch & Signal Company, Swisshale, Pa., by the Inter-Urban Railway for alternating-current automatic signal materials to protect three stretches of its single track leading out of Des Moines. The system is to be installed for the protection of traffic to and from Camp Dodge on parts of the line where double-tracking is not possible at this time on account of existing bridges and fills.

New Orleans Railway & Light Company, New Orleans, La.—During 1918 the New Orleans Railway & Light Company will rebuild 5.7 miles of track.

Hagerstown & Frederick Railway, Frederick, Md.—It is reported that the Hagerstown & Frederick Railway contemplates improvements to the Chambersburg, Greencastle & Waynesboro Railway, which it has acquired.

Massachusetts Northeastern Street Railway, Haverhill, Mass.—This company reports it will rebuild 1 mile of track.

Panama Traction Company, Jamestown, N. Y.—A contract has been made by the Panama Traction Company for rails to build a section of its line from Sugar Grove to Jamestown in the early spring. Much of the grading for the line has been done, the bridges built and the right-of-way into Jamestown has been secured. The company proposes to construct a line from Sugar Grove to Erie via Jamestown, Ashville, Panama, Clymer and Findley Lake. The line will enter Jamestown via McDannell Avenue, Sixth Street, Steel Street, Market Street and Brooklyn Square. D. L. Davis, Jamestown, general manager. [Aug. 11, '17.]

Cincinnati, Lawrenceburg & Aurora Electric Street Railroad, Cincinnati, Ohio.—The Public Utilities Commission of Ohio has authorized the Cincinnati, Lawrenceburg & Aurora Electric Street Railroad to enter Cincinnati over a new route, which has already been described in the *ELECTRIC RAILWAY JOURNAL*, and to abandon the old one. Cars will be operated over the present line until the new track is completed. An ordinance, providing for the route, is now before the City Council of Cincinnati.

Brantford (Ont.) Municipal Railway.—The Brantford Board of Railway Commissioners reports that during 1918 it will construct 2½ miles of new track providing material and labor can be obtained.

Minden, Ont.—At a recent meeting held in Minden it was decided that a committee be appointed to take any steps they think advisable toward urging the Hydro-Electric Power Commission to construct a line from Kinmount Junction to Minden.

Pacific Power & Light Company, Astoria, Ore.—Plans are being considered by the Pacific Power & Light Company for the extension of its line to the McEachern Ship Company yards and to the plant of the Astoria Pulp & Paper Company at a cost of about \$20,000.

Stroudsburg (Pa.) Traction Company.—Physical connection has been made between the lines of the Stroudsburg Passenger Railway and the Stroudsburg, Water Gap & Portland Railway, now operated by the Stroudsburg Traction Company.

Hull (Que.) Electric Company.—A report from the Hull Electric Company states that it will build 1.3 miles of city track and will rebuild 1.3 miles of track during 1918.

Nashville Railway & Light Company, Nashville, Tenn.—Because of the fact that the cost of materials is so high at the present time, the plan to extend the Buena Vista car line across the new Hyde's ferry bridge has been abandoned by the Nashville Railway & Light Company.

Dallas (Tex.) Railway.—George E. Kessler of St. Louis, employed by the city of Dallas to supervise the planning of electric railway extensions and betterments under the terms of the service-at-cost franchise granted the Strickland-Hobson combine, has approved all the extensions as recommended to the City Commission by N. M. Baker, supervisor of public utilities. The Lorain Steel Company, Johnstown, Pa., has accepted the order of the Dallas Railway for rails to be used in connection with the improvement.

Northern Texas Traction Company, Fort Worth, Tex.—The City Commission of Fort Worth, Tex., will ask the Northern Texas Traction Company to extend the Arlington Heights car line to Lake Worth, a distance of approximately 8 miles. The proposed extension would follow the county road to the municipal bathing beach. The company now operates a bus line from the end of the street car line to the bathing beach, maintaining a regular schedule, with round trip for 25 cents. Mayor Davis and City Attorney Odell are now in the East and will confer with officials of the Stone & Webster Corporation at Boston relative to the extension.

Virginia Railway & Power Company, Richmond, Va.—Surveys have been begun by the Virginia Railway & Power Company for an extension to Pig Point.

Seattle, Wash.—The imperative need of increased transportation to the Duwamish Valley district in Seattle, where new industrial plants have been located, has engaged the attention of the industrial bureau of the Chamber of Commerce and Commercial Club, which have been in conference with railway officials, traction representatives of the city and the department of public utilities. The most feasible plan so far presented seems to be the use of two five-car electric trains twice each day, to run from Fifth Avenue and Jackson Street to Ninth Avenue South, skirting the foot of Beacon Hill and turning off at Lucille Street to run west to First Avenue South, and thence south on First Avenue to Fidalgo Street. It is estimated this line will cost \$65,000 to install. The shuttle system working along Lucille Street and First Avenue South, making transfer connections with the Georgetown and South Park cars, will cost \$45,000. The operation of a boat along the Duwamish waterway, one of the plans proposed, was found to be entirely impractical.

Seattle (Wash.) Municipal Railway.—The Board of Public Works of Seattle has received plans from the public utilities department for track construction work on the Nickerson Street extension and also on the Leary Avenue extension of the Seattle Municipal Railway, Division A.

Seattle & Rainier Valley Railway, Seattle, Wash.—Operation has been begun by the Seattle & Rainier Valley Railway on its Genesee Street line.

Charleston-Dunbar Traction Company, Charleston, W. Va.—A new bridge will be built by the Charleston-Dunbar Traction Company in connection with its proposed extension to Sattes.

SHOPS AND BUILDINGS

Chicago (Ill.) Surface Lines.—It is reported that the companies in the Chicago Surface Lines are planning to make extensive additions to their carhouses at North Clark Street and Schreiber Avenue. While it is understood that no construction work is contemplated in the near future, plans are being prepared for four buildings, each about 450 ft. in length, and adjoining the present houses on the south. The new carhouse will have a total capacity of about 300 cars. The plan will also probably include a one-story power house and a two-story office building. The entire layout will cost about \$500,000.

Trenton & Mercer County Traction Corporation, Trenton, N. J.—Fire recently damaged the new carhouse of the Trenton & Mercer County Traction Corporation at Trenton. Three new trolley cars and two old ones were destroyed and five others were damaged. The loss is estimated at about \$65,000.

Durham (N. C.) Traction Company.—The old carhouse of the Durham Traction Company is being remodeled and a new addition 30 ft. by 150 ft. is being built to take care of the cars. A new machine shop has been built by the company, where it will be able to handle its own work. A new horse barn, 110 ft. by 45 ft., containing housing room for twenty-four horses, will soon be completed by the company.

POWER HOUSES AND SUBSTATIONS

Trenton & Mercer County Traction Corporation, Trenton, N. J.—A contract has been awarded by the Trenton & Mercer County Traction Corporation for an additional 2000-hp. generator unit for its power house on Lincoln Avenue.

Albany (N. Y.) Southern Railroad.—The Public Service Commission for the Second District of the State of New York has granted the application of the Albany Southern Railroad to construct a power plant in Greenport and to furnish service.

Petersburg & Appomattox Electric Railroad, Petersburg, Va.—Plans are being made by the Petersburg & Appomattox Electric Railroad for the construction of a one-story, granite block central heating plant at Lakemont, near Petersburg.

Dunbar (W. Va.) Traction Company.—This company will rebuild its power plant and carhouse recently destroyed by fire. The loss was about \$75,000.

Manufactures and Markets

Discussions of Market and Trade Conditions for the Manufacturer, Salesman and Purchasing Agent
 Rolling Stock Purchases Market Quotations Business Announcements

Condition of Shops of Freight Car Builders

Plants Working at 40 Per Cent Capacity with Unfilled Orders Sufficient at Present Rate of Output to Use Available Facilities Until Next September

Acting on the understanding that a more extensive use of electric railway facilities for freight handling is under contemplation and knowing that at least in certain sections of the country standard M. C. B. rolling stock cannot operate on traction roads owing to the difference in rail and wheel specifications, inquiry was made by the ELECTRIC RAILWAY JOURNAL about the ability of freight car builders to take care of orders from traction properties should they arise in any quantities.

It developed that car builders have on their books at the present time unfilled orders in the neighborhood of 85,000 freight cars which are almost entirely for steam roads. These orders at the present rate will require from eight to nine months to fill. Furthermore, it is the intention of the builders to turn out these orders before others received later. On this basis, therefore, generally speaking, it would be next September before the electric railways could expect to get shipment, under existing conditions, of new freight cars. Of course, it is not to be expected that these conditions, which are average over the entire field, exist to that very degree in all shops. Some, naturally, are in a position to make better than the average deliveries just as some are doing worse than the average.

The present builders' capacity for turning out freight cars is in the neighborhood of 25,000 cars per month. Actually the output at present is running around 10,000 cars per month, or 40 per cent capacity. Of these, 8000 are for use in the United States and the remaining 2000 are for use overseas.

Materials and labor are the two factors causing such a reduced output of freight cars. Insufficiency of lumber and steel, particularly the latter, is the greatest handicap to car builders. Furthermore, the labor situation is to a large extent the outgrowth of the materials supply. Labor can be employed only so long as there is a supply of building material. The incoming supply is so small and uncertain that it is quickly used up, and until more arrives labor is idle unless it takes employment elsewhere. For that reason each new arrival of materials of any size means the rehiring of construction labor. With the turnover in the labor market as large as it is—with one car builder it amounts to 2.5—the difficulty in getting labor of the desired kind and experience is quite large.

No 1918 Exhibition by Railway Supply Manufacturers

Master Mechanics and Master Car Builders' Associations Not Likely to Hold Conventions Owing to the National Crisis

The Railway Supply Manufacturers' Association has just sent out to its membership a letter pointing out that as matters now stand the regular annual exhibition will not be held in 1918. The letter reads in part:

"When our circulars of April 18 and May 2 of this year were issued, it was the hope of the American Master Mechanics' Association and the Master Car Builders' Association that the national crisis would have been passed before convention time, 1918, and that they could hold their annual

conventions, in conjunction with our exhibition, at that time.

"The crisis has not passed. The pressure upon railroad men is greater than ever before, and during the coming year there is greater reason for conservation of their time and energies, as well as ours, than in the year just closing. Therefore, unless conditions change very materially and very soon, which does not look probable, there will be no railroad convention, nor any exhibition by our association, in 1918.

"Should there be a change in the situation that would warrant the railroad associations having a convention, and our association holding an exhibition, in connection therewith, your committee has made such arrangements as will permit full activities to be renewed by our association on short notice.

"As there seems to be no machinery provided to relieve the present officers and members of the executive committee from their duties, and as all have signified their willingness to continue, the personnel of your officers and executive committee will remain the same, for the present, at least."

Southern Railway Supply Market Slowing Up

Some Lines, Such as Car Heaters, Jacks, Fare Registers and Trolley Catchers, Show Considerable Activity with Advancing Prices

The general situation with regard to the market for electric railway supplies remains unchanged as compared to November. Information obtained from various sources in the South indicates that no larger purchases are being made and material is bought only in quantities to take care of normal upkeep and maintenance. A number of the larger companies are taking more interest in the operating results secured for the "one-man frequent service cars." There is no doubt but that the necessary funds could be obtained, even in the face of present conditions, if some of these companies could be convinced that these cars are past the experimental stage and suitable for certain routes.

The demand for wheels continues fairly steady, all companies buying on contract, and ordering only for current needs. Car seats are comparatively listless outside of orders on new equipment. There is very little call for Agasote.

The demand for overhead material is comparatively light and very little business has been done in trolley hangers, ears, or insulators during the past month. There has been no advance in porcelain insulators within the last few months, but deliveries show no signs of improvement. Some activity was noted in car heaters last month in the face of a 15 per cent advance. A few substantial orders were placed for jacks recently, and this line in general continues pretty strong, although the price advanced 10 per cent recently and shipments are growing worse, at least so far as the Southern district is concerned.

Headlights have advanced about 40 per cent within the past twelve months, but shipments are being made from ten to fifteen days and a fair business is noted. Bond requirements have dropped off, with a price reduction of 5 per cent. No trouble is being experienced in deliveries. There is very little activity in gears and pinions. The "light-weight frequent service car" being placed in the South has tended to stimulate the sale of fare registers. Deliveries are very prompt. Trolley catchers remain active, with three to five weeks shipment promise. This line also advanced 10 per cent within the last month.

On the whole, it can be stated that electric railway work in the South is slowing up, with the exception of a few isolated cases of extensions and much needed repairs.

Meaning of Transportation Priority Order No. 5

No "House That Jack Built" Materials of Manufacture Priorities Permitted Under Latest Government Order

Some confusion has arisen in the trades over the exact meaning and application of Priority Order No. 5, issued by Judge R. S. Lovett's committee. This order provides for five different classes of transportation priority and went into effect on Dec. 12. The order gives preference in car supply and movement, (1) to coal for current use of railroads, (2) to food and perishable freight, (3) to military supplies and government shipbuilding material, (4) to coal for by-product coking plants, and (5) to coal for domestic and institutional purposes and to coal and raw materials for blast furnaces, foundries, iron and steel mills, smelters, manufacturers engaged in work for the government or its allies, public utilities, flour mills, sugar factories, fertilizer plants and shipbuilders, besides shipment of paper, petroleum and petroleum products.

These priorities are now automatic, and any manufacturer by satisfying the local railroad agent that his products come under one of the five heads can secure, if at all available, quick and adequate transportation of his goods. The railroads can issue no embargoes on any of the items enumerated in Order No. 5 unless the matter is first taken up with the priorities commission and approved.

To a representative of the *ELECTRIC RAILWAY JOURNAL* it was stated last week in Washington that the committee on priorities believed it to be particularly important that manufacturers understand clearly the intended meaning of Section 5 of the order. The order says for "raw materials for current use but not for storage consigned direct . . . to manufacturers engaged in work for the United States government or its allies, public utilities," etc. By "raw materials" is meant anything necessary to the manufacture of the finished product.

It was definitely stated that the order was not meant to include those products which enter into the manufacture of what the order calls "raw materials." Thus a wire manufacturer could expect priority shipments of wire rods, rubber, etc., but the rod manufacturer could not, on the basis of this contract, under Priority Order No. 5, expect priority transportation of his raw materials. What the committee has tried to accomplish in this connection is to eliminate the "house that Jack built" class of priorities.

Shipments under the five classes listed take up, it is understood, about 50 per cent of available transportation. The remaining facilities are at the disposal of all other commodities in accordance with the roads' designations.

Railways Buying Armature and Coil-Winding Machines

Prices Have Advanced While Deliveries Continue Reasonably Satisfactory Under Existing Conditions

A much greater demand for armature and coil-winding machines is reported within a period of a year or two. This represents an increase of at least 25 per cent. Where these machines were not so frequently called for, now they are generally considered as an essential part of the railway equipment. A number of leading roads, where traffic conditions are exacting, have installed the heavy drive type with the best results.

Deliveries of these goods have been fair, and continue reasonably satisfactory under the present trying circumstances, as with other railway specialties. Prices have been advanced along with the rapid increase in the cost of material and factory operation. Skilled labor is hard to replace, and in common with other industrial activities, workmen are enticed by higher wages and shorter hours to the munition plants. These factors all figure in the production of armature and coil-winding machines.

Manufacturers of these specialties appear on the whole to

be provided with a sufficient stock of wire, but, as one producer stated, while in a pretty strong position in this respect, resulting from anticipating requirements, no further purchases of material are made than is absolutely necessary to complete imperative orders. It may be said, however, that there is a sufficient quantity of wire on hand to fill commitments accepted; but not much if any chance to accumulate stock. The uncertainties of the future make it rather difficult to anticipate material requirements, although in this respect the manufacturers declare they are no worse off than producing plants in other industries not engaged in governmental work.

Reasons Why Electrical Goods Are Not Higher

Economies in Manufacture, Due to Waste Elimination, Quantity Production and Modern Apparatus Help Prevent Prices Rising

That electrical supplies have not advanced to the same extent that basic materials and labor have increased is now well known and is often wondered at. The reason is not due entirely to any one cause but to a number of causes all of which tend toward one end—economy of production.

It probably costs considerably more to sell to-day than it did normally because of the heavy extras and special methods. Production costs per unit of output, however, have not risen so fast. For one thing, quantity production has helped to hold down unit costs; also, new methods and machinery have been devised to decrease labor costs. Utilization of what was formerly called waste is a third factor. It is doubtful whether the saving in this latter matter would formerly have been profitable or sufficiently so to warrant any great activity in that direction. Now it is different.

Indications Point to Longer Insulator Deliveries

Glass Insulators Have Increased in Price 15 Per Cent and Porcelain May Be Higher After First of the Year

Reports this week from the Middle West state that after a lull of about two months the market for suspension type insulators has become active, with inquiries originating from several sections of the country. It is thought by the manufacturers that a large part of the business is replacement work.

Deliveries of both pin and suspension types of insulators are generally at the present time on a two months' to three months' basis. Indications, however, are that if present inquiries result in orders, deliveries may go to a six months' basis on account of the fuel shortage in eastern Ohio and western Pennsylvania. Recent reports from the South state that porcelain insulator deliveries are in a bad shape and that no immediate improvement is in sight.

Glass insulators have advanced in price, an increase of 15 per cent having gone into effect on Dec. 1. Porcelain insulator prices are still unchanged but it would not be surprising to see an increase shortly after the first of the year. Fuel and labor have acted to curtail production besides increasing the cost.

ROLLING STOCK

New Orleans Railway & Light Company, New Orleans, La., is reported as contemplating the purchase of a number of double-truck cars.

Trenton & Mercer County Traction Corporation, Trenton, N. J., had five cars destroyed and five others damaged in a fire on Dec. 15. The loss to the company is estimated at \$65,000.

Northern Ohio Traction & Light Company, Akron, Ohio, has recently received a new locomotive from the General Electric Company, which will be used in the company's general freight business.

Brockton & Plymouth Street Railway, Plymouth, Mass., contemplates the purchase of ten cars.

Princeton (W. Va.) Power Company will probably negotiate for two trail cars in a short time.

Charleston (W. Va.) Interurban Railway is reported to be contemplating the purchase of new cars.

Madison (Wis.) Railways has just placed an order with the American Car Company, St. Louis, Mo., for five new safety cars.

Scioto Valley Traction Company, Columbus, Ohio, is reported to be in the market for ten cars, some of which are freight equipment.

Montreal & Southern Counties Railway, Montreal, Canada, contemplates purchasing two 50-ton locomotives and eight passenger cars during 1918.

Augusta-Aiken Railway & Electric Corporation, Augusta, Ga., has put in operation four new cars with a seating capacity of fifty-two passengers each.

Charleston Consolidated Railway & Lighting Company, Charleston, S. C., contemplates purchasing two double-truck motor cars and two double-truck trailers and also five single-truck cars during 1918.

Indianapolis Traction & Terminal Company, Indianapolis, Ind., has placed an order with the Cincinnati Car Company for twenty-five new city cars. It is understood that construction work on these cars will not be begun until June, 1918.

TRADE NOTES

N. B. Payne has opened an office in the Havermeyer Building, 25 Church Street, New York, N. Y., as an electric crane specialist. He was formerly associated with Manning, Maxwell & Moore, Inc.

Holden & White, Inc., Chicago, Ill., have received an order from the Bangor Railway & Light Company, Bangor, Me., for a complete equipment of air rectifiers for all cars having air brakes and pneumatic control. The function of this device is to prevent the freezing of air line.

J. W. White has been appointed manager of the power and railway divisions of the Detroit (Mich.) office of the Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa. Mr. White was formerly connected with the Pittsburgh office of the company, subsequently becoming associated with the Allis-Chalmers Company, and has now returned to the Westinghouse Company.

Jeffrey-Dewitt Company, Detroit, Mich., manufacturer of high-tension insulators and other porcelain specialties, is erecting a new factory at Huntington, W. Va., for the exclusive manufacture of high-tension insulators. This factory will have a capacity of 500,000 units per annum and will be capable of further expansion. According to present plans, the factory will be started about April 15, 1918.

Anaconda Copper Mining Company, Great Falls, Mont., is erecting a rod and wire manufacturing plant, which is expected to be in operation in the spring. Its annual capacity on an eight-hour working-day basis will be 62,400,000 lb. of rods and 27,520,000 lb. of wire, and it will consume one-fifth of the output of the Anaconda company. The plant will cost more than \$500,000 and will mark the entry of the Anaconda into the manufacturing field. A brass manufactory is expected to be erected after the rod and wire mill is completed.

Bureau of Foreign & Domestic Commerce, Washington, D. C., has engaged J. W. Sanger to make an advertising survey of South America. The purpose of the bureau is to help American business men obtain the facts that will enable them to get and hold trade with South American countries. Mr. Sanger has already made a preliminary tour of the United States, meeting business men of all kinds, to determine the questions they want the survey to answer. Manufacturers who desire to receive Mr. Sanger's reports will be placed upon the mailing list by addressing such a request to the Bureau of Foreign and Domestic Commerce, Department of Commerce, Washington, D. C.

W. C. Lincoln has been appointed electrical engineer for the Railway Improvement Company, New York, N. Y., effective Dec. 1. For the last four years he has been connected with the General Electric Company in the Philadelphia district as commercial engineer, railway department. Mr. Lincoln is a graduate of Union University, and after graduation took the General Electric test course. Subsequently he was assigned to special railway work and later took up and completed the engineering extension course. Following this he was connected for some time with the consulting engineering department. From there he changed to the railway engineering department, where he remained until transferring to the Philadelphia position.

NEW ADVERTISING LITERATURE

Blaw-Knox Company, Pittsburgh, Pa.: A leaflet descriptive of its "Blaw" locking cableway carriages.

General Electric Company, Schenectady, N. Y.: Type FK-25 oil circuit breakers made by the company are illustrated and described in bulletin No. 47,471.

Sherman Service, Boston, Mass.: Pamphlet entitled "Industry, Society and the Human Element" descriptive of work which Sherman Service can do and instances of what it has done. One chapter is on preventive strike service and strike breaking service.

Walter A. Zelnicker Supply Company, St. Louis, Mo.: Bulletin 227, illustrated, for "The Man Behind the Dollar," in connection with rails, cars, trucks and miscellaneous railway equipment. Bulletin 231 is a gentle reminder of the capability of the Zelnicker organization to serve the trade in its special lines.

Bates Expanded Steel Truss Company, Chicago, Ill.: Has completed the preparation of "Bates Steel Pole Treatise," a revised edition of the company's catalog. It will be ready for free distribution on Jan. 1, 1918. This catalog contains not only illustrated descriptions of the company's products and processes, but also technical information regarding deflections, carrying capacities, etc., of Bates expanded steel poles of sizes from 4-in. to 8-in. sections and 20-ft. to 35-ft. lengths. Included is an account of the formation of an Italian company for the manufacture of these poles, which have been adopted by the Italian government for use on the state railroads.

NEW YORK METAL MARKET PRICES

	Dec. 12	Dec. 19
Prime Lake, cents per lb.	23 1/2	23 1/2
Electrolytic, cents per lb.	23 1/2	23 1/2
Copper wire base, cents per lb.	29	29
Lead, cents per lb.	6 1/2	6.40
Nickel, cents per lb.	50	50
Spelter, cents per lb.	7.77 1/2	7.75
Tin, Straits, cents per lb.	86	*85.50
Aluminum, 98 to 99 per cent, cents per lb.	36	36

OLD METAL PRICES—NEW YORK

	Dec. 12	Dec. 19
Heavy, copper, cents per lb.	22	22
Light copper, cents per lb.	19 1/2	19 1/2
Red brass, cents per lb.	17 1/2	17 1/2
Yellow brass, cents per lb.	14 1/2	14 1/2
Lead, heavy, cents per lb.	5 3/4	5 1/2
Zinc, cents per lb.	5 3/4	5
Steel car axles, Chicago, per net ton.	\$42.00	\$44.50
Old carwheels, Chicago, per gross ton.	\$31.00	\$32.50
Steel rails (scrap), Chicago, per gross ton.	\$34.50	\$34.50
Steel rails (relaying), Chicago, per gross ton.	\$55.00	\$55.00
Machine shop turnings, Chicago, per net ton.	\$17.50	\$17.25

RAILWAY MATERIALS

	Dec. 12	Dec. 19
Rubber-covered wire base, New York, cents per lb.	34	32-34
Rails, heavy, Bessemer, Pittsburgh.	\$38.00	\$38.00
Rails, heavy, O. H. Pittsburgh, per gross ton.	\$40.00	\$40.00
Wire nails, Pittsburgh, per 100 lb.	\$3.50	\$3.50
Railroad spikes, 9/16 in., Pittsburgh, per 100 lb.	\$5.50	\$5.50
Steel bars, Pittsburgh, per 100 lb.	\$5.00	\$5.00
Sheet iron, black (24 gage), Pittsburgh, per 100 lb.	\$5.80	\$5.80
Sheet iron, galvanized (24 gage), Pittsburgh, per 100 lb.	\$4.85	\$4.85
Galvanized barbed wire, Pittsburgh, cents per lb.	\$4.35	\$4.35
Galvanized wire, ordinary, Pittsburgh, cents per lb.	\$3.95	\$3.95
Cement (carload lots), New York, per bbl.	\$2.22	\$2.22
Cement (carload lots), Chicago, per bbl.	\$2.31	\$2.31
Cement (carload lots), Seattle, per bbl.	\$2.65	\$2.65
Linseed oil (raw, 5 bbl. lots), New York, per gal.	\$1.21	\$1.23
Linseed oil (boiled, 5 bbl. lots), New York, per gal.	\$1.22	\$1.24
White lead (100 lb. keg), New York, cents per gal.	10	10
Turpentine (bbl. lots), New York, cents per gal.	48 1/2	47 1/2

*None offering.